TONKMETER RESOURCE FACILITY

REPORT

Draft Basic Assessment Report for Comment in support of the Tonkmeter Resource Facility Waste Management Activity Application

Tonkmeter (Pty) Ltd

REF NUMBER:

Gaut: 006/24-25/W0001

EcoPartners

DRAFT BASIC ASSESSMENT

REPORT FOR COMMENT

COMPILED IN TERMS OF SECTION 20 OF THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT (ACT 59 OF 2008)

Prepared for

TONKMETER (PTY) LTD

21 OCTOBER 2026

Prepared by



REPORT NR: 2607ECPTMR02

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Disclaimer	This disclaimer stipulates the use of this report. This report was compiled as part of the submission for an application related to the listed activities mentioned in the report. This report is made available to registered Interested and Affected Parties (I&APs), stakeholders and the Competent Authority for comment. The scope and content of this report is compiled based on the requirements specified in the Environmental Impact Assessment regulations, 2014 as amended in 2017. The contents of this report present the location of activities on site, the policy and legislative context within which the activity is located, as well as the need and desirability of the activity. It describes the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment; and identifies the possible impacts to be assessed during the impact phase. Suitable measures to avoid, manage or mitigate identified impacts and the residual risks that need to be managed and monitored, are proposed and will further be evaluated during the impact phase. Information contained in this report is based on data supplied by the applicant & specialists. Data supplied by the applicant or other external sources is assumed to be correct unless otherwise stated. No responsibility is accepted by EcoPartners for incomplete or inaccurate data supplied by others. EcoPartners will not be liable to the reader in respect of any losses arising out of any event or events beyond it's reasonable control. EcoPartners will not be liable to the applicant or reader in respect of any business losses, including without limitation loss of or damage to profits, income, revenue, use, production, anticipated savings, business, contracts, commercial opportunities or goodwill. This report can only be used for its intended purpose, and only applies to the area specified, as well as the activities specified. EcoPartners will not be held liable for the use of this report for any other purpose but its intended purpose	

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Revision History

Revision Number	Date	Comment
01	2 November 2026	Document for Comment

EXECUTIVE SUMMARY

Background

Tonkmeter (Pty) Ltd holds the Integrated Environmental Authorisation (IEA) for the Tonkmeter Resource Facility (TRF), a privately owned Class B general waste landfill and materials recovery facility on the Remaining Extent of Portion 81 of the Farm Rietfontein 128 IR, Springs, in the City of Ekurhuleni. The IEA was issued on 29 September 2017 and transferred to Tonkmeter (Pty) Ltd in June 2024 (GDARD, 2017; GDARD, 2024a). The facility lies next to the municipal Rietfontein landfill, at the corner of Coaton Avenue and Tonk Meter Road, Springs, south of the N17. Landfilling started in Cell 1 of Area E in January 2025, and a materials recovery facility (MRF) pilot started in July 2026.

The application

This Basic Assessment Report supports an application to apply for additional listed activities under a Waste Management Licence, in terms of Category A, Activity 13 of GN 921 (the expansion of a waste management activity). The application seeks to:

a) increase the final height of Area E from 1 m to 25 m above natural ground level, within the authorised and lined footprint, with a total waste depth of about 40 m and final side slopes of 1:3;
b) broaden the waste types accepted on the Class B liner to general waste streams that are permissible for disposal under the landfill norms and standards;
c) amend several operating conditions of the IEA and the commitments of the EMPr; and
d) clear vegetation for the expansion of the MRF inside the facility boundary.

The height increase does not enlarge the footprint of Area E or the facility. It extends the operating life of Area E from about 39 to 77 years at 7 500 tonnes/month, or from about 19 to 39 years at 15 000 tonnes/month (Mafusire, 2026, Table 1-1). Areas D and F are not part of this application.

Specialist studies

The assessment draws on specialist studies of vegetation, visual impact, climate change, air quality, dolomite stability and stormwater, on the detail design report for Area E, and on groundwater monitoring results and a specialist groundwater workshop. The original

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geotechnical, geohydrological and biodiversity studies for the 2017 authorisation were also used.

Key findings

Of the 58 impacts assessed, 54 are negative, and four are positive. With the mitigation in the EMPr, 49 of the negative impacts are Low or Negligible, and none are High or Extreme. The impacts that remain above Low are the contribution to climate change, dust and hydrogen sulphide (Medium), and the visual intrusion of the raised landform and post-closure landfill methane (Medium to High). The climate change and air quality specialists identified no fatal flaw (Brugman, 2026; Mafusire, 2026). The four positive impacts, all rated Medium, are additional regional disposal capacity, retained jobs and local procurement, reduced leachate through progressive capping, and the removal of alien and invasive plants.

The proposed MRF expansion site is mapped as a Critical Biodiversity Area, but ground-truthing found the vegetation completely transformed and of Very Low site ecological importance (Venter, 2026). The site lies in Zone 1 of the Gauteng Provincial Environmental Management Framework. Groundwater is protected by the prescribed Class B barrier and by monitoring; changes recorded at two detection boreholes are being investigated, and the monitoring network will be extended before each new cell receives waste.

Alternatives

Alternative locations, an intermediate height and other options were considered and screened out (Section A.3). Under the no-go alternative, the facility would continue to operate at 1 m above ground in Areas D, E and F. The raised landform and the incremental greenhouse gas emissions at this facility would be avoided, but Areas D and F would have to be developed sooner or the waste would go to other regional landfills, and the MRF expansion would not proceed.

Need and desirability

Developed landfill airspace in the City of Ekurhuleni is diminishing faster than expected, and the adjacent Rietfontein landfill is approaching the end of its life. The proposal adds long-term capacity at an existing, lined and managed site, makes better use of authorised infrastructure, defers the cost and lead time of developing new cells, and supports the recovery of recyclables (Ekurhuleni Metropolitan Municipality, 2025).

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Conclusion and recommendation

The EAP concludes that the impacts of the proposal are acceptable, provided the mitigation in the EMPr is implemented, and recommends that the application be authorised subject to the conditions in Section E.8. These include landfill gas collection and flaring, binding dust and daily-cover measures, extension of the groundwater monitoring network, progressive capping and greening of the landform, and an updated closure plan and financial provision.

This draft report is made available to interested and affected parties, organs of state and the competent authority for comment. Comments received will be considered and addressed in the final Basic Assessment Report.

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GAUTENG PROVINCE
ENVIRONMENT
REPUBLIC OF SOUTH AFRICA

Basic Assessment Report in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended, and the Environmental Impact Assessment Regulations, 2014 (2025 VERSION 1)

Kindly note that:

1. This **Basic Assessment Report** is the standard report required by the Gauteng Department of Environment in terms of the EIA Regulations, 2014.
2. This application form is current as of April 2025. It is the applicant's responsibility to check for any updated versions published by the competent authority.
3. A draft Basic Assessment Report must be submitted, for purposes of comments within a period of thirty (30) days, to all State Departments administering a law relating to a matter likely to be affected by the activity to be undertaken.
4. **A draft Basic Assessment Report must be submitted, for purposes of comments within thirty (30) days, to a Competent Authority (uploaded to the EIA online system) empowered in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998), as amended to consider and decide on the application. The EIA online system can be accessed at https://eia.gauteng.gov.za.**
5. **A copy (PDF) of the final report and attachments must be uploaded to the EIA online system. The EIA online system can be accessed at https://eia.gauteng.gov.za.**
6. **Draft and final reports submitted in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) must be emailed to environmentsue@gauteng.gov.za.**
7. The report must be typed within the spaces provided in the form. The size of the spaces provided is not necessarily indicative of the amount of information to be provided. The report is in the form of a table that can extend itself as each space is filled with typing.
8. Selected boxes must be indicated by a cross and, when the form is completed electronically, must also be highlighted.
9. An incomplete report may lead to an application for environmental authorisation, or a Waste Management License being refused.
10. Any report that does not contain a titled and dated full-colour large-scale layout plan of the proposed activities including a coherent legend, overlain with the sensitivities found on site may lead to an application for environmental authorisation or a Waste Management License being refused.
11. The use of “not applicable” in the report must be done with circumspection because if it is used for material information that is required by the competent authority for assessing the application, it may result in the application for environmental authorisation or Waste Management License being refused.
12. The applicant must fill in all relevant sections of this form. Incomplete applications will not be processed. The applicant will be notified of the missing information in the acknowledgement letter that will be sent within 10 days of receipt of the application.
13. Unless protected by law, and indicated as such, all information filled in on this application will become public information on receipt by the competent authority. The applicant/EAP must provide any interested and affected party with the information contained in this application on request, during any stage of the application process.
14. Although pre-application meetings with the Competent Authority is optional, applicants are advised to have these meetings before submission of the application to seek guidance from the Competent Authority.
15. **Please note that your submission will be acknowledged within 10 days of receipt. If you do not receive an acknowledgement from the Department within this period, kindly follow up using our central email address: environmentenquiries@gauteng.gov.za**

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DEPARTMENTAL DETAILS

Gauteng Department of Environment
Attention: Environmental Support Services of the Environmental Branch
P.O. Box 8769
Johannesburg
2000
Ground floor, Umnotho House, 56 Eloff Street, Johannesburg
Department central telephone number: (011) 240 2500
Email: ENVIRONMENTSUE@gauteng.gov.za or environmentenquiries@gauteng.gov.za

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NEAS Reference Number:	
File Reference Number:	
Application Number:	
Date Received:	

If this BAR has not been submitted within 90 days of receipt of the application by the competent authority and permission was not requested to submit within 140 days, please indicate the reasons for not submitting within time frame.

Not Applicable

Is a closure plan applicable for this application and has it been included in this report? No

if not, state reasons for not including the closure plan.

It is a separate listed activity

Has a draft report for this application been submitted to a competent authority and all State Departments administering a law relating to a matter likely to be affected as a result of this activity? Y

Is a list of the State Departments referred to above attached to this report including their full contact details and contact person? Yes

If no, state reasons for not attaching the list.

Have State Departments including the competent authority commented? N/A

If no, why?

This is the draft report for comment

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SECTION A: ACTIVITY INFORMATION

1 PROPOSAL OR DEVELOPMENT DESCRIPTION

1.1 PROJECT TITLE:

Tonkmeter Resource Facility – Proposed Extension of the Final Landfill-Cell Height, Area E, City of Ekurhuleni.

Select the appropriate box

The application is for an upgrade of an existing development		The application is for a new development		Other, specify	

1.1.1 NATURE OF APPLICATION:

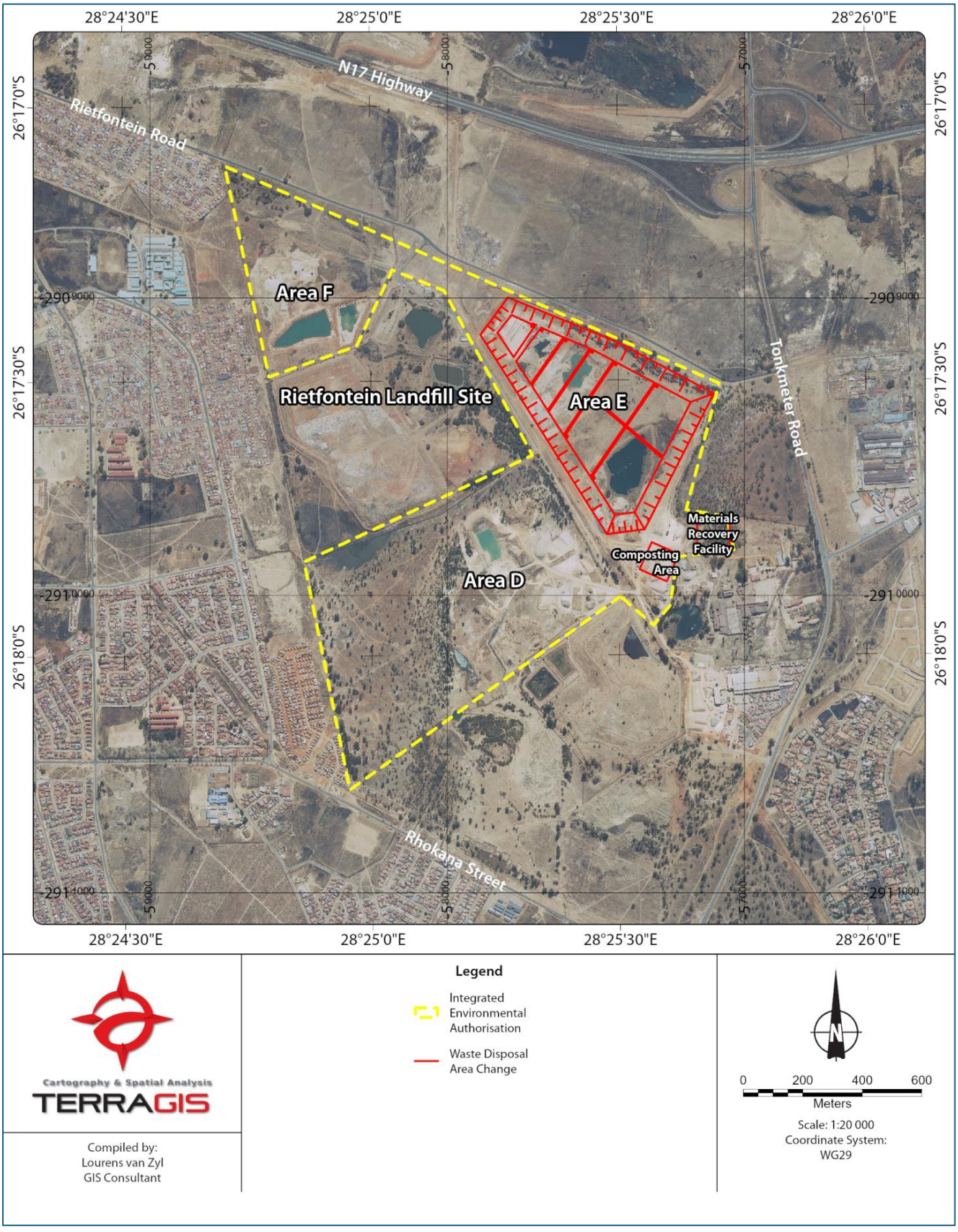
The Tonkmeter Resource Facility (TRF) was authorised for development as a privately-owned Class B waste disposal and materials recovery facility, utilising previously mined and disturbed clay quarry voids, together with future clay-mining areas, as sequentially lined landfill cells (GDARD, 2017). The IEA was first issued to Vereeniging Refractories (Pty) Ltd on 29 September 2017 and the WML/IEA holder was changed to Tonkmeter (Pty) Ltd on 18 June 2024 (GDARD, 2017; GDARD, 2024a).

a) **Licence register number**: Gaut: 002/11-12/W0016 & Gaut 002/11-12/E0228
b) **Amended Licence register number**: Gaut: 006/24-25/W0001
c) **Norms & Standards Reference number for storage as well as sorting, shredding, grinding, screening, and baling of general waste**: HWSD/24-25/0069

The table below lists the activities that are authorised for the Tonkmeter Resource Facility (TRF) under the 2017 Integrated Environmental Authorisation (IEA) and 2024 Norms and Standards Registration. The table compares the waste management and environmental impact assessment "listed activities" under which the 2017 Integrated Environmental Authorisation (IEA) was granted against the current (October 2026) wording of the equivalent provisions in Government Notice R921 (National Environmental Management: Waste Act listed activities) and Government Notice R985 (NEMA EIA Regulations Listing Notice 3 of 2014), each as amended to date. The purpose is to identify whether, and to what extent, the regulatory basis for the original authorisation has since been repealed, amended, or re-categorised, which is directly relevant to any application to extend the height of Area E of the landfill, as such extension will itself constitute a new listed activity subject to the activities list current at the time of that application (not the activities list in force in 2017).

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Figure 1: Tonkmeter Resource Facility Layout



Source: Google Earth. Peter Legg Design Report 2016

Table 1: Tonkmeter IEA authorised activities

Category	Original Activity No.	Activity as Authorised (2017 IEA)	Current Activity Description (as at October 2026)
GN R921 (NEMWA) Category A	**A3(2)**	"The sorting, shredding, grinding, crushing, screening or bailing of general waste at a facility that has an operational area in excess of 1000m²."	REPEALED. Deleted from Category A by GN 1094 (GG 41175, 11 October 2017). The same physical operation is now listed under Category C, Activity 5(6): "The sorting, shredding, grinding, crushing, screening or baling of general waste at a waste facility that has an operational area that is 1 000m² and more" — subject to compliance with the National Norms and Standards for the Sorting, Shredding, Grinding, Crushing, Screening or Baling of General Waste, 2017 (GN 1094), not a full WML Basic Assessment.
GN R921 (NEMWA) Category A	**A3(3)**	"The recycling of general waste at a facility that has an operational area in excess of 500m², excluding recycling that takes place as an integral part of an internal manufacturing process within the same premises."	UNCHANGED. Same activity number and wording in the current consolidated GN R921 (as amended by GN 332/2014, GN R633/2015, GN 1094/2017 and GN 1757/2022).
GN R921 (NEMWA) Category A	**A3(12)**	"The construction of a facility for a waste management activity listed in Category A of this Schedule (not in isolation to associated waste management activity)."	UNCHANGED. Same numbering and wording in the current consolidated list.
GN R921 (NEMWA) Category B	**B4(8)**	"The disposal of general waste to land covering an area in excess of 200m² and with a total capacity exceeding 25 000 tons."	UNCHANGED. Same numbering and wording in the current consolidated list.
GN R921 (NEMWA) Category B	**B4(10)**	"The construction of a facility for a waste management activity listed in Category B of this Schedule (not in isolation to associated waste management activity)."	UNCHANGED. Same numbering and wording in the current consolidated list.
Norms & Standards (GN R921 Cat. C)	**Cat. C Activities 1 & 6**	Not separately cited as a listed activity in the 2017 IEA (the IEA authorised the sorting/shredding/baling operation under the now-repealed Category A	REGISTRATION CONFIRMED. The facility (trading as Tonk Meter Resource Facility) is registered with the Gauteng Department of Agriculture, Rural Development and Environment under

Category	Original Activity No.	Activity as Authorised (2017 IEA)	Current Activity Description (as at October 2026)
		Activity 3(2) only – see first row above).	Reference No. HWSD/24-25/0069, dated 5 November 2024, for Category C Activity 1 ("storage of general waste… in excess of 100m³… at any one time") and Category C Activity 6 ("sorting, shredding, grinding, crushing, screening or baling of general waste… operational area in excess of 1 000m²") under GN R921 as amended. The registration covers storage of approximately 60 000m³ and processing of approximately 260 000 tons per month of various general waste streams, within an operational area of approximately 80 000m², on Portion 81 of the Farm Rietfontein 128 IR.
Listing Notice 1 (GN R983)	**Activity 14**	"The development of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or not exceeding 500 cubic metres."	UNCHANGED. Directly verified against the current consolidated GN R983 (Listing Notice 1 of 2014), annotated "11 June 2021 – to date": "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" (Appendix 1, Activity 14). No amendment note is attached to this item in the consolidated text, indicating it has not been substantively amended since the original 2014 Notice.
Listing Notice 2 (GN R984)	**Activity 15**	"The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for – (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan."	UNCHANGED. Directly verified against the current consolidated GN R984 (Listing Notice 2 of 2014), annotated "11 June 2021 – to date": "The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for – (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan" (Appendix 1, Activity 15). No amendment

Dra

Category	Original Activity No.	Activity as Authorised (2017 IEA)	Current Activity Description (as at October 2026)
			note is attached to this item in the consolidated text.
Listing Notice 3 (GN R985)	**Activity 4 (Gauteng)**	"The development of a road wider than 4 metres with a reserve less than 13.5 metres. In Gauteng: Sensitive areas identified in an environmental management framework adopted by relevant environmental authority."	SUBSTANTIALLY UNCHANGED in core description — "The development of a road wider than 4 metres with a reserve less than 13,5 metres" is identical in the current consolidated GN R985 (as amended to 11 June 2021). However, the Gauteng geographical trigger list has been EXPANDED: it now includes twelve listed triggers (i)–(xii) for areas outside urban areas and three for areas inside urban areas, compared with the narrower "sensitive areas identified in an EMF" trigger referenced in the 2017 EA extract. Notably, trigger (vii) – "Sites identified as high potential agricultural land in terms of the Gauteng Agricultural Potential Atlas" – was added and was not part of the original cited wording.
Listing Notice 3 (GN R985)	**Activity 10 (Gauteng)**	"The development of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. In Gauteng: Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority."	SUBSTANTIALLY UNCHANGED. The current consolidated GN R985 (amended to 11 June 2021) retains Activity 10 with identical wording: "The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres." The description now expressly includes "related operation" alongside "development" (a clarifying, not substantive, addition). The Gauteng trigger list for this activity has also been expanded in the same manner as Activity 4 above (now including biodiversity, IBA, and other sites in addition to EMF-designated sensitive areas).

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The application relates to the following:

a) To amend the landfill final height for Area E.

b) To amend the types of waste that may be accepted and disposed of on the Class B liner.

c) To amend conditions of the IEA that are either not applicable or should be amended to clarify the intention of conditions.

d) To amend the Environmental Management Programme (EMPr) to remove / amend commitments made that are not applicable and to be in line with the amendments proposed in bullets a) to c) above.

e) To clear vegetation on an area proposed for the expansion of the MRF.

These amendments trigger a waste management listed activity and the application seeks authorisation of Category A Activity 13 – "*The expansion of a waste management activity listed in Category A or B of this Schedule which* ***does not trigger*** *an additional waste management activity in terms of this Schedule*" as listed in Government Notice 921 of 29 November 2013. *(Own emphasis)*

Expansion is defined in GN 921 as: "*expansion means the modification, extension, alteration or upgrading of a facility, structure or infrastructure at which a waste management activity takes place in such a manner that the capacity of the facility* ***or the volume of waste*** *recycled, used, treated, processed or* ***disposed of is increased****." (Own emphasis)*

The application also includes clearing the vegetation on a portion of the facility for possible future expansion of the Materials Recovery Facility (MRF). The proposed future expansion site lies inside the facility boundary but outside Area E, east of the contaminated stormwater dam, west of a solar PV installation and north-west of the site offices and is authorized under the National Norms and Standards registration (HWSD/24-25/0069). The proposed MRF expansion site is mapped as Critical Biodiversity Area 1 in the Gauteng C-Plan 4 and lies within the Endangered Tsakane Clay Grassland vegetation type. Therefore Activity 12 of Listing Notice 3 of 9GN 985 as amended may be applicable:

"The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. (c. Gauteng: i. Within any critically endangered or ***endangered ecosystem*** *listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within* ***Critical Biodiversity Areas*** *or Ecological Support Areas*

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identified in the Gauteng Conservation Plan or bioregional plans; or iii. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning." (Own emphasis)

Whether this activity applies depends on whether the area supports the classification in terms of Gauteng C-Plan 4 and the ecosystem status. This was tested through ground-truthing by the vegetation specialist, who found the vegetation completely transformed, dominated by alien and invasive species and of Very Low site ecological importance (Venter, 2026, pp. 19–21).

1.1.2 Expansion of Area E

The expansion application relates to the proposed height increase of Area E from 1 meter above natural ground level to 25 meters above natural ground level. Area D and Area F are not part of this application and would remain limited to 1 meter above natural ground level unless changed by a separate, future application.

No new permanent buildings or infrastructure are proposed as part of this application; the site infrastructure described in Section D Paragraph 1.1.1 is already built, already approved, or already shown on the facility's approved general arrangement drawing (Peter Legg Consulting, 2026).

Area E will be developed in phases. The current, first phase (Phase 1A) comprises an already-operating first cell (Cell 1) together with seven further cells (Cells 2 to 8) planned within Area E, as shown on the facility's general arrangement drawing (Peter Legg Consulting, 2026).

Area E was the first part of the facility to be developed, and Cell 1 is already built, lined and receiving waste. The lining system already in place includes a sealed base layer, a leak-detection layer, and a leachate collection system that carries liquid draining from the waste to storage; the leachate is tested and treated before it is discharged off-site, with only limited temporary storage kept on site (Peter Legg Consulting, 2016). This application would not change any of that existing lining or drainage system. It would change only how high the waste may be built up within Area E, and the final shape, capping and closure design used once that height is reached.

The application is for an upgrade of an existing development — an increase in the authorised final height of the authorised landfill cells in Area E, of which Cell 1 has been constructed and lined, from 1 m to 25 m above natural ground level. This application does not propose any change to the size, boundary, or location of the facility. The expansion relates only to Area E and does not extend the footprint of Area E either — only its height (Tonkmeter pers. comm., 2026). Normal, periodic construction of the remaining, already-planned cells within Area E (Cells 2 to 8, using a dozer, tipper trucks, a grader, water cart, and similar earthmoving equipment) would continue as it does now.

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Two scenarios in terms of future waste volume throughputs have been considered for this application (refer Table 2). Depending on which throughput scenario applies, the amended, 25 m Area E landform is expected to extend the facility's whole-site operating life to between about 63 and 126 years, and Area E's own operating life to between 39 and 77 years.

Table 2: Operating life estimates, by scenario

Extent	7 500 tonnes/month scenario	15 000 tonnes/month scenario
Whole facility, without the Area E height increase	About 87 years	About 44 years
Whole facility, with the Area E height increase to 25 m	About 126 years	About 63 years
Area E only, without the height increase	About 39 years	About 19 years
Area E only, with the height increase to 25 m	About 77 years	About 39 years

Source: Mafusire, 2026, Table 1-1

Two cells were developed and lined initially. Disposal started in Cell 1, and Cell 2 will act as a contaminated water buffer pond. Water from Cell 2 will be pumped to the contaminated water pond near the site entrance. When landfilling in Cell 1 approaches its final height, Cell 3 will be constructed, and Cell 2 will be landfilled. Cell 3 will then act as the contaminated water buffer pond. The same sequence will be repeated for subsequent cells; refer Figure 1 (Peter Legg Consulting, 2026).

New cells are therefore built as airspace is used up, not on fixed dates, and the height increase defers the point at which Cell 1 reaches final height and the next cell is needed. If the eight cells were of similar capacity, the Area E life of about 39 years at 15 000 tonnes/month or 77 years at 7 500 tonnes/month would mean a new cell roughly every five to ten years (calculated from table 2 - note the cells differ in size, so this is indicative only).

Waste is placed and compacted in layers, and each layer is covered with soil daily. Once the waste body reaches natural ground level, disposal will continue upwards (land-building) to a maximum of about 25 m above natural ground level. The total waste depth will be about 40 m. The outer slopes will be constructed at 1:3 (V:H), and the top surface will be graded at not less than 1:50 (Peter Legg Consulting, 2026). The landfill will be raised progressively, cell by cell. Each section will be shaped and capped once it reaches final height, rather than the full height being reached at once.

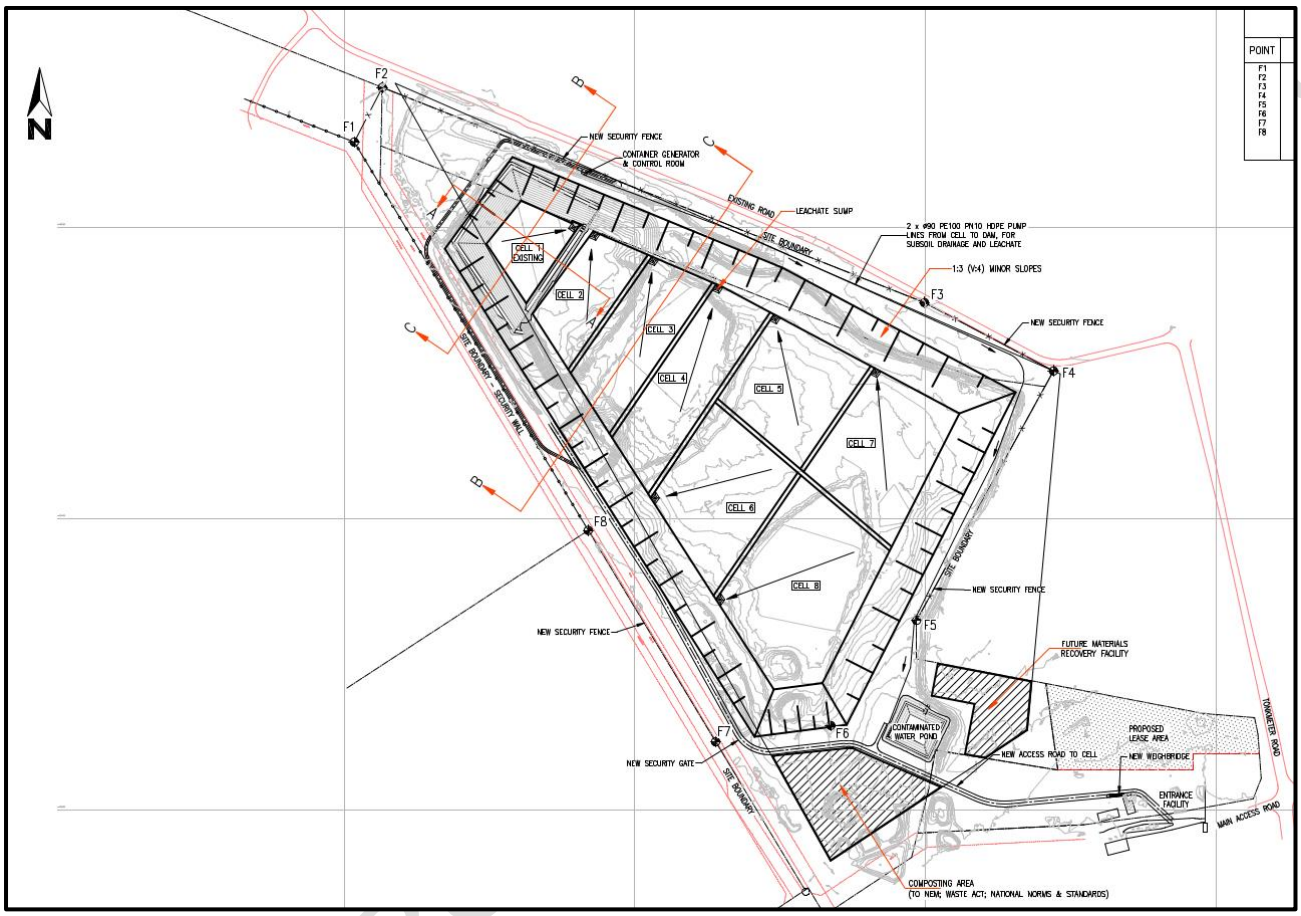
It is recommended that with the development of each new cell, the following be determined and provided to the authorities for approval:

a) slope stability using laboratory-tested interface strengths;

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b) the clay liner substitute's compatibility with the waste;
c) leachate and contaminated-water pumping and storage sized to the stormwater plan;
d) the quality assurance plan for that cell; and
e) the groundwater monitoring boreholes for that cell.

Figure 2: Area E Development



Source: Tonkmeter Resource Facility Layout (Peter Legg, 2026)

1.1.2.1 Area E Final landform

Once Area E reaches its final, increased height, it will be capped and rehabilitated as follows, based on the facility's detailed final-landform design (Peter Legg Consulting, 2026):

- On the top plateau: a 300 mm layer of cover soil and grass, over a drainage geocomposite layer, over a 1.5 mm HDPE geomembrane liner, over two 150 mm layers of low-permeability soil, with radial gas drains running out from the gas wells through stone-filled trenches wrapped in a non-woven geotextile; and

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- On the lower side slopes: a biodegradable erosion-protection blanket over a 300 mm layer of cover soil, over a drainage geocomposite layer, over a sandy soil levelling and gas-drainage layer.

The final landform itself is designed with side slopes no steeper than 1 vertical to 3 horizontal, broken up by 5 m wide benches, with contour drains and down-chutes provided at least every 100 m to safely manage rainwater running off the capped surface. A detailed closure design will be submitted for approval before any part of Area E is capped (Peter Legg Consulting, 2026).

1.1.3 WASTE TYPES

Conditions 4.1(c) and 4.7.5(a) of the Integrated Environmental Authorisation (IEA) currently restrict the waste that may be accepted for disposal at the Tonkmeter landfill to non-recyclable general municipal waste.

The applicant proposes to amend Conditions 4.1(c) and 4.7.5(a) to allow the facility to accept, in addition to the currently authorised non-recyclable general municipal waste, additional general waste streams that are permissible for disposal in accordance with the applicable landfill containment requirements.

The proposed amendments to the conditions are:

Condition 4.1(c): "*The proposed Class B waste disposal site will allow the disposal of non-recyclable general municipal waste and additional general waste streams that are permissible for disposal in accordance with the applicable landfill containment requirements prescribed in terms of the National Norms and Standards for Disposal of Waste to Landfill (GN R.636 of 2013).*"

Condition 4.7.5(a): "*The Tonkmeter landfill may accept and dispose of non-recyclable general municipal waste and additional general waste streams that are permissible for disposal in accordance with the applicable landfill containment requirements prescribed in terms of the National Norms and Standards for Disposal of Waste to Landfill (GN R.636 of 2013), the Waste Classification and Management Regulations (GN R.634 of 2013), the National Norms and Standards for Assessment of Waste for Landfill Disposal (GN R.635 of 2013), as amended, and any other applicable legislation.*"

The amendment seeks to align the authorised waste acceptance criteria with the applicable waste classification, assessment and landfill disposal requirements prescribed in terms of the relevant legislation and norms and standards. Waste acceptance will remain subject to the applicable legal requirements, the conditions of the Integrated Environmental Authorisation and Waste Management Licence, and the requirement that each waste stream be suitable for disposal within the containment

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standard provided at the facility. Waste streams requiring assessment must be supported by the necessary classification and assessment information before acceptance.

The table below indicates the proposed changes resulting from the amendment of the conditions.

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Table 3: Proposed changes resulting from the amendment of the conditions

Aspect	Existing authorisation/status quo	Proposed amendment/ change
Condition 4.1(c): Authorised waste streams	Restricts disposal to non-recyclable general municipal waste.	Allows non-recyclable general municipal waste and additional general waste streams that are legally permissible for disposal in accordance with the applicable landfill containment requirements.
Condition 4.7.5(a): Waste acceptance	Limits waste acceptance to non-recyclable general municipal waste.	Allows waste acceptance to include additional permissible general waste streams, subject to the applicable legislation, norms and standards, and authorisation conditions.
Scope of waste acceptance	The authorised waste streams are limited to non-recyclable general municipal waste.	The facility may accept a broader range of general waste streams, provided that each stream meets the applicable requirements for disposal at a Class B landfill.
Waste classification	Waste acceptance remains subject to the applicable legal requirements and existing authorisation conditions.	Waste must continue to comply with the Waste Classification and Management Regulations, 2013 (GN R.634 of 2013), and the applicable waste assessment requirements under GN R.635 of 2013.
Waste assessment and acceptance criteria	Waste must meet the applicable requirements for lawful disposal at the facility.	Waste streams requiring assessment must be assessed in accordance with the applicable criteria, including relevant total concentration (TC) and leachable concentration (LC) limits, to establish their suitability for disposal.
Landfill containment standard	The existing landfill cell has a designed and constructed Class B containment system.	The existing Class B containment standard remains unchanged. The amendment maintains the containment standard compatible with the facility's requirements.
Proposed increase in landfill height	The existing containment arrangements apply to the authorised landfill development.	The proposed engineering design provides for progressive lining of the sides of the existing mine void as waste placement proceeds vertically, maintaining the required containment barrier as the landfill is developed.
Waste generator / responsible party obligations	Applicable waste information and legal compliance requirements remain in force.	The waste generator or other responsible party must provide the classification, assessment and supporting information necessary to demonstrate that waste requiring assessment is suitable for disposal at the facility.
Other applicable legal requirements	The existing IEA, Waste Management Licence and applicable legislation remain binding.	Waste acceptance remains subject to the amended IEA, Waste Management Licence, GN R.634, GN R.635, GN R.636, as amended, and any other applicable legislation.
Environmental management and operational controls	Existing applicable authorisation conditions and operational controls remain in force.	No relaxation of existing applicable conditions or operational controls is proposed, except for the specific amendments to the permitted waste streams in Conditions 4.1(c) and 4.7.5(a).
Overall effect of the amendment	Waste acceptance is restricted to non-recyclable general municipal waste.	The waste acceptance framework is broadened to include legally permissible general waste streams, without changing the designed containment standard or removing the applicable classification, assessment and disposal controls.

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Waste streams presented in Table 4 are indicative examples and do not constitute an independent authorisation for acceptance of those wastes.

The facility will not accept waste that is prohibited from landfill disposal, waste that requires a containment standard higher than that authorised for the facility, or waste that does not comply with the applicable waste classification and landfill acceptance requirements.

Table 4: Indicative Waste Streams relevant to the proposed amendment

Waste stream	Examples	Regulatory consideration
Non-recyclable general municipal waste	Household residual waste, food waste, non-recyclable packaging, domestic textiles and similar municipal waste	Currently authorised waste stream.
Domestic waste	Household-generated general waste	A pre-classified general waste stream identified in GN R.636 for disposal at a Class B landfill, subject to the applicable requirements.
Business waste not containing hazardous waste or hazardous chemicals	General office waste, retail waste and similar non-hazardous business waste	May be accepted where it meets the applicable pre-classified waste requirements and does not contain hazardous waste or hazardous chemicals.
Garden waste	Grass, leaves, branches and other garden waste	A pre-classified general waste stream identified in GN R.636, subject to applicable requirements for the management and disposal of organic waste.
Non-infectious animal carcasses	Animal carcasses that meet the applicable regulatory definition	Identified as a pre-classified general waste stream in GN R.636, subject to the applicable requirements.
Other assessed general waste streams	Specific commercial or industrial general waste streams	Acceptance will be subject to the waste classification and assessment requirements of GN R.634 and GN R.635 and confirmation that the waste is permissible for disposal at the authorised containment standard.

Source: GN R.634, GN R.635 and GN R.636

1.1.4 AMENDMENT OF IEA CONDITIONS

The proposed amendment to the Integrated Environmental Authorisation (IEA) includes a number of amendments to existing conditions in addition to the proposed increase in the final landfill height and amendment of the authorised waste types. These amendments are required to ensure that the IEA accurately reflects the current approved and as-built status of the Tonkmeter Resource Facility, the proposed future development and operational requirements, the applicable legislative and regulatory framework, and current environmental management and monitoring practices. The amendments also seek to clarify or update conditions where the terminology or requirements contained in the existing IEA refer to superseded regulatory requirements, contain requirements that are no longer applicable to the facility, or require clarification to ensure that the conditions are practical

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and enforceable. The proposed amendments have been identified through a review of the existing IEA, the facility's current operational arrangements, previous compliance and audit findings, the as-built infrastructure and the requirements associated with the proposed amendment. Table 5 below summarises the existing conditions proposed for amendment, the motivation for each amendment and the proposed revised wording or approach.

Table 5: IEA conditions for which amendment are requested

Condition Number	Existing requirement	Reason for proposed amendment	Proposed amendment / revised requirement
4.1(b)	The integrated Environmental Authorisation is for the development and operation of a new, privately owned waste disposal facility and associated infrastructure at the remaining extent of Portion 81 of the Farm Rietfontein 128 IR, which will cover an area of approximately 108 hectares in extent with an estimated airspace below ground for the landfill of approximately 13.7 million cubic meters with the final cell height of 1m above ground level.	To correct the property description, landfill height, and airspace.	The integrated Environmental Authorisation is for the development and operation of a new, privately owned waste disposal facility and associated infrastructure at the remaining extent of Portion 81 of the Farm Rietfontein 128 IR (subdivided into Portions 222,223,224) which will cover an area of approximately 108 hectares in extent with an estimated airspace below ground for the landfill of approximately 13.7 million cubic meters with the final cell height of Areas D and F of 1m above ground level and of Area E of 25 m above ground level.
4.1(c)	The proposed Class B waste disposal site will allow the disposal of only non-recyclable general municipal waste.	Expand on wastes authorised for disposal.	The proposed Class B waste disposal site will allow the disposal of non-recyclable general municipal waste and additional general waste streams that are permissible for disposal in accordance with the applicable landfill containment requirements prescribed in terms of the National Norms and Standards for Disposal of Waste to Landfill (GN R.636 of 2013).
4.1(d)	The final revised Environmental Management Programme (EMPr) attached to the final Environmental Impact Assessment Report (EIAR) dated 12 January 2017 as Appendix 3 is hereby approved	To refer to the new EMPr that will be compiled and submitted with this application.	The updated Environmental Management Programme (EMPr) attached to the final Environmental Impact Assessment Report (EIAR) dated [2026] as Appendix 3 is hereby approved
4.2 (l)	Tonkmeter must ensure that the maximum height of the disposal site does not exceed 1 m above ground level after rehabilitation in	To reflect new height being applied for.	Tonkmeter must ensure that the maximum height for landfill cells in Area E do not exceed 25 m above ground level and landfill cells in

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Condition Number	Existing requirement	Reason for proposed amendment	Proposed amendment / revised requirement
	order to mitigate air quality impacts as outlined in the Air Quality/ Atmospheric Impact Report conducted by Raylene Watson dated 22 April 2013.		Areas D and F do not exceed 1 m above ground level after rehabilitation.
4.4(a)	Tonkmeter must ensure that the Material Recovery Facility (MRF) is constructed in accordance with the layout-plan and elevation as outlined in figure 3-7 and figure 3-8 of the final revised EIAR dated 13 January 2017	The MRF pilot programme is operating out of existing buildings. Expansion of the MRF is expected.	The development and expansion of the MRF to be constructed according to a layout plan and on an area (elevation) approved by the Licensing Authority.
4.7.1 (a)	The activities must be managed and operated:		
	i. According to the Minimum Requirements for Waste Disposal by Landfill, Second Edition 1998 DWAF (MR)	Clarify need for / or change as the Norms and Standards replaced the Minimum Requirements	i. According to the Waste Classification and Management Regulations, 2013 as amended,
4.7.4 (a)	Tonkmeter must ensure that the construction of access control is undertaken in terms of the recommendations outlined in the Traffic Impact Study dated 09 November 2012, which must be forwarded to City of Ekurhuleni for approval.	Existing access road is used.	Tonkmeter must use the existing entrance road as indicated and accepted during the construction completion meeting.
4.7.4 (g)	No visitors may enter the operational areas of the site unless in the presence of a competent (municipal official) employee	The License holder does not have competent municipal officials as employees.	No visitors may enter the operational areas of the site unless in the presence of an authorised company employee
4.7.5 (a)	The site may only accept municipal general waste	Expand on general waste types to be accepted.	The Tonkmeter landfill may accept and dispose of non-recyclable general municipal waste and additional general waste streams that are permissible for disposal in accordance with the applicable landfill containment requirements prescribed in terms of the National Norms and Standards for Disposal of Waste to Landfill (GN R.636 of 2013), the Waste Classification and Management Regulations (GN R.634 of 2013), the National Norms and Standards for Assessment of Waste for Landfill Disposal (GN R.635 of 2013), as amended, and any other applicable legislation.

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Condition Number	Existing requirement	Reason for proposed amendment	Proposed amendment / revised requirement
4.8 (b)	Tonkmeter must control wind-blown waste by picking up litter from fences and vegetation on a daily basis	It is not always necessary to pick up waste on a daily basis. Change to twice a week to still achieve intent of requirement.	Tonkmeter must inspect the perimeter fences, the access road and the vegetation around the working face at least twice a week, and remove any windblown litter found during each inspection. An additional inspection must be carried out on any day on which litter is seen blowing beyond the working face.
4.8 (f)	Tonkmeter must ensure that there is sufficient daily cover material to isolate the waste from the environment, for which a minimum thickness equivalent to the effective covering of 150mm of compacted soil or other approved cover material is applied.	Sufficient cover material is available. The Tonkmeter Operations plan requires for waste to be contained within the Daily Cell and enclosed with daily Cover Material with a minimum thickness of 100-mm by the end of any operational day, which is less than the thickness specified in the condition.	Tonkmeter must ensure that there is sufficient daily cover material to isolate the waste from the environment, for which a minimum thickness equivalent to the effective covering of between 100m and 150mm of compacted soil or other approved cover material is applied.
4.8 (g)	Waste outside the site must be collected on weekly basis to maintain level of cleanliness as outlined in the Gauteng Waste Collection Standards, 2010.	Litter outside of the site is picked up at regular intervals.	The area outside the site must be kept clear of waste and litter.
4.9 (a)	Waste disposal must be done in accordance with the relevant minimum requirements, site operation plan, the condition of this Integrated Environmental Authorisation and any other written instruction by the Department	Clarify the need to refer to minimum requirements. Change to Norms and Standards.	Waste disposal must be done in accordance with the Waste Classification and Management Regulations, the National Norms and Standards for Disposal of Waste to Landfill, the National Norms and Standards for the Assessment of Waste for Landfill Disposal, in terms of the site operation plan, the conditions of this Integrated Environmental Authorisation and any other written instruction by the Department. The relevant minimum requirements are to be used as an operational guideline.
4.9 (c)	Tonkmeter must make use of removable fences to control windblown waste	Litter nets have been shown to be ineffective. Waste is covered daily with all windblown waste collected by hand.	Tonkmeter must implement measures to control windblown waste.
4.10.1 (f)	Surface water monitoring must be performed in all storm water drains on and adjacent to the site at locations selected in	Runoff water from the landfill cells is managed in accordance with the stormwater management plan submitted in this	(i) Water in the contaminated water pond may only be discharged to the municipal sewer or the environment if it complies with the limits set in

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Condition Number	Existing requirement	Reason for proposed amendment	Proposed amendment / revised requirement
	conjunction with the Department and at such a frequency as determined by the Department	application. Contaminated water is contained in the Contaminated Water Pond and not released to the environment. Water in the CWP is analysed and only discharged if within allowable limits.	the municipal by-laws or in the applicable General Authorisation under the National Water Act, 1998. (ii) Clean stormwater pumped from the site must be sampled prior to release to stormwater drains.
4.12.2 (c)	Each external audit report referred to in condition 4.12.2 (b) above must be presented to the monitoring committee within **sixty (60) days** of the audit and further submitted together with meeting minutes to the Department within thirty **(30) days** from the date of the meeting	The requirement of presentation of the audit report within 60 days of the audit contradicts Condition 4.15(d), where the requirement for the meeting to be held is within 30 days of the external audit. Clarity from the Department is required.	Each external audit report referred to in condition 4.12.2 (b) above must be presented at a monitoring committee meeting and further submitted together with meeting minutes of that meeting to the Department no later than sixty (60) days from the date of the meeting.
4.13 (c)	iv. Be retained in accordance with a documented procedure which is approved by the Department.	Remove the need for the Department to approve the document control procedure. The condition will be audited annually and will verify whether a documented procedure is available and implemented on the site,	iv. Be retained in accordance with a documented procedure.
4.15 (d)	The Monitoring Committee must meet at least twice a year and not later than **thirty (30) days** after the external audit report specified in condition 4.12.2 (b) has been submitted to the Department.	The requirement for meeting within 30 days contradicts the requirement in Condition 4.12.2.(c) where the requirement for the meeting is 60 days after the external audit. Clarification for the Department is required.	The Monitoring Committee must meet at least twice a year.

1.1.5 AMENDMENT OF THE ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

Every landfill of this kind operates under an Environmental Management Programme (EMPr), it is the practical rulebook that sets out how the facility must manage its environmental impacts, from day-to-day operation through to eventual closure and rehabilitation. It covers matters such as dust and odour control, stormwater and leachate management, monitoring commitments, emergency procedures, and roles and responsibilities on site.

The facility's existing EMPr was compiled to support the original IEA and reflects the facility as it was authorised in 2017, at a maximum height of 1 meter above natural ground level. As part of this application, the existing EMPr will be reviewed against the facility's current operations and against the changes now being applied for, principally the increase in height of the Area E landfill cells to 25 metres above natural ground level, and the related

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amendment to the types of waste accepted on the Class B lined footprint, and will be updated accordingly. This is listed as one of the components of the proposed amendment in Section 1.6 above.

The updated EMPr will be compiled in accordance with Appendix 4 to the Environmental Impact Assessment Regulations, 2014 (Government Notice R.982, as amended), read with section 24N of the National Environmental Management Act, 1998 (Act No. 107 of 1998), which set out the information an EMPr is legally required to contain. This includes, among other things, details of the environmental assessment practitioner who prepared it; a description of the aspects of the activity covered by the EMPr; the impacts and risks identified in the assessment, and the mitigation measures proposed to address them; a description of the manner in which the applicant intends to modify, remedy, control or stop any action, activity or process which may cause pollution or environmental degradation; measures to rehabilitate the environment affected by undertaking the activity; a programme for monitoring compliance with, and performance against, the EMPr; and mechanisms for periodic reporting and auditing of compliance with the EMPr.

The updated Environmental Management Programme (EMPr) will include appropriate waste acceptance and management procedures. These will provide for the verification of incoming waste, confirmation of waste classification where required, record keeping, inspection and procedures for the rejection of waste that does not comply with the authorised waste acceptance criteria or applicable legislative requirements.

The updated EMPr will accompany this Basic Assessment Report and will be available for public review and comment alongside it.

Does the activity require any authorisation other than NEMA EIA authorisation?

YES	NO

If yes, describe the legislation and the Competent Authority administering such legislation

Yes. The application is linked to an authorised Waste Management Facility and relates to the extension of the height of Area E of the landfill (a separate waste management Listed Activity – Category A, Activity 3(13)), the change of permitted waste types on the Class B liner and to consequential amendments to the Integrated Environmental Authorisation (IEA, GDARD 2017) and the Environmental Management Programme (EMPr).

The proposed heigh amendment triggers the following listed waste management activity:

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Category A Activity 13 – "*The expansion of a waste management activity listed in Category A or B of this Schedule which does not trigger an additional waste management activity in terms of this Schedule*" as listed in Government Notice 921 of 29 November 2013.

In terms of GN 3968 of 17 October 2023:

a) The licensing authority for the disposal of type 2 wastes (hazardous waste) to a class B landfill is the Member of the Executive Council responsible for the environment (waste management) in the province.

b) The licensing authority for the disposal of type 3 wastes or type 4 wastes (general waste) to a class B landfill, class C landfill or class D landfill, is the Member of the Executive Council responsible for the environment (waste management) in the province.

If yes, have you applied for the authorisation(s)?	YES - This application	NO
If yes, have you received approval(s)? (attach in appropriate appendix)	YES	NO

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2 APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

Title of legislation, policy or guideline	Administering authority	Promulgation date	Description of compliance / status
National Environmental Management Act, 1998 (Act 107 of 1998), as amended	National (DFFE) / Provincial (GDEnv)	27 Nov 1998	The National Environmental Management Act, 1998 (Act 107 of 1998), as amended, is the framework environmental statute of the Republic, giving effect to the environmental right in section 24 of the Constitution. Section 24(5) empowers the Minister to make regulations for environmental impact assessment. This application is made under the EIA Regulations, 2014 (as amended) promulgated under section 24(5), and this Basic Assessment Report (BAR) has been compiled per Appendix 1 of those Regulations, in the format prescribed by the Gauteng Department of Environment (April 2025, Version 1).
EIA Regulations, 2014 (GN R982, GG 38282, 4 Dec 2014), as amended by GN R326 (2017), GN R706 (2018), GN R599 (2020) and GN 517 (2021)	National (DFFE) / Provincial (GDEnv)	4 Dec 2014	The EIA Regulations, 2014 (GN R982, GG 38282, 4 December 2014), as amended by GN R326 of 7 April 2017, GN R706 of 13 July 2018, GN R599 of 29 May 2020 and GN R517 of 11 June 2021, prescribe the procedure and content requirements for basic assessment and scoping/EIA processes under NEMA. This BAR is compiled in the format prescribed by the Gauteng Department of Environment (April 2025, Version 1), consistent with Appendix 1 to the Regulations.
National Environmental Management: Waste Act, 2008 (Act 59 of 2008), as amended	National (DFFE) / Provincial (GDEnv)	2009	The National Environmental Management: Waste Act, 2008 (Act 59 of 2008), as amended (NEM:WA), regulates waste management activities requiring a Waste Management Licence. The Tonkmeter facility conducts listed Category A and Category B waste activities (including Category A Activity 1, Category B Activity 8 and Category B Activity 10 type activities relevant to landfilling and disposal) that already required a basic assessment process as part of the original Waste Management Licence/Integrated Environmental Authorisation (IEA). The present application relates to an amendment of that existing WML/IEA — an increase in permitted final landfill height, a variation of accepted waste types, and consequential

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Title of legislation, policy or guideline	Administering authority	Promulgation date	Description of compliance / status
			amendment of IEA conditions and the EMPr — rather than a new facility.
National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004)	National (DFFE) / Provincial (GDEnv)	2005	The National Environmental Management: Air Quality Act, 2004 (Act 39 of 2004) (NEM:AQA) governs ambient air quality management and the licensing of listed emission activities. Baseline ambient air quality has been assessed for the site using measured data from the Springs Ambient Air Quality Monitoring Station for the pollutants most relevant to landfill operations (PM10, PM2.5, SO2 and NO2) (Rayten Engineering Solutions, 2026); see Section B and Appendix G. Based on the current information and landfill design, the facility does not trigger any of the listed activities under section 21 of NEM:AQA and is therefore not currently required to hold an Atmospheric Emission Licence (Rayten Engineering Solutions, 2026).
Climate Change Act, 2024 (Act 22 of 2024)	National (DFFE)	Commenced 17 March 2025	Provides for a national GHG emissions trajectory, sectoral emission targets, carbon budgets and adaptation planning (Brugman, 2026, p. 10). Commencement of certain sections was deferred until supporting regulations are made (DFFE, 2025b). A Climate Change Impact Assessment has been undertaken for this application (Brugman, 2026; Appendix G).
National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004) and Alien and Invasive Species Regulations	National (DFFE)	2004	An alien and invasive species control and monitoring plan is required by the EMPr
National Heritage Resources Act, 1999 (Act 25 of 1999)	SAHRA / Provincial Heritage Resources Authority	1999	GAP – SAHRA comment not yet obtained; required if section 38 triggers are met (Section B.10).
National Water Act, 1998 (Act 36 of 1998)	Department of Water and Sanitation	1998	RoD from DWS will be required. Section 49 (2) of the Act states that a decision to grant an application for a waste management licence in respect of a waste disposal facility is subject to the concurrence of the Minister of Water and Sanitation. Section 50 (3) stipulates the

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Title of legislation, policy or guideline	Administering authority	Promulgation date	Description of compliance / status
			importance of the role of the DWS by stating that the issuing of a waste management licence for a waste disposal facility is subject to the inclusion in the licence of any conditions contained in a Record of Decision issued by the Minister of Water and Sanitation any measures that the Minister considers necessary to protect a water resource as defined in the National Water Act, 1998 (Act No. 36 of 1998).
Gauteng Provincial Integrated Waste Management Policy; Gauteng Waste Information System Regulations; Gauteng Pollution Buffer Zone Guideline	Gauteng Department of Environment	various	The Gauteng Provincial Integrated Waste Management Policy (GPIWMP) is the current provincial policy instrument giving effect to NEM:WA at provincial level (Gauteng DACE, 2006). The facility is registered on the Gauteng Waste Information System (GWIS) as a condition of the IEA (GDARD, 2017). The Gauteng Pollution Buffer Zone Guideline classifies the facility as a Class B landfill, for which a maximum recommended buffer of 1 000 m applies; this is relevant to the facility's proximity to KwaThema — see Section B.9.
City of Ekurhuleni draft Integrated Waste Management Plan (IWMP)	City of Ekurhuleni	Draft released 26 May 2025	The City of Ekurhuleni's draft Integrated Waste Management Plan (IWMP), released for public review on 26 May 2025, identifies a regional shortage of licensed landfill airspace and specifically records that increasing the height of appropriately located waste disposal facilities not in close proximity to residential areas is a measure that can alleviate this shortage (Ekurhuleni Metropolitan Municipality, 2025). The draft IWMP further identifies the Tonkmeter Resource Facility (TRF) as a facility expected to contribute significantly to available airspace in the Springs area and as a potential future recipient of waste currently disposed of at the adjacent, operationally constrained Rietfontein WDF. This is directly relevant to the need and desirability of the proposed height increase — see Section E.9. The draft IWMP had not, as at the date of this report, been approved by CoE Council or endorsed by the MEC.

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The following sub-sections set out the complete legislative and policy context supporting the compliance-status summary in the table above, reproduced in full from the project's legislative review for completeness and ease of independent verification.

2.1 NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008)

The aim of the National Environmental Management: Waste Act (NEM:WA) is: (a) to reform the law regulating waste management in order to protect health and the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development; (b) to provide for institutional arrangements and planning matters; (c) to provide for national norms and standards for regulating the management of waste by all spheres of government; (d) to provide for specific waste management measures; (e) to provide for the licensing and control of waste management activities; (f) to provide for the remediation of contaminated land; (g) to provide for the national waste information system; (h) to provide for compliance and enforcement; and (i) to provide for matters connected therewith.

2.1.1 DEFINITIONS

The Act defines waste as: “(a) any substance, material or object, that is unwanted, rejected, abandoned, discarded or disposed of, or that is intended or required to be discarded or disposed of, by the holder of that substance, material or object, whether or not such substance, material or object can be re-used, recycled or recovered and includes all wastes as defined in Schedule 3 to this Act; or (b) any other substance, material or object that is not included in Schedule 3 that may be defined as a waste by the Minister by notice in the Gazette, but any waste or portion of waste, referred to in paragraphs (a) and (b), ceases to be a waste – (i) once an application for its re-use, recycling or recovery has been approved or, after such approval, once it is, or has been re-used, recycled or recovered; (ii) where approval is not required, once a waste is, or has been re-used, recycled or recovered; (iii) where the Minister has, in terms of section 74, exempted any waste or a portion of waste generated by a particular process from the definition of waste; or (iv) where the Minister has, in the prescribed manner, excluded any waste stream or a portion of a waste stream from the definition of waste.” (NEM:WA, s.1).

General waste means waste that does not pose an immediate hazard or threat to health or to the environment, and includes: (a) domestic waste; (b) building and demolition waste; (c) business waste; (d) inert waste; or (e) any waste classified as non-hazardous waste in terms of the regulations made under section 69, and includes non-hazardous substances,

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materials or objects within business, domestic, inert, building and demolition wastes as outlined in Schedule 3 Category B.

A waste disposal facility means any site or premise used for the accumulation of waste with the purpose of disposing of that waste at that site or on that premise;

a waste transfer facility means a facility used to accumulate and temporarily store waste before it is transported to a recycling, treatment or waste disposal facility; and

a waste treatment facility means any site used to accumulate waste for the purpose of storage, recovery, treatment, reprocessing, recycling or sorting of that waste.

2.1.2 WASTE MANAGEMENT LICENCE APPLICATION PROCESS

NEM:WA stipulates that certain waste management activities may not commence without authorisation from the competent authority. Waste management activities that may not commence without authorisation were published in GN 921 of November 2013 and amended by GNR 663 of 24 July 2015. The activity relevant to the Tonkmeter Resource Facility in this application is:

Category A Activity 13 – "The expansion of a waste management activity listed in Category A or B of this Schedule which does not trigger an additional waste management activity in terms of this Schedule" as listed in Government Notice 921 of 29 November 2013.

A person undertaking a Category A activity must conduct a basic assessment process under the EIA Regulations as part of the Waste Management Licence application; a person undertaking a Category B activity must conduct a scoping and environmental impact reporting process. The listed activity is a Category A activity, and the current application is accordingly processed by way of basic assessment consistent with the facility's existing authorisation basis.

2.1.3 LICENSING AUTHORITY

Section 43(3) of NEM: WA makes provision that the Minister and Members of the Executive Council (MECs) of the provincial Departments responsible for the environment (Waste Management) in the provinces may agree that an application or applications for waste management licenses regarding any waste management activity of which the Minister has been identified as the licensing authority, may be dealt with by the MEC, and similarly any waste management activity of which the MEC has been identified as the licensing authority may be dealt with by the Minister.

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Section 49(3)(b) of NEM:WA requires that any decision by a licensing authority to grant a waste management licence application must be consistent with applicable national environmental management policies and, where the MEC is the licensing authority, applicable provincial environmental management policies. Section 49(2) further provides that a decision to grant a waste management licence in respect of a waste disposal facility is subject to the concurrence of the Minister responsible for water affairs, and section 50(3) requires the inclusion, in the licence, of any conditions contained in a Record of Decision issued by that Minister regarding measures necessary to protect a water resource as defined in the National Water Act, 1998 (Act 36 of 1998).

In terms of GN 3968 of 17 October 2023:

c) The licensing authority for the disposal of type 2 wastes (hazardous waste) to a class B landfill is the Member of the Executive Council responsible for the environment (waste management) in the province.

d) The licensing authority for the disposal of type 3 wastes or type 4 wastes (general waste) to a class B landfill, class C landfill or class D landfill, is the Member of the Executive Council responsible for the environment (waste management) in the province.

2.1.4 NATIONAL WASTE MANAGEMENT STRATEGY (NWMS)

The management of waste in South Africa falls within the mandate of the Department of Forestry, Fisheries and the Environment (DFFE), with municipalities constitutionally responsible for refuse removal, refuse dumps and solid waste disposal in terms of section 156(1)(a) read with Schedule 5 of the Constitution of the Republic of South Africa, 1996 (RSA, 1996). This mandate is underpinned by section 24 of the Constitution, which guarantees the right to an environment that is not harmful to health or well-being and to its protection through reasonable legislative measures. The NWMS is a statutory requirement of NEM:WA, which requires the DFFE to review the NWMS at least every five years (RSA, 2008). The NWMS 2020 is the currently operative strategy, gazetted for implementation on 28 January 2021, and remains legally in force pending finalisation of its successor (DFFE, 2020; PMG, 2024).

As the NWMS 2020 approached the end of its five-year lifecycle, the DFFE, together with provincial and municipal authorities, the private sector, academia and civil society, undertook a review culminating in the publication of the draft NWMS 2026 for public comment on 19 December 2025 (DFFE, 2025a). Once finalised, the draft is intended to:

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continue to align South Africa's waste management approach with the Sustainable Development Goals 2030 and the National Development Plan: Vision 2030; reaffirm waste management as a key underpinning of South Africa's economy and social fabric; provide an enabling environment for the DFFE's 2017 Chemicals and Waste Economy Phakisa and the Good Green Deeds Programme; and align with the emerging National Circular Economy Action Plan (DFFE, 2025a). The draft NWMS 2026 is structured around four strategic pillars — Circular Economy and Waste Minimisation; Effective and Sustainable Waste Services; Capacity Building and Awareness; and Compliance Monitoring and Enforcement — replacing the eight goals of the 2020 strategy (DFFE, 2025a).

Diversion of waste from landfill remains a central imperative, with the draft strategy proposing revised targets of 40% diversion within five years, 50% within ten years, and at least 60% within fifteen years, working towards zero waste to landfill (DFFE, 2025a) — a moderation of the 2020 strategy's more ambitious 45%/55%/70% targets, reflecting the DFFE's own status quo assessment of slower-than-anticipated progress (DFFE, 2025a). South Africa's approach continues to rest on building a secondary resources economy through the recycling of paper, glass, plastics, metals, tyres, waste oils, batteries and WEEE, together with the recovery of construction and demolition waste and the beneficiation of organic waste through composting and energy recovery. Notably, the draft NWMS 2026 expands the list of prioritised waste streams beyond those addressed in the 2020 strategy to include absorbent hygiene products, organic waste, clothing and textiles, end-of-life vehicles, coal ash, construction and demolition waste, and food waste (DFFE, 2025a), and, for the first time, formally integrates Waste-to-Energy (WtE) into the national waste management hierarchy as a recovery pathway situated below recycling but above final disposal, subject to environmental and public health safeguards (DFFE, 2025a).

2.1.5 National Waste Information Regulations

The National Waste Information Regulations (2012) were implemented on 1 January 2013 in terms of section 60 of NEM:WA. The purpose of these regulations is to regulate the collection of data and information on waste management in South Africa in order to fulfil the objectives of the national waste information system set out in NEM:WA.

2.1.6 Waste Classification and Management Regulations (WCMR)

Historically, waste streams were classified according to the Minimum Requirements for Waste Management (DWAF, 2005), which provided a national framework for waste management in South Africa. The Waste Classification and Management Regulations (GNR

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634) were promulgated on 23 August 2013 and replaced the Minimum Requirements, together with the associated National Norms and Standards for the Assessment of Waste for Landfill Disposal (GNR 635 of 23 August 2013) and National Norms and Standards for Disposal of Waste to Landfill (GNR 636 of 23 August 2013), the latter including detail on barrier design based on the classification of the material.

The WCMR was substantively amended by the Minister of Forestry, Fisheries and the Environment in terms of section 69(1)(a), (b), (g), (h), (m), (q), (r), (s), (dd) and (ee) of NEM:WA, by Government Notice 5524, published in Government Gazette No. 51522 of 7 November 2024 (DFFE, 2024a). The key amendments relevant to this Project are:

(a) Definitions (regulation 1) — the definition of “emergency” is replaced with “emergency situation”, aligned to section 30A(7) of NEMA, and new definitions are inserted for “facility”, “GHS”, “health care risk waste”, “incident”, “landfill”, “SAWIS” and “safety data sheet”, while the definitions of “SANS 10234” and “waste management facility” are deleted and “waste classification” is redefined as the process of establishing (i) whether a waste is hazardous based on its physical, health and environmental hazardous properties, and (ii) the degree or severity of hazard posed;

(b) Classification timeframes (regulation 4) — waste listed in the amended Annexure 1 no longer requires classification; all other waste generators must classify their waste in accordance with the GHS within 180 days of generation, must reclassify every five years or within 60 days of a change in process or raw materials, and must classify any waste arising from a treatment process;

(c) Safety data sheets (regulation 5) — generators of hazardous waste must prepare a safety data sheet aligned to the GHS once the waste is classified, subject to specified exclusions for waste listed in Annexure 1;

(d) Waste re-use/disposal timeframe (regulation 6) — waste generated must now be re-used, recycled, recovered, treated or disposed of by the generator or waste manager within 18 months of generation;

(e) Blending and treatment (regulation 7) — waste may be blended or treated only where this reduces the potential risk or negative impact associated with its management;

(f) Deletion of Chapter 4 — the provisions previously governing waste generator record-keeping duties have been deleted in their entirety;

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(g) Offences and penalties (regulation 13) — penalties have been substantially increased: a person convicted of an offence under regulation 13(1)(a) is now liable to a fine not exceeding R5 million or imprisonment not exceeding 5 years, rising to a fine not exceeding R10 million or imprisonment not exceeding 10 years for a second or subsequent conviction, while a person convicted under regulation 13(1)(b) is liable to a fine not exceeding R1 million or imprisonment not exceeding 1 year; and

(h) Annexure 1 (classification exclusions) — “expired, spoilt, or unusable consumer products” is added as a category not requiring classification, while the Annexure 1 hazardous waste products list is expanded to expressly include waste oil, mercury-containing waste, asbestos waste, PCB waste or PCB-containing waste (>50 mg/kg or 50 ppm), and expired, spoilt or unusable hazardous products.

The core classification methodology and the associated GNR 635 and GNR 636 norms and standards remain in force and continue to determine the barrier design requirements applicable to the landfill, based on the classification of waste accepted for disposal. Given the amended 18-month disposal timeframe under regulation 6(4) and the increased penalties under regulation 13, the facility's Waste Management Control Officer's compliance monitoring protocols should be reviewed to ensure alignment with the amended Regulations.

2.1.7 National Norms and Standards for the Storage of Waste (2013)

The National Norms and Standards for the Storage of Waste (GN 926 of 29 November 2013) apply to general waste storage facilities and hazardous waste storage facilities with the capacity to store, continuously, more than 100 m³ of general waste or 80 m³ of hazardous waste respectively, and were promulgated for the storage of waste and removed from the list of activities requiring a WML. The TRF is registered in terms of this Norms and Standards in respect of its material recovery facility (MRF) operations.

2.1.8 National Norms and Standards for the Sorting, Shredding, Grinding, Crushing, Screening and Baling of General Waste (2017)

This Norms and Standards were promulgated (GN 1093 of 11 October 2017) with the concurrent removal of this activity from the list of waste management activities requiring a WML, i.e. Category A3(2) of GN R921. The TRF is registered in terms of this Norms and Standards for the development of the MRF.

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2.1.9 National Norms and Standards for Organic Waste Composting (2021)

The National Norms and Standards for Organic Waste Composting (GN 561) were published for implementation on 25 June 2021, with the purpose of (a) providing a national uniform approach to controlling the composting of organic waste at a facility falling within the applicable threshold, in order to prevent or minimise potential negative impacts on the bio-physical and socio-economic environment, and (b) ensuring implementation of the best practicable environmental option in the composting of organic waste. Compost is defined as a product of controlled aerobic, biological decomposition of biodegradable materials, in which the organic waste undergoes mesophilic and thermophilic temperatures that significantly reduce the viability of pathogens and weed seeds and stabilise the carbon such that it is beneficial to plant growth; compostable organic waste means carbon-based materials of animal or plant origin that naturally enhance soil fertility, excluding human-made or refined/concentrated organic chemicals and health-care risk waste; and composting means a controlled biological process in which organic materials are broken down by micro-organisms through aerobic and anaerobic processes to produce compost or fertiliser. The facility is required to register in terms of this Norms and Standards for the development of its composting operations.

2.1.10 State of Waste Report

The South African State of Waste Report (SoWR) provides a snapshot of waste generation and management in South Africa, key driving forces and pressures, and South Africa's performance against short- and medium-term responses to contemporary changes in the waste sector. The 2018 SoWR (based on 2017 data) reported that South Africa generated 54.2 million tonnes of general waste, with only 11% diverted from landfill (DEA, 2018). More recent data presented by the DFFE to Parliament's Portfolio Committee on Forestry, Fisheries and the Environment indicate that South Africa now generates approximately 107.7 million tonnes of waste annually (general and hazardous combined), with approximately 21% diverted from landfill overall (DFFE, 2022, cited in PMG, 2022) — a substantial increase relative to the 2017 baseline, reflecting both genuine growth in waste generation and improvements in the completeness of national waste reporting through SAWIS over the intervening period; the two factors cannot be disaggregated from the information currently available.

Landfill disposal remains the dominant waste management route: 65% of general waste and 92.7% of hazardous waste generated nationally is disposed of to landfill (DFFE, 2022, cited in PMG, 2022). The composition of general waste has also shifted since the 2018 SoWR.

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Organic waste remains the largest single contributor, now accounting for 34.6% of general waste generated (comprising biomass from sugar mills, sawmills, and the paper and pulp industry), followed by bottom ash (11.7%), slag and municipal waste (8.7% each), construction and demolition waste (8.1%), and metals (7.3%) (DFFE, 2022, cited in PMG, 2022); the remaining streams (including paper, plastic and glass, itemised individually in the 2018 breakdown) were not itemised in the 2022 briefing.

Table 6: Breakdown of general waste generated, 2017 vs most recently reported data

Waste category	2017 (SoWR 2018)	Most recently reported (DFFE, 2022)
Organic waste	56.3%	34.6%
Municipal waste	8.9%	8.7%
Construction and demolition waste	8.3%	8.1%
Metals	7.4%	7.3%
Commercial and industrial waste	6.6%	Not itemised
Glass	4.6%	Not itemised
Paper	4.0%	Not itemised
Plastic	2.0%	Not itemised
Bottom ash	Not itemised	11.7%
Slag	Not itemised	8.7%

Source: DEA, 2018; DFFE, 2022, as cited in PMG, 2022

The general downward trend in organic waste's relative share, and the emergence of bottom ash and slag as distinct reported categories, may reflect improved industrial waste reporting rather than an actual reduction in organic waste volumes, and should be treated with appropriate caution pending release of a fully updated SoWR.

2.1.11 City of Ekurhuleni Integrated Waste Management Plan

Section 11 of NEM:WA obliges every municipality to prepare an Integrated Waste Management Plan (IWMP), the content of which is prescribed by section 12, to be submitted to the relevant MEC for endorsement under section 13. The City of Ekurhuleni Metropolitan Municipality (CoE) has not, since the promulgation of NEM:WA in 2009, secured an approved IWMP. Delta Built Environment Consultants (Pty) Ltd was appointed by the DFFE to compile the current plan (Ekurhuleni Metropolitan Municipality, 2025). The draft IWMP was released for a 30-day public review period between 26 May 2025 and 24 June 2025 (City of Ekurhuleni, 2025a); if approved by CoE Council and subsequently endorsed by the Gauteng Department of Agriculture, Rural Development and Environment (GDARDE), it will constitute the CoE's first-generation IWMP.

The draft IWMP records that the CoE owns and operates five waste disposal facilities (WDFs), each outsourced under three-year contracts to private waste management

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contractors. Table 7 records the following remaining lifespans and operational status (as at July 2026) and is based on developed airspace and 2022 disposal rates.

Table 7: Remaining lifespans and operational status of landfill site in CoE

Waste Disposal Facility	Classification	Location	Permitted Max. Height	Remaining Lifespan (2022 basis, per Draft IWMP)	Operational Status (July 2026)
Rietfontein	G:L:B+	Springs	10 m	4 years	Operational. *Closed January 2021 (tender/contract failure) and again August 2023 (community unrest); reopened by the Executive Mayor 23 April 2024 and remains in use, handling approximately 20 000 t/month.*
Simmer & Jack	G:L:B-	Germiston	40 m	Less than 2 months	Non-operational. *Closed April 2026 following violence between illegal miners and recyclers on site.*
Weltevreden	G:L:B-	Brakpan	10 m	Less than 6 months	Non-operational. *Closed since February 2025 due to escalating illegal mining activity.*
Rooikraal	G:L:B-	Boksburg	35 m	15 years	Operational, subject to intermittent short-term maintenance closures.
Platkop	G:L:B-	Suikerbosrand	20 m	6 years	Operational.

Source: *Remaining lifespan (2022 basis) — Ekurhuleni Metropolitan Municipality (2025). Operational status — Rietfontein: City of Ekurhuleni (2024a); Springs Advertiser (2024). Simmer & Jack: Boksburg Advertiser (2026). Weltevreden: City of Ekurhuleni (2025b). Rooikraal and Platkop: authors' assessment based on absence of reported closures as at July 2026.*

The draft IWMP records, in relation to this status quo assessment, that the remaining airspace at these facilities “is diminishing faster than expected due to the unavailability of a WDF in the Northern region of the CoE”, a situation it states can be alleviated, amongst other measures, by “increasing the heights of WDF not in close proximity to residential areas” (Ekurhuleni Metropolitan Municipality, 2025). The draft IWMP further records that there is presently no replacement facility identified for the Simmer & Jack WDF once it

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closes, and that unreliable closure dates for CoE facilities are making long-term strategic planning for the metro difficult.

This constrained supply position is set against a rising demand profile. The draft IWMP projects that the CoE's population will grow from approximately 4.07 million (2022) to approximately 6.39 million by 2040, with a corresponding increase in general waste generation from approximately 970 000 tonnes per annum to approximately 1.5 million tonnes per annum over the same period (Ekurhuleni Metropolitan Municipality, 2025). On the CoE's own figures, therefore, the regional shortfall in legally compliant, developed landfill airspace is expected to widen materially over the medium to long term.

Section 6 of the draft IWMP addresses private waste disposal facilities operating within the CoE's area of jurisdiction. Section 6.4, dealing specifically with the Tonk Meter Resource Facility (TRF), records that the facility “is situated immediately next to the existing CoE Rietfontein G:L:B+ WDF and may in future be used for disposal of most waste currently disposed of at the Rietfontein WDF”, and that, “considering the licenced footprint of the facility, it is expected to contribute significantly to the available WDF airspace in the Springs area once operational” (Ekurhuleni Metropolitan Municipality, 2025). The adjacent Rietfontein WDF has a documented history of repeated, disruptive closures (January 2021 and August 2023) and is presently operational following its April 2024 reopening; its operational reliability accordingly remains uncertain, which reinforces, rather than undermines, the value the draft IWMP attaches to TRF as an alternative, privately operated source of legally compliant airspace serving the same Springs catchment.

2.2 NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT, 2004 (ACT 10 OF 2004)

2.2.1 ALIEN AND INVASIVE SPECIES REGULATIONS

A list of alien and invasive species has been published in GN 1003 of 18 September 2020, in terms of sections 66(1), 67(1), 70(1)(a), 71(3) and 71A of the National Environmental Management: Biodiversity Act 10 of 2004 (NEMBA) (DEFF, 2020a). The 2020 National List comprises 567 species across ten taxonomic groups, including 383 plant taxa, 43 mammals, 14 birds, 30 reptiles, 7 amphibians, 30 freshwater fish, 24 terrestrial invertebrates, 12 freshwater invertebrates, 17 marine invertebrates and 7 microbial species (Invasive Species South Africa, n.d.) — an increase from the 559 species listed under the 2014 AIS Lists that they replaced. Invasive species are divided into four categories:

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a) Category 1a species must be combatted and eradicated, and any form of trade or planting is strictly prohibited;
b) Category 1b species must be controlled and, wherever possible, removed and destroyed, with any form of trade or planting strictly prohibited;
c) Category 2 species (including commercially important species such as pine, wattle and gum trees) require a permit to carry out a restricted activity, and revert to Category 1b status if occurring in riparian areas or outside an area of containment and control; and
d) Category 3 species may remain in prescribed areas or provinces, but further planting, propagation or trade is prohibited, and Category 3 species occurring in riparian areas or within a declared protected area likewise revert to Category 1b status.

At Area E no new ground will be cleared of vegetation outside the existing, already-authorised footprint. The proposed MRF expansion site, outside Area E, was assessed and is dominated by alien and invasive plants. Removing these species is a legal duty of the landowner, and the specialist recommends an alien and invasive species control and monitoring plan (Venter, 2026). This is included in the EMPr (Part B, Section 17).

2.3 NATIONAL ENVIRONMENTAL MANAGEMENT: AIR QUALITY ACT, 2004 (ACT 39 OF 2004)

NEM:AQA has shifted the approach to air quality management from source-based control to receptor-based control. The main objectives of the Act are to protect the environment by providing reasonable measures for the protection and enhancement of the quality of air in the Republic, the prevention of air pollution and ecological degradation, and securing ecologically sustainable development while promoting justifiable economic and social development, and generally to give effect to section 24(b) of the Constitution in order to enhance the quality of ambient air for the sake of securing an environment that is not harmful to the health and wellbeing of people. The Act provides for the setting of National Ambient Air Quality Standards for substances or mixtures of substances which present a threat to health, well-being or the environment, and more stringent standards may be established at provincial and local level. The control and management of emissions under NEM:AQA relates to the listing of activities that are sources of emissions and the issuing of Atmospheric Emission Licences (AELs); listed activities are those which result in atmospheric emissions regarded as having a significant detrimental effect on the environment, including human health, and the issuing of AELs for listed activities (other than those associated with mining operations) is the responsibility of Metropolitan and District Municipalities.

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2.3.1 AMBIENT AIR QUALITY STANDARDS

South African National Ambient Air Quality Standards (NAAQS), including permitted frequencies of exceedance and compliance timeframes, were issued by the Minister of Water and Environmental Affairs on 24 December 2009 (GN 1210 of 24 December 2009); national standards for PM2.5 were established on 29 June 2012 (GN 486 of 29 June 2012). Criteria air pollutants are air pollutants commonly found in the atmosphere and known to negatively affect human health and environmental quality, for which ambient air quality standards have been developed; South Africa has ambient air quality standards for eight criteria air pollutants. The criteria air pollutants of concern associated with the proposed extension of the Tonkmeter landfill include benzene, PM10, PM2.5, NO2, SO2 and CO. Several other air pollutants not classified as criteria pollutants in South Africa are likely to be emitted as part of landfill gas emissions; these are considered hazardous air pollutants ("HAPs"), known also for their malodorous impacts, for which international guidelines and odour thresholds are available.

2.3.1.1 National Dust Control Regulations

The Minister of Environmental Affairs published Draft National Dust Control Regulations on 25 May 2018 (GN R517), which came into effect on 1 November 2019. The purpose of the regulations is to prescribe general measures for the control of dust in all areas, prohibiting activities which give rise to dust in such quantities and concentrations that the dustfall at or beyond the boundary of the premises where it originates exceeds 600 mg/m²/day (averaged over 30 days) in residential areas, or 1 200 mg/m²/day (averaged over 30 days) in non-residential areas, both measured using reference method ASTM D1739. Any person who exceeds the dustfall standard must, within three months of submitting a dustfall monitoring report, develop and submit a dust management plan (DMP) to the air quality officer for approval. The DMP must identify all possible sources of dust within the affected site; detail the best practicable measures to mitigate dust emissions; develop an implementation schedule; identify the line management responsible for implementation; incorporate the dustfall monitoring plan; and establish a register for recording all dustfall complaints and follow-up actions and responses. The DMP must be implemented within a month of approval, with implementation progress reports submitted to the air quality officer at agreed intervals.

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2.3.1.2 Listed Activities and Minimum Emission Standards

NEM:AQA requires all persons undertaking listed activities under section 21 of the Act to obtain an AEL. The original listed activities and associated minimum emission standards were issued on 31 March 2010 (GG 33064) but were repealed and replaced by the 2013 Regulations (GG 37054 of 22 November 2013), which were subsequently amended by GN 551 of 12 June 2015, GN 1207 of 31 October 2018, GN 687 of 22 May 2019, GN 421 of 27 March 2020, and draft amendments published in GG 53241 of 29 August 2025. There is currently no incineration of waste received at the landfill site, and there are no combustion sources or material processing activities requiring heat or chemical reactions; only landfilling and resource recovery are undertaken at the site. The landfill does not currently accept hazardous waste materials, nor does it store large quantities of chemicals or fuel products. Based on the current information and landfill design, the TRF does not trigger any of the listed activities under section 21 of NEM:AQA and is therefore not required to obtain an AEL (Rayten Engineering Solutions, 2026).

2.3.1.3 National Atmospheric Emission Reporting Regulations

NEM:AQA requires all emission source groups identified under the National Atmospheric Emission Reporting Regulations (GNR 283 of 2 April 2015) to register and report emissions on the National Atmospheric Emissions Inventory System (NAEIS). The landfill site does not fall within any of the groups (Group A–D) listed under Annexure 1 of the regulations; Group D requires facilities identified under municipal air quality by-laws to report on the NAEIS, but landfills are not, at present, listed as a controlled activity under the City of Ekurhuleni's draft air quality by-laws.

2.3.1.4 Greenhouse Gas (GHG) Emissions and Pollution Prevention Plans

The Minister of Environmental Affairs declared six greenhouse gases as priority air pollutants — carbon dioxide (CO2), methane (CH4), nitrous oxide (N2O), hydrofluorocarbons (HFCs), perfluorocarbons (PFCs) and sulphur hexafluoride (SF6) — requiring persons falling within the categories specified in the relevant Schedule to prepare and submit pollution prevention plans to the Minister (GN 710 of 21 July 2017). A person conducting a production process listed in Annexure A which involves emission of GHGs in excess of 0.1 Megatonnes (Mt) annually, reported as CO2-equivalents, and/or if so directed by the Minister, must submit a pollution prevention plan for approval; Annexure A activities include, among others, coal mining, production/refining of crude oil, cement production, iron

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and steel production, and electricity production, and do not currently include landfilling as a primary activity.

The National Pollution Prevention Plan Regulations (GN 712 of 21 July 2017) prescribe the requirements pollution prevention plans must comply with for greenhouse gases declared as priority air pollutants. A pollution prevention plan will be required should the development undertake an activity identified in Annexure A of the National GHG Emission Reporting Regulations (GN 275 of 3 April 2017, as amended by General Notice 994 in GN 43712 of 11 September 2020) involving direct emission of GHGs in excess of 0.1 Mt annually (CO2-eq), or an activity identified in Annexure A of the National Pollution Prevention Plan Regulations (GN 710 of 21 July 2017) as a primary activity involving the same threshold.

Under the National Greenhouse Gas Emission Reporting Regulations, a data provider identified under Annexure 1 must register their facility on the online South African System for Administration of Integrated Greenhouse Gas Emissions (SAIGE) and submit a GHG emissions inventory, activity data and report in the required format under Annexure 3, annually, by 31 March of the following year. Waste disposal sites are a significant source of methane and carbon dioxide emissions and are accordingly listed under Annexure 1, Sector: Waste, category 4A1 – Managed Waste Disposal Sites (receiving ≥ 5 tonnes per day, or total storage capacity ≥ 25 000 tonnes waste). The landfill operator is therefore required to report total GHG emissions from the Tonkmeter landfill operations annually before 31 March each year (Rayten Engineering Solutions, 2026). The CCIA confirms that the TRF exceeds the IPCC Code 4A1 threshold. Tonkmeter must report actual annual facility-level emissions, which are separate from the cumulative project emissions calculated in the CCIA (Brugman, 2026).

2.3.2 Carbon Tax Act, 15 of 2019

The Carbon Tax Act No. 15 of 2019 was promulgated on 23 May 2019 and is implemented using a phased approach, allowing emitters time to transition to cleaner and more efficient technologies. The initial carbon tax rate is set at R120 per tonne CO2-eq; percentage-based tax-free thresholds apply, which can lower the effective rate to between R6 and R48 per tonne CO2-eq. In the first phase (June 2019 to December 2022), a basic percentage-based threshold of 60% was not taxable, with additional tax-free thresholds of up to 10% for process emissions, up to a maximum of 10% for trade-exposed sectors, up to a maximum of 5% for performance-based emissions against intensity benchmarks (not yet developed), up to 5% or 10% for carbon offsets depending on sector, and 5% for companies participating

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in phase one of the carbon budgeting system, with the combined thresholds capped at 95%. Liable entities are those listed in Schedule 2 of the Act. The South African National Treasury published regulations for carbon offsets on 29 November 2019, outlining the suitability of offset projects and the procedure for claiming the offset allowance. Agriculture and waste land-use sectors were excluded from the tax base in phase one (June 2019 to December 2022) due to the complexity of measuring emissions from these sectors.

The CCIA reports that Phase 1 was extended to 31 December 2025, that Phase 2 started in 2026 and that, according to SARS, the rate increased from R236 to R308 per tCO2e from 1 January 2026. IPCC Code 4A1 (managed waste disposal sites receiving 5 tonnes a day or with a capacity of 25 000 tonnes) is a Schedule 2 activity. However, managed solid waste disposal currently receives a 100% basic tax-free allowance, and no emissions-intensity benchmark has been set for landfills. The cumulative emissions in the CCIA must therefore not be read as a carbon tax liability; any liability is determined annually by the applicant (Brugman, 2026).

2.3.3 Climate Change Act, 2024 (Act 22 of 2024)

The Act commenced on 17 March 2025, although commencement of certain sections was deferred until supporting regulations are made (DFFE, 2025b). It provides for a national emissions trajectory, sectoral emission targets, carbon budgets and adaptation strategies. Methane regulation and carbon budgets under the Act may lead to requirements for gas capture, monitoring and reporting at landfills (Brugman, 2026, p. 58).

2.3.3.1 Draft National Guideline for the Consideration of Climate Change Implications (GN 6759, 24 October 2025)

The guideline is in draft and had not been promulgated when the CCIA was completed.

2.3.4 Provincial Legislation

2.3.4.1 Gauteng Provincial Integrated Waste Management Policy (GPIWMP)

At provincial level, waste management in Gauteng is guided by the GPIWMP, published by the then Gauteng Department of Agriculture, Conservation and Environment in September 2006 (Gauteng DACE, 2006). The GPIWMP remains the current provincial policy instrument giving effect to NEM:WA at provincial level, structured around six goals and 24 strategic objectives, including waste minimisation, re-use and recovery; effective and efficient waste services; monitoring, compliance and enforcement; and alignment with the NWMS (Gauteng DACE, 2006, cited in Ekurhuleni Metropolitan Municipality, 2025).

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2.3.4.2 Gauteng Waste Information System (GWIS)

GWIS is regulated under the Gauteng Waste Information Regulations, 2004 (Provincial Gazette No. 372, General Notice 3035(b), 15 September 2004), published in terms of section 24(c) of the Environment Conservation Act 73 of 1989 (GPG, 2004; GWIS, n.d.). GWIS was developed and implemented by the then Gauteng Department of Agriculture, Conservation and Environment in 2004 to capture routine data on the tonnages of waste transported, treated, landfilled and recycled within the Province on a monthly and annual basis, and remains administered by GDARDE (GWIS, n.d.). This provincial system operates alongside, and feeds into, the national South African Waste Information System (SAWIS) established under section 60 of NEM:WA and the National Waste Information Regulations, 2012 (SAWIC, n.d.). Facilities meeting the registration thresholds under the applicable regulations — including hazardous waste generators exceeding 20 kg per day, waste treatment facilities, recycling facilities and disposal sites — are required to register as data providers on GWIS in addition to any national SAWIS registration obligations (Gauteng Provincial Government, n.d.). The Tonkmeter facility is registered on GWIS as a condition of the IEA (GDARD, 2017).

2.3.4.3 General Waste Collection Standards of Gauteng Province

Waste collection within the Province is further informed by the General Waste Collection Standards of Gauteng Province, a provincial standard-setting document subsequently used, together with the Waste Act and prevailing international best practice, as a founding reference in the development of the National Domestic Waste Collection Standards, GN 21 of 2011 (DEA, 2011). The Gauteng standards address matters such as the design of appropriate waste collection systems having regard to settlement density, source separation of recyclables, and community participation in the design of collection systems (DEA, 2011).

2.3.4.4 Gauteng Pollution Buffer Zones

GDARD has developed a guideline for pollution buffer zones, the purpose of which is to ensure that pollution buffer areas are created between pollution sources and the nearest human settlements to protect residents. A buffer zone is defined as an area of land required to filter out the deleterious effects of the pollution source that is buffered, based on current understanding of the pollution type and mode of dispersal. Pollution sources are classified into three categories: Category 1 represents industries with pollution risks that can have a potentially serious health effect on a large scale; Category 2 represents industries with pollution risks that may cause minor health effects, or activities resulting in nuisance rather

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than actual health impacts; and Category 3 represents industries posing little to no health impact, potentially resulting in localised nuisance. The TRF is classified as a Class B landfill in terms of the waste types (general waste) disposed of, for which the guideline recommends a maximum buffer of 1 000 m. The GDARD guideline also indicates that waste management licensing conditions include requirements for a buffer zone around landfill sites; this buffer guideline is relevant to the facility's proximity to KwaThema — see Section B.9.

2.3.5 GUIDELINES AND STANDARDS

2.3.5.1 South African National Standard (SANS) 1936:2012

The SANS 1936 series is the national standard governing the planning, investigation, design, construction and long-term management of developments situated on dolomitic land. The standard was developed to minimise the risk of sinkhole and subsidence formation by providing a systematic framework for assessing geological hazards, determining the suitability of proposed land uses, implementing appropriate engineering precautions, and establishing long-term monitoring and risk management requirements (SABS, 2012a–d). The series consists of four parts: Part 1 establishes general principles for development on dolomite and specifies permissible land uses according to the assessed dolomite hazard class; Part 2 prescribes the methodology for geotechnical investigations and the determination of Inherent Hazard Classes, Design Hazard Classes and Dolomite Area Designations; Part 3 specifies engineering design requirements and precautionary measures necessary to minimise concentrated ingress of water and reduce the likelihood of sinkhole formation; and Part 4 provides requirements for the ongoing monitoring, maintenance and risk management of developments on dolomitic land throughout their operational life. Collectively, the series provides the accepted national engineering standard for ensuring that developments on dolomite are planned, designed and managed in a manner that protects public safety and infrastructure while minimising geological risk (SABS, 2012a–d). The application of this standard to Area E's site-specific dolomite stability rating is set out in Section B.5 below.

2.3.5.2 Department of Public Works Manual PW344: Appropriate Development of Infrastructure on Dolomite

The Department of Public Works Manual for Appropriate Development of Infrastructure on Dolomite (PW344) provides practical guidance for the planning, design, construction and management of infrastructure on dolomitic land, complementing the SANS 1936 series by translating the principles of dolomite hazard assessment into engineering and project

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implementation practices (Department of Public Works, 2010). The manual promotes a risk-based approach to development, recognising that construction on dolomite can be undertaken safely where appropriate investigations are completed, suitable engineering measures are incorporated into the design, and effective operational controls are maintained. It provides guidance on site investigations, hazard classification, stormwater management, water-bearing services, foundation design, construction supervision, quality assurance and long-term maintenance to reduce the likelihood of sinkhole formation associated with concentrated ingress of water, and is widely recognised as a best-practice guideline for public infrastructure projects, frequently used in conjunction with the SANS 1936 series (Department of Public Works, 2010).

3 ALTERNATIVES

Describe the proposal and alternatives that are considered in this application. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity could be accomplished. The determination of whether the site or activity (including different processes etc.) or both is appropriate needs to be informed by the specific circumstances of the activity and its environment.

The no-go option must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed. Do not include the no go option into the alternative table below.

Note: After receipt of this report the competent authority may also request the applicant to assess additional alternatives that could possibly accomplish the purpose and need of the proposed activity if it is clear that realistic alternatives have not been considered to a reasonable extent. The no-go option is included below as the mandatory baseline.

3.1 PROCESS FOLLOWED

Alternatives were identified from four sources:

a) the purpose and need of the proposal, which is to provide long-term, licensed disposal capacity and to increase the recovery of recyclables;
b) the existing authorisation and approved layout of the facility (GDARD, 2017);
c) the specialist studies;
d) the City of Ekurhuleni's draft Integrated Waste Management Plan (Ekurhuleni Metropolitan Municipality, 2025).

Five types of alternatives were considered: location, activity, design, operational and no-go. Each was screened for whether it is reasonable and feasible. The alternatives that were screened out are listed in Table 8 with the reasons. The proposal is assessed against the no-go option as the baseline. Under the no-go option, Areas D and F would be developed sooner under the existing authorisation.

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Table 8: Alternatives considered

No.	Alternative type	Description	Outcome
1	Proposal	Increase the maximum final height of Area E from 1 m to 25 m above natural ground level, within the authorised, lined footprint. Cell 1 is built and receiving waste; Cells 2 to 8 are authorised and will be built in phases. The footprint of Area E is not enlarged, and only the final height, landform, capping and closure design change (Peter Legg Consulting, 2026, p. 16). The proposal also includes clearing vegetation for the expansion of the authorised MRF.	Preferred; assessed
2	Location	Height increase in Areas D and F instead of Area E.	Not preferred. Areas D and F lie closer to the KwaThema residential area (TerraGIS, 2026). The western part of Area D forms the ecological corridor between the Klein Blesbokspruit and the Withokspruit (BKS, 2012) and is mapped as Zone 2 in the GPEMF (GDARD, 2022). Area E is the only area with a complete detail design and an operating cell (Peter Legg Consulting, 2026).
3	Location	A new landfill site elsewhere.	Not reasonable or feasible. It would require a greenfield site, a full licensing process and new infrastructure, with greater impacts than using an existing, authorised brownfield site. The 2017 site selection chose this site because it was already degraded and excavated (AECOM, 2017, p. 167).
4	Design	Intermediate final height, for example 10 m to match the adjacent Rietfontein landfill.	Not preferred. A lower height would reduce the visual impact but provide less airspace, while still needing the same capping, gas management and closure design. The 2017 design already identified 25 m as the maximum design height for each area (AECOM, 2017, pp. 17, 55). The final landform is designed with 1:3 slopes and benches to make the most of the airspace on the available footprint (Peter Legg Consulting, 2026, p. 39). The visual impact of the 25 m landform is mitigated by greening and shaping (van Zyl, 2026, p. 28).
5	Activity and operation	Greater waste diversion instead of additional airspace.	Included in the proposal, not an alternative to it. The MRF expansion increases recovery. However, diversion alone cannot replace disposal capacity for the residual, non-recyclable waste of a metro generating about 1.08 million tonnes of waste a year (Ekurhuleni Metropolitan Municipality, 2025, Table 4-18).
6	Technology	Use of landfill gas for energy instead of flaring.	Not excluded. The enclosed flare is the base case from about 2030 (Brugman, 2026, p. 25; Mafusire, 2026, p. 82). Gas use may be considered once monitored gas

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No.	Alternative type	Description	Outcome
			volumes are known. Flaring and gas use have similar effects on methane emissions.

In the event that no alternative(s) has/have been provided, a motivation must be included in the table below.

3.2 MOTIVATION

3.2.1 MOTIVATION FOR NOT ASSESSING CONSTRUCTION-PHASE ALTERNATIVES

The construction-phase impacts arise from two activities. The first is the clearing and construction of the MRF expansion on the proposed MRF expansion site. The second is the continued phased construction of Cells 2 to 8 within Area E. Neither activity has a reasonable and feasible alternative that would materially change its construction impacts.

Cells 2 to 8 are already authorised under the IEA (GDARD, 2017) and appear on the facility's approved general arrangement drawing. Their position is fixed by the footprint of the worked-out quarry that forms Area E (Peter Legg Consulting, 2026, p. 16; Drawing P077E-300). Their construction will continue under the existing authorisation whether or not this application is granted.

The MRF expansion will be built in phases, inside the existing facility boundary, between the pollution control dam and the solar PV installation (Venter, 2026, p. 5; Tonkmeter pers. comm., 2026). The specialist found the vegetation on this site to be completely transformed, dominated by alien and invasive species, and of Very Low Site Ecological Importance (Venter, 2026, pp. 19–21). Because the proposed site is already of the lowest ecological sensitivity, placing the MRF expansion elsewhere on the property would not reduce its construction impacts.

For these reasons, no construction-phase alternatives were assessed, as permitted where a motivation is given (DEA, 2014, Appendix 1, s 3(1)(h)(x)). The no-go option is assessed as the baseline. Under the no-go option, the MRF expansion would not take place and the vegetation clearing impacts would not occur, but Cells 2 to 8 would still be constructed under the existing IEA.

3.2.2 WHY NO CONSTRUCTION IMPACTS ARE LISTED FOR THE HEIGHT INCREASE

The height increase does not change the size, boundary or location of the facility. It does not extend the footprint of Area E. It does not require any new land to be cleared or any new landfill cells to be built, and it does not change the existing lining or drainage system (Peter Legg Consulting, 2026, p. 16). The application changes only how high waste may be placed

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within Area E, and the final landform, capping and closure design used once that height is reached.

The additional height is reached by placing and compacting waste in further lifts on cells that are already authorised, of which Cell 1 has been built and Cells 2 to 8 will be built in phases. This is an operational activity, not a construction activity. The impacts of the height increase are therefore assessed in the operational phase, including dust, odour, visual intrusion, slope stability, leachate, landfill gas and climate change. The final landform and capping are assessed in the decommissioning, closure and post-closure phases.

The construction of Cells 2 to 8 is included in the construction-phase table for completeness, because it will continue during the extended operating life. It is not an impact of the height increase.

3.3 NO- GO ALTERNATIVE

Under the no-go alternative, neither the height increase of Area E nor the vegetation clearance at the MRF expansion site would be authorised. The facility would continue to operate under the existing IEA, with Areas D, E and F each filled to a maximum of 1 m above natural ground level (GDARD, 2017, condition 4.1(b)).

The no-go alternative is therefore not a “no impact” option.

Table 9: No-Go Impact Assessment Comparison

Aspect	**Proposal: Area E to 25 m and MRF expansion site (significance after mitigation)**	**No-go alternative: Areas D, E and F to 1 m**	**Comparison**	**Assessed in 2017 EIR and managed under the current EMPr (AECOM, 2017)**
Vegetation and habitat (proposed MRF expansion site)	Low; alien plant control Low; alien removal positive	No clearing on the proposed MRF expansion site	No-go marginally better. The proposal includes an alien clearing benefit	Yes:
Visual intrusion	Medium to High (60)	Landform limited to 1 m; existing impact unchanged	No-go better	Assessed at 1 m height only; the taller landform is managed under the EMPr accompanying this application
Dust	Medium (30)	Continues at current levels for 44–87 years	Similar intensity; longer duration and more exposed working face under the proposal	Yes
Odour and hydrogen sulphide	Low (20) and Medium (39)	Continue at current levels	Similar intensity; longer duration under the proposal	Yes (

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Aspect	Proposal: Area E to 25 m and MRF expansion site (significance after mitigation)	No-go alternative: Areas D, E and F to 1 m	Comparison	Assessed in 2017 EIR and managed under the current EMPr (AECOM, 2017)
Greenhouse gas emissions	Medium, adjusted in line with the specialist rating	Lower total facility emissions, but the waste goes to other sites, which may not flare gas	No-go lower on site; partly a displacement	No: new aspect, under the EMPr accompanying this application (Part B §6)
Groundwater and leachate	Low	Lower load on the liner; Areas D and F lined and operated sooner	Proposal better per tonne of waste disposed	Yes
Stormwater and contaminated water	Low	Cells capped sooner; more cells opened in Areas D and F	Similar	Yes, in the EMPr
Slope stability and dolomite	Low	Lower load on the dolomite and the liner	No-go marginally better	Dolomite: Yes Slope stability at 25 m is new
Litter, vectors, noise and traffic	Low	Continue at current levels	Similar intensity; longer duration under the proposal	Yes
Safety of workers and waste pickers	Low	Picking at the working face continues; MRF stays at pilot scale	Proposal better	Yes
Recovery of recyclables	Positive, with the MRF expansion	Recovery limited to the pilot MRF	Proposal better	MRF provided for in the original design
Disposal airspace and capital cost	Positive, Medium (42)	Area E closes after 19–39 years; Areas D and F needed sooner	Proposal better	Need assessed in 2017; the additional airspace is new
Employment and local procurement	Positive, Medium (39)	Jobs retained for the existing authorised life	Proposal better	Yes
Closure and post-closure	Low; post-closure methane Medium to High (70)	Smaller landform closes sooner	No-go better for post-closure methane	Yes

4 PHYSICAL SIZE OF THE ACTIVITY

The height increase applies to Area E, which is 47.3 ha in extent (IntraSolutions, 2026). It does not add any new footprint, because the footprint of Area E is not enlarged. The proposed MRF expansion will occupy about 1 ha². The total new footprint of the proposal is therefore approximately 1 ha.

The area lcenced is approximately 108 Ha (GDARD, 2017, condition 4.1(b))..

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Indicate the total physical size (footprint) of the proposal as well as alternatives. Footprints are to include all new infrastructure (roads, services etc), impermeable surfaces and landscaped areas:

	Size of the activity:
Proposed activity (Total environmental (landscaping, parking, etc.) and the building footprint)	Area E – 47.3 ha Licenced facility – 108 ha MRF extension site – 1 ha
Alternatives:	
Alternative 1 (if any)	N/A
Alternative 2 (if any)	N/A

Ha/ m^2

5 SITE ACCESS

Does ready access to the site exist, or is access directly from an existing road?	YES	NO

The facility is operational and already has established access via Tonk Meter Road / Rietfontein Road; no new access road is required for this application.

6 LAYOUT/ROUTE PLAN,

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

Please refer to Appendix A.

7 SITE PHOTOGRAPHS,

Colour photographs from the center of the site must be taken in at least the eight major compass directions with a description of each photograph. Photographs must be attached under the appropriate Appendix. It should be supplemented with additional photographs of relevant features on the site, where applicable.

Please refer to Appendix B

8 FACILITY ILLUSTRATION

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

Please Refer to Appendix C.

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SECTION B: DESCRIPTION OF RECEIVING ENVIRONMENT

Section B applies to the proposal (Area E and the proposed MRF expansion site).

1 PROPERTY DESCRIPTION

The TRF is located on the Remaining Extent of Portion 81 (to be subdivided into Portions 222, 223, 224 and 230) of the Farm Rietfontein 128 IR, City of Ekurhuleni, Gauteng. It is placed next to the City of Ekurhuleni municipality Rietfontein landfill, south of the N17 highway, between Tonk Meter Road and Rietfontein Road. The Kwa-Thema residential area lies to the west and south-west (Peter Legg Consulting, 2016).

The neighbouring, municipally operated Rietfontein landfill has been operating since 1997 and is expected to reach the end of its licensed life in 2029. It receives around 18 500 tonnes of general waste a month across two operational areas, does not use flaring, and parts of it are already close to its own final permitted height of about 10 meters (COE, 2025).

The wider property covers about 220 hectares. Of this, about 108 hectares is licensed for the TRF, with the landfill itself covering about 94 hectares across three separate areas: Area D, Area E and Area F. These areas were previously clay quarries and are sequentially developed as landfill cells (GDARD, 2017; Peter Legg Consulting, 2016).

This application does not propose any change to the size, boundary, or location of the facility. The expansion relates to Area E and does not extend the footprint of Area E either (only its height) and to the clearance of vegetation withing the existing boundary.

Area E is located on future portions 223 and 230 and the MRF expansion site on portions of portions 134, 223 and 225.

2 ACTIVITY POSITION

No location/route alternatives or linear-activity duplication is applicable — this is a single, existing site.

	Latitude (S):	Longitude (E):
TRF Area E:	º26°17'33.64	º28°25'25.9

The 21 digit Surveyor General code of each cadastral land parcel

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2.1 AREA E

Proposal	T	0	I	R	0	0	0	0	0	0	0	0	0	1	2	8	0	0	2	2	3
	T	0	I	R	0	0	0	0	0	0	0	0	0	1	2	8	0	0	2	3	0
Alt. 1	T	0	I	R	0	0	0	0	0	0	0	0	0	1	2	8	0	0	2	2	3
	T	0	I	R	0	0	0	0	0	0	0	0	0	1	2	8	0	0	2	3	0

2.2 MRF EXPANSION SITE

Proposal	T	0	I	R	0	0	0	0	0	0	0	0	0	1	2	8	0	0	1	3	4
	T	0	I	R	0	0	0	0	0	0	0	0	0	1	2	8	0	0	2	3	3
	T	0	I	R	0	0	0	0	0	0	0	0	0	1	2	8	0	0	2	2	5
Alt. 1	T	0	I	R	0	0	0	0	0	0	0	0	0	1	2	8	0	0	1	3	4
	T	0	I	R	0	0	0	0	0	0	0	0	0	1	2	8	0	0	2	3	3
	T	0	I	R	0	0	0	0	0	0	0	0	0	1	2	8	0	0	2	2	5

3 GRADIENT OF THE SITE

This application does not involve any change to the site's natural, pre-development ground gradient — that gradient was already assessed and addressed as part of the facility's original environmental authorisation (IEA, GDARD, 2017) and the original Design and Operating Plan (Peter Legg Consulting, 2016). The site is relatively flat overall, with higher-lying ground towards the south; natural ground level across the wider property ranges from approximately 1 612 m above mean sea level (mamsl) at its lowest point (northern portion) to approximately 1 629 mamsl at its highest point (southern portion), and this natural topography has itself already been altered by decades of clay mining and gold-tailings reclamation predating the facility's establishment (Peter Legg Consulting, 2016). The relevant consideration for this application is instead the proposed engineered height of the already-constructed, already-lined landfill cell in Area E: an increase in the permitted final capped height from 1 m to 25 m above natural ground level (Peter Legg Consulting, 2026, p. 17). No new ground is being cut, filled, or re-profiled outside the existing, already-authorised footprint.

Indicate the general gradient of the site.

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

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4 LOCATION IN LANDSCAPE

The site is not a new siting decision — it is an existing, licensed waste disposal facility, and this application relates solely to increasing the permitted height within the existing Area E footprint and vegetation clearing within the site.

The facility is situated on the Farm Rietfontein 128 IR, within the City of Ekurhuleni, Gauteng Province. Access to the site is via the N17, taking the Tonk Meter Road (M63) off-ramp and Rietfontein Road to the facility entrance, which is access-controlled and fenced/barricaded to prevent unauthorised entry to the operational area (Ekurhuleni Metropolitan Municipality, 2025).

4.1 ZONING AND CURRENT LAND USE

The entire property is owned by the applicant group and has previously been zoned for waste disposal; the remainder of Portion 81 is zoned “undetermined with Annexure 1”, which makes provision for mining, with rights in place for waste disposal subject to the submission of a site development plan (Peter Legg Consulting, 2016). The current land use within the licensed areas is clay mining and landfilling; gold tailings previously stored on parts of the site have been reclaimed, and deep gold-mining workings occur on parts of the site at depths in excess of 1 000 m below ground level, confirmed as safe for landfill development (Peter Legg Consulting, 2016; Meyer, 2013, citing Venter, 2012).

4.1.1 SURROUNDING LAND USE

The site lies within a heavily developed, mining-influenced urban fringe. Rietfontein Road runs along the northern boundary of the property. Beyond it is open, previously mined land (zoned industrial and agricultural), then the N17 Highway. North of the N17 are the Rietfontein dams, recreational land (a golf course and country club) and the built-up areas of Springs.

The City of Ekurhuleni’s Rietfontein Municipal Landfill, authorised to a height of 10 m, adjoins Area E to the west. Its Area C is separated from Area E only by an access road and a Rand Water pipeline servitude (Peter Legg Consulting, 2026). Tonkmeter’s own Areas F and D lie further west and south-west. Beyond them, across an Eskom power-line servitude, are the residential areas of Kwa-Thema.

To the east, Tonkmeter Road gives access to the Verref and Corobrik brickworks (Peter Legg Consulting, 2026). Across the road is an industrial area, and further east and south-east are the residential areas of Selection Park and Selcourt. To the south and south-east

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are the facility's materials proposed recovery and composting areas and further mining-zoned land, followed by Rhokana Street and more residential development.

Across the wider Project Zone of Influence (PZI), land cover is dominated by built-up areas and cultivated land, interspersed with grassland. Mines, quarries, waterbodies and wetlands are scattered throughout, and four nature reserves occur within the PZI. Most of the PZI is heavily impacted by development, with very little scenic value (TerraGis, 2026).

4.1.2 SURFACE WATER CONTEXT

Two rivers occur in relative proximity to the site: the Kleinblesbokspruit, about 800 m to the north-east, and the Withokspruit, about 1 km to the south-west. The site falls within the catchment of the Kleinblesbokspruit The nearest 1:100-year flood line is about 700 m from the site (Peter Legg Consulting, 2026).

Uncontaminated stormwater collects in the undeveloped quarry areas of Area E, where the future cells will be built, and is kept apart from the operating cell by separation berms. This water is sampled before it is pumped to the municipal stormwater system (DMV Consultants, 2026, pp. 12, 20).

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

Ridgeline	Plateau	Side slope of hill/ridge	Valley	Plain	Undulating plain/low hills	River front

4.2 CLIMATE

The Tonkmeter Resource Facility, located in the City of Ekurhuleni, Gauteng Province, falls within a region generally described as experiencing warm, rainy summers and cold, dry winters (Rayten Engineering Solutions, 2026). Meteorological conditions for the project area were characterised using MM5-modelled data, sourced from Lakes Environmental for the period January 2023 to December 2025 (Rayten Engineering Solutions, 2026). MM5 is a mesoscale numerical model, developed jointly by Pennsylvania State University and the National Center for Atmospheric Research (PSU/NCAR), that simulates atmospheric circulation patterns at regional and mesoscale levels and is commonly applied in the generation of weather forecasts and climate projections (Rayten Engineering Solutions, 2026).

4.2.1 TEMPERATURE

Average monthly temperatures range from approximately 9.0°C to 21.2°C, with the highest average temperatures recorded between mid-spring and early-autumn (October to March) and the lowest between mid-autumn and early-spring (April to September). The absolute

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monthly minimum and maximum temperatures over the three-year record ranged from -3.1°C (July) to 30.9°C (November) (Rayten Engineering Solutions, 2026).

4.2.2 RAINFALL

The area receives most of its rainfall during the spring, summer and early-autumn months (September to March), with minimal rainfall during the remainder of autumn and through winter (April to August).

Long-term rainfall: the mean annual precipitation (MAP) for the site is 713 mm, the average of six South African Weather Service stations within 10 km of the site with records of 46 to 96 years (DMV Consultants, 2026).

Gauteng is projected to become warmer, with longer dry spells. Rainfall projections are less certain, but rainfall is expected to become more variable, with more intense rainfall events that increase runoff, flash-flood and erosion risk (Brugman, 2026).

4.2.3 WIND

Wind roses compiled for the site indicate that the predominant wind directions are from the north (~13.1% of the time), north-northeast (~12.0%) and north-northwest (~10.0%). Wind speeds during the period ranged from 0.5 m/s to 8.80 m/s, classified as light air to fresh breezes on the Beaufort scale, with calm conditions (0 m/s) recorded approximately 6.7% of the time. Based on these prevailing wind fields, pollutant transport from site activities is generally expected towards the south, south-southwest and south-southeast, varying by season and time of day (Rayten Engineering Solutions, 2026). Wind rose plots for the full period, AM/PM split and seasonal variation are appended (Source: Baseline Air Quality Report, Rayten Engineering Solutions, 2026).

4.3 BASELINE AIR QUALITY

The existing (baseline) air quality at the project site was characterised using measured data from the Springs Ambient Air Quality Monitoring Station (AQMS), located approximately 2 km north of the landfill and accessible via the South African Air Quality Information System (SAAQIS). Data was reviewed for the four pollutants most relevant to landfill and general air quality impacts: coarse particulates (PM_{10}), fine particulates ($PM_{2.5}$), sulphur dioxide (SO_2) and nitrogen dioxide (NO_2), covering the period January 2022 to December 2023 (Rayten Engineering Solutions, 2026).

4.3.1 PARTICULATE MATTER (PM_{10} AND $PM_{2.5}$)

Particulate matter was found to be the pollutant of greatest concern in the study area. Daily average PM_{10} concentrations ranged from 4.24 µg/m³ to 287.70 µg/m³, with an overall

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average of 53.81 µg/m³, resulting in 160 exceedances of the daily standard (75 µg/m³) over the monitoring period — far more than the four exceedances permitted per year under South African standards. Annual average PM10 concentrations of 53.20 µg/m³ (2022) and 53.90 µg/m³ (2023) also exceeded the annual limit of 40 µg/m³ in both years (Rayten Engineering Solutions, 2026).

A similar pattern was observed for $PM_{2.5}$, with daily concentrations ranging from 1.71 µg/m³ to 192.95 µg/m³ (average 28.90 µg/m³) and 155 exceedances of the daily standard (40 µg/m³) recorded, against a permitted limit of zero exceedances per year (Rayten Engineering Solutions, 2026). Annual average $PM_{2.5}$ concentrations of 29.09 µg/m³ and 28.33 µg/m³ likewise exceeded the annual standard of 20 µg/m³ in both years reviewed (Rayten Engineering Solutions, 2026).

Both pollutants peaked during the cooler, drier months (roughly May to October), consistent with reduced atmospheric dispersion caused by stronger surface temperature inversions in winter. Identified sources within a 20 km radius include mining activity, vehicle exhaust emissions, agricultural activity, solid fuel burning in townships and informal settlements, and general industrial activity (Rayten Engineering Solutions, 2026).

4.3.2 Sulphur Dioxide (SO_2)

SO2 concentrations were well within acceptable limits. Hourly and daily averages were 6.08 parts per billion (ppb) and 6.05 ppb respectively, with no exceedances of either the hourly (134 ppb) or daily (48 ppb) standards recorded. Annual averages of 6.26 ppb (2022) and 5.90 ppb (2023) were also well below the annual standard of 19 ppb (Rayten Engineering Solutions, 2026). Likely local sources include solid fuel combustion in residential areas, vehicle emissions and industrial activity (Rayten Engineering Solutions, 2026).

4.3.3 Nitrogen Dioxide (NO_2)

NO_2 was also within acceptable limits for the period assessed (2023 only, due to poor data capture in 2022). Hourly concentrations ranged from 0.00 ppb to 96.15 ppb, with an annual average of 15.05 ppb — below both the hourly standard (106 ppb) and the annual standard (21 ppb). No exceedances were recorded. Vehicle exhaust and industrial emissions were identified as the main local sources (Rayten Engineering Solutions, 2026).

4.3.4 Overall Air Quality Baseline

In summary, background particulate matter (PM_{10} and $PM_{2.5}$) already exceeds South African ambient air quality standards in the study area, indicating an existing cumulative air quality burden before any proposed extension of the landfill is considered. In contrast, SO_2 and NO_2

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levels are compliant and pose no current concern (Rayten Engineering Solutions, 2026). This means any additional dust or particulate-generating activity from the proposed landfill extension would be adding to an already non-compliant baseline.

Table 10: Overall Air Quality Baseline

Pollutant	Measured baseline (Springs AQMS, 2022–2023)	SA standard	Finding
PM_{10} (daily)	4.24 – 287.70 µg/m³ (avg 53.81)	75 µg/m³	160 exceedances recorded vs. 4 permitted p.a.
PM_{10} (annual)	53.20 (2022) / 53.90 (2023) µg/m³	40 µg/m³	Exceeded in both years
$PM_{2.5}$ (daily)	1.71 – 192.95 µg/m³ (avg 28.90)	40 µg/m³	155 exceedances recorded vs. 0 permitted p.a.
$PM_{2.5}$ (annual)	29.09 / 28.33 µg/m³	20 µg/m³	Exceeded in both years
SO_2 (hourly/daily/annual)	6.08 ppb / 6.05 ppb / 6.26–5.90 ppb	134 / 48 / 19 ppb	No exceedances — compliant
NO_2 (hourly/annual, 2023 only)	0–96.15 ppb / 15.05 ppb	106 / 21 ppb	No exceedances — compliant

Source: Air Quality Baseline Assessment, (Rayten Engineering Solutions, 2026

Background PM_{10} and $PM_{2.5}$ already exceed South African ambient air quality standards in the study area — an existing cumulative air quality burden that predates this application. SO_2 and NO_2 are compliant. This is an important baseline finding for the cumulative impact assessment in Section E, since any additional dust-generating activity from the height increase would add to an already non-compliant baseline (Rayten Engineering Solutions, 2026).

5 GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

5.1 GEOLOGICAL SETTING

The site is situated within an area where Karoo-age sedimentary deposits overlie dolomite formations of the Malmani Subgroup. The geological succession comprises mudstones, shales and tillites of the Karoo Supergroup overlying dolomite and chert units associated with the Malmani Subgroup, with local dolerite intrusions also present (IntraSolutions, 2026). The site is underlain by a sequence spanning more than 2 000 million years: from youngest to oldest, post-Karoo dolerite, diabase and syenite dykes and sills (intrusive igneous rock); the Karoo Ecca Group's Vryheid Formation (shale, sandstone, mudstone and coal); the Karoo Dwyka Group (tillite/diamictite and shale); the Transvaal Supergroup's Chuniespoort Group, Malmani Subgroup (Frisco, Eccles, Lyttleton, Monte Christo and Oaktree Formations

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— dolomite and chert) and Black Reef Formation (quartzite, shale); the Ventersdorp Supergroup's Klipriviersberg/Alberton Group (basaltic lava, feldspar porphyry); the Witwatersrand Supergroup's Central Rand and West Rand Groups (quartzite, conglomerate, shale, banded ironstone); and the Archaean Basement Complex (granite, gneiss) (Meyer, 2013, Table 1; Meyer, 2024, Table 1).

The geology beneath the site consists of mudstone and shale of the Vryheid Formation and Dwyka Group, which overlie the Malmani Subgroup dolomite at depth (Meyer, 2013). Beneath the dolomite are older rocks of the Ventersdorp and Witwatersrand Supergroups, confirmed through deep exploration drilling undertaken for gold mining (Meyer, 2013). A review of historical mining records confirmed no coal mining has occurred beneath the site; although gold mining has taken place in the area, the underground workings occur at depths greater than 1 000 m below ground level, far below the proposed development, and are not expected to affect the stability of the site (Meyer, 2013, citing Venter, 2012).

The dolomite was exposed at the ground surface for a very long period before younger sediments were deposited over it; during this time, erosion removed large amounts of rock, creating an uneven dolomite surface. During the Dwyka glaciation approximately 320 million years ago, glaciers further eroded the landscape and formed deep valleys, subsequently filled with glacial sediments (tillite) and shale, explaining why some boreholes encountered thicker Dwyka deposits than others (Meyer, 2013; Meyer, 2024). Over millions of years, weathering of the overlying Ecca Group mudstones produced the high-quality clay deposits historically mined at the site for brick manufacturing, locally up to 35 m thick (Meyer, 2013; Meyer, 2024). A prominent, near-vertical dolerite/diabase dyke runs in a north-north-westerly direction close to the western boundary of Area E, shown on the regional geological map and confirmed by drilling in the Rand Water pipeline servitude; it is considered to influence local groundwater movement but has not been shown to act as a barrier to deeper (Dwyka/dolomite) groundwater flow (IntraSolutions, 2026; Peter Legg Consulting, 2016; Meyer, 2013; Meyer, 2024).

5.1.1 Ground conditions at Area E (site-specific)

Unlike a green-fields site, much of Area E has already been physically disturbed by decades of clay mining. From surface downward, undisturbed portions of the site typically comprise, in descending order: a thin layer of topsoil and wind-blown sandy material; a zone of sandy material cemented to varying degrees by iron oxide (“ferricrete”); residual mudstone weathered in place to a stiff, structureless clayey silt, reddish or yellowish in colour (“yellow

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clay"); a purplish, more clay-rich weathered shale ("plastic clay"); and a harder, greyish mudstone at greater depth ("fire clay"), which together with the yellow and plastic clay was historically mined and used by Vereeniging Refractories for the manufacture of refractory bricks. The southern part of Area E was excavated by Corobrik to depths of approximately 15 to 22 m to extract these clays, and was subsequently backfilled — largely with a mixture of brick waste, ash and mudrock in a clayey matrix — to depths of up to about 19 m in places (IntraSolutions, 2026). A smaller, relatively undisturbed ("virgin") portion remains in the north of Area E.

5.1.2 Dolomite Stability (SANS 1936)

A dolomite stability review conducted by IntraSolutions in 2026 supplemented previous investigations undertaken in 2011 and 2013, incorporating available geological, geophysical and hydrogeological information. These investigations indicate that dolomite occurs at intermediate to considerable depth beneath relatively thick Karoo sediments, with dolomite bedrock generally occurring between approximately 20 m and 38 m below ground level, while previously quarried areas contain substantial backfilled material. Area E is underlain by dolomite but protected by a substantial thickness of relatively impermeable Karoo sediments, a configuration that significantly reduces the potential for subsurface erosion and sinkhole formation resulting from water ingress (IntraSolutions, 2026). No recorded sinkholes or subsidences have been identified on or immediately adjacent to the site. Based on the available borehole information, gravity survey data and geological interpretation, the site exhibits a low-to-medium susceptibility to sinkhole and subsidence formation associated with concentrated ingress of water, and a low susceptibility to instability associated with groundwater level drawdown (IntraSolutions, 2026). Area E's Inherent Hazard Class is accordingly rated 1/2//1 — low-to-medium susceptibility to water-ingress-triggered instability, and low susceptibility to groundwater-drawdown-triggered instability. Because a groundwater monitoring commitment is in place, the Design Hazard Class is set at the lower value of 2, which corresponds to Dolomite Area Designation D3 (IntraSolutions, 2026). The Council for Geoscience's 2013 conditions of support still apply, including a Dolomite Risk Management Plan and the SANS 1936-3 precautionary measures (IntraSolutions, 2026).

5.1.3 Understanding The SANS 1936 Hazard Classification

The Inherent Hazard Class is, in effect, the site's raw underlying risk rating before any human intervention, drainage or management is factored in. It answers two questions at once: *how likely is a sinkhole or subsidence to happen here*, and *how large would it be if it did happen*? SANS 1936 uses a scale of 1 to 8 to capture both of these together: Class 1

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represents a low chance of occurrence where even the worst case would be small; Classes 2–4 represent a medium chance, with potential size increasing as the number rises; and Classes 5–8 represent a high chance, again with potential size increasing as the number rises (SABS, 2012). Class 1 is therefore the “best case” rating and Class 8 the “worst case” — not just less likely to happen, but bigger and more damaging if it does.

Area E's rating of 1/2//1 (IntraSolutions, 2026) is in fact three sub-ratings bundled together, because the Standard requires the ground to be rated separately against two different triggers: a rating of 1 for susceptibility to small events triggered by water soaking into the ground in a concentrated way (e.g. poor stormwater control); a rating of 2 for susceptibility to slightly larger events from that same water-ingress trigger; and a rating of 1 for susceptibility to events triggered by a drop in the groundwater level. In short: low-to-medium risk from water getting into the ground where it shouldn't, and low risk from groundwater level changes.

The Design Hazard Class answers a different question: *which single number should actually be designed against*? The Inherent Hazard Class is a geological fact about the ground, but engineers and building control officials need one single number to design against, since a liner or foundation cannot be built to three different classes at once. The Standard therefore requires the inherent rating(s) to be collapsed into one Design Hazard Class, choosing the number appropriate to how well the risk will actually be controlled going forward — particularly through groundwater monitoring and management (SABS, 2012). Where reliable, ongoing control is in place, design may proceed to the lower (better) end of the inherent range; where there is little or no control, design must proceed to the higher (worse) end, even though the geology itself has not changed. For Area E, the Design Hazard Class is set at 2 — the lower end of the inherent range — because a groundwater monitoring commitment is in place (IntraSolutions, 2026). That Design Hazard Class of 2 is what is then checked against SANS 1936's land-use tables to confirm that landfilling is a permitted use, and what sets the level of precautionary measures required — in this case, Dolomite Area Designation D3.

5.2 HYDROGEOLOGY AND AQUIFER CLASSIFICATION

More than 80 boreholes have been drilled across the site since the mid-1980s for geotechnical, geohydrological and clay-resource investigations (Meyer, 2013). No water strike was recorded in more than half of the boreholes drilled, and several deep boreholes were completely dry on completion; where water was intersected, the majority of strikes

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occurred within the Vryheid Formation and Dwyka Group, with comparatively few within the underlying dolomite itself. More than 90% of boreholes had a reported yield of less than 0.5 L/s, and test pumping confirmed that no borehole on site is capable of sustaining a yield greater than 0.3 L/s (Meyer, 2013). Applying the Department of Water Affairs and Forestry (DWAF) three-criteria aquifer classification system (potential sustained yield, water quality and aquifer significance), the geological formations beneath the site are classified as non-aquifers with low potential sustained yield (Meyer, 2013; Peter Legg Consulting, 2016).

5.2.1 GROUNDWATER LEVELS AND FLOW DIRECTION

Two distinct groundwater level regimes occur at the site: a shallow, possibly perched water level within the Vryheid Formation, and a deeper water level within the underlying Dwyka Group and Malmani dolomite, typically 20–30 metres below the shallow water level (Meyer, 2013). Groundwater in both regimes generally flows from the north, east and south towards the central and western part of the site, with eventual outflow to the west (Meyer, 2013; Peter Legg Consulting, 2016); locally, within Area E, groundwater flow is recorded towards the north (Meyer, 2024).

5.2.2 GROUNDWATER MONITORING NETWORK

A dedicated groundwater monitoring network was established for Cell 1 in Area E, comprising four monitoring positions (TM-1 to TM-4), each with a paired shallow (S) and deep (D) borehole. TM-1 is sited at higher hydraulic head than the disposal footprint and serves as the background monitoring position; TM-2, TM-3 and TM-4 are sited to intercept groundwater flowing around and beneath the disposal area and serve as detection monitoring positions (Meyer, 2024).

Table 11: Groundwater monitoring network

Borehole	Collar Elevation (mamsl)	Drilled Depth (m)	Monitoring Purpose
TM-1-S / TM-1-D	1,613.9 / 1,614.2	24 / 51	Background
TM-2-S / TM-2-D	1,608.0 / 1,608.1	20 / 41	Detection
TM-3-S / TM-3-D	1,608.4 / 1,608.4	30 / 51	Detection
TM-4-S / TM-4-D	1,611.6 / 1,611.7	26 / 41	Detection

Source: Groundwater monitoring report, Meyer, 2024

All eight boreholes are constructed with uPVC casing and a gravel-pack annulus, consistent with the DWAF Minimum Requirements for Water Monitoring at Waste Management Facilities (DWAF, 1998).

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It should be noted that the network was designed for the development of Cell 1 in Area E. New cells are therefore built as airspace is used up, not on fixed dates, and the height increase defers the point at which Cell 1 reaches final height and the next cell is needed. If the eight cells were of similar capacity, the Area E life of about 39 years at 15 000 tonnes/month or 77 years at 7 500 tonnes/month would mean a new cell roughly every five to ten years (calculated from Table 2 - note the cells differ in size, so this is indicative only).

Before new cell development a suitable qualified specialist must be consulted for the citing of additional or new groundwater monitoring boreholes. The requirement is also listed in the EMPr.

5.2.3 BASELINE GROUNDWATER QUALITY

The first round of baseline chemical analyses for the eight TM monitoring boreholes was undertaken on 4 November 2024, prior to the commencement of waste disposal in Cell 1. Samples were analysed by an accredited laboratory (Aquatico Laboratories, Centurion) (Meyer, 2024) for the standard analytical suite used for landfill groundwater monitoring in South Africa:

a) physical/aggregate parameters (pH, electrical conductivity, total dissolved solids and total alkalinity);
b) major anions and nutrients (chloride, sulphate, fluoride, nitrate, ammonium and orthophosphate);
c) major cations (calcium, magnesium, sodium and potassium);
d) trace and minor metals (aluminium, iron, manganese, chromium (total and hexavalent), copper, zinc, nickel, cadmium, lead, arsenic, selenium, mercury and boron); and
e) organic-load and other indicators (chemical oxygen demand, free cyanide and phenol).

Across the eight boreholes, baseline groundwater quality on 4 November 2024 was generally good and circumneutral, and broadly consistent with the low-yielding, non-aquifer characterisation of the site (Meyer, 2024). Indicative baseline ranges recorded across the eight boreholes are summarised in the table below.

Table 12: Baseline ground quality ranges recorded across monitoring boreholes

Parameter	Unit	Baseline Range (Nov 2024)
pH	–	6.5 – 7.9 (circumneutral)

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Parameter	Unit	Baseline Range (Nov 2024)
Electrical conductivity (EC)	mS/m	15 – 107
Total dissolved solids (TDS)	mg/L	105 – 752
Chloride	mg/L	6 – 80
Sulphate	mg/L	<1 – 318
Ammonium (as N)	mg/L	0.01 – 0.20
Manganese	mg/L	below detection – 0.14
Chemical oxygen demand (COD)	mg/L	25 – 74
Other trace metals (Al, Cr, Cu, Ni, Cd, Pb, As, Se, Hg, B)	mg/L	below laboratory detection limit in all boreholes

Source: Groundwater monitoring report, Meyer, 2024

Free cyanide and phenol were below the laboratory detection limit in all boreholes at baseline. Manganese at two boreholes (TM-1-D and TM-3-D) was marginally above the SANS 241 aesthetic guideline of 0.1 mg/L, which is consistent with natural mineralisation of the host mudrock and dolomite rather than any external source (Meyer, 2013; Meyer, 2024).

5.2.4 MONITORING

Groundwater monitoring at Cell 1 is ongoing, with the background and detection boreholes sampled on 3 November 2025 and 17 August 2026 following the November 2024 baseline (Tonkmeter (Pty) Ltd, 2026c); full results of each subsequent monitoring round, including laboratory certificates are available from the Licence Holder.

The IEA sets the monitoring regime:

e) Background monitoring at a borehole with a higher groundwater pressure level than the site (condition 4.10.2);
f) Detection monitoring of the Annexure I variables quarterly and the Annexure II variables annually, or at a frequency set by the Department (condition 4.10.3);
g) Monthly investigative monitoring while any detection variable shows an increasing trend (condition 4.10.4);
h) Post-closure monitoring for 30 years (condition 4.10.5); and
i) A monitoring system for the larger site that can tell different contamination sources apart (condition 4.10.1(b)) (GDARD, 2017).

Monitoring is currently six-monthly and the results supplied show three rounds in 21 months. Dissolved organic carbon, strontium and nitrite, which are listed in Annexures I and II, are

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not in the analytical suite an omission that was highlighted during the 2025 external audit (EcoPartners, 2025).

5.2.4.1 Monitoring results since the baseline

As indicated, two further rounds have been sampled since the baseline, on 3 November 2025 and 17 August 2026 (and the results were reviewed at the groundwater specialist workshop on 12 October 2026. The main changes are:

a) TM-3-S (detection): sulphate rose from 20.6 to 92.0 and then 118 mg/L, EC from 30.3 to 41.2 and then 50.6 mS/m (TDS 208 to 348 mg/L), chloride from 22.8 to 35.8 mg/L, and ammonium (as N) from 0.028 to 0.417 mg/L in August 2026;
b) TM-3-D (detection): sulphate rose from 43.5 to 174 mg/L and then fell to 112 mg/L, and ammonium rose from 0.022 to 0.034 and then 0.139 mg/L;
c) TM-4-D (detection): a single ammonium result of 9.45 mg/L in November 2025 (baseline 0.044 mg/L), above the SANS 241 aesthetic limit of 1.5 mg/L (SABS, 2015). The borehole was not sampled in August 2026, so the result has not been confirmed;
d) (d) TM-2-S and TM-2-D (detection): abrupt and opposite changes in August 2026 (for example, EC rose from 11.6 to 47.4 mS/m at TM-2-S and fell from 50 to 13.6 mS/m at TM-2-D), which suggests that the two samples may have been transposed; and
e) (e) Chemical oxygen demand (unfiltered) was above baseline in the latest round at seven of the eight boreholes, including both background boreholes (TM-1-S 24.6 to 71.2 mg/L; TM-1-D 39.5 to 78.6 mg/L) (Tonkmeter (Pty) Ltd, 2026c; Tonkmeter Specialist Workshop, 2026).

According to the specialist, the water quality results are under review, and no conclusions or trends can yet be drawn regarding the cause of the observed changes. Further investigation is required, as a priority, to determine whether the changes are linked to waste disposal or arise from sampling or laboratory factors (Tonkmeter Specialist Workshop, 2026).

5.2.5 GROUNDWATER USE

No groundwater from any borehole on the site is used for domestic or industrial purposes; the site is connected to the Ekurhuleni Metropolitan Municipality water reticulation system (Meyer, 2013). The nearest known domestic groundwater use is privately owned boreholes in Selcourt, approximately 1 500 m from the site at their closest point; available water quality results for these boreholes show no detectable influence from activities on the site (Meyer, 2013).

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a) Is the site located on any of the following?

Shallow water table (less than 1.5m deep)	YES	NO
Dolomite, sinkhole or doline areas	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO
Any other unstable soil or geological feature	YES	NO
An area sensitive to erosion	YES	NO

b) are any caves located on the site(s)	YES	NO
c) are any caves located within a 300m radius of the site(s)	YES	NO
d) are any sinkholes located within a 300m radius of the site(s)	YES	NO

6 AGRICULTURE

Not applicable to the application. The footprint is authorised for Waste Management Activities. For Area E, the application does not propose any new land take, clearance, or disturbance of undeveloped land — it relates solely to increasing the permitted height of an already-constructed, already-licensed landfill cell within the facility's existing, authorised footprint. The site was accordingly already assessed and removed from active or potential agricultural use when the facility was originally established and authorised (IEA, GDARD, 2017); an agricultural potential assessment against the Gauteng Agricultural Potential Atlas is not considered necessary for this height-only extension application, since no additional land is being brought into the licensed footprint. The MRF expansion site, which is to be cleared, also lies inside the facility boundary and is heavily disturbed by old ditches, pits and excavations, with broken bricks embedded in the soil (Venter, 2026, p. 19).

Does the site have high potential agriculture as contemplated in the Gauteng Agricultural Potential Atlas (GAPA 4)?	YES	NO

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7 GROUNDCOVER

Not applicable in the sense the template intends. The Area E footprint is the already-constructed, lined and operational Area E landfill cell — an engineered surface with no remaining natural groundcover, rather than undeveloped land carrying natural vegetation. Natural groundcover, floral/faunal screening and sensitive habitat identification were matters for the facility's original environmental authorisation (IEA, GDARD, 2017) and are not triggered by a height-only extension that adds no new footprint outside the area already cleared and licensed for landfilling.

The vegetation at the proposed MRD expansion area is completely transformed and dominated by alien and invasive plants, mainly *Eucalyptus camaldulensis* trees that were cut near ground level in the past and have coppiced. The few indigenous species are common, widespread or pioneer species associated with disturbance, and species diversity is very poor. The vegetation no longer resembles Tsakane Clay Grassland (Venter, 2026,).

Indicate the types of groundcover present on the site and include the estimated percentage found on site

Table 13: Groundcover types present on the TRF

Natural veld - good condition % = 0	Natural veld with scattered aliens % =0	Natural veld with heavy alien infestation % = 25	Veld dominated by alien species % =20	Landscaped (vegetation) % = 0
Sport field % = 0	Cultivated land % = 0	Paved surface (hard landscaping) % = 5	Building or other structure % = 5	Bare soil % = 45

Are there any rare or endangered flora or fauna species (including red list species) present on the site	YES	NO

No Red Data or species of conservation concern were recorded during the field surveys of 3 and 18 April 2012 (BKS, 2012) or 4 September 2026 (Venter, 2026). The Screening Tool flags *Khadia beswickii* (Vulnerable), but no suitable habitat (shallow soils over rock) occurs on site (Venter, 2026).. In 2012, the food plant (*Leersia hexandra*) of the Vulnerable Marsh Sylph butterfly (*Metisella meninx*) was recorded in excavation wet areas. The butterfly itself was not observed, and its occurrence was considered possible but unconfirmed.

Are there any special or sensitive habitats or other natural features present on the site?	YES	NO

If YES, specify and explain:

N/A

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Desktop sources map the site as Critical Biodiversity Area 1 (nd within the Endangered Tsakane Clay Grassland vegetation type. Note the Gauteng C-Plan 3.3 does not map the site as an important area; the CBA 1 mapping comes from C-Plan 4 (Venter, 2026). The Screening Tool rates terrestrial biodiversity sensitivity as Very High. Site verification by a registered specialist (Pr.Sci.Nat. 400048/08) found the vegetation in the area proposed to be cleared, completely transformed and dominated by alien invasive species. It no longer resembles Tsakane Clay Grassland, the CBA 1 classification is considered incorrect, and Site Ecological Importance is Very Low (Venter, 2026). Water-filled clay excavations support some wetland plants, but these are artificial features and not natural wetlands (BKS, 2012). The ecological corridor function identified in 2012 relates to the western portion of Area D (the buffer area), not Area E.

Was a specialist consulted to assist with completing this section			YES	NO
If yes complete specialist details				
Name of the specialist:	Ina Venter *Pr Sci Nat*			
Qualification(s) of the specialist:	M.Sc in Botany from the University of Pretoria			
Postal address:	69 Hobson Crescent, Sasolburg			
Postal code:	1947			
Telephone:	N/A	Cell:	+27 83 370 0850	
E-mail:	ina.kalinga@gmail.com	Fax:	N/A	
Are any further specialist studies recommended by the specialist?			YES	NO
If YES, specify:	N/A			
If YES, is such a report(s) attached?			YES	NO

If YES list the specialist reports attached below

Vegetation / flora	Vegetation Assessment for the proposed vegetation clearing at Tonkmeter Landfill site, Springs, Gauteng	Venter, I. (Kyllinga Consulting)	September 2026
Signature of specialist:		Date:	

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8 LAND USE CHARACTER OF SURROUNDING AREA

The facility sits next to the City of Ekurhuleni's own Rietfontein landfill (an existing waste disposal site, adjacent), south of the N17 highway (major road, 4+ lanes), between Tonk Meter Road and Rietfontein Road. Land use surrounding the site comprises rehabilitated mining areas (open space) to the north; the adjacent Rietfontein waste disposal facility immediately to the north-east; an industrial area to the east; the KwaThema residential area (low/medium density and informal residential) to the west and south-west (Peter Legg Consulting, 2016); and, to the south-east, open areas containing previous waste disposal activities and a small rock dump (Peter Legg Consulting, 2016). TRF's design includes buffer measures on its western boundary with KwaThema, including a cemetery, soil screen berm and inert-waste cells (Peter Legg Consulting, 2016); the adjacent Rietfontein WDF's intended 800 m buffer to KwaThema was, on the City of Ekurhuleni's own record, “mostly not adhered to” (Ekurhuleni Metropolitan Municipality, 2025).

Using the associated number of the relevant current land use or prominent feature from the table below, fill in the position of these land-uses in the vacant blocks below which represent a 500m radius around the site

1. Vacant land	2. River, stream, wetland	3. Nature conservation area	4. Public open space	5. Koppie or ridge
6. Dam or reservoir	7. Agriculture	8. Low density residential	9. Medium to high density residential	10. Informal residential
11. Old age home	12. Retail	13. Offices	14. Commercial & warehousing	15. Light industrial
16. Heavy industrial[AN]	17. Hospitality facility	18. Church	19. Education facilities	20. Sport facilities
21. Golf course/polo fields	22. Airport[N]	23. Train station or shunting yard[N]	24. Railway line[N]	25. Major road (4 lanes or more)[N]
26. Sewage treatment plant[A]	*27. Landfill or waste treatment site[A]*	*28. Historical building*	*29. Graveyard*	*30. Archeological site*
31. Open cast mine	*32. Underground mine*	*33.Spoil heap or slimes dam[A]*	*34. Small Holdings*	
Other land uses (describe):				

NOTE: Each block represents an area of 250m X 250m, if your proposed development is larger than this please use the appropriate number and orientation of hashed blocks

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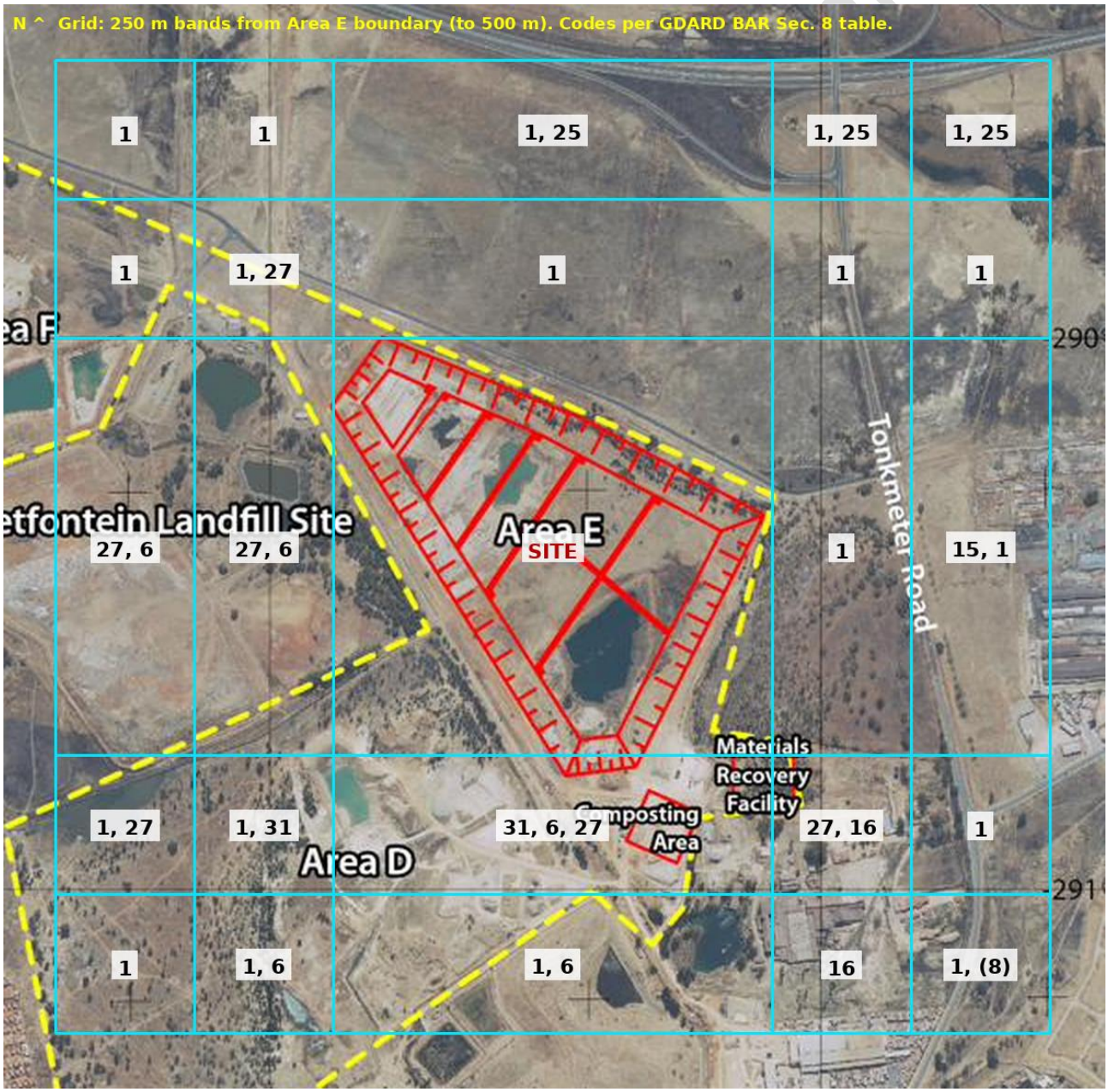
Land Use Block

NORTH

	1	1	1, 25	1, 25	1, 25	
	1	1, 271	1	1	1	
WEST	6, 27	6, 27		1	1. 15	EAST
	1, 27	27, 31	27, 31	16, 27	1	
	1	1,31	1, 6	16	1 (8)	

SOUTH

Figure 3: Surrounding land use (GDEnv numbering)



Area E exceeds one 250 m block; the hatched block represents the entire Area E footprint and the surrounding rings represent 0–250 m and 250–500 m bands from its boundary. **Other features**: Rietfontein Road (two-lane) along the northern boundary; Tonkmeter Road (two-lane) to the east; access road to the EMM Rietfontein Landfill with the Rand Water pipeline servitude along the south-western boundary of Area E; Areas D and F of the Tonkmeter facility (clay mining, future landfill); serviced residential stands (zoned Residential 1) at the outer south-eastern edge. No river, stream or wetland lies within 500 m. The Kleinblesbokspruit is about 800 m north-east and the Withokspruit about 1 km south-west (Peter Legg Consulting, 2026).

8.1 VISUAL CHARACTER AND SENSE OF PLACE

Within 10 km of the site, land cover is dominated by built-up areas and cultivated land with grassland, and scattered mines and quarries; the area has very little scenic value. Gold-mining tailings dams and waste rock dumps are an established part of the landscape, but landfills are not expected features. Higher ground to the north-west and south of Area E gives partial screening, and exotic trees (mainly Eucalyptus) and buildings screen the site interior (van Zyl, 2026). Visual receptors are the surrounding residential areas, including KwaThema, businesses, and motorists on the N17 and local roads. Four nature reserves lie within 10 km; Area E will not be visible from the Ian P Coetzer Private Nature Reserve, and the other three adjoin tailings dams. The specialist classes the project as a Category 5 development under the Oberholzer (2005) guideline (van Zyl, 2026).

Have specialist reports been attached	YES	NO
If yes indicate the type of reports below		

Table 14: Specialist reports attached

Study	Title	Author	Date
Vegetation / flora	Vegetation Assessment for the proposed vegetation clearing at Tonkmeter Landfill site, Springs, Gauteng	Venter, I. (Kyllinga Consulting)	September 2026
Visual	Visual Impact Assessment Report: Tonkmeter Resource Facility	van Zyl, L. (TerraGIS)	August 2026 (v3)
Climate change	Climate Change Impact Assessment: Tonkmeter Waste Resource Facility (ECO-2026-Report-0002-00)	Brugman, M. (Rayten, project ENV-ECO-264420)	Revision 1.0, 19 October 2026 (final)
Air quality	Tonkmeter Resource Facility – Proposed Extension of the Final Landfill-Cell Height for Area E: Air Quality Impact Assessment Report (ECO-2026-Report-0005-00)	Mafusire, G. (Rayten Engineering Solutions)	13 October 2026 (Rev 0.0)

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Study	Title	Author	Date
Engineering geology / dolomite	Tonkmeter Waste Disposal Facility: Area E: Dolomite Stability Review (IR2222)	Buttrick, D.B. et al. (IntraSolutions)	10 July 2026
Stormwater / surface water	Tonkmeter Landfill Site – Stormwater Management Plan for Area E (Project 26831)	DMV Consultants	August 2026 (Rev 5)
Groundwater	Report on the establishment of monitoring boreholes for monitoring groundwater quality at Cell 1, Tonk Meter Road Waste Disposal Facility	Meyer, R.	17 December 2024 (final draft)
Landfill engineering design	Tonkmeter Resource Facility Landfill Area E Detail Design Report (P077d-05)	Legg, P.A. (Peter Legg Consulting)	October 2026

9 SOCIO-ECONOMIC CONTEXT

This section describes the socio-economic environment within which the Tonkmeter Resource Facility ("TRF") operates, drawing on the most recent verifiable data available.

9.1.1 METROPOLITAN CONTEXT

The Draft IWMP records the following demographic and socio-economic indicators for the CoE as a whole, drawn from Statistics South Africa's 2022 Census and, where 2022 data have not been released, from the most recent preceding survey available (Ekurhuleni Metropolitan Municipality, 2025):

Table 15: Socio-economic statistics

Indicator	CoE Value (2022, unless stated)
Total population	4 066 691 (up from 3 178 470 in 2011; annual growth rate 2.54%)
Households	1 421 003 (average household size 2.9, down from 3.1 in 2011)
Formal / informal dwellings	88.2% formal; 11.8% informal
Gender	Approximately 51% male / 49% female (derived from the age-sex distribution)
Age structure	0–24 years: 37.8%; 25–39 years: 32.1%; 40 years and older: 30.0%
Population group	Black African 85.3%; White 10.3%; Coloured 2.5%; Indian/Asian 1.8%; Other 0.2%
Education (population 20+)	No schooling 4.2%; some secondary 29.6%; Matric 44.8%; higher education 13.9%
Employment rate	72.8% employed; 27.2% unemployed (2022 Census). Note: a differently defined quarterly unemployment rate of 30.1% (2019) is also reported in the Draft IWMP
Household income (last published distribution)	18% of households reported no annual income; average annual household income R29 400 (Stats SA, 2011 – the last household income survey conducted)

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Indicator	CoE Value (2022, unless stated)
Refuse removal	88.4% removed by local authority/private contractor at least weekly; 6% use own refuse dump; 2.5% have no rubbish disposal; 1.8% use a communal dump

Source: Ekurhuleni Metropolitan Municipality (2025), citing Statistics South Africa (2022) except where stated otherwise.

The CoE is a multi-nodal metropolitan area comprising nine towns and 17 townships, with no single dominant urban core. The Draft IWMP records that historically disadvantaged communities situated on the periphery of the main urban areas represent approximately 62% of the total CoE population (Ekurhuleni Metropolitan Municipality, 2025).

9.1.2 Local Context: Wards and Settlements Neighbouring TRF

The table below sets out the 2011 population and household counts for the main settlements comprising the wards neighbouring TRF, together with an indicative current population, extrapolated using the CoE's own documented annual population growth rate of 2.54% (Ekurhuleni Metropolitan Municipality, 2025). This extrapolation is a planning estimate only, and not an official count; it is provided to illustrate the order of magnitude of the surrounding population rather than a precise figure.

Table 16: Population and household counts for wards neighbouring the TRF

Settlement / Main Place	Approx. Ward(s)	Population (Census 2011)	Households (Census 2011)	Indicative 2026 Population*
KwaThema (comprising Deep Levels, Highland, Masimini, Overline, Mthembu Village, Gugulethu, Kwa-Thema Phases 1–3, White City, Kwa-Thema Ext 6, Vergenoeg, Phelendaba, Rest-in-Peace and adjoining sub-places)	77, 78, 79, 80 (part), 111 (part)	103 727	29 751	≈ 151 000
Selcourt (incl. Golden Springs, Daggafontein, Selection Park)	76	6 162	1 902	≈ 8 980
Langaville (incl. Langaville Ext 2–7)	79, 81, 83 (part)	54 710	17 317	≈ 79 700
Dal Fouche	74	1 571	504	≈ 2 290

Source: 2011 figures: Statistics South Africa, Census 2011 Community Profile Database, as processed and published by Frith (2011a; 2011b; 2011c; 2011d). Ward correlation: Ekurhuleni Metropolitan Municipality (2025), Table 4-1. 2026 estimates: authors' calculation, extrapolating 2011 figures at the CoE's documented annual population growth rate of 2.54% (Ekurhuleni Metropolitan Municipality, 2025).

On this basis, TRF is situated within a densely populated, predominantly residential and historically disadvantaged part of the CoE, with an estimated combined population in the order of 240 000 people across the neighbouring settlements identified above. KwaThema, immediately to the west of the site, is by a considerable margin the largest and most directly affected settlement.

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9.1.3 LOCALLY RELEVANT CONSIDERATIONS

The adjacent CoE Rietfontein WDF was intended to maintain an 800 m buffer to KwaThema on all sides, but this was, on the CoE's own record, "mostly not adhered to" (Ekurhuleni Metropolitan Municipality, 2025). TRF's own design provides for buffer measures on its western boundary with KwaThema, including a cemetery, soil screen berm and inert-waste cells (Peter Legg Consulting, 2016).

Community representatives have publicly confirmed that residents of KwaThema, including from the KwaThema Hostel community, derive income from reclaiming recyclable material at the adjacent Rietfontein WDF, and have asked that this activity be formalised and supported (Springs Advertiser, 2024). This indicates a direct, positive economic linkage between local landfill operations and household livelihoods in the neighbouring wards.

The neighbouring wards form part of the approximately 62% of the CoE population situated in historically disadvantaged peripheral communities (Ekurhuleni Metropolitan Municipality, 2025). Combined with the CoE-wide income distribution in Table 15 (18% of households reporting no annual income), this suggests a population with limited capacity to bear uncompensated environmental or nuisance impacts, reinforcing the importance of effective dust, odour, visual and traffic mitigation over the extended operating life associated with the proposed height increase.

10 CULTURAL/HISTORICAL FEATURES

Not applicable. The application does not disturb any new ground — it relates solely to the permitted final height of an already-constructed, already-licensed landfill cell within the existing Area E footprint.

A Heritage Impact Assessment (HIA) was undertaken in terms of section 38 of the National Heritage Resources Act 25 of 1999 (NHRA) for the original application for the Tonk Meter Road GLB+ Waste Disposal Facility (Van Schalkwyk, 2012; GDARD Ref. GAUT 002/11-12/W0016 & GAUT 002/11-12/E028). The HIA study area covered Areas D, E and F on the Remaining Extent of Portion 81 of the farm Rietfontein 128 IR. It therefore included the Area E footprint to which this application relates (Van Schalkwyk, 2012).

The assessment had two parts. The first was a desktop review of the Heritage Atlas Database, the Chief Surveyor-General and National Archives records, the SAHRA Archaeology and Palaeontology Report Mapping Project, and historical topocadastral maps. The second was a field survey conducted along transects across the site (Van Schalkwyk,

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2012). No sites, features or objects of cultural significance from the Stone Age, Iron Age or historic period were identified within the study area. The specialist concluded that the development would have no heritage impact. The specialist attributed this to extensive historical mining and quarrying, which would have destroyed any heritage resources previously present. The only recommendation was a chance-finds procedure: work must stop and a heritage practitioner must be notified if archaeological material or graves are exposed (Van Schalkwyk, 2012).

The present application relates only to an increase in the permitted final height of an existing, licensed landfill cell within the existing Area E footprint. No new ground disturbance, excavation or footprint extension is proposed. The ground beneath the cell has since been excavated, lined and filled under the existing authorisation. Any archaeological or palaeontological material that might have been present is therefore no longer accessible to, or capable of being disturbed by, the proposed activity.

The Verref Rietfontein Plant adjoins the south-eastern boundary of the greater site and is recorded as predating the 1940s (Van Schalkwyk, 2012). The HIA did not identify it as a heritage resource. The proposed activity is confined to the existing cell and will not alter, demolish or otherwise physically affect any structure on that property. Accordingly, no NHRA permit under sections 34, 35 or 36 is required. The chance-finds procedure recommended in the HIA remains in force through the Environmental Management Programme.

This application is assessed under the National Environmental Management Act 107 of 1998. Section 38(8) of the NHRA therefore applies: the competent authority must ensure that the heritage evaluation meets the requirements of the relevant heritage resources authority and must take that authority's comments into account before deciding (Republic of South Africa, 1999: s 38(8)). The application and the BAR will be uploaded to SAHRIS. SAHRA (archaeology and palaeontology) and the Provincial Heritage Resources Authority – Gauteng (built environment) will be invited to comment. Their comments will be included in the final BAR.

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Are there any signs of culturally (aesthetic, social, spiritual, environmental) or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including archaeological or palaeontological sites, on or close (within 20m) to the site?	YES	NO
Will any building or structure older than 60 years be affected in any way?	YES	NO

Is it necessary to apply for a permit in terms of the National Heritage Resources Act, 1999 (Act 25 of 1999)?	YES	NO

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SECTION C: PUBLIC PARTICIPATION (SECTION 41)

1 APPOINTED PRACTITIONER:

Solarys (Pty) Ltd has been appointed to conduct the public participation process (PPP

Lead specialist: Ursula Papé, Director — Stakeholder Engagement Specialist (LLB, UNISA 2017; LLM Constitutional, Administrative and Environmental Law, University of Pretoria (with distinction) 2021; 15 years' experience in ESIA processes and permitting) (Solarys, 2026).

Status: Currently in 30 day Public Participation Period

2 PUBLIC PARTICIPATION PROCESS

The EAP (in conjunction with Solarys as the appointed PP specialist) will determine, once the process commences, whether a public meeting or additional measures are warranted, with particular attention to local community structures given KwaThema's proximity— Ward Committees and residents' associations in particular. All I&AP comments will be recorded and responded to in the Comments and Responses Report before the application report is submitted (Solarys, 2026; template Section C.4 requirement).

2.1 IDENTIFICATION OF I&APS

Solarys compiled a stakeholder database covering directly affected/adjacent landowners and lawful occupants, government officials (national, provincial and local, including Ward Councillors), neighbouring residents, and representatives of relevant NGOs and CBOs, updated throughout the application process (Solarys, 2026).

2.2 ANNOUNCEMENT AND CONSULTATION PHASE

I&APs and stakeholders are notified via newspaper advertisements, written notices and on-site notices; relevant reports are distributed to government authorities where hard copies are required; a Comment and Response Register (CRR) is established and maintained.

Key issues raised will be summarized and a PPP Appendices (proof of consultation, I&AP register, and CRR) will be compiled and will be attached to the final submission.

2.3 DECISION-MAKING PHASE

The competent authority's final decision will be communicated to stakeholders via email and SMS, with hand-delivered letters for stakeholders without electronic contact details (Solarys, 2026).

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3 LOCAL AUTHORITY PARTICIPATION

Not yet undertaken — will form part of the announcement and consultation phase described above once the process commences. Questions below will be completed for Final BAR.

Was the draft report submitted to the local authority for comment?	YES	NO

If yes, has any comments been received from the local authority?	YES	NO
Has any comment been received from stakeholders?	YES	NO

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

If "NO" briefly explain why no comments have been received

4 CONSULTATION WITH OTHER STAKEHOLDERS

Not yet undertaken — will form part of the announcement and consultation phase described above once the process commences. Questions below will be completed for Final BAR.

Has any comment been received from stakeholders?	YES	NO

If "YES", briefly describe the feedback below (also attach copies of any correspondence to and from the stakeholders to this application):

If "NO" briefly explain why no comments have been received

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5 APPENDICES FOR PUBLIC PARTICIPATION

Currently in the 30 day public participation phase. Evidence will be attached in the Final submission.

All public participation information is to be attached in the appropriate Appendix.

The information in this Appendix is to be ordered as detailed below

Appendix 1 – Proof of site notice

Appendix 2 – Written notices issued as required in terms of the regulations

Appendix 3 – Proof of newspaper advertisements

Appendix 4 –Communications to and from interested and affected parties

Appendix 5 – Minutes of any public and/or stakeholder meetings

Appendix 6 - Comments and Responses Report

Appendix 7 –Comments from I&APs on Basic Assessment (BA) Report

Appendix 8 –Comments from I&APs on amendments to the BA Report

Appendix 9 – Copy of the register of I&APs

Draft Report for comment

SECTION D: RESOURCE USE AND PROCESS DETAILS

1 WASTE, EFFLUENT, AND EMISSION MANAGEMENT

1.1 WASTE MANAGEMENT

The facility began accepting general waste for landfilling in January 2025. The process on site is described below and depicted in Figure 3:

1. Entry & Identification
   - Access Control: All vehicles must pass through the main gate for security clearance and initial identification.
2. Sign-In
   - Waste transport truck drivers proceed to the Weighbridge Office to sign in and present necessary documentation.
3. Initial Weighing
   - Laden Weighing: The truck is driven onto the weighbridge. The gross weight (truck + waste) is recorded to determine the incoming tonnage.
4. Transit to Cell
   - Trucks proceed from the weighbridge to the active landfill disposal cell, using the facility's internal haul roads, which are unpaved but include a gravel wearing course.
5. Disposal at Landfill Cell
   - Trucks discharge general waste at the designated working face under the direction of site marshals.
6. Site Exit
   - Tare Weighing: Empty trucks proceed to the exit weighbridge to be weighed out.
   - Documentation: The system calculates the net waste weight, and the driver is issued a weighbridge slip as proof of disposal.
7. Recovery & Recycling
   - Resource Recovery: Authorized waste pickers manually recover recyclable components (plastics, metals, paper, etc.) directly from the working face.
8. Sorting & Baling

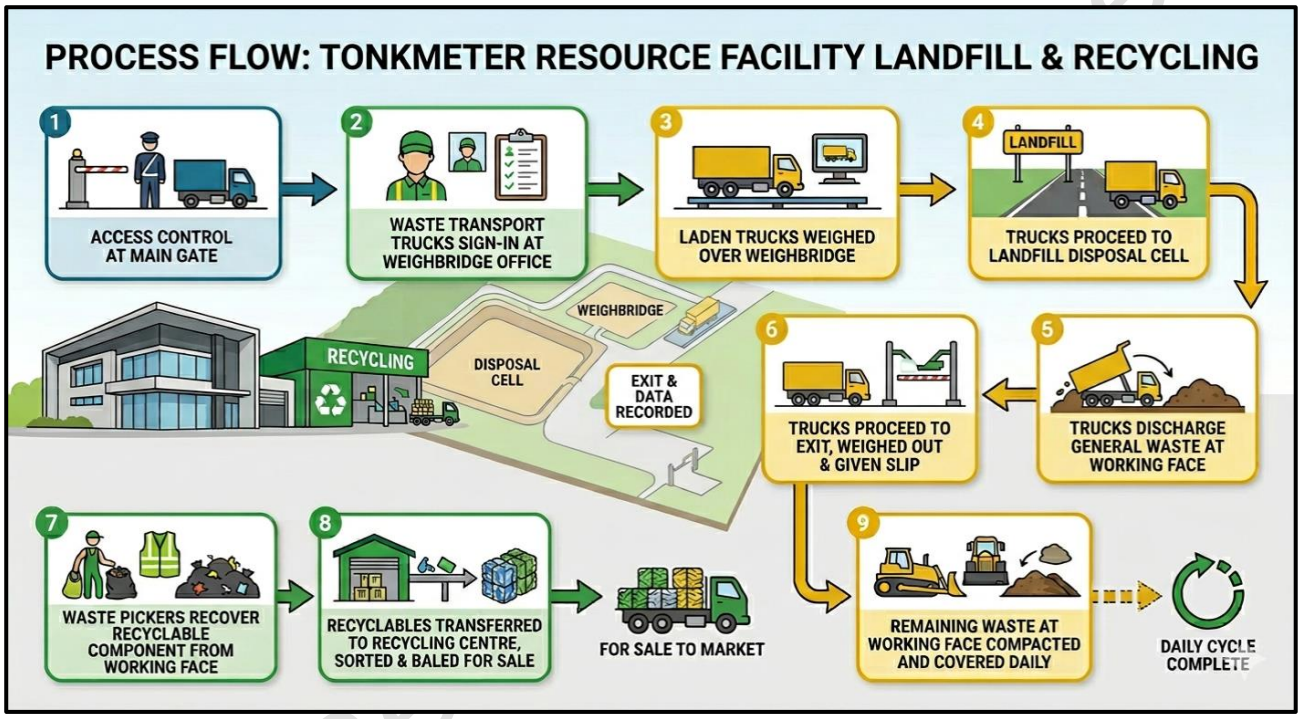
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- Recovered materials are transferred to the on-site Recycling Centre. Here, materials are sorted by grade and compressed into bales for sale to external vendors.

9. Daily Maintenance & Compaction

- Waste Treatment: The remaining non-recyclable waste at the working face is spread and compacted using heavy machinery to maximize landfill density.
- Daily Cover: At the end of each operational day, the compacted waste is covered with soil or an alternative daily cover (ADC) to control odors, pests, and litter.

Figure 4: Process Flow – Tonkmeter Resource Facility



Source: Tonkmeter Resource Facility

Table 1 sets out the facility's current and expected operating details.

Table 1: Key Operating Information

Waste currently received	About 7 000 tonnes per month
Waste volumes expected	Two scenarios are considered in this application: about 7 500 tonnes per month (lower, longer-duration scenario) and about 15 000 tonnes per month (higher-throughput scenario). (Mafusire, 2026, Table 1-1).
Operating days and hours	7 days a week, 11 hours a day (07:00–18:00)
Active workface dimensions	No larger than 30 m by 30 m on any given day
Cover material	Soil already available on site is placed over the waste at a ratio of about 1 part soil to 5 parts waste, each day

Haul route	Unpaved internal haul road with a gravel wearing course
Dust control	Daily damping down using a water cart
Diesel use	About 5 500 litres per month at the lower throughput scenario, rising to about 11 000 litres per month at the higher scenario, for site equipment and generators
Electricity	About 3 500 kWh per month in total: roughly half from the municipal grid, just under half from solar panels, and a small share (about 5%) from generators
Landfill gas	Flaring is anticipated to commence in 2030. Gas-extraction wells will be installed to test the gas produced by the landfill. As a minimum measure, the gas will be actively managed through an enclosed flare (9 m stack height, 2 m stack diameter, gas exit temperature of about 1 100°C, destroying at least 98% of the methane passed through it, operating continuously). Results will guide any future decision on capturing and using the gas

Source: Tonkmeter Resource Facility pers. comm., 2026

Quarantine of non-conforming loads: If a load is found to contain unauthorised material after it has been tipped, the material shall immediately be loaded back onto the delivery vehicle. Where this is not possible, the load shall be quarantined: covered; demarcated, kept separate from other waste and left undisturbed, and the customer shall be required to remove it from site. Quarantine shall take place only on a lined area, so that any leachate or spillage is contained. Each quarantined load shall be recorded in the rejected-load log with the date, customer, vehicle registration, description of the material, photographs and the date it was removed.

1.1.1 SITE INFRASTRUCTURE

The following existing infrastructure serves the facility, and none of it would change as a result of this application:

a) The lining, leachate collection and leak-detection system already built into Area E;
b) An existing above-ground tank that temporarily stores leachate before it is tested, treated and discharged off-site;
c) A leachate sump and dedicated pump lines that carry subsoil drainage and leachate from the cells to the leachate dam;
d) Drains and berms that keep clean rainwater separate from contaminated water, and carry contaminated water to a dedicated contaminated-water pond;
e) The materials recovery and recycling centre currently in operation, plus an area set aside on the facility's general arrangement plan for a possible future, additional materials recovery facility;

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f) A weighbridge and access road serving the cells, together with the facility's security fence and controlled access gate;
g) A composting area, to be developed in line with the Waste Act and applicable National Norms and Standards;
h) A mobile builder's-rubble crushing unit (about 10 m by 10 m, 3 m high), approved but considered unlikely to be brought into use; and
i) Standard earthmoving equipment: a waste compactor, tipper trucks, a water cart, a tractor-loader-backhoe, a dozer, an articulated dump truck, and a grader.

Figure 5: Tonkmeter Resource Facility Layout Design



Source: Tonkmeter Resource Facility Layout (Peter Legg, 2026)

1.1.2 MATERIALS RECOVERY AND RECYCLING

The Tonkmeter Resource Facility (TRF) was registered on 5 November 2024 for the Storage, Sorting, Shredding, Grinding, Screening and Baling of General Waste, in terms of the National Norms and Standards for Storage of General Waste, 2013 as well as the

National Norms and Standards for the Sorting, Shredding, Grinding, Crushing, Screening or Baling of General Waste, 2017 and must comply with the requirements set out in the National Norms and Standards.

The Tonkmeter Material Recovery Facility (MRF) pilot programme was launched in July 2026. Tonkmeter landfill receives roughly 5 000 tonnes of waste per month and is aiming to extract at least 50 tonnes of that volume in combined recyclable packaging such as PET plastic, metals and liquid board cartons to be recovered by the MRF.

Some waste collection businesses bring baled materials directly to the MRF where they are separated and sorted before the remaining non-recyclable waste is taken to the on-site landfill. Authorised waste pickers recover recyclables directly from the working face and transport it to the MRF for further separation and sorting.

A MRF develops over time, and future plans include accepting materials from independent waste pickers working at the nearby Rietfontein municipal landfill site and bringing them into a centralised system. The expansion of the MRF (where required) will be constructed in phases. The area proposed for the expansion is indicated in the layout presented in Figure 4.

1.1.3 CRUSHING OF BUILDER'S RUBBLE

Crushing of builder's rubble is currently considered unlikely to proceed, although authorised under the IEA as this material is instead expected to continue being used for on-site cover and roadbuilding, or, once volumes require it, disposed of in Area F (Tonkmeter (Pty) Ltd, pers. comm, 2026).

1.1.4 CHIPPING AND COMPOSTING OF GARDEN WASTE

Future plans also include chipping and composting of garden waste. An application for the establishment of the facility in terms of National Norms and Standards for Organic Waste Composting, 2020 (GN 561) will be made prior to establishment. The area proposed for the composting area is indicated in the layout presented in Figure 4

Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?	YES	NO
If yes, what estimated quantity will be produced per month?	24 m^3	

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

Solid waste will be sorted and taken to appropriate licenced facilities for disposal, re-use and recycling.

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

General waste that is suitable for disposal on Class B landfill site will be disposed to the on-site landfill, builders rubble will be used for on-site cover and roadbuilding, or, once volumes require it, disposed of in Area Fand recyclable wate will be taken to the MRF.

Will the activity produce solid waste during its operational phase?	YES	NO
If yes, what estimated quantity will be produced per month?	`m^3	

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

N/A. See Section above for waste handling on the facility.

Has the municipality or relevant service provider confirmed that sufficient air space exists for treating/disposing of the solid waste to be generated by this activity?	YES	NO

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

Solid waste that can not be disposed at or re-used at the TRF will be taken to appropriate licenced facilities for disposal or treatment.

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

Can any part of the solid waste be classified as hazardous in terms of the relevant legislation?	YES	NO

If yes, inform the competent authority and request a change to an application for scoping and EIA.

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

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

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

N/A. See Section above for MRF.

1.2 LIQUID EFFLUENT

The landfill produces two liquid streams that must be kept apart from clean stormwater: leachate, which is the liquid that drains through the waste body, and contaminated stormwater, which is rain that has come into contact with waste. Clean rainwater from the surrounding ground is diverted around the cells by a surface perimeter berm and drains, so that it does not enter the waste (Peter Legg Consulting, 2026).

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Leachate collects on the lined base of each cell and drains to a sump in that cell. From the sump it is pumped up riser pipes to an above-ground leachate storage tank, an HDPE-lined steel tank of 238 000 litres on the north-west side of Cell 1. The tank stands in a lined, bunded area next to the contaminated water pond, so that any leak from the tank drains into the pond rather than onto the ground. Leachate is then released from the tank in a controlled manner into the municipal sewer for treatment at the municipal wastewater treatment works, with the agreement of the City of Ekurhuleni (Peter Legg Consulting, 2026; DMV Consultants, 2026). Water collected by the subsoil drainage system beneath the liner is pumped to the environment if it is clean, or to the leachate tank if it shows signs of leachate leakage (Peter Legg Consulting, 2026).

Contaminated stormwater is managed in stages that follow the development of the cells. The empty cell next to the operating cell acts as a buffer pond: runoff from the waste in Cell 1 flows into Cell 2, which can hold about 13 500 m³ at a depth of 2 m, and is pumped from there to a lined contaminated water pond with a capacity of 5 490 m³. When Cell 2 is landfilled, Cell 3 takes over as the buffer, and the same sequence is repeated for later cells (Peter Legg Consulting, 2026). The contaminated stormwater pond was sized for runoff from two consecutive cells in the 1-in-50-year, 24-hour storm, which the design report takes as 160 mm. This gives a required volume of 5 530 m³, slightly more than the pond holds, and the difference is covered by the buffer storage in Cell 2 (Peter Legg Consulting, 2026). Water in the pond may be used for dust suppression on the landfill, loaded into tankers, discharged to the sewer, or released to the environment if it meets the applicable discharge limits (Peter Legg Consulting, 2026).

The volume of contaminated water to be handled grows as Area E is developed. The stormwater management plan calculates that the 1-in-50-year storm would produce about 3 780 m³ of contaminated water in Cell 1, rising to about 19 080 m³ when Cells 7 and 8 are operated together, and that this water should be pumped out within 72 hours, which requires pumping rates of 15 l/s for Cell 1 rising to 74 l/s for Cells 7 and 8 (DMV Consultants, 2026). The pumps installed for Cells 1 and 2 each have a capacity of 48 m³/h (about 13 l/s), which the design report expects to empty the stored storm water in those cells in about five days (Peter Legg Consulting, 2026,).

It is recommended that, as part of the design of each new cell, the leachate and contaminated-water pumping and storage requirements be recalculated and the infrastructure upgraded where necessary before the cell receives waste.

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Liquid effluent (other than domestic sewage)

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?	YES Periodically – if required	NO
If yes, what estimated quantity will be produced per month?	238 m^3 Max	
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the liquid effluent to be generated by this activity(ies)?	YES –	NO – But because it should not be a regular event, permission will be obtained prior to the release if required.

Will the activity produce any effluent that will be treated and/or disposed of on site?	Yes	NO
If yes, what estimated quantity will be produced per month?	m^3	

If yes describe the nature of the effluent and how it will be disposed.

N/A

Note that if effluent is to be treated or disposed on site the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA

Will the activity produce effluent that will be treated and/or disposed of at another facility?	YES – only if permission from municipality is not obtained because of quality	NO

If yes, provide the particulars of the facility:

Facility name:	Holfontein Landfill		
Contact person:	Nico Vermeulen		
Postal address:	Plot 2 & 3, Holfontein Farm Springs, Gauteng		
Postal code:	1559		
Telephone:	+27 (0)11 456 5660	Cell:	0800 192 783
E-mail:	clientservices@enviroserv.co.za	Fax:	N/A

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

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Water in the pond will be used for dust suppression on the lined landfill cells.

Liquid effluent (domestic sewage)

Will the activity produce domestic effluent that will be disposed of in a municipal sewage system?	YES	NO
If yes, what estimated quantity will be produced per month?	m^3	
If yes, has the municipality confirmed that sufficient capacity exist for treating / disposing of the domestic effluent to be generated by this activity(ies)?	YES	NO
Will the activity produce any effluent that will be treated and/or disposed of on site?	YES	NO

If yes describe how it will be treated and disposed off.

N/A

1.3 EMISSIONS FROM ACTIVITY

The emissions to air from operating Area E with the final landform raised to 25 m above natural ground level were identified, quantified and modelled in the air quality impact assessment (Mafusire, 2026). The facility does not carry out any activity listed under section 21 of the National Environmental Management: Air Quality Act 39 of 2004 and therefore does not need an Atmospheric Emission Licence (Mafusire, 2026, p. 1). Its emissions remain subject to the National Dust Control Regulations and the conditions of the IEA. The facility lies in the Highveld Air Quality Priority Area, where the Springs monitoring station, about 2 km north of the site, recorded PM10 and PM2.5 levels above the national ambient standards in 2022 and 2023, while SO2 and NO2 stayed within the standards (Mafusire, 2026, pp. iii–iv).

1.3.1 SOURCES OF EMISSIONS

The assessment identified four groups of sources at the landfill (Mafusire, 2026, pp. 4, 61):

a) Landfill gas, which forms as the organic part of the waste decomposes without oxygen and escapes through the active workface, exposed waste and cracks in the cover. It consists mainly of methane and carbon dioxide, with small amounts of non-methane organic compounds, including hazardous air pollutants such as benzene, toluene, ethylbenzene and xylene (BTEX) and chlorinated compounds, together with odorous reduced sulphur compounds (hydrogen sulphide, mercaptans, dimethyl sulphide and carbon disulphide) and ammonia;

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b) Odour from landfilling as a whole, and in particular from fresh waste at the active workface;
c) Combustion gases from the enclosed flare that will burn the collected landfill gas. The flare destroys at least 98% of the methane passed through it, but produces secondary pollutants (sulphur dioxide, nitrogen dioxide, carbon monoxide and PM10) in proportion to the volume of methane burnt; flaring is expected to start in about 2030 (Mafusire, 2026, p. 80; Brugman, 2026, p. 25); and
d) Dust (total suspended particulates, PM10 and PM2.5) from trucks travelling on the unpaved haul road, wind erosion of exposed waste and of the raised landform, compaction of waste at the workface, and handling of materials (tipping of waste and excavating and placing cover soil).
e) Hydrogen sulphide is also released from the leachate dams at the neighbouring Rietfontein landfill. Tonkmeter stores its leachate only briefly in a closed tank before discharge, so no leachate dam at Tonkmeter was treated as a source (Mafusire, 2026, p. 67).

1.3.2 POLLUTANTS QUANTIFIED

Emissions were calculated for dustfall, PM_{10} and $PM_{2.5}$; the four BTEX compounds; five reduced sulphur compounds (carbon disulphide, dimethyl sulphide, hydrogen sulphide, ethyl mercaptan and methyl mercaptan); five chlorinated compounds (vinyl chloride, dichloromethane, dichloroethylene, trichloroethylene and tetrachloroethylene); ammonia; odour; and, for the flare, sulphur dioxide, nitrogen dioxide, carbon monoxide and PM_{10} (Mafusire, 2026, pp. 62, 80).

1.3.3 OPERATING BASIS

The emissions were estimated for the worst-case throughput of 15 000 tonnes/month, or about 500 tonnes of waste a day, over a 39-year life for Area E (2025 to 2064). Operations were taken as 11 hours a day (07:00–18:00), seven days a week, with about 100 tonnes of cover soil a day at a soil-to-waste ratio of 1:5 and an active workface of no more than 30 m by 30 m (Mafusire, 2026, pp. 63, 75–77). Because the cells are filled one after another, the gas and odour emissions were placed over one active cell (taken as Cell 1, about 18 700 m²) rather than over all eight cells at once, which the specialist considered would overstate concentrations (Mafusire, 2026, p. 68).

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1.3.4 LANDFILL GAS.

Landfill gas generation was estimated with the US Environmental Protection Agency's Landfill Gas Emissions Model (LandGEM, version 3.02), using its standard inventory default values: a methane generation rate of 0.04 per year, a methane generation potential of 100 m³ per tonne of waste, a non-methane organic compound concentration of 600 ppmv and a methane content of 50% (Mafusire, 2026, pp. 63–64). Gas generation rises each year while waste is placed and peaks in the final year of disposal in Area E. In that year (2064) the model estimates about 35 600 tonnes of landfill gas, made up of about 9 500 tonnes of methane, 26 100 tonnes of carbon dioxide and 61 tonnes of non-methane organic compounds; generation then declines after disposal stops (Mafusire, 2026, pp. 66, 68). The same peak year gives about 69 tonnes/year of ammonia and 1.5 tonnes/year of hydrogen sulphide from the workface (Mafusire, 2026, p. 67). These peak-year rates were used in the modelling, which the specialist regards as conservative (Mafusire, 2026, p. 68).

1.3.5 ODOUR

The odour emission rate was taken from published data for a general landfill receiving 100 000 m³ of waste a year (34 000 odour units per second) and scaled up by a factor of 1.8 for the 180 000 m³ a year expected at Tonkmeter at 15 000 tonnes/month. This gives about 61 200 odour units per second, or about 3.3 odour units per square metre per second over the active cell (Mafusire, 2026, p. 74).

1.3.6 DUST

Dust emissions were calculated with the emission factors of the Australian National Pollutant Inventory for mining and, for the haul road, the US EPA unpaved-road method, assuming a road surface silt content of 6.4% and about 43 500 vehicle kilometres travelled a year (Mafusire, 2026, pp. 74–79). Two control measures were credited: a 50% reduction on the haul road from daily watering, and a 30% reduction on exposed areas from compaction and daily cover (Mafusire, 2026, pp. 76, 78). The largest dust sources are the waste compactor (about 4.7 g/s of total suspended particulates while working) and the haul road (about 4.0 g/s), followed by wind erosion of the raised 25 m landform (about 2.4 g/s) (Mafusire, 2026, pp. 75–79).

1.3.7 FLARE

The flare was modelled as a 9 m high, 2 m diameter stack with a gas exit temperature of about 1 100 °C, operating continuously. Its emissions are based on the methane collected in the peak year (about 3.8 million m³ a year), giving about 1.4 g/s of carbon monoxide and

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less than 0.1 g/s each of nitrogen dioxide, sulphur dioxide and PM10 (Mafusire, 2026, pp. 80–82).

1.3.8 HOW THE EMISSIONS WERE MODELLED

Dispersion was modelled with AERMOD (version 12) as a Level 2 assessment under the Code of Practice for Air Dispersion Modelling (DEA, 2014), using three years of modelled weather data (2023–2025), terrain data and a 15 km by 15 km study area. Concentrations were calculated on a grid and at 16 sensitive receptors within 10 km, including KwaThema, nearby schools, colleges and a hospital (Mafusire, 2026, pp. 11–12, 82–84). Dust was modelled for Area E on its own and together with the Rietfontein landfill; gases, odour and flare emissions were modelled together with Rietfontein (Mafusire, 2026, p. 84). Winds blow mainly from the north, north-north-east and north-north-west, so emissions are carried mostly towards the south (Mafusire, 2026, p. 42).

1.3.9 WHAT WAS NOT INCLUDED

Dust from building each new cell was not modelled, because it occurs short-term and intermittent compared with landfill operations and is readily controlled with standard dust measures (Mafusire, 2026, p. 61). Areas D and F were taken as vacant, because Area E will be filled before landfilling moves to them, and Rietfontein was represented as completed landforms awaiting rehabilitation, with emissions limited to landfill gas, leachate dams and windblown dust (Mafusire, 2026, p. 84).

Emissions into the atmosphere

Will the activity release emissions into the atmosphere?	YES	NO
If yes, is it controlled by any legislation of any sphere of government?	YES	NO

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

If no, describe the emissions in terms of type and concentration:

N/A

2 WATER USE

Potable water for the offices, ablutions and kitchen is obtained from the existing taps, which are connected to the City of Ekurhuleni's municipal water supply (Peter Legg Consulting, 2026; Meyer, 2013). No groundwater is abstracted on the site (Meyer, 2013).

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Water for operations, mainly for dust suppression with a water cart, is taken from water that collects in the open quarry excavations and, where its quality is acceptable, from the contaminated water pond (Peter Legg Consulting, 2026). The water in the quarries is rainwater and stormwater runoff that collects in the lower parts of the excavations, mainly during summer. The quarry walls are dry for most of the year and no significant groundwater seepage occurs from them, because the mudstone of the Vryheid Formation has a very low permeability and the natural groundwater level lies below the floor of the pits (AECOM, 2017; Peter Legg Consulting, 2026). Some groundwater seepage was, however, encountered at the base of the excavated Cell 1 quarry and is removed through the subsoil drainage system (Peter Legg Consulting, 2026).

Contaminated runoff from the contaminated water pond may be used for dust control only within the lined landfill cells, so that it falls back onto the lined area and is collected again (Peter Legg Consulting, 2026. The currently approved EMPr for the TRF allows contaminated runoff within the lined cells; the updated EMPr follows the approved EMPr and the design report.

No Water Use License is required for the Area E height expansion. A Record of D from DWS may be required fro inclusion in the Waste Management Licence should one be granted. . Section 49 (2) of the NEM:WA states that a decision to grant an application for a waste management licence in respect of a waste disposal facility is subject to the concurrence of the Minister of Water and Sanitation. Section 50 (3) stipulates the importance of the role of the DWS by stating that the issuing of a waste management licence for a waste disposal facility is subject to the inclusion in the licence of any conditions contained in a Record of Decision issued by the Minister of Water and Sanitation any measures that the Minister considers necessary to protect a water resource as defined in the National Water Act, 1998 (Act No. 36 of 1998).

Indicate the source(s) of water that will be used for the activity

municipal	Directly from water board	groundwater	river, stream, dam or lake	other	the activity will not use water

If water is to be extracted from groundwater, river, stream, dam, lake or any other natural feature, please indicate

the volume that will be extracted per month:	liters

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If Yes, please attach proof of assurance of water supply, e.g. yield of borehole, in the appropriate Appendix

Does the activity require a water use permit from the Department of Water Affairs?	YES	NO

If yes, list the permits required

N/A

If yes, have you applied for the water use permit(s)?	YES	NO
If yes, have you received approval(s)? (attached in appropriate appendix)	YES	NO

3 POWER SUPPLY

Please indicate the source of power supply eg. Municipality / Eskom / Renewable energy source

The facility uses a combination of purchased grid electricity, on-site solar photovoltaic (PV) power and diesel generators (Brugman, 2026, p. 8). Total site electricity use is about 3 500 kWh per month. Of this, about 50% comes from the grid, 45% from solar PV and 5% from diesel generators (Brugman, 2026, p. 9). Electricity is used mainly for the offices, the weighbridge and leachate aeration (Brugman, 2026,. The proposed height increase of Area E does not need any new or additional power supply. No extra construction is needed to achieve the vertical increase, and the CCIA assumes electricity use stays at about 3 500 kWh per month (Brugman, 2026).

If power supply is not available. where will power be sourced from?

If grid supply is lost, the site will run on the existing on-site solar PV system and diesel generators, which already supply about 50% of site electricity between them (Brugman, 2026, p. 9). The CCIA identifies grid outages as a climate-related risk. For example, a fire event could cut grid power to the weighbridge, offices and leachate aeration (Brugman, 2026, p. 51). It recommends that backup power arrangements are maintained so operations can continue if supply is disrupted (Brugman, 2026, pp. 56–57).

4 ENERGY EFFICIENCY

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

The proposed amendment is a vertical height increase of an existing, operational landfill area. No new buildings or energy-using infrastructure are needed to achieve it (Brugman, 2026, p. 7). As a result, no amendment-specific energy-efficiency design measures have been introduced. Electricity is a small part of the facility's footprint, contributing less than 1%

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of the incremental greenhouse gas emissions (Brugman, 2026, p. iv). The CCIA recommends the following operational energy-efficiency measures:

a) energy-efficiency measures for lighting, cooling systems and other support infrastructure;

b) diesel efficiency and better operational management of mobile plant and generators;

c) efficient use of air-conditioning; and

d) building designs suited to the local climate, using orientation, natural shading and ventilation to help with cooling (Brugman, 2026, pp. 49, 56).

The CCIA also recommends an annual facility-level greenhouse gas inventory, covering diesel and grid electricity use, as part of EMPr reporting (Brugman, 2026, pp. iv–v, 49).

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

Solar PV is already part of the facility's power supply and provides about 45% of site electricity, with no direct operational emissions (Brugman, 2026, pp. 9, 18). The CCIA recommends using more solar power to reduce dependence on grid and diesel-generated electricity, and reducing reliance on generators (Brugman, 2026, pp. iv, 49). It also notes landfill gas as a possible future energy source. A landfill gas collection and flaring system is proposed from about 2030, once gas volumes are sufficient, with *utilisation* of the gas to be considered where feasible (Brugman, 2026, pp. iv, 22). The gas system is mainly a methane-mitigation measure. Electricity generation from landfill gas has not been confirmed or designed.

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SECTION E: IMPACT ASSESSMENT

The draft BAR identifies the following as issues the impact assessment should address directly, given the scale of the change (1 m to 25 m): (i) whether later applications might seek similar height increases in Areas D and F, requiring the combined long-term effect to be considered now rather than piecemeal; (ii) engineering verification of stability, settlement, and leachate/liner pressure at the new height; and (iii) whether a taller landfill changes visual impact, dust generation, or landfill gas behaviour for the neighbouring KwaThema community in ways not yet specifically assessed for the new height (draft BAR, Section 8).

1 ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Dependent on Section C (public participation) being completed first.

Summarise the issues raised by interested and affected parties.

Summary of response from the practitioner to the issues raised by the interested and affected parties (including the manner in which the public comments are incorporated or why they were not included)

(A full response must be provided in the Comments and Response Report that must be attached to this report):

2 IMPACTS - CONSTRUCTION

Briefly describe and compare the potential impacts (as appropriate), significance rating of impacts, proposed mitigation and significance rating of impacts after mitigation that are likely to occur as a result of the construction phase for the various alternatives of the proposed development. This must include an assessment of the significance of all impacts.

The construction-phase assessment for the proposal considers fourteen impacts arising from vegetation clearance and earthworks on the proposed MRF expansion site. Most are rated Low or Negligible before mitigation. Three are rated Medium: loss of vegetation and terrestrial habitat in Critical Biodiversity Areas (VEG-C-01, score 35), the establishment and spread of alien and invasive plants (VEG-C-05, score 48), and worker and public safety in deep excavations and around plant (GEN-C-04, score 26).

Mitigation is set out in Part B of the EMPr. It covers three areas:

a) Footprint control: clearing is limited to the demarcated, ground-truthed footprint, no-go areas are set, and vegetation outside the footprint is retained.
b) Pollution and erosion control: pollution, erosion, dust and waste are managed on site.
c) Procedural safeguards: these cover fauna, heritage material and monitoring boreholes.

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With mitigation in place, all negative impacts fall to Low or Negligible. Of the impacts rated Medium before mitigation, alien and invasive plants fall from Medium (48) to Low (10), and construction safety falls from Medium (26) to Low (13).

The proposed MRF expansion site lies within an area mapped as Critical Biodiversity Area 1. Because of this mapped status, the loss of vegetation and terrestrial habitat in Critical Biodiversity Areas is rated Medium (35) before mitigation. The terrestrial biodiversity specialist ground-truthed the site and found the vegetation within the proposed footprint to be substantially disturbed and unlikely to fulfil the ecological function for which the CBA was designated. Clearing will therefore be confined to this confirmed, demarcated footprint, with no-go areas set and vegetation retained outside it. This avoids the loss of habitat in better condition and reduces the residual impact to Low (14). If clearing extends beyond the demarcated footprint into functional CBA habitat, the impact would remain Medium.

Removing listed alien and invasive species is a positive impact, rated Low (21), and it can be raised to Medium (32) with the enhancement measures.

Table 17: Proposal: Construction phase impacts

Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
VEG-C-01: Loss of vegetation and terrestrial habitat in Critical Biodiversity Areas	Negative – Medium (35)	The terrestrial biodiversity specialist's ground-truthing confirmed that the footprint of the proposed MRF expansion is disturbed and unlikely to fulfil CBA function. Clearing is confined to this confirmed, demarcated footprint; vegetation cover outside it is retained; no-go areas are set. (Venter, 2026, pp. 19–23; EMPr Part B §17)	Low (14)	Medium (35)
VEG-C-02: Loss of plant species of conservation concern	Negative – Negligible (8)	Stop work and get specialist advice and any permit if a protected plant is found (EAP-proposed). (EMPr Part B §17)	Negligible (8)	Negligible (8)
VEG-C-03: Habitat fragmentation and reduced connectivity	Negative – Low (16)	Restrict clearing to the footprint; keep surrounding areas vegetated. (EMPr Part B §17)	Low (14)	Low (16)

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Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
VEG-C-04: Erosion and sedimentation of cleared soils	Negative – Low (24)	Erosion and sediment control; sediment fences; erosion monitoring and repair. (EMPr Part B §17)	Negligible (8)	Low (24)
VEG-C-05: Establishment and spread of alien and invasive plants	Negative – Medium (48)	Alien and invasive species control and monitoring plan; clear seed from vehicles. (EMPr Part B §17)	Low (10)	Medium (48)
VEG-C-06: Pollution of soil and water (hydrocarbons, litter)	Negative – Low (24)	Approved hydrocarbon storage; no refuelling or maintenance in clearing area; spill kits; bins. (EMPr Part B §17)	Negligible (8)	Low (24)
VEG-C-07: Removal of listed alien and invasive species (positive)	Positive – Low (21)	Enhancement: treat coppicing stumps; extend alien control across the site. (EMPr Part B §17)	Medium (32) with enhancement	Benefit reduced to Low (21)
AQ-C-01: Construction dust from cell earthworks	Negative – Low (21)	Water exposed areas; stage clearing; stop earthworks in strong winds; wind barriers. (EMPr Part B §5)	Negligible (8)	Low (21)
GW-C-01: Damage to or loss of monitoring boreholes	Negative – Low (22)	Mark and lock boreholes; protection zone on drawings; replace lost boreholes. (EMPr Part B §20)	Negligible (5)	Low (22)
GEN-C-01: Construction noise and heavy-vehicle traffic	Negative – Low (16)	Daytime working hours; maintained plant; warning signs; access control. (EMPr Part B §7; §18)	Low (10)	Low (16)
GEN-C-02: Hydrocarbon spills and construction waste	Negative – Low (18)	Bunded storage; spill kits; refuelling on hardstanding; waste removal. (EMPr Part B §11; §12)	Negligible (4)	Low (18)
GEN-C-03: Damage to heritage or fossil material found during works	Negative – Low (13)	Chance-find procedure: stop work and notify SAHRA. (EMPr Part B §16)	Negligible (9)	Low (13)
GEN-C-04: Worker and public safety in deep excavations and around plant	Negative – Medium (26)	Fencing and signs; PPE; OHS procedures; access control. (EMPr Part B §1; §4; §15)	Low (13)	Medium (26)

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Potential impacts:	Significance rating of impacts (positive or negative):	Proposed mitigation:	Significance rating of impacts after mitigation:	Risk of the impact and mitigation not being implemented
GEN-C-05: Disturbance or loss of fauna on the proposed MRF expansion site	Negative – Low (21)	Pre-clearing walk-through; directional clearing; relocation. (EMPr Part B §17)	Low (14)	Low (21)

2.1 ALTERNATIVE 1

Alternative 1 (REPEAT THIS TABLE FOR EACH ALTERNATIVE)

N/A – existing site

The construction-phase impacts arise from two activities. The first is the clearing and construction of the MRF expansion on the proposed MRF expansion site. The second is the continued phased construction of Cells 2 to 8 within Area E. Neither activity has a reasonable and feasible alternative that would materially change its construction impacts.

The height increase does not change the size, boundary or location of the facility. It does not extend the footprint of Area E. It does not require any new land to be cleared or any additional landfill unauthorised cells to be built, and it does not change the existing lining or drainage system (Peter Legg Consulting, 2026, p. 16). The application changes only how high waste may be placed within Area E, and the final landform, capping and closure design used once that height is reached.

Cells 2 to 8 are already authorised under the IEA (GDARD, 2017) and appear on the facility's approved general arrangement drawing. Their position is fixed by the footprint of the worked-out quarry that forms Area E (Peter Legg Consulting, 2026, p. 16; Drawing P077E-300). Their construction will continue under the existing authorisation whether or not this application is granted.

For these reasons, no construction-phase alternatives were assessed.

3 IMPACTS - OPERATIONAL AND DECOMMISSIONING & CLOSURE PHASES

The table below indicates the potential impacts identified and assessed for the operational phase. The potential impacts are further described in the paragraphs following the table.

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Table 18: Proposal: Operational phase impacts

Potential impacts	Significance rating of impacts (positive or negative)	Proposed mitigation	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
VEG-O-01: Re-infestation of disturbed areas on the proposed MRF expansion site by alien and invasive plants	Negative – Medium (48)	Implement the alien and invasive species control and monitoring plan for the operational life of the MRF. (EMPr Part B §14B; §17)	Low (14)	Medium (48)
VEG-O-02: Erosion and sedimentation from runoff off hardened surfaces on the proposed MRF expansion site	Negative – Medium (30)	Monitor for erosion and rehabilitate erosion features promptly; maintain vegetation cover outside the infrastructure footprint. (EMPr Part B §8; §14B ;§17)	Low (14)	Medium (30)
CC-O-01: Contribution to climate change from incremental greenhouse gas emissions, mainly landfill methane	Negative – High	Landfill gas monitoring; gas collection and flaring once gas volumes are sufficient; optimised collection efficiency; good compaction and daily cover; diversion of organic waste where practicable; diesel and energy efficiency; increased solar PV; credible offsets for residual emissions to be considered; annual facility-level GHG inventory. (EMPr Part B §6; Part A §8.2)	Medium	High
CC-O-02: Increased risk of veld fires and landfill fires under hotter, drier conditions	Negative – Medium (36)	Firebreaks and vegetation management; fire-fighting equipment and water supply; emergency response and evacuation procedures; compaction and cover; backup power. (EMPr Part B §13)	Low (18)	Medium (36)
CC-O-03: Water scarcity reducing water for dust suppression and fire-fighting, and cracking of cover material	Negative – Medium (39)	Water scarcity management plan; increased water storage; efficient water use; alternative supply sources; monitoring of consumption during drought. (EMPr Part B §5; §13)	Low (20)	Medium (39)
CC-O-04: More intense rainfall overwhelming stormwater drains, increasing leachate and eroding cover	Negative – Low (18)	Maintain drainage infrastructure; design for more intense rainfall; flood emergency procedures; backup power. (EMPr Part B §8; §13)	Negligible (6)	Low (18)
CC-O-05: Extreme heat causing heat stress, faster odour generation, vector breeding and dust	Negative – Low (14)	Heat-stress procedures; heat-rated equipment; heatwave early warning; efficient cooling of buildings. (EMPr Part B §13)	Negligible (5)	Low (14)

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Potential impacts	Significance rating of impacts (positive or negative)	Proposed mitigation	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
SW-O-01: Contamination of clean stormwater and downstream surface water if clean and contaminated water separation fails	Negative – Medium (39)	Uncontaminated stormwater in the undeveloped quarry areas of Area E kept separate from the operating cell by berms, and sampled before it is pumped off site. Implement the stormwater management plan: berms, cut-off drains, channels and storage ponds for each cell phase; clean water pumped to the clean system; contaminated water contained; channels sized for the 1:50-year storm and storage for the 1:100-year 24-hour storm. (EMPr Part B §8)	Low (14)	Medium (39)
SW-O-02: Increased leachate and contaminated water from cells that remain open for longer	Negative – Medium (48)	Pumps sized for 72-hour drawdown per cell and upgraded as cells are added; maintenance of the contaminated water pond and leachate tank; leachate discharged to sewer only under the municipal permit; progressive capping. (EMPr Part B §8; §9)	Low (20)	Medium (48)
SW-O-03: Erosion of capped side slopes, drains and chutes, and sediment carried to the municipal stormwater system	Negative – Medium (36)	Erosion-protected, flexible linings; contour drains and lined down-chutes every 100 m; plateau perimeter berm; vegetated cover; slope adjustment where velocities are high. (EMPr Part B §8; §21)	Low (14)	Medium (36)
SW-O-04: Flooding of working areas or contamination of clean water within a quarry with no natural outflow	Negative – Medium (27)	Clean-water storage sized for the 1:100-year storm; pumping to the clean system; berms between cells; standby pumping capacity and pump maintenance. (EMPr Part B §8)	Low (12)	Medium (27)
SW-O-05: Reduced leachate generation through progressive capping (positive)	Positive – Medium (30)	Enhancement: cap each section as soon as it reaches final height; maintain the cap and its drains. (EMPr Part B §8; §21)	Medium (48) with enhancement	Benefit reduced to Medium (30)
ENG-O-01: Slope failure of the waste body or along the liner interface	Negative – Medium (34)	Build to the design slopes (operating 1:2; final 1:3 with benches); keep the leachate head low; review the stability analysis for each new cell using laboratory interface shear test results. (EMPr Part B §14; §15)	Low (14)	Medium (34)
ENG-O-02: Leachate leakage through the liner to soil and groundwater under the higher load and longer operating life	Negative – Medium (32)	Class B barrier with 1.5 mm HDPE geomembrane, protection geotextile and leachate drainage layer; leachate head kept low; subsoil drainage water quality monitoring; construction quality	Low (10)	Medium (32)

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Potential impacts	Significance rating of impacts (positive or negative)	Proposed mitigation	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
		assurance for each cell. (EMPr Part B §9; §14; §20)		
ENG-O-03: Reduced performance of the geosynthetic clay liner through chemical attack	Negative – Medium (26)	Chemical compatibility assessment of the GCL before use; avoidance of wastes high in calcium or magnesium; 150 mm compacted clayey soil under the GCL; waste acceptance checks. (EMPr Part B §14; waste acceptance procedure)	Low (10)	Medium (26)
ENG-O-04: Odours from chemically incompatible industrial Type 2 wastes	Negative – Medium (30)	Compatibility checks on industrial Type 2 wastes before acceptance. (EMPr waste acceptance procedure)	Low (14)	Medium (30)
ENG-O-05: Build-up or migration of landfill gas, creating fire, explosion and asphyxiation hazards	Negative – Medium (30)	Gas wells and ring main to the gas plant; passive venting under the cap; regular gas monitoring during operation and after closure. (EMPr Part B §6)	Low (10)	Medium (30)
VIA-O-01: Visual intrusion of the raised landform on residents, businesses and motorists	Negative – Medium to High (70)	Green the slopes with indigenous grasses; shape the final landform with curved lines where practicable within the approved design; progressive capping and grassing; dust suppression on access roads. (EMPr Part B §21; §5)	Medium to High (60)	Medium to High (70)
VIA-O-02: Sky glow and glare from site lighting	Negative – Low (22)	Shielded lights with no upward spill; main beams aimed at less than 70° towards any observer; higher mountings with lower beam angles. (EMPr Part B §4)	Negligible (8)	Low (22)
GEO-O-01: Sinkhole or subsidence formation from concentrated water ingress or groundwater drawdown	Negative – Medium (36)	Dolomite Risk Management Plan; certified water precautionary measures; liquid-retaining structures designed for leak detection; stormwater diverted away; standard lining system; inspections for cracks and ponding; site-specific dolomite groundwater level monitoring. (EMPr Part B §10; Part C)	Low (15)	Medium (36)
GEO-O-02: Differential settlement and concentrated infiltration where cells are built over backfill	Negative – Medium (28)	Footprint-specific dolomite stability assessment before any cell over backfill is approved. (EMPr Part B §15; Part C)	Low (11)	Medium (28)
AQ-O-01: Dust (dustfall, PM10, PM2.5) from haul	Negative – Medium to High (52)	Routine watering of the unpaved disposal route; daily spreading, compaction and cover of waste;	Medium (30)	Medium to High (52)

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Potential impacts	Significance rating of impacts (positive or negative)	Proposed mitigation	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
roads, tipping, compaction and wind erosion		dustfall monitoring; complaints register. (EMPr Part B §5)		
AQ-O-02: Hydrogen sulphide and reduced sulphur compounds near the site boundary	Negative – Medium (45)	Daily cover and compaction; closed leachate storage; landfill gas and odour monitoring; gas collection and flaring when required; formal landfill gas management plan if odour complaints persist. (EMPr Part B §6; §9; §19)	Medium (39)	Medium (45)
AQ-O-03: Landfill odour nuisance	Negative – Medium to High (52)	Small active workface; prompt spreading, compaction and daily cover; putrescible waste covered on arrival; strict waste acceptance; complaints register with corrective action. (EMPr Part B §6; §19)	Low (20)	Medium to High (52)
AQ-O-04: Exposure to hazardous air pollutants in landfill gas	Negative – Medium (26)	Strict waste acceptance; daily cover; landfill gas monitoring; gas collection and flaring. (EMPr Part B §6)	Negligible (8)	Medium (26)
AQ-O-05: Combustion emissions from the flare	Negative – Low (24)	Flare operated at about 1 100 °C with at least 98% destruction efficiency; flare maintenance. (EMPr Part B §6)	Low (16)	Low (24)
GW-O-01: Late detection of leachate contamination from future cells	Negative – Medium (45)	Existing TM network continues for Cell 1; groundwater specialist to site additional background and detection borehole pairs for future cells; boreholes drilled, surveyed and baseline-sampled before waste is placed; construction to DWAF (1998) requirements; TM-1 reviewed as background as cells advance. (EMPr Part B §20)	Low (11)	Medium (45)
GW-O-02: Deterioration of groundwater quality at the detection boreholes	Negative – Medium (30)	Investigative monitoring under IEA condition 4.10.4 until no increasing trend; sampling by a suitably qualified person to the DWAF (1998b) minimum requirements; sampling of the leakage detection system; review of adjacent Rietfontein monitoring data; investigation (condition 4.10.6) and remediation (condition 4.10.1(g)) if a landfill source is confirmed. (EMPr Part B §20)	Low (11)	Medium (30)
GW-O-03: Reduced ability to detect groundwater impacts	Negative – Medium (39)	Quarterly monitoring of Annexure I variables and Annexure II as required, or at a frequency	Negligible (7)	Medium (39)

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Potential impacts	Significance rating of impacts (positive or negative)	Proposed mitigation	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
early if monitoring does not follow the IEA		approved in writing; full IEA variable suite; SABS methods at an accredited laboratory; internal audits (condition 4.12.1). (EMPr Part B §20)		
GEN-O-01: Windblown waste from the working face, haul road and MRF	Negative – Medium (39)	Working face no larger than 30 m × 30 m; daily cover; control of windblown waste including hand collection; inspection of fences, the access road and vegetation at least twice a week and whenever litter is seen blowing, with windblown litter removed at each inspection; area outside the site kept clear of litter; where litter is seen to escape the working face, additional containment measures applied immediately (such as reducing or relocating the working face, covering exposed waste early or suspending tipping in strong wind) and extra litter picking until the escaping litter is under control; covered or netted loads. (EMPr Part B §3; §14A, §14B)	Low (20)	Medium (39)
GEN-O-02: Flies, rodents, scavenging birds and stray animals attracted to exposed waste	Negative – Medium (39)	Putrescible waste covered immediately; daily cover; pest and vector control by a registered pest control operator; fences kept intact; no feeding of animals. (EMPr Part B §14A)	Low (20)	Medium (39)
GEN-O-03: Operational noise from plant, trucks and the MRF	Negative – Low (22)	Authorised operating hours; maintained plant and silencers; if noise complaints relating to reverse alarms are received, tonal alarms on site plant replaced with broadband alarms where consistent with safety requirements; complaints recorded and investigated; noise measured at the nearest receptor if complaints arise. (EMPr Part B §7, §14B)	Low (16)	Low (22)
GEN-O-04: Road safety, congestion, road wear and spillage from waste vehicles	Negative – Medium (39)	Use of the existing entrance road; roads kept free of waste; covered loads; waiting area off the public road; traffic review with the City of Ekurhuleni if throughput approaches 15 000 t/month. (EMPr Part B §3; §18)	Low (22)	Medium (39)
GEN-O-05: Disposal of waste not	Negative – Medium (30)	Waste acceptance procedure with weighbridge control and	Low (12)	Medium (30)

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Potential impacts	Significance rating of impacts (positive or negative)	Proposed mitigation	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
permitted by the IEA or the landfill norms and standards		waste spotters; classification and assessment under GN R634 and GN R635; GN R636 restrictions applied; rejected loads logged; reporting on SAWIS/GWIS. (EMPr Part B §3; §14A)		
GEN-O-06: Injury or ill-health of workers	Negative – Medium (32)	Full PPE and annual medical check-ups; safety data sheets on site; safe working procedures on slopes and the working face; gas monitoring; heat-stress procedures. (EMPr Part B §1; §6; §12; §13, §14B)	Low (16)	Medium (32)
GEN-O-07: Contamination of soil and water by fuel, oil and chemicals	Negative – Low (22)	Bunded storage; refuelling on hardstanding with spill trays; spill kits; clean-up and reporting of spills; contaminated soil disposed of as hazardous waste. (EMPr Part B §12)	Negligible (4)	Low (22)
GEN-O-08: Injury or death of waste pickers or trespassers	Negative – Medium (32)	Only registered, inducted waste pickers with PPE; demarcated picking zone separated from tipping and compaction; no picking during tipping or compaction, on unstable slopes or outside operating hours; no minors; fencing and manned, locked gates; progressive move of picking to the MRF. (EMPr Part B §4; §14A; §14B; §19)	Low (16)	Medium (32)
GEN-O-09: Additional regional disposal airspace within an authorised, lined footprint (positive)	Positive – Medium (42)	Enhancement: continued diversion of recyclables through the MRF; tonnage reporting. (EMPr Part B §14; §14B)	Medium (42) with enhancement	Benefit remains Medium (42)
GEN-O-10: Jobs and local procurement retained over the extended operating life (positive)	Positive – Medium (33)	Enhancement: local employment and procurement where skills allow; skills training. (EMPr Part B §19)	Medium (39) with enhancement	Benefit reduced to Medi

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3.1 VEGETATION ON THE PROPOSED MRF EXPANSION SITE

Two vegetation impacts continue into the operational phase on the proposed MRF expansion site. Disturbed and unpaved areas around the MRF may be re-infested by alien and invasive plants (VEG-O-01). This impact is rated Medium (48) without mitigation and Low (14) once the alien and invasive species control and monitoring plan is implemented

for the operational life of the MRF. Runoff from hardened MRF surfaces may cause erosion and sedimentation of adjacent unpaved areas (VEG-O-02). This is rated Medium (30) without mitigation and Low (14) with erosion monitoring, prompt repair and retention of vegetation cover outside the infrastructure footprint (Venter, 2026). Loss of vegetation, loss of protected species and habitat fragmentation happen once, at clearing. They are therefore assessed only in the construction phase, to avoid double counting. The vegetation specialist did not assess the decommissioning of the MRF.

3.2 CLIMATE CHANGE: CONTRIBUTION OF THE PROJECT

The height increase extends the operating life of the facility by about 39 years at 7 500 tonnes/month, or 19 years at 15 000 tonnes/month (Brugman, 2026, p. 7). Without mitigation, the incremental greenhouse gas emissions are 1 211 005 tCO_2e under Scenario 1 and 1 091 358 tCO_2e under Scenario 2. Landfill methane makes up about 99.4% of this increment. With landfill gas collection and flaring from about 2030 at 75% collection efficiency, the emissions fall to 308 547 and 278 163 tCO_2e respectively, a reduction of about 74.5% (Brugman, 2026, pp. iv, 39–40). Compared with South Africa's indicative share of the remaining carbon budget, the increment is High before mitigation and Medium after. The specialist rates the impact High negative (-96) before mitigation and Medium negative (-72) after, and identifies no fatal flaw (Brugman, 2026, pp. 45–48, 62).

The BAR methodology rates any national, permanent and definite impact at Medium to High or above. Applied directly, it would rate this impact Extreme (90) before mitigation and High (80) after. The EAP has adjusted the rating of CC-O-01 to match the specialist's rating of High before mitigation and Medium after, [justification as recorded in the Impact Assessment Register].

The mitigated rating depends on landfill gas collection and flaring being implemented. The 2030 start date and the 75% collection efficiency are modelling assumptions based on client information and US EPA guidance; they do not come from an approved gas system design (Brugman, 2026, pp. 22, 25). The air quality assessment models an enclosed flare that destroys at least 98% of the methane passed through it (Mafusire, 2026, p. 82). The EMPr therefore requires gas monitoring, collection and flaring, and a reporting step if the 2030 date cannot be met (EMPr Part B, Section 6).

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3.2.1 CLIMATE CHANGE: IMPACT ON THE PROJECT

Projected climate change increases several hazards to the facility. The specialist screened these hazards (Brugman, 2026, pp. 50–57), and the EAP rated their significance using the BAR methodology:

a) Wildfire and landfill fire (CC-O-02): Medium (36) without mitigation and Low (18) with firebreaks, fire-fighting capacity and emergency procedures.
b) Water scarcity (CC-O-03): affects dust suppression, fire-fighting and the integrity of the cover. Medium (39) without mitigation and Low (20) with a water scarcity management plan.
c) More intense rainfall and urban flooding (CC-O-04): Low (18) without mitigation and Negligible (6) with mitigation.
d) Extreme heat (CC-O-05): Low (14) without mitigation and Negligible (5) with mitigation.

Seismic loading is addressed in the slope stability analysis (ENG-O-01).

3.2.2 CLIMATE CHANGE: POST-CLOSURE

The larger waste body will keep generating methane for decades after waste acceptance stops. These post-closure emissions were not quantified (Brugman, 2026, pp. 25, 38). The impact (CC-PC-01) is rated High (80) without mitigation and Medium to High (70) with continued gas collection and flaring after closure. Confidence in this rating is Low.

3.3 STORMWATER AND SURFACE WATER

The stormwater management plan is a design report and does not rate impacts, so the EAP rated these impacts from it (DMV Consultants, 2026):

a) Contamination of clean stormwater if clean and contaminated water separation fails (SW-O-01): Medium (39) without mitigation and Low (14) with mitigation.
b) More leachate and contaminated water to store, pump and discharge over the longer operating life (SW-O-02): Medium (48) without mitigation and Low (20) with mitigation.
c) Erosion of capped slopes, drains and chutes (SW-O-03): Medium (36) without mitigation and Low (14) with mitigation.
d) Flooding of working areas (SW-O-04): the quarry has no natural outflow and depends on pumping. Medium (27) without mitigation and Low (12) with mitigation.

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Progressive capping is a positive impact (SW-O-05). It reduces infiltration and leachate generation, and its rating rises from Medium (30) to Medium (48) if each section is capped promptly. After closure, the cap and drains may erode or become blocked if aftercare stops (SW-PC-01). This is rated Medium (36) without maintenance and Low (14) with post-closure inspection and maintenance.

3.4 LANDFILL ENGINEERING

The design caters for a final height of 25 m above natural ground level and a total waste depth of about 40 m (Peter Legg Consulting, 2026, pp. 17, 32). The design report does not rate impacts, so the EAP rated the following:

a) Slope failure of the waste body or along the liner (ENG-O-01): Medium (34) without mitigation and Low (14) with the engineered design.
b) Leachate leakage through the liner (ENG-O-02): Medium (32) without mitigation and Low (10) with mitigation.
c) Reduced performance of the geosynthetic clay liner through incompatible wastes (ENG-O-03): Medium (26) without mitigation and Low (10) with mitigation.
d) Odour from incompatible industrial Type 2 wastes (ENG-O-04): Medium (30) without mitigation and Low (14) with mitigation.
e) Landfill gas build-up or migration (ENG-O-05): Medium (30) without mitigation and Low (10) with mitigation.

The ratings are supported by the design calculations. The minimum factors of safety for the 1:2 operating slope are 1.61 (circular) and 1.54 (block), against 1.3 required. Under a 0.1g earthquake they are 1.29 and 1.14, against 1.1 required. For the final 1:3 slope they are 2.27 to 2.57, against 1.5 required (Peter Legg Consulting, 2026, p. 36). A static load test at 400 kPa, equivalent to 40 m of waste, gave a geomembrane strain of 0.99%, against a 3% limit. Estimated leakage through the liner is 39–78 litres per hectare per day with the compacted clay liner of Cell 1, and 12–24 litres per hectare per day with the geosynthetic clay liner proposed for later cells (Peter Legg Consulting, 2026, pp. 25–26).

3.5 VISUAL

The landform will be visible from about 26% of the 10 km zone of influence and from 91% of the area within 2.5 km. Excluding areas already affected by the adjacent Rietfontein landfill, which is authorised to 10 m, the additional visibility is about 7% overall and 11% within 2.5 km (van Zyl, 2026, p. 20). The specialist describes the final landform as one that will “stand out”, because a high landfill does not fit the mining landscape. The specialist rates

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the overall visual impact Medium with mitigation, combining Low visual exposure, Medium visual absorption capacity and a High landscape integrity impact (van Zyl, 2026, pp. 26–27, 29).

The impact builds up gradually. The 25 m height is expected to be reached after about 39 years at 15 000 tonnes/month (van Zyl, 2026, p. 1), or about 77 years at 7 500 tonnes/month (Mafusire, 2026, Table 1-1). Rated with the BAR methodology, VIA-O-01 scores Medium to High (70) without mitigation and Medium to High (60) with greening, landform shaping and progressive capping, because the landform is local in extent, permanent and certain to be seen. Night lighting (VIA-O-02) is rated Low (22) without mitigation and Negligible (8) with shielded, downward-directed lighting.

3.6 DOLOMITE STABILITY

Area E has an Inherent Hazard Class of 1/2//1, a Design Hazard Class of 2 and a Dolomite Area Designation of D3. Under this designation, solid waste disposal is permissible with precautionary measures (IntraSolutions, 2026, pp. 25–27). The review gives hazard classes rather than impact significance, so the EAP rated the impacts:

Sinkhole or subsidence triggered by water ingress or groundwater drawdown under the heavier landfill (GEO-O-01): Medium (36) without mitigation and Low (15) with the Dolomite Risk Management Plan and water precautionary measures.

Settlement and water infiltration where cells are built over the backfilled southern part of Area E (GEO-O-02): Medium (28) without mitigation and Low (11) with a footprint-specific stability assessment before any such cell is approved.

3.7 AIR QUALITY

The specialist modelled operations at a worst case of 15 000 tonnes/month (about 500 tonnes/day) over a 39-year Area E life, with the final landform at 25 m. The model was run for the facility on its own and together with the Rietfontein landfill (Mafusire, 2026, pp. 64, 75, 84). The findings were:

3.7.1 DUST

incremental PM_{10} and $PM_{2.5}$ at the boundary are below the national standards. Maximum cumulative dustfall at the boundary is about 660 mg/m²/day. This is below the non-residential limit of 1 200 mg/m²/day but marginally above the residential limit of 600 mg/m²/day along limited parts of the boundary.

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3.7.2 HYDROGEN SULPHIDE

Hydrogen sulphide exceeds the Alberta screening guidelines along parts of the boundary, mainly because of the Rietfontein leachate dam.

3.7.3 ODOUR:

Ethyl and methyl mercaptan may cause recognisable odours, and odour at the boundary reaches about 7.45 OU/m³ (1-hour), against a 5 OU/m³ annoyance threshold.

3.7.4 HAZARDOUS AIR POLLUTANTS AND FLARE EMISSIONS

Benzene, the other hazardous air pollutants and flare emissions are well below the guidelines (Mafusire, 2026, pp. iv–v).

The nearest modelled receptors are Ekurhuleni East College and Nkumbulo Secondary School, about 1.9 km west of the modelled flare position. KwaThema is about 2.7 km away (EAP calculation from Mafusire, 2026, pp. 12–13, 82).

3.7.5 IMPACT RATINGS

Rated with the BAR methodology, the impacts are as follows:

a) Dust (AQ-O-01): Medium to High (52) without mitigation and Medium (30) with mitigation.
b) Hydrogen sulphide and reduced sulphur compounds (AQ-O-02): Medium (45) without mitigation and Medium (39) with mitigation.
c) Odour nuisance (AQ-O-03): Medium to High (52) without mitigation and Low (20) with mitigation.
d) Hazardous air pollutants (AQ-O-04): Medium (26) without mitigation and Negligible (8) with mitigation.
e) Flare combustion emissions (AQ-O-05): Low (24) without mitigation and Low (16) with mitigation.

The specialist rates the overall residual risk Low to Moderate, with Moderate for hydrogen sulphide near the boundary, and finds no fatal flaw. Acceptability is conditional on the mitigation the specialist relied on being binding in the EMPr (Mafusire, 2026, pp. 117–119, 125–126). The EMPr includes these measures.

3.8 GROUNDWATER

A separate groundwater specialist assessment of the height increase was not commissioned. The protection of groundwater at this facility is fixed by law and does not depend on options that such an assessment could weigh.

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The waste types to be disposed of require a Class B containment barrier, prescribed by the National Norms and Standards for Disposal of Waste to Landfill (DEA, 2013c) and the Minimum Requirements for Waste Disposal by Landfill (DWAF, 1998a). The barrier design is therefore set by legislation, and no alternative barrier or site configuration is available. The Area E design includes all the elements of that barrier (Peter Legg Consulting, 2026, pp. 22–28). Leakage through the liner itself is rated under ENG-O-02. The ratings are:

a) Late detection of contamination from Cells 2 to 8, because the existing monitoring network was sited for Cell 1 (GW-O-01): Medium (45) without mitigation and Low (11) with the network extended before each new cell receives waste.
b) Changes in groundwater quality already recorded at detection boreholes TM-3 and TM-4 (GW-O-02): Medium (30) without mitigation and Low (11) with investigative monitoring. Confidence is Low.
c) Monitoring that does not meet the frequency and parameter requirements of the IEA (GW-O-03): Medium (39) without mitigation and Negligible (7) once monitoring meets the IEA requirements.
d) Post-closure leachate from the larger waste body (GW-PC-01): Medium (32) without mitigation and Low (10) with 30 years of post-closure monitoring.

The mitigated rating of GW-O-02 depends on the cause of the changes at TM-3 and TM-4 being established. If a landfill source is confirmed, the impact must be re-rated and remedial action taken under IEA condition 4.10.1(g) (GDARD, 2017).

3.9 GENERAL LANDFILL IMPACTS

The specialist studies do not cover every impact that a general landfill is known to cause. The EAP therefore identified further impacts from four sources: the conditions of the IEA (GDARD, 2017), the Minimum Requirements for Waste Disposal by Landfill (DWAF, 1998a), the Waste Classification and Management Regulations and landfill norms and standards (DEA, 2013a; 2013b; 2013c), and accepted landfill practice. These impacts were rated with the BAR methodology:

a) Litter and windblown waste (GEN-O-01): Medium (39) without mitigation and Low (20) with mitigation.
b) Vectors and pests (GEN-O-02): Medium (39) without mitigation and Low (20) with mitigation.
c) Operational noise (GEN-O-03): Low (22) without mitigation and Low (16) with mitigation.

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d) Waste-vehicle traffic on access roads (GEN-O-04): Medium (39) without mitigation and Low (22) with mitigation.
e) Acceptance of non-permissible or prohibited waste (GEN-O-05): Medium (30) without mitigation and Low (12) with mitigation.
f) Occupational health and safety (GEN-O-06): Medium (32) without mitigation and Low (16) with mitigation.
g) Hydrocarbon and chemical spills (GEN-O-07): Low (22) without mitigation and Negligible (4) with mitigation.
h) Safety of waste pickers and unauthorised access (GEN-O-08): Medium (32) without mitigation and Low (16) with mitigation.

Two impacts are positive. Additional regional disposal capacity within an already authorised, lined footprint (GEN-O-09) is rated Medium (42), and employment and local spending over the extended operating life (GEN-O-10) rises from Medium (33) to Medium (39) with enhancement.

These ratings rest on the EAP's judgement and on the IEA conditions being met, because no noise, traffic, heritage or fauna study was done for this application. Some factors argue against a higher rating. The height increase does not enlarge the landfill footprint, most of these impacts already occur under the existing authorisation, and the nearest modelled receptors are about 1.9 km away (Mafusire, 2026, pp. 12–13). Other factors argue for a higher rating. The extended life prolongs each impact by decades, a working face up to 25 m above ground is more exposed to wind, and the proposed throughput of up to 15 000 tonnes/month exceeds what the 2012 Traffic Impact Study considered.

3.10 DECOMMISSIONING AND CLOSURE

The main closure risk is that final capping, rehabilitation and aftercare of the larger landform are not completed or funded. This would leave exposed waste, erosion, leachate and gas problems, and a long-term liability (GEN-CL-01). The impact is rated Medium (32) without mitigation and Low (10) with mitigation. The mitigation is progressive capping and rehabilitation, a current closure plan, and financial arrangements as required by the waste management licence (National Environmental Management: Waste Act 59 of 2008, s 51(2)(f)). The Department must also be notified one year before closure (GDARD, 2017, condition 4.17). Dust, noise and truck traffic during final capping and the removal of infrastructure (GEN-CL-02) are rated Low (24) without mitigation and Low (10) with the same controls as the construction phase.

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Note that under current legislation the facility will need to apply for a separate authorisation for the closure of the site.

Table 19: Proposal: Decommissioning, closure and post-closure impacts

Potential impacts	Significance rating of impacts (positive or negative)	Proposed mitigation	Significance rating of impacts after mitigation	Risk of the impact and mitigation not being implemented
GEN-CL-01: Final capping, rehabilitation and aftercare of the larger landform not completed or funded	Negative – Medium (32)	Progressive capping and rehabilitation; closure plan kept current; Department notified one year before closure; IEA renewed before expiry. (EMPr Part B §21; §22)	Low (10)	Medium (32)
GEN-CL-02: Dust, noise and truck traffic during final capping and removal of infrastructure	Negative – Low (24)	Dust suppression; daytime working hours; maintained plant; covered loads. (EMPr Part B §5; §7; §21)	Low (10)	Low (24)
CC-PC-01: Continued landfill methane emissions after closure from the enlarged waste body	Negative – High (80)	Landfill gas monitoring, collection and flaring continued after closure; gas management included in the closure and post-closure plan. (EMPr Part B §6; §21; §22)	Medium to High (70)	High (80)
SW-PC-01: Erosion of the cap and drains and blockage of chutes after closure	Negative – Medium (36)	Post-closure inspection and maintenance of the cap, contour drains, chutes and toe drains under the closure plan. (EMPr Part B §22)	Low (14)	Medium (36)
GW-PC-01: Continued leachate generation and groundwater contamination risk after closure	Negative – Medium (32)	Post-closure groundwater monitoring for 30 years covering all cells; maintenance of monitoring boreholes and leachate extraction; low-permeability capping; further investigation if trends appear. (EMPr Part B §20; §21; §22)	Low (10)	Medium (32)

3.11 PROPOSED AMENDMENTS TO IEA OPERATING CONDITIONS

Besides the height and waste types, the applicant proposes to amend several operating conditions of the IEA (Section A, Table 5; Tonkmeter pers. comm., 2026). The following amendments change how impacts are mitigated:

a) Daily cover (condition 4.8(f)) would change from a minimum equivalent of 150 mm to between 100 mm and 150 mm of compacted soil or other approved cover material.

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b) Daily litter picking at fences and vegetation (condition 4.8(b)) would be replaced by inspection of the perimeter fences, the access road and the vegetation around the working face at least twice a week. Windblown litter found during each inspection would be removed. An additional inspection would be required on any day on which litter is seen blowing beyond the working face.

c) Weekly collection of waste outside the site (condition 4.8(g)) would be replaced by a requirement to keep the area outside the site clear of waste.

d) Removable litter fences (condition 4.9(c)) would be replaced by measures to control windblown waste.

e) The reference to the 2012 Traffic Impact Study (condition 4.7.4(a)) would be replaced by use of the existing entrance road.

f) Surface water monitoring in the stormwater drains (condition 4.10.1(f)) would be replaced by two requirements:

water in the contaminated water pond may only be discharged to the municipal sewer or the environment if it complies with the limits in the municipal by-laws or the applicable General Authorisation under the National Water Act, 1998;

clean stormwater pumped from the site must be sampled before it is released to the stormwater drains.

g) The timeframes for the monitoring committee and audits (conditions 4.12.2(c) and 4.15(d)) would be aligned to remove a contradiction (GDARD, 2017.

Several factors support the amendments. The conditions become outcome-based, set defined minimum requirements and match current practice. Thinner cover leaves more airspace for waste, and less soil has to be excavated and handled. Daily cover is already applied at about 1 part soil to 5 parts waste, on a working face no larger than 30 m by 30 m (Mafusire, 2026, Table 6-6; Tonkmeter pers. comm., 2026). The air quality assessment does not depend on a particular cover thickness. It credits a 30% reduction in workface dust to compaction and daily cover applied consistently, and assumes the cover-to-waste ratio of 1:5 already used on site (Mafusire, 2026, pp. 86–87, 124).

The amendment to condition 4.10.1(f) replaces a requirement that could not be met with certainty. The Department never set the monitoring locations or frequency. The new requirement links sampling to actual releases. The site lies in a former quarry with no natural outflow, so uncontaminated stormwater collects in the undeveloped quarry areas of Area E

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and leaves the site only by pumping (DMV Consultants, 2026, pp. 12, 20). The changes to the traffic and audit conditions correct references that no longer fit the facility.

Other factors weigh against the amendments. Thinner cover and less frequent litter picking could reduce control of litter, odour, vectors, fire and rain infiltration at the time when the working face rises up to 25 m above ground and becomes more exposed to wind. These concerns are addressed through the minimum cover thickness and inspection frequency set in the amended conditions, and the additional inspection required when litter is seen blowing.

The EAP considers the amendments acceptable, provided the EMPr keeps measurable outcomes. These outcomes are:

a) no waste visible at the end of each operating day;
b) cover thickened where odour, litter or pest complaints arise;
c) fences, the access road and vegetation inspected at least twice a week, with a litter register kept;
d) water in the contaminated water pond sampled before each discharge;
e) clean stormwater sampled before each release;
f) berms and diversion drains inspected after heavy rainfall.

The EMPr has been drafted on this basis. The current conditions apply until the amendments are granted.

3.12 NO-GO ALTERNATIVE

Under the no-go alternative, neither the height increase of Area E nor the vegetation clearance at the MRF expansion site would be authorised. The facility would continue to operate under the existing IEA, with Areas D, E and F each filled to a maximum of 1 m above natural ground level (GDARD, 2017, condition 4.1(b)).

The no-go alternative is therefore not a “no impact” option. The facility is authorised and operational, and its existing impacts would continue for the remaining authorised life. That life is about 87 years at 7 500 tonnes/month or about 44 years at 15 000 tonnes/month. Area E alone would last about 39 years at the lower rate and about 19 years at the higher rate (Mafusire, 2026, Table 1-1). The no-go alternative is the baseline against which the proposal is compared.

Some impacts would be lower under the no-go alternative.

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a) Visual: the landform would stay at 1 m above ground. The visual intrusion assessed for the proposal would therefore not occur. That intrusion is rated Medium to High after mitigation, although it is concentrated within 2.5 km and only about 7% of the zone of influence would be newly affected (van Zyl, 2026, p. 20).
b) Greenhouse gas emissions: total emissions at the facility would be lower. Before mitigation, cumulative emissions under the no-go alternative are about 2 068 258 tCO_2e (Scenario 1) and 1 595 710 tCO_2e (Scenario 2). With the height increase they are about 3 279 262 and 2 687 068 tCO_2e (Brugman, 2026, p. 59).
c) Other operational impacts: dust, odour, leachate generation, liner loading and slope stability risks would also be lower, or would last for a shorter period. Area E would reach its final level sooner and be capped sooner.

Other impacts would not be avoided under the no-go alternative. They would be brought forward or moved elsewhere.

a) Waste would still be generated. Waste generation in the City of Ekurhuleni is estimated at about 1.08 million tonnes in 2026, rising to about 1.47 million tonnes a year by 2039 (Ekurhuleni Metropolitan Municipality, 2025, Table 4-18).
b) That waste would need to go somewhere. The airspace the height increase would provide is about 4.0 to 4.2 million m^3 (EAP calculation from Mafusire, 2026, Table 1-1). Without it, the equivalent waste would go either to Areas D and F, which would then have to be developed sooner, or to other landfills in the region. Several of those landfills are close to the end of their life. Gas extraction has been installed at the municipal sites but is not operational (Ekurhuleni Metropolitan Municipality, 2025, Table 5-1).
c) Climate and air quality. Part of the no-go alternative's advantage is therefore a displacement of emissions and odour rather than a reduction, and it may move them to sites where landfill gas is not flared.
d) Groundwater. Estimated leakage through a liner is expressed per hectare of lined area (Peter Legg Consulting, 2026, pp. 25–26). Placing more waste on the same lined area of Area E therefore means less potential leakage per tonne of waste than lining new areas.

The vegetation clearing on the proposed MRF expansion site would not take place under the no-go alternative. That impact is rated Low after mitigation.

Please refer to Table 9 copied here for ease of reference

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Aspect	Proposal: Area E to 25 m and MRF expansion site (significance after mitigation)	No-go alternative: Areas D, E and F to 1 m	Comparison	Assessed in 2017 EIR and managed under the current EMPr (AECOM, 2017)
Vegetation and habitat (proposed MRF expansion site)	Low; alien plant control Low; alien removal positive	No clearing on the proposed MRF expansion site	No-go marginally better. The proposal includes an alien clearing benefit	Yes:
Visual intrusion	Medium to High (60)	Landform limited to 1 m; existing impact unchanged	No-go better	Assessed at 1 m height only; the taller landform is managed under the EMPr accompanying this application
Dust	Medium (30)	Continues at current levels for 44–87 years	Similar intensity; longer duration and more exposed working face under the proposal	Yes
Odour and hydrogen sulphide	Low (20) and Medium (39)	Continue at current levels	Similar intensity; longer duration under the proposal	Yes (
Greenhouse gas emissions	Medium, adjusted in line with the specialist rating	Lower total facility emissions, but the waste goes to other sites, which may not flare gas	No-go lower on site; partly a displacement	No: new aspect, under the EMPr accompanying this application (Part B §6)
Groundwater and leachate	Low	Lower load on the liner; Areas D and F lined and operated sooner	Proposal better per tonne of waste disposed	Yes
Stormwater and contaminated water	Low	Cells capped sooner; more cells opened in Areas D and F	Similar	Yes, in the EMPr
Slope stability and dolomite	Low	Lower load on the dolomite and the liner	No-go marginally better	Dolomite: Yes Slope stability at 25 m is new
Litter, vectors, noise and traffic	Low	Continue at current levels	Similar intensity; longer duration under the proposal	Yes
Safety of workers and waste pickers	Low	Picking at the working face continues; MRF stays at pilot scale	Proposal better	Yes
Recovery of recyclables	Positive, with the MRF expansion	Recovery limited to the pilot MRF	Proposal better	MRF provided for in the original design
Disposal airspace and capital cost	Positive, Medium (42)	Area E closes after 19–39 years; Areas D and F needed sooner	Proposal better	Need assessed in 2017; the additional airspace is new

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Aspect	Proposal: Area E to 25 m and MRF expansion site (significance after mitigation)	No-go alternative: Areas D, E and F to 1 m	Comparison	Assessed in 2017 EIR and managed under the current EMPr (AECOM, 2017)
Employment and local procurement	Positive, Medium (39)	Jobs retained for the existing authorised life	Proposal better	Yes
Closure and post-closure	Low; post-closure methane Medium to High (70)	Smaller landform closes sooner	No-go better for post-closure methane	Yes

List any specialist reports that were used to fill in the above tables. Such reports are to be attached in the appropriate Appendix.

Please refer Table 14. Copied here for ease of reference.

Study	Title	Author	Date
Vegetation / flora	Vegetation Assessment for the proposed vegetation clearing at Tonkmeter Landfill site, Springs, Gauteng	Venter, I. (Kyllinga Consulting)	September 2026
Visual	Visual Impact Assessment Report: Tonkmeter Resource Facility	van Zyl, L. (TerraGIS)	August 2026 (v3)
Climate change	Climate Change Impact Assessment: Tonkmeter Waste Resource Facility (ECO-2026-Report-0002-00)	Brugman, M. (Rayten, project ENV-ECO-264420)	Revision 1.0, 19 October 2026 (final)
Air quality	Tonkmeter Resource Facility – Proposed Extension of the Final Landfill-Cell Height for Area E: Air Quality Impact Assessment Report (ECO-2026-Report-0005-00)	Mafusire, G. (Rayten Engineering Solutions)	13 October 2026 (Rev 0.0)
Engineering geology / dolomite	Tonkmeter Waste Disposal Facility: Area E: Dolomite Stability Review (IR2222)	Buttrick, D.B. et al. (IntraSolutions)	10 July 2026
Stormwater / surface water	Tonkmeter Landfill Site – Stormwater Management Plan for Area E (Project 26831)	DMV Consultants	August 2026 (Rev 5)
Groundwater	Report on the establishment of monitoring boreholes for monitoring groundwater quality at Cell 1, Tonk Meter Road Waste Disposal Facility	Meyer, R.	17 December 2024 (final draft)
Landfill engineering design	Tonkmeter Resource Facility Landfill Area E Detail Design Report (P077d-05)	Legg, P.A. (Peter Legg Consulting)	October 2026

Describe any gaps in knowledge or assumptions made in the assessment of the environment and the impacts associated with the proposed development.

3.13 GAPS IN KNOWLEDGE AND ASSUMPTIONS

The assessment is subject to the following gaps in knowledge and assumptions.

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3.13.1 VEGETATION ON THE PROPOSED MRF EXPANSION SITE

The vegetation assessment is based on a single site visit on 4 September 2026, in early spring, when most vegetation is dormant. The species list may therefore be incomplete (Venter, 2026, p. 5).

Fauna were not assessed.

The specialist's impact table uses a frequency and severity risk matrix that differs from the method described in Section 4.3 of the report, and its operation-phase table repeats the construction-phase ratings (Venter, 2026, Table 10). The BAR significance ratings were therefore derived by the EAP from the specialist's findings, using the BAR methodology.

The residual rating for loss of habitat in the Critical Biodiversity Area relies on the specialist's ground-truthing finding that the footprint is disturbed and unlikely to fulfil CBA function (Venter, 2026, pp. 19–21).

3.13.2 CLIMATE CHANGE

The climate change impact assessment is a desktop study, and no site visit was made.

Construction-phase emissions were not quantified; they are estimated at about 0.1% of the footprint. Scope 3, leachate-process and land-use-change emissions were also not quantified (Brugman, 2026, pp. 13, 18–19).

Waste data from the Gauteng Waste Information System were not independently verified (Brugman, 2026, p. 26).

The start of gas collection in about 2030 and the 75% collection efficiency are modelling assumptions based on client information and US EPA guidance. They do not come from an approved gas system design (Brugman, 2026, pp. 22, 25).

Methane generated after waste acceptance stops is excluded from the totals (Brugman, 2026, pp. 25, 38).

A methane global warming potential of 23 was used, as prescribed for South African reporting. The IPCC Sixth Assessment Report value for biogenic methane (27.0) would raise methane emissions by about 17%, but the increment would stay in the same carbon-budget categories (EAP calculation from Brugman, 2026, p. 39; Forster et al., 2021).

The comparison against the carbon budget is a screening indicator only, because most of the incremental emissions occur after the 1.5 °C and 2 °C budgets are expected to be used up (Brugman, 2026, p. 46).

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Modelled methane would be about 40% higher if the site were poorly managed (Brugman, 2026, p. 40). Good operating practice is therefore assumed as part of the mitigation.

The assessment covers emissions within the facility boundary only. It does not account for emissions from waste that would be disposed of at other landfills under the no-go alternative.

3.13.3 Stormwater and surface water

The design storm differs between sources: 122.6 mm and 141.6 mm (Springs station) and 160 mm (SANRAL). The temporary storage is sized on 141.6 mm, which is lower than the SANRAL 1:50-year value (DMV Consultants, 2026, pp. 17, 21).

The plan uses historical rainfall statistics and makes no allowance for the more intense rainfall projected in the climate change impact assessment.

The plan covers Area E only, not the proposed MRF expansion site.

The municipal sewer discharge permit and its volume limit were not available for this assessment (DMV Consultants, 2026, p. 23).

3.13.4 Landfill engineering

The geomembrane service life (over 106 years at 35 °C) is compared with an Area E life of no more than 30 years plus 30 years of aftercare. With the height increase, the Area E life is 39–77 years (Peter Legg Consulting, 2026, p. 25). The 35 °C liner temperature assumes no leachate recirculation.

The seismic margin for block failure on the operating slope is small (1.14 against the required 1.1). Results for the 0.15g case are not reported (Peter Legg Consulting, 2026, pp. 33, 36).

The waste strength values come from literature, so stability must be re-checked for each new cell using laboratory interface shear test results (Peter Legg Consulting, 2026, p. 36).

Settlement of the 40 m waste body is not quantified.

3.13.5 Visual

No photomontages or named viewpoints are provided.

No rating without mitigation is given. The BAR rating before mitigation was therefore derived by the EAP.

Part of the screening relies on Eucalyptus trees, which are Category 1b invasive species that must be controlled (Venter, 2026, p. 21). This screening will reduce over time.

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3.13.6 DOLOMITE STABILITY

The review is a desktop study of existing data, so poorer sub-areas may have been missed (IntraSolutions, 2026, p. 30).

The level of the dolomite groundwater is uncertain. The review gives 1 570–1 590 m amsl from site data and a mean of 1 469 m amsl from Water Research Commission data. Site-specific monitoring is recommended to resolve this (IntraSolutions, 2026, pp. 1, 25).

The nature and compaction of the backfill in the southern part of Area E are not known (IntraSolutions, 2026, p. 30).

3.13.7 AIR QUALITY

Dust from cell construction was not modelled. The specialist considers it intermittent, short-term and readily mitigated.

The landfill gas parameters are default values and should be checked against site monitoring.

Waste composition, including the additional waste streams, is a key uncertainty for landfill gas, hazardous air pollutants and odour (Mafusire, 2026, pp. 120–122).

The modelled dust levels assume 50% control efficiency on haul roads and 30% at the working face, and depend on these being achieved.

South Africa has no ambient standard for hydrogen sulphide, so the Alberta guidelines were used.

The Rietfontein landfill was modelled as a completed landform, although it is expected to operate until about 2029. Near-term cumulative dust and odour may therefore be understated (Mafusire, 2026, p. 84).

3.13.8 GROUNDWATER

a) A separate groundwater specialist assessment of the height increase was not commissioned, for the reasons set out in Section E.3.8. The groundwater impacts were rated by the EAP, using the landfill engineer's barrier performance assessment and the specialist workshop findings.
b) The existing monitoring network (TM-1 to TM-4) was sited for Cell 1 only. Additional boreholes for future cells will be sited by a groundwater specialist.
c) Three monitoring rounds and one round of water levels are available, and the reported groundwater flow directions conflict.

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d) The cause of the changes recorded at TM-3 and TM-4 has not been established and is currently being investigated. Seasonal variation, sampling or laboratory error, and a landfill source are all possible. The mitigated ratings of GW-O-02 assume that the cause is established through investigative monitoring.
e) The August 2026 results for TM-2 are being verified because of a possible sample transposition.
f) Water quality data from the subsoil drainage (leakage detection) system were not available for review (Tonkmeter Specialist Workshop, 2026).

3.13.9 GENERAL LANDFILL IMPACTS

a) No noise survey, updated traffic study, heritage screening or fauna survey was done for this application. These impacts were rated by the EAP.
b) The ratings assume compliance with the IEA conditions and the EMPr.
c) The 2012 Traffic Impact Study did not consider throughputs of up to 15 000 tonnes/month.
d) The number of employees is not stated in the project information.
e) Alternatives and the no-go alternative.
f) The capital cost and timing advantages of the proposal over earlier development of Areas D and F are described qualitatively. No cost estimates were available.
g) Aspects that are not changed by this application rely on the 2017 assessment (AECOM, 2017) and the approved EMPr (AECOM, 2016).

3.14 METHODOLOGY USED TO RATE THE SIGNIFICANCE OF IMPACTS

In order to determine the significance of an impact, the Impact Assessment Methodology is based on the methodology used during the initial application for the authorisation. Therefore, the following criteria will be used: extent, duration, intensity and probability.

The extent and probability criteria have five parameters, with a scaling of 1 to 5. Intensity also has five parameters, but with a weighted scaling. The assessment of the intensity of the impact is a relative evaluation within the context of all the activities and other impacts within the framework of the project. The intensity rating is weighted as 2 since this is the critical issue in terms of the overall risk and impact assessment (thus the scaling of 2 to 10, with intervals of 2). The intensity is thus measured as the degree to which the project affects or changes the existing environment.

Each impact is first rated without mitigation. Mitigation (or, for positive impacts, enhancement) measures are then identified. With these measures applied, the impact is

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assessed in terms of its reversibility, whether it will cause irreplaceable loss of resources, and the degree to which it can be avoided, managed or mitigated. These findings inform the residual rating of extent, duration, intensity and probability; for example, an irreversible impact is rated as permanent, and an irreplaceable loss as at least medium-high intensity. The resulting residual significance is the overall significance unless the EAP, with stated reasons, assigns a different rating.

3.14.1 IMPACT ASSESSMENT CRITERIA

The criteria used for the assessment of the potential impacts of the proposed Tonkmeter Resource Facility are described in Table 20. Cumulative impacts will be included as part of the impact assessment process.

Table 20: Impacts assessment criteria

Criteria	Description
Nature	Includes a description of what causes the effect, what will be affected and how it will be affected.
Extent	The physical and spatial scale of the impact.
Duration	The lifetime of the impact is measured in relation to the lifetime of the proposed development.
Intensity	Examining whether the impact is destructive or benign, whether it destroys the impacted environment, alters its functioning, or slightly alters the environment itself.
Probability	occur for any length of time during the lifecycle of the activity, and not at any given time.
Status	Description of the impact as positive, negative or neutral.
Significance	A synthesis of the characteristics described above and assessed as low, medium or high. A distinction will be made for the significance rating without the implementation of mitigation measures and with the implementation of mitigation measures.
Confidence	This is the level of knowledge/information that the environmental impact practitioner or a specialist had in his/her judgement.
Reversibility	Examining whether the impacted environment can be returned to its pre-impacted state once the cause of the impact has been removed.
Replaceability	Examining if an irreplaceable resource is impacted upon
Cumulative	Synthesis of different impacts in concert, considering the knock-on impacts thereof.

3.14.1.1 Nature and Status

The nature of the impact is the consideration of what the impact will be and how it will be affected. This description is qualitative and gives an overview of what is specifically being considered. That is, the nature considers ‘what is the cause, what is affected, and how is it affected?’.

The status is thus given as being positive, negative or neutral, and is deemed to be either direct or indirect in impact.

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3.14.1.2 Extent

The physical and spatial scale of the impact is classified in Table 21.

Table 21: Extent

Description	Explanation	Scoring
Footprint	The impacted area extends only as far as the activity, such as footprint occurring within the total site area.	1
Site	The impact could affect the whole, or a significant portion of the site.	2
Local	Impact could affect the adjacent landowners.	3
Regional	Impact could affect the wider area around the site, that is, from a few kilometres, up to the wider Municipal region	4
National	Impact could have an effect that expands throughout a significant portion of South Africa – that is, as a minimum has an impact across provincial borders.	5

3.14.1.3 Duration

The lifetime of the impact is measured in relation to the lifetime of the proposed project, as per Table 22.

Table 22: Duration

Description	Explanation	Scoring
Short term	The impact will either disappear with mitigation or will be mitigated through a natural process in a period shorter than any of the development phases (i.e. less than 2 years).	1
Short to Medium term	The impact will be relevant through to the end of the construction phase (i.e. less than 5 years).	2
Medium term	Impact will last up to the end of the development phases, where after it will be entirely negated (i.e. related to each phase development thus less than 10 years).	3
Long term	The impact will continue or last for the entire operational lifetime of the development, but will be mitigated by direct human action or by natural processes thereafter (i.e. during decommissioning) (i.e. more than 10 years, or a maximum of 60 years).	4
Permanent	This is the only class of impact that will be non-transitory. Mitigation either by man or natural process will not occur in such a way or in such a time span that the impact can be considered transient (i.e. will remain once the site is closed).	5

3.14.1.4 Intensity

This will be a relative evaluation within the context of all the activities and the other impacts within the framework of the project, as per Table 23.

Table 23: Intensity

Description	Explanation	Scoring
Low	The impact alters the affected environment in such a way that the natural processes or functions are not affected.	2
Low-Medium	The impact alters the affected environment in such a way that the natural processes or functions are slightly affected.	4
Medium	The affected environment is altered, but functions and processes continue, albeit in a modified way.	6
Medium-High	The affected environment is altered, and the functions and processes are modified immensely.	8

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Description	Explanation	Scoring
High	Function or process of the affected environment is disturbed to the extent where the function or process temporarily or permanently ceases.	10

3.14.1.5 Probability

This describes the likelihood of the impacts actually occurring. The impact may occur for any length of time during the lifecycle of the activity, and not at any given time. The probability classes are rated in Table 24.

Table 24: Probability

Description	Explanation	Scoring
Improbable	The possibility of the impact occurring is none, due either to the circumstances, design or experience (less than 24% chance of occurring).	1
Possible	The possibility of the impact occurring is very low, either due to the circumstances, design or experience (25 – 49%).	2
Likely	There is a possibility that the impact will occur to the extent that provisions must therefore be made (50 – 69%).	3
Highly likely	It is most likely that the impacts will occur at some stage of the Development. Plans must be drawn up before carrying out the activity (70 – 89%).	4
Definite	The impact will take place regardless of any prevention plans, and only mitigation actions or contingency plans to contain the effect can be relied upon (90 – 100%).	5

3.14.1.6 Confidence

The level of knowledge the EAP or a specialist had in their judgement and is rated in Table 25.

Table 25: Confidence

Description	Explanation
Low	The judgement is based on intuition and not on knowledge or information.
Medium	The judgement is based on common sense and general knowledge.
High	The judgement is based on scientific and/or proven information.

3.14.2 LEVEL OF SIGNIFICANCE

The level of significance is expressed as the sum of the area exposed to the risk (extent), the length of time that exposure may occur over in total (duration), the severity of the exposure (intensity) and the likelihood of the event occurring (probability). This leads to a range of significance values running from ‘no impact’ to ‘extreme’.

The significance of the impacts have been determined as the consequence of the impact occurring (reflection of chance of occurring, what will be affected (extent), how long will it be affected, and how intense is the impact) as affected by the probability of it occurring, this

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translates to the following formula: Significance value = (Extent + Duration + Intensity) x Probability.

Each impact is considered in turn and assigned a rating calculated using the results of this formula, and presented as a final rating classification according to Table 26. A distinction will be made for the significance rating of (a) without the implementation of mitigation measures, and, (b) with the implementation of mitigation measures.

The significance bands and scores are applied unchanged to both evaluations. The interpretation differs: before mitigation, the rating indicates the level of mitigation required; after mitigation, the residual rating indicates the acceptability of the remaining impact and the weight it should carry in decision-making.

Table 26: Significance rating

Rating	Score	Without mitigation (implication for mitigation)	Residual significance (after mitigation)
Negligible	0–9	No mitigation beyond standard good practice and legal compliance is required.	Insignificant and acceptable. Managed through standard good practice and legal compliance.
Low	10–24	Less important impact; some mitigation is required.	Minor and acceptable. Not expected to influence the decision; implementation of the specified mitigation is secured through the EMPr.
Medium	25–49	Important; mitigation is required.	Of moderate importance and acceptable, provided the specified mitigation is implemented and monitored. Should be considered in the decision and may warrant specific conditions.
Medium to High	50–74	Medium to high importance; mitigation is necessary.	Important. Acceptability depends on strict implementation, monitoring and auditing of the specified mitigation; should be weighed in the decision.
High	75–89	High importance; mitigation is essential.	High importance; likely to influence the decision. Acceptable only if no reasonable further mitigation or alternative exists and it is outweighed by the benefits of the activity.
Extreme	90–100	Fatal flaw; alternatives must be considered.	Fatal flaw. The activity in its proposed form should not be authorised; alternatives must be considered.

Source: Adapted from the Tonkmeter Final Revised Environmental Impact Assessment Report, AECOM, 20217

3.14.3 POSITIVE IMPACTS

Positive impacts are assessed using the same criteria and scoring as negative impacts, with the Status recorded as positive. For positive impacts, Intensity is read as the degree of beneficial change to the affected environment or receptor. Measures proposed for positive impacts are enhancement measures, and the significance is presented without and with

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enhancement. Positive and negative impacts are reported separately and are not offset against one another in determining overall significance

3.14.4 REVERSIBILITY

Reversibility is the degree to which the affected environment can return to its pre-impacted state once the cause of the impact is removed. That return can happen through natural processes or through rehabilitation that is reasonably practicable. Reversibility is rated qualitatively according to Table 27. It does not form part of the significance score. It does inform the evaluation of residual impacts and the application of the mitigation hierarchy, in accordance with Appendix 1 of the EIA Regulations, 2014 (as amended).

Table 27: Reversibility

Description	Explanation
Reversible	The affected environment can be fully returned to its pre-impacted state within a reasonable period after the cause of the impact is removed, through natural processes or reasonably practicable rehabilitation.
Partly reversible	The affected environment can be partly restored. However, a residual change to its structure, function or character will remain after the cause is removed and rehabilitation is complete.
Irreversible	The affected environment cannot be returned to its pre-impacted state by natural processes or by any reasonably practicable intervention.

3.14.5 IRREPLACEABLE LOSS OF RESOURCES (REPLACEABILITY)

Replaceability considers whether an impact will cause the loss of a resource that cannot be replaced, substituted or re-created. This takes into account the resource's scarcity, its conservation status and the functions it provides. Resources include biodiversity, water resources, soils and land capability, and heritage resources. Replaceability is rated qualitatively according to Table 28 and does not form part of the significance score.

Table 28: Replaceability

Description	Explanation
No irreplaceable loss	The affected resource is not lost, or it is common and can readily be replaced, substituted or re-established.
Possible irreplaceable loss	A resource of limited replaceability may be partly lost, such as one that is locally scarce, of conservation concern, or slow to re-establish. The loss can be avoided or limited only if mitigation is effectively implemented.
Irreplaceable loss	A resource that cannot be replaced, substituted or re-created within human timescales will be lost or permanently compromised.

Any impact rated as Irreversible and/or Irreplaceable loss will be specifically discussed in the BAR, irrespective of its calculated significance.

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3.15 IDENTIFICATION OF MITIGATION MEASURES

The purpose of mitigation measures is to reduce the significance level of the anticipated impact. Therefore, the reduction in the significance level after mitigation is directly related to the scores used in the impact assessment criteria. The effect of potential mitigation measures to reduce the overall significance level is also to be considered in each issues table (i.e. values with or without mitigation are presented).

4 CUMULATIVE IMPACTS

A cumulative impact, in relation to an activity, is the impact of an activity that may not be significant on its own but may become significant when added to the existing and potential impacts of similar or other activities in the area (DEA, 2014, Regulation 1).

Cumulative impacts are those which have incremental impacts of the activity as a whole, and others that past, present and future activities will have an impact on a common resource.

Describe potential impacts that, on their own may not be significant, but is significant when added to the impact of other activities or existing impacts in the environment. Substantiate response:

Each impact in the Impact Assessment Register was considered against the existing and foreseeable activities that affect the same receptor. These activities are:

a) the existing Tonkmeter facility;
b) the adjacent City of Ekurhuleni Rietfontein landfill, which receives about 18 500 tonnes a month, does not flare landfill gas, and is expected to reach the end of its licensed life in 2029 (Ekurhuleni Metropolitan Municipality, 2025, Table 5-3; Tonkmeter pers. comm., 2026);
c) historical gold tailings and clay mining on the property;
d) Tonk Meter Road and the N17;
e) the surrounding urban area of KwaThema.

The EAP rated the cumulative significance of each impact. The aspects where the cumulative significance is Medium or higher are described below.

Air quality

The site lies in the Highveld Priority Area, where background PM10 and PM2.5 concentrations already exceed the national standards. The increment from the facility at the boundary is below the standards. However, adding the maximum predicted increment to the maximum background gives a daily PM10 concentration of about 352 µg/m³, against the standard of 75 µg/m³. The exceedance is driven mainly by the background (Mafusire, 2026,

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pp. v, 115). The cumulative dust impact (AQ-O-01) is therefore rated High, although the facility's own contribution is small.

The cumulative scenario in the air quality assessment includes the Rietfontein landfill. Most of the predicted hydrogen sulphide comes from Rietfontein's leachate dam, and residents of KwaThema are already exposed to odour from that landfill (Mafusire, 2026, p. v). The cumulative impacts of hydrogen sulphide and odour (AQ-O-02, AQ-O-03 and ENG-O-04) are rated Medium.

Climate change

With the height increase, the facility's total emissions over its operating life are 3 279 262 tCO_2e (Scenario 1) or 2 687 068 tCO_2e (Scenario 2) without mitigation. With mitigation they are 849 231 or 710 832 tCO_2e (Brugman, 2026, p. 39). Emissions from the Rietfontein landfill were not quantified. Greenhouse gases mix globally, so the specialist addresses cumulative effect through the comparison with South Africa's remaining carbon budget (Brugman, 2026, p. 45). The cumulative climate change impact (CC-O-01 and CC-PC-01) is rated High.

Fire smoke would add to a regional particulate baseline that already exceeds the standards (CC-O-02). Water scarcity affects all water users in the catchment (CC-O-03). Both are rated Medium.

Groundwater

Groundwater beneath the site may also be affected by the historical gold tailings on the property and by the adjacent Rietfontein landfill (Peter Legg Consulting, 2026, pp. 14–15). Sulphate, one of the parameters that has increased at TM-3, is also a legacy indicator of gold tailings. The source of the recorded changes has not yet been established (Tonkmeter Specialist Workshop, 2026).

The IEA requires a monitoring system that can tell these sources apart (GDARD, 2017, condition 4.10.1(b)). The Rietfontein monitoring reports will be reviewed as part of the investigative monitoring. The cumulative groundwater impacts (ENG-O-02, GW-O-01, GW-O-02 and GW-PC-01) are rated Medium.

Visual

The raised Area E landform will be seen together with the adjacent Rietfontein landfill, which is authorised to 10 m. The specialist assessed Area E against that baseline. Excluding areas already affected by Rietfontein, the additional visibility is about 7% of the zone of influence

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and 11% within 2.5 km (van Zyl, 2026, pp. 8, 20). The cumulative visual impact (VIA-O-01) is rated Medium.

Biodiversity

Clearing the proposed MRF expansion site adds a small, incremental loss of land mapped as CBA 1 within the Endangered Tsakane Clay Grassland ecosystem. The specialist found the vegetation there completely transformed and of Very Low site ecological importance (Venter, 2026, pp. 19–21). The 2012 biodiversity study identified the western part of Area D, not this site, as the important corridor between the Klein Blesbokspruit and the Withokspruit (BKS, 2012). Alien invasive plants are already widespread on the facility and the surrounding mined land. The cumulative biodiversity impacts are rated Low, and the alien clearing contributes positively.

Litter, vectors, traffic and waste pickers

The Rietfontein landfill also produces windblown litter and attracts vectors, so the source of these nuisances is difficult to tell apart. Waste vehicles serving both landfills use the same local roads. Reclaimers also work at the Rietfontein landfill. The cumulative impacts of litter, vectors, traffic and waste-picker safety (GEN-O-01, GEN-O-02, GEN-O-04 and GEN-O-08) are therefore rated Medium.

When the Rietfontein landfill stops accepting waste in about 2029, its contribution to dust, odour, litter, vectors and traffic is expected to fall. Post-closure leachate and gas management at Rietfontein will continue. Some of the waste it now receives may be redirected to Tonkmeter, which is part of the reason for the higher-throughput scenario.

Regional waste disposal capacity (positive)

The City of Ekurhuleni's draft Integrated Waste Management Plan records that regional landfill airspace is diminishing faster than expected. It identifies no replacement facility for the Simmer & Jack landfill once that site closes. As mitigation, it lists increasing the height of landfills that are not close to residential areas, giving Platkop and Rooikraal as examples (Ekurhuleni Metropolitan Municipality, 2025, s 5). The height increase adds capacity at an authorised, lined site as the adjacent Rietfontein landfill approaches closure. The cumulative effect on regional disposal capacity (GEN-O-09) is positive and rated Medium. The nearest modelled receptors are about 1.9 km to 2.7 km from the modelled flare position (Mafusire, 2026, pp. 12–13). The air quality and visual assessments above found the impacts on these receptors acceptable with mitigation.

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Conclusion

Three cumulative impacts are rated High: dust, where the background already exceeds the standards, and climate change, both during operation and after closure. In each case, the High rating is driven mainly by existing regional conditions or by the global nature of the receptor, rather than by the facility's own increment.

The facility's contribution is reduced by the mitigation in the EMPr that will accompany this application:

a) dust suppression and daily cover (Part B §5);
b) landfill gas collection and flaring (Part B §6);
c) extension of the groundwater monitoring network and investigative monitoring (Part B §20);
d) the alien and invasive species control plan (Part B §17).

No cumulative impact was identified that would make the proposal unacceptable, provided these measures are implemented.

5 ENVIRONMENTAL IMPACT STATEMENT

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

The assessment considered 58 potential impacts across the construction, operational, decommissioning and closure, and post-closure phases. Of these, 54 are negative and four are positive (Tables 17 to 19). Each impact was rated before and after mitigation for its extent, duration, intensity and probability, using the methodology in Section E.3.14 (Table 26).

Most impacts are direct impacts of vegetation clearing, landfilling and closure. Indirect impacts include climate-related hazards to the facility, the effect of particular waste types on the liner and on odour, and smoke from fires. Cumulative impacts are addressed in Section E.4.

Significance after mitigation

With the mitigation in the EMPr, 49 of the 54 negative impacts are rated Low or Negligible (Table 29). No negative impact is rated High or Extreme after mitigation. The climate change and air quality specialists identified no fatal flaw (Brugman, 2026, p. 62; Mafusire, 2026, pp. 117–119).

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Table 29: Significance of negative impacts after mitigation, by phase

Phase	Negligible	Low	Medium	Medium to High	High or Extreme
Construction	7	6	0	0	0
Operation	6	26	3	1	0
Decommissioning, closure and post-closure	0	4	0	1	0
Total (54)	**13**	**36**	**3**	**2**	**0**

Construction phase

Construction impacts arise from clearing the proposed MRF expansion site and from the continued, phased construction of the authorised Cells 2 to 8 of Area E. They are mostly short term, lasting for the construction of each cell, and are confined to the footprint or the site. After mitigation, all construction impacts are Low or Negligible, and most are possible or improbable.

The loss of vegetation and habitat in a mapped Critical Biodiversity Area is Low after mitigation. Ground-truthing found the footprint transformed, dominated by alien and invasive species and of Very Low site ecological importance, and clearing is confined to that footprint (Venter, 2026, pp. 19–21). The removal of listed alien and invasive species is a positive impact, rated Medium with the enhancement measures.

Operational phase

The height increase extends the operating life of Area E from about 39 to 77 years at 7 500 tonnes/month, or from about 19 to 39 years at 15 000 tonnes/month (Mafusire, 2026, Table 1-1). Operational impacts are therefore long term, and some are permanent.

Most operational impacts are rated Low or Negligible after mitigation, with their likelihood reduced to possible or improbable. This applies to stormwater, leachate, slope stability, liner performance, dolomite stability, landfill gas migration, groundwater, litter, vectors, noise, traffic, waste acceptance and health and safety. Four operational impacts remain above Low after mitigation:

a) **Contribution to climate change (CC-O-01):** national to global in extent, permanent and definite. Landfill gas collection and flaring from about 2030 would reduce the incremental emissions by about 74.5%. The impact is rated Medium after mitigation, in line with the specialist rating (Brugman, 2026, pp. 45–48, 60). The mitigated rating depends on the gas collection system being installed and operated.

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b) **Visual intrusion (VIA-O-01):** local, permanent and definite. It is rated Medium to High (60) after mitigation using the BAR methodology; the specialist rates the overall visual impact Medium (van Zyl, 2026, p. 27). The impact builds up gradually as the landform rises. Excluding areas already affected by the adjacent Rietfontein landfill, the additional visibility is about 7% of the zone of influence (van Zyl, 2026, p. 20).
c) **Dust (AQ-O-01):** long term and likely, rated Medium (30). The facility's increment is below the national standards at the boundary, but cumulative dustfall is marginally above the residential limit along limited parts of the boundary, and background PM_{10} and $PM_{2.5}$ already exceed the standards (Mafusire, 2026, pp. iii–v, 115).
d) **Hydrogen sulphide and reduced sulphur compounds (AQ-O-02):** local, long term and likely, rated Medium (39). Most of the predicted hydrogen sulphide comes from the leachate dam of the adjacent Rietfontein landfill (Mafusire, 2026, pp. v, 118).

The groundwater impacts are rated Low after mitigation, with an improbable likelihood. The Class B barrier and leakage detection layer are prescribed, and their performance under the higher load has been verified (Peter Legg Consulting, 2026, pp. 25–26). The monitoring network will be extended before each new cell receives waste. Confidence in the rating of the changes already recorded at boreholes TM-3 and TM-4 (GW-O-02) is low until their cause is established through investigative monitoring.

Decommissioning, closure and post-closure

Decommissioning, closure and post-closure impacts are long term to permanent. With progressive capping, a current closure plan, financial provision and 30 years of post-closure monitoring, the risks of incomplete rehabilitation, cap erosion and post-closure groundwater contamination are rated Low.

Landfill methane will continue to be generated for decades after closure (CC-PC-01). This impact is permanent and definite and remains Medium to High after continued gas collection and flaring. It was not quantified by the specialist, so confidence in the rating is low (Brugman, 2026, pp. 25, 38).

Positive impacts

The proposal has four positive impacts, all rated Medium after enhancement: additional regional disposal airspace within an authorised, lined footprint; jobs and local procurement retained over the extended operating life; reduced leachate generation through progressive capping; and the removal of alien and invasive species.

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Cumulative impacts

Cumulatively, dust and climate change are rated High. In both cases the rating is driven mainly by the existing regional background and by the global nature of greenhouse gases, rather than by the facility's own increment (Section E.4).

Alternatives

The alternatives considered in Section A.3 were screened out as not preferred, or as not reasonable and feasible (Table 8). The proposal is therefore compared with the no-go alternative (Section E.3.12, Table 9).

Under the no-go alternative, the facility would continue to operate at 1 m above natural ground level in Areas D, E and F for about 87 years at 7 500 tonnes/month, or 44 years at 15 000 tonnes/month (Mafusire, 2026, Table 1-1). The visual intrusion of the raised landform would be avoided. Greenhouse gas emissions would not be eliminated: the facility would still emit about 2.07 or 1.60 million tCO_2e before mitigation over its remaining authorised life. Only the incremental emissions of the height increase at this facility would be avoided, about 1.09 to 1.21 million tCO_2e before mitigation or 0.28 to 0.31 million tCO_2e after mitigation (Brugman, 2026, pp. 39, 58–59).

The no-go alternative would not, however, remove the need to dispose of the waste. Areas D and F would have to be developed sooner, or the waste would go to other regional landfills, several of which are close to the end of their life. Much of the incremental emission would therefore be displaced rather than avoided, possibly to sites where landfill gas is not flared (Brugman, 2026, p. 61; Ekurhuleni Metropolitan Municipality, 2025). The MRF expansion would not proceed, and waste picking at the working face would continue.

Conclusion

Taking into account the type, duration, likelihood and significance of the impacts, the EAP concludes that the impacts of the proposal are acceptable, provided the mitigation in the EMPr is implemented. The acceptability of the residual impacts depends in particular on:

a) landfill gas collection and flaring, during operation and after closure;
b) dust suppression on the haul route, and daily compaction and cover of waste;
c) extension of the groundwater monitoring network before each new cell receives waste, and resolution of the changes recorded at TM-3 and TM-4;
d) progressive capping and greening of the landform.

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6 ENVIRONMENTAL IMPACT SUMMARY

6.1 PROPOSAL

Increase of the final height of Area E from 1 m to 25 m above natural ground level within the authorised, lined footprint, and clearing of the proposed MRF expansion site. After mitigation, 49 of the 54 negative impacts are Low or Negligible. Three are Medium (contribution to climate change, dust, and hydrogen sulphide) and two are Medium to High (visual intrusion, and post-closure landfill methane). The four positive impacts are rated Medium. No fatal flaw was identified.

6.2 ALTERNATIVE 1

No alternative to the proposal was carried forward for assessment. The alternatives considered were screened out as not preferred, or as not reasonable and feasible (Section A.3, Table 8).

6.3 NO-GO (COMPULSORY)

Continued operation at 1 m above natural ground level in Areas D, E and F under the existing IEA, with the existing impacts continuing for about 44 to 87 years. The visual intrusion of the raised landform and the incremental greenhouse gas emissions at this facility are avoided, although much of the waste, and its emissions, would be displaced to other landfills. Areas D and F would also have to be developed sooner, the MRF expansion would not proceed, and the additional regional disposal capacity would be lost.

6.4 FOR PROPOSAL

The impacts that remain above Low after mitigation, and the positive impacts, are summarised in Table 30. All other impacts of the proposal are Low or Negligible after mitigation (Tables 17 to 19).

Table 30: Impacts above Low after mitigation, and positive impacts

Impact	Duration	Likelihood	Extent	Significance after mitigation
CC-O-01: Contribution to climate change	Permanent	Definite	National	Medium
AQ-O-01: Dust	Long term	Likely	Site	Medium (30)
AQ-O-02: Hydrogen sulphide and reduced sulphur compounds	Long term	Likely	Local	Medium (39)
VIA-O-01: Visual intrusion of the raised landform	Permanent	Definite	Local	Medium to High (60)
CC-PC-01: Post-closure landfill methane	Permanent	Definite	National	Medium to High (70)

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Impact	Duration	Likelihood	Extent	Significance after mitigation
SW-O-05: Reduced leachate through progressive capping (positive)	Long term	Highly likely	Site	Medium (48)
GEN-O-09: Additional regional disposal airspace (positive)	Long term	Likely	Regional	Medium (42)
GEN-O-10: Jobs and local procurement (positive)	Long term	Likely	Local	Medium (39)
VEG-C-07: Removal of alien and invasive species (positive)	Long term	Highly likely	Site	Medium (32)

6.5 FOR ALTERNATIVE

Not applicable. No alternative was carried forward for assessment (Section A.3, Table 8). The no-go alternative is compared with the proposal in Section E.3.12 (Table 9).

6.6 PREFERRED PROPOSAL

Having assessed the significance of impacts of the proposal and alternative(s), please provide an overall summary and reasons for selecting the proposal or preferred alternative.

The proposal is the preferred option for the following reasons:

a) **Use of an existing, lined footprint.** The height increase creates additional airspace within the authorised footprint of Area E. The detail design for the complete Area E is based largely on the current approved design (Peter Legg Consulting, 2026, p. 16), so no new land is cleared in Area E and no lining, leachate or monitoring infrastructure is needed beyond the cells already authorised.

b) **Regional need.** Developed landfill airspace in the City of Ekurhuleni is diminishing faster than expected. On a 2022 basis, the adjacent Rietfontein landfill had about four years of developed airspace remaining, and the City's draft IWMP identifies increasing the height of landfills that are not close to residential areas as one way to address the shortfall (Ekurhuleni Metropolitan Municipality, 2025).

c) **Capacity gained.** The height increase extends the life of Area E by about 20 to 38 years.

d) **Recovery of recyclables.** The MRF expansion increases the recovery of recyclables and allows waste picking to move off the working face, which reduces the safety risk to waste pickers.

e) **Cost and time.** Without the height increase, Areas D and F would have to be developed sooner. New cells depend on clay mining in those areas (AECOM, 2017, p. 55) and need design, technical approval and construction before waste can be placed; for Cell 1, authorisation to construct was received in March 2025 and approval

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of the completion report in July 2025 (Peter Legg Consulting, 2026, p. 16). The height increase defers that capital investment and lead time.

f) **Acceptable residual impacts.** With the mitigation in the EMPr, no residual impact is High or Extreme, and no fatal flaw was identified.

Points against the proposal, and the EAP's response

The case against the proposal rests on four points:

a) The no-go alternative has lower visual and on-site greenhouse gas impacts.
b) The 2017 assessment considered a worst-case design height of 25 m, but the cells were limited to 1 m above ground because of the air quality assessment and buffers at the time (AECOM, 2017, p. 55).
c) The City's draft IWMP favours height increases at landfills that are not close to residential areas (Ekurhuleni Metropolitan Municipality, 2025).
d) Without the height increase, Area E still has about 19 to 39 years of life (Mafusire, 2026, Table 1-1), so the need is for long-term capacity and planning certainty rather than immediate capacity.

The EAP's response is as follows:

a) The 2026 air quality assessment modelled the 25 m landform at the worst-case throughput, on its own and together with the Rietfontein landfill. It found the overall residual risk Low to Moderate and no fatal flaw, provided its mitigation is binding in the EMPr (Mafusire, 2026, pp. 117–119). The nearest modelled receptors are about 1.9 km from the modelled flare position (Mafusire, 2026, pp. 12–13).
b) Landfill gas collection and flaring would reduce the incremental greenhouse gas emissions by about 74.5% (Brugman, 2026, p. 60).
c) The additional visual exposure is limited, because the adjacent Rietfontein landfill is authorised to about 10 m and the additional visibility is about 7% of the zone of influence (van Zyl, 2026, p. 20).
d) Securing long-term capacity at an existing, lined and managed site is preferable to developing new airspace elsewhere, and the impacts can be managed to acceptable levels.

The proposal is therefore the preferred option, provided the mitigation measures in the EMPr are implemented.

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7 SPATIAL DEVELOPMENT TOOLS

Indicate the application of any spatial development tool protocols on the proposed development and the outcome thereof.

7.1 SPATIAL PLANNING AND LAND USE MANAGEMENT ACT, 16 OF 2013

The Spatial Planning and Land Use Management Act, 16 of 2013 (SPLUMA) refers to the Municipal Systems Act and requires a Municipal Spatial Development Framework (Municipal SDF) to be prepared and adopted as part of the Integrated Development Plan.

7.1.1.1 Ekurhuleni Metropolitan Spatial Development Framework

The City of Ekurhuleni Metropolitan Municipality's spatial planning is currently guided by the Municipal Spatial Development Framework (MSDF) 2025, approved by Council under SPLUMA, which replaces the previous 2015 MSDF (Ekurhuleni Metropolitan Municipality, 2026a). The MSDF is supported by three Regional Spatial Development Frameworks (RSDFs), covering the North, South and East Service Delivery Regions respectively, providing more detailed, larger-scale spatial guidance than the metropolitan-level MSDF (Ekurhuleni Metropolitan Municipality, 2025). The CoE also recognises Secondary and Tertiary Open Spaces; Secondary Open Space elements include recreational parks, sports fields and recreational facilities, mining-related open space, agricultural areas and other natural open space, while Tertiary Open Space elements include landfill sites, cemeteries, road and rail system reserves, stormwater systems and outlets, sewer treatment facilities, and water reservoirs and infrastructure (Ekurhuleni Metropolitan Municipality, 2025). The Tonkmeter Landfill site falls within the Eastern Region of the City of Ekurhuleni, in the vicinity of Springs, and is indicated on the Secondary and Tertiary Open Space System Map as a landfill site (Ekurhuleni Metropolitan Municipality, 2025).

7.2 GAUTENG PROVINCIAL ENVIRONMENTAL MANAGEMENT FRAMEWORK

The Gauteng Provincial Environmental Management Framework, 2021 (GPEMF) was adopted on 16 March 2022 (GDARD, 2022). Area E and the proposed MRF expansion site both lie within Zone 1, the Urban Development Zone, inside the urban edge between KwaThema and Springs (GDARD, 2022, GPEMF zone layer).

Zone 2, the High Control Zone inside the urban boundary, is mapped next to the facility in three places:

- along its northern boundary;
- to the north-east of the proposed MRF expansion site;

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- to the west of Area D.

Small Zone 2 patches are also mapped within the north-western part of Area E. They coincide with the area of Cells 1 to 3 on the approved layout. Cell 1 has been excavated and lined, and is receiving waste (Peter Legg Consulting, 2026, p. 16). These patches therefore lie on land that has already been transformed and is authorised for waste disposal. Zone 5, the Industrial and Large Commercial Focus Zone, lies to the east at Selection Park.

The land is zoned “Mining” in the City of Ekurhuleni land use scheme. It consists of former clay quarries already authorised for waste disposal (TerraGIS, 2026; GDARD, 2017). The proposed MRF expansion site lies between the contaminated water pond and the solar PV installation. The specialist found its vegetation to be transformed, dominated by coppiced *Eucalyptus camaldulensis* and other alien species, and of Very Low site ecological importance (Venter, 2026, pp. 19–21).

The proposal does not extend the footprint of the facility into the adjoining Zone 2 areas. The western part of Area D, which corresponds with the ecological corridor between the Klein Blesbokspruit and the Withokspruit (BKS, 2012), is not part of this application.

The GPEMF requires non-recyclable solid waste to be taken to a licensed landfill of an appropriate class, and recyclables to be separated (GDARD, 2014). The proposal supports both requirements. It adds disposal capacity at an existing licensed Class B landfill, and it expands the materials recovery facility within Zone 1. The GPEMF Standard exclusions do not apply, because the activities are being authorised through this application. The proposal is consistent with the GPEMF.

8 RECOMMENDATION OF THE PRACTITIONER

Is the information contained in this report and the documentation attached hereto sufficient to make a decision in respect of the activity applied for (in the view of the Environmental Assessment Practitioner as bound by professional ethical standards and the code of conduct of EAPASA).	YES	NO

If “NO”, indicate the aspects that require further assessment before a decision can be made (list the aspects that require further assessment):

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

In the view of the EAP, the information in this report and its appendices is sufficient for the competent authority to make a decision. The EAP recommends that the Waste Management Activity and associated amendment be authorised, subject to implementation of the EMPr (Appendix H) and to the following conditions:

a) The final height of Area E must not exceed 25 m above natural ground level. The landform must be built and capped in accordance with the detail design and Drawings P077E-300 to P077E-304 (Peter Legg Consulting, 2026), with final side slopes no steeper than 1 vertical to 3 horizontal.
b) Before each new cell is constructed, a professional engineer must review the slope stability analysis using laboratory interface shear test results and submit the findings to the Department with the request for authorisation to construct the cell.
c) The Dolomite Risk Management Plan must be implemented. Before any cell is constructed over the backfilled area of Area E, a footprint-specific dolomite stability assessment must be undertaken.
d) Landfill gas must be monitored. Gas collection with an enclosed flare achieving at least 98% destruction must be installed once monitoring shows that gas volumes are sufficient, with a target of about 2030. If this target cannot be met, the holder must inform the Department in writing, with reasons and a revised programme. An annual facility-level greenhouse gas inventory must be kept.
e) Landfill gas monitoring, collection and flaring must continue after closure for as long as monitoring shows that gas is being generated, and must be included in the closure and post-closure plan.
f) Before waste is placed in each new cell, additional background and detection monitoring boreholes, sited by a groundwater specialist, must be drilled and baseline-sampled. Investigative monitoring at boreholes TM-3 and TM-4 must continue until the cause of the recorded changes is established. If a landfill source of contamination is confirmed, conditions 4.10.6 and 4.10.1(g) of the IEA apply. Water quality in the subsoil drainage (leakage detection) system must be monitored and reported with the groundwater results.

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g) Groundwater detection monitoring must be carried out at the frequency and for the variables required by condition 4.10.3 of the IEA, unless the Department approves otherwise in writing.
h) The unpaved haul route must be watered routinely, and waste must be spread, compacted and covered daily. These measures are binding, because the air quality assessment relies on them (Mafusire, 2026, p. 124). Dustfall must be monitored at the boundary, and a complaints register kept.
i) Before any new waste stream is accepted, it must be classified and assessed in terms of GN R634 and GN R635, checked against the restrictions in GN R636, and assessed for compatibility with the geosynthetic clay liner and for its effect on odour and air quality.
j) The stormwater management plan must be implemented. Clean stormwater pumped from the site must be sampled before release, and water in the contaminated water pond may only be discharged if it complies with the applicable limits.
k) Clearing for the MRF expansion must be confined to the demarcated footprint, and the adjoining GPEMF Zone 2 land must be treated as a no-go area. A pre-clearing fauna walk-through and the chance-find procedure must be followed, and the alien and invasive species control plan must be implemented for the life of the facility.
l) Each section of the landform must be capped and vegetated with indigenous grasses as soon as it reaches final height.
m) Waste picking must be limited to registered and inducted waste pickers wearing PPE, in a demarcated zone kept apart from tipping and compaction, and must be moved progressively to the MRF.
n) The closure and post-closure plan must be updated for the 25 m landform.
o) The EMPr must be implemented and audited as required by the IEA.

9 NEED AND DESIRABILITY

Tonkmeter (Pty) Ltd is the holder of the IEA for the TRF, a general waste landfill and resource recovery facility situated on the Remaining Extent of Portion 81 of the Farm Rietfontein 128 IR, immediately adjacent to the City of Ekurhuleni's (“CoE”) Rietfontein G:L:B+ Waste Disposal Facility (“WDF”), Springs (GDARD, 2017; Ekurhuleni Metropolitan Municipality, 2025). Construction of cells in Area E has commenced: Cell 1 has been constructed and is receiving waste (Peter Legg Consulting, 2026, p. 16). It is lined, with a

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lining system comprising a sealed base layer, leak-detection layer and leachate collection system (Peter Legg Consulting, 2016).

The current application does not seek to develop new land, construct new cells, or alter the existing lining and drainage infrastructure. It seeks only to increase the final permitted height of the waste body within the already-authorised and engineered footprint of Area E, together with consequential amendments to the closure and capping design and to related EMPr commitments. Area D and Area F fall outside the scope of this application and would remain limited to their current design height unless amended under a separate, future process.

The final height of 25 m above natural ground level is used consistently in the detail design report, the air quality assessment, the climate change impact assessment and the visual impact assessment (Peter Legg Consulting, 2026, pp. 17, 32; Mafusire, 2026, p. 75; Brugman, 2026; van Zyl, 2026).

9.1 The Case for Vertical Expansion over New Development

The applicant's stated need is to obtain more use from land that is already disturbed, already lined and already licensed for landfilling, rather than developing new, undeveloped land. Building upward within an existing, engineered cell is generally preferable to lateral expansion, since it avoids clearing further land and avoids duplicating lining, leachate collection and stormwater infrastructure that already exists and is performing (Peter Legg Consulting, 2016).

9.2 THE REGIONAL LANDFILL AIRSPACE CRISIS IN THE CITY OF EKURHULENI

The CoE's own Draft IWMP records that the municipality owns and operates five WDFs, the developed airspace of which is diminishing faster than expected, largely due to the unavailability of a WDF in the northern region of the metro (Ekurhuleni Metropolitan Municipality, 2025). Of the CoE's own facilities, Rietfontein (the WDF immediately adjacent to TRF) had, on a 2022 basis, approximately four years of remaining lifespan; Simmer & Jack and Weltevreden have since become non-operational due to illegal mining-related conflict; and only Rooikraal and Platkop retain more than several years of remaining life (Ekurhuleni Metropolitan Municipality, 2025). Rietfontein itself has a documented history of repeated, disruptive closure — in January 2021 due to a tender/contract failure and again in August 2023 due to community unrest — before reopening on the Executive Mayor's instruction in April 2024 (Ekurhuleni Metropolitan Municipality, 2025; Springs Advertiser, 2024).

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This constrained supply position is set against a rising demand profile. The Draft IWMP projects that the CoE's population will grow from approximately 4.07 million (2022) to approximately 6.39 million by 2040, with general waste generation increasing correspondingly from approximately 970,000 tonnes per annum to approximately 1.5 million tonnes per annum (Ekurhuleni Metropolitan Municipality, 2025). On the municipality's own figures, therefore, the regional shortfall in legally compliant, developed landfill airspace is expected to widen materially over the medium to long term.

9.3 DIRECT ALIGNMENT WITH THE CITY OF EKURHULENI'S OWN PLANNING INSTRUMENT

The proposed height increase is not merely consistent with, but directly implements, a specific mitigation measure identified in the CoE's Draft IWMP, namely increasing the height of appropriately located WDFs situated away from residential areas, as a means of offsetting the accelerating loss of developed regional airspace (Ekurhuleni Metropolitan Municipality, 2025).

More specifically, Section 6.4 of the Draft IWMP, dealing with TRF by name, records that the facility “is situated immediately next to the existing CoE Rietfontein G:L:B+ WDF and may in future be used for disposal of most waste currently disposed of at the Rietfontein WDF”, and that it “is expected to contribute significantly to the available WDF airspace in the Springs area once operational” (Ekurhuleni Metropolitan Municipality, 2025). Given Rietfontein's documented operational fragility, TRF's contribution to regional airspace is relevant on two, cumulative bases: as additional resilience while Rietfontein remains open, and as a contingency of direct public-health and service-continuity importance should Rietfontein experience any further disruption or eventual closure. The amendment can accordingly be presented, on the CoE's own documented position, as supporting rather than conflicting with municipal waste planning, and as pre-emptively addressing a stated infrastructure gap rather than creating a new one.

It should be recorded, in fairness, that the Draft IWMP has not yet been adopted by the CoE Council or endorsed by the Gauteng Department of Agriculture, Rural Development and Environment, and remains subject to change prior to finalisation (Ekurhuleni Metropolitan Municipality, 2025).

9.4 ENGINEERING AND RESOURCE-EFFICIENCY RATIONALE

From an engineering and resource-use perspective, vertical extension of an already-lined, already-operational cell avoids the following, which would otherwise be necessary for

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equivalent airspace gained through lateral expansion into Area D and Area F, or through greenfield development elsewhere: clearing of additional vegetated or disturbed land; construction of new composite lining, leachate collection and leak-detection systems; and duplication of access roads, stormwater infrastructure and monitoring networks. The site itself is substantially transformed by decades of clay and refractory-material mining that preceded the landfill's development (Peter Legg Consulting, 2016), and the surrounding aquifers are classified, on repeated geohydrological investigation, as non-aquifers of low potential sustained yield (Meyer, 2013; Peter Legg Consulting, 2016). Independent dolomite stability review has assigned Area E an Inherent Hazard Class rating at the favourable end of the SANS 1936 scale, collapsing to a Design Hazard Class of 2 on account of the groundwater monitoring commitment already in place (IntraSolutions, 2026).

These factors, considered together, indicate that the underlying ground conditions were already assessed as suitable for landfill development, and that building upward within the existing footprint does not introduce a materially different geotechnical or hydrogeological risk profile to that already authorised — subject to the updated stability, settlement and leachate-pressure calculations appropriate to the increased height, which the applicant has confirmed will be finalised for the increased design height (IntraSolutions, 2026).

Table 31: Comparative airspace and operating-life position

Parameter	Current authorised design (1 m final height)	Proposed design (increased final height)
Authorised airspace (IEA)	13.7 million m³ (total authorised)	13.7 million m³ (total authorised)
Airspace usable at this cell height	9.77 million m³	Increased usable airspace (reported variously as up to approximately 19.6 million m³, depending on the final height ultimately applied for)
Estimated whole-facility operating life (7 500 / 15 000 t/month)	About 87 / 44 years	About 126 / 63 years

Source: Tonkmeter (Pty) Ltd, 2026a; Tonkmeter (Pty) Ltd, 2026b; Rayten Engineering Solutions, 2026. Operating life: Mafusire, 2026, Table 1-1; Brugman, 2026, p. 7.

9.5 ECOLOGICAL INTEGRITY AND SUSTAINABLE RESOURCE USE

The Area E component relates exclusively to an existing, licensed and operating landfill footprint. No new land is cleared in Area E and no cells are constructed beyond those already authorised; the only physical change is the final height and closure profile of an

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already-authorised waste body (Peter Legg Consulting, 2026, p. 16). The site's baseline condition is already substantially transformed through historical mining, and the proposed change does not extend the facility's disturbance footprint. This is consistent with the principle, applied by the Department elsewhere in comparable applications, that intensification of use on already-disturbed, already-licensed land is generally preferable to development of undisturbed land, since it avoids further loss of habitat and avoids duplicating engineered infrastructure.

The only new clearing is the proposed MRF expansion site, inside the facility boundary. The specialist found the vegetation there completely transformed and dominated by alien and invasive species, with Very Low site ecological importance, and supports the clearing. Removing the invasive species is also a legal duty of the landowner (Venter, 2026, pp. 21–24).

Background particulate matter (PM10 and PM2.5) in the study area already exceeds the National Ambient Air Quality Standards independently of the TRF (Rayten Engineering Solutions, 2026), which means that any incremental dust or particulate contribution from the taller landfill would add to an already non-compliant regional baseline. This concern has been assessed for the proposed height: the air quality impact assessment modelled the 25 m landform at a worst-case throughput of 15 000 tonnes/month. Incremental PM10 and PM2.5 at the boundary stay below the standards, but the background already exceeds them, and the main residual concern is localised hydrogen sulphide and odour near the boundary (Mafusire, 2026, pp. iv–v, 115–119).

On groundwater, the aquifers underlying the site are classified as non-aquifers of low potential sustained yield on the basis of extensive borehole investigation (more than 80 boreholes since the 1980s), with more than 90% of boreholes yielding less than 0.5 litres per second (Meyer, 2013). No groundwater on site is used for domestic or industrial purposes, the facility being connected instead to the CoE's municipal water reticulation system, and the nearest private domestic boreholes (in Selcourt, approximately 1,500 m distant) show no detectable influence from site activities to date (Meyer, 2013; Meyer, 2024). This reduces, without eliminating, the ecological and resource-use risk associated with increasing the height, and hence the hydraulic head, of the leachate-bearing waste body. Monitoring since the November 2024 baseline has, however, recorded rising sulphate, EC and ammonium at the TM-3 detection boreholes and a single high ammonium result at TM-

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4-D. Their cause has not yet been established (Tonkmeter Specialist Workshop, 2026), and it must be resolved before the decision-maker can rely on the groundwater findings.

9.6 SOCIO-ECONOMIC JUSTIFICATION AND SPATIAL PLANNING

TRF is situated within a densely populated, predominantly residential and historically disadvantaged part of the CoE, with an estimated combined population in the order of 240,000 people across the neighbouring settlements, of which KwaThema, immediately to the west, is by a considerable margin the largest and most directly affected (Ekurhuleni Metropolitan Municipality, 2025). These wards form part of the approximately 62% of the CoE population situated in historically disadvantaged peripheral communities, with 18% of CoE households reporting no annual income (Ekurhuleni Metropolitan Municipality, 2025). This combination of factors indicates a population with limited capacity to absorb uncompensated environmental or nuisance impacts, and correspondingly reinforces the importance of robust, height-specific dust, odour, visual and traffic mitigation over the facility's extended operating life.

At the same time, there is a documented, positive economic linkage between the adjacent landfill operations and local livelihoods: community representatives have publicly confirmed that KwaThema residents, including from the KwaThema Hostel community, derive income from reclaiming recyclable material at the neighbouring Rietfontein WDF, and have asked that this activity be formalised and supported (Springs Advertiser, 2024). TRF's materials recovery facility, to which waste picking is to move progressively from the working face, provides an equivalent, formalised livelihood opportunity within its own operations.

On regional infrastructure need, the CoE disposes of general waste through a constrained and, in three of five cases, currently non-operational or near-end-of-life set of municipal facilities (Ekurhuleni Metropolitan Municipality, 2025). Extending the operating life of an existing, privately operated, already-licensed facility in the same service area addresses a demonstrable and immediate regional infrastructure need, consistent with the CoE's own planning position (Ekurhuleni Metropolitan Municipality, 2025), without requiring new land or new bulk infrastructure.

It should also be recorded, for balance, that the original 800 m buffer intended between the adjacent Rietfontein WDF and KwaThema was, on the CoE's own record, “mostly not adhered to” (Ekurhuleni Metropolitan Municipality, 2025). TRF's own design provides buffer measures on its western boundary with KwaThema, including a cemetery, soil screen berm and inert-waste cells (Peter Legg Consulting, 2016), but the increased height of the waste

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body may alter visual impact, dust dispersion and odour behaviour at this boundary These effects have been assessed for the 25 m landform in the air quality and visual impact assessments (Mafusire, 2026; van Zyl, 2026).

9.7 BEST PRACTICABLE ENVIRONMENTAL OPTION (BPEO) AND ALTERNATIVES

The alternatives properly before the Department for comparison are: (a) approval of the height increase applied for; (b) the no-go option, being retention of the current 1 m final height, which would materially shorten the facility's remaining operating life and correspondingly bring forward the point at which the CoE's regional airspace shortfall must be met by other, as yet unidentified, means. The other alternatives considered, including a height increase in Areas D and F instead of Area E, a new landfill site and an intermediate final height, were screened out (Section A.3, Table 8).

On a comparative basis, the height-increase alternative is considered the Best Practicable Environmental Option because it: utilises an already-transformed, already-lined and already-monitored footprint; avoids the incremental land clearance, new lining and new infrastructure that lateral expansion into Area D and Area F would still require even though those areas are already approved in principle; extends the useful life of existing engineered infrastructure from about 87 to 126 years at 7 500 tonnes/month, or from about 44 to 63 years at 15 000 tonnes/month (Mafusire, 2026, Table 1-1; Brugman, 2026, p. 7); and gives direct effect to a mitigation measure identified in the CoE's own Draft IWMP (Ekurhuleni Metropolitan Municipality, 2025; Tonkmeter (Pty) Ltd, 2026a; Tonkmeter (Pty) Ltd, 2026b).

The no-go alternative would not avoid environmental impact; it would instead bring forward, by several decades, the point at which the region's residual waste stream must be redirected — most plausibly to Rietfontein (already operationally fragile) or to more distant facilities, with associated increases in transport distance, vehicle emissions and cumulative regional impact. Earlier development of Areas D and F would achieve a comparable airspace outcome but at the cost of additional land disturbance and infrastructure duplication which the height-increase alternative avoids.

From a climate change perspective, the no-go alternative would not result in zero emissions, because the facility would continue to operate within its authorised capacity (2 068 258 tCO_2e at 7 500 tonnes/month or 1 595 710 tCO_2e at 15 000 tonnes/month over the remaining life, without mitigation). It would, however, avoid the incremental emissions of the height increase at this facility: about 1.09–1.21 million tCO_2e without mitigation, or about

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0.28–0.31 million tCO2e with landfill gas collection and flaring (Brugman, 2026, pp. 39, 58–59). This is a material cost of the preferred alternative that must be weighed against its benefits. The specialist adds that, without licensed disposal capacity, waste is more likely to go to unlicensed disposal, dumping or open burning, which produce uncontrolled methane and products of incomplete combustion with no gas capture (Brugman, 2026, p. 61). That is a qualitative opinion; the CCIA did not quantify emissions from those outcomes.

9.8 SUMMARY

Having regard to: the transformed and already-licensed nature of the Area E footprint; the absence of any need for new land clearance or new lining infrastructure; the documented and worsening regional landfill airspace shortage in the City of Ekurhuleni; the direct alignment of the proposed height increase with a named mitigation measure in the CoE's own Draft IWMP; the specific planning role the Draft IWMP anticipates for TRF in relation to the operationally fragile, adjacent Rietfontein WDF; the substantial extension in operating life achieved without any increase in monthly waste throughput; and the socio-economic and employment linkages already established between the facility and neighbouring communities, the proposed amendment to the final authorised height of Area E is considered both necessary and desirable.

This conclusion is subject to enforceable mitigation measures addressing the concerns reasonably anticipated from the neighbouring KwaThema community and other interested and affected parties. The detail design report now confirms the 25 m height and reports slope stability factors of safety above the required minimums (Peter Legg Consulting, 2026, pp. 32–36), and the dolomite stability review assessed the same height (IntraSolutions, 2026, as summarised in Peter Legg Consulting, 2026, p. 13). The air quality impact assessment (October 2026) also modelled the 25 m landform (Mafusire, 2026, p. 75).

10 PERIOD FOR WHICH ENVIRONMENTAL AUTHORISATION IS REQUIRED

With the Area E height increase, the operating life of the whole facility is about 126 years at 7 500 tonnes/month, or about 63 years at 15 000 tonnes/month, and the operating life of Area E is about 77 or 39 years (Mafusire, 2026, Table 1-1). The period for which the Environmental Authorisation is required is 77 years.

11 ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)

If the EAP answers “Yes” to Section E.8 above then an EMP is to be attached to this report as an Appendix

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EMPr attached	YES

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SECTION F: APPENDICES

The Department's instruction: this list is inclusive but not exhaustive; where more than one item is enclosed under an appendix, a table of contents must be included in that appendix.

Appendix	Required content	Status
Appendix A	Site plan(s) — scaled layout overlain on sensitivities	Attached
Appendix B	Photographs	Drone Images attached
Appendix C	Facility illustration(s)	Attached
Appendix D	Route position information	Not applicable — not a linear activity
Appendix E	Public participation information	Public participation process not yet documented for this application, in commenting phase
Appendix F	Water use licence(s), SAHRA information, service letters	Await comments from authorities as requested during the public participation process
Appendix G	Specialist reports	Attached: Baseline Air Quality Assessment & Plan of Study Report (Rayten Engineering Solutions, 2026); Vegetation Assessment for the proposed vegetation clearing at Tonkmeter Landfill site, Springs, Gauteng Visual Impact Assessment Report: Tonkmeter Resource Facility Climate Change Impact Assessment: Tonkmeter Waste Resource Facility (ECO-2026-Report-0002-00) Tonkmeter Resource Facility – Proposed Extension of the Final Landfill-Cell Height for Area E: Air Quality Impact Assessment Report (ECO-2026-Report-0005-00) Tonkmeter Waste Disposal Facility: Area E: Dolomite Stability Review (IR2222) Tonkmeter Landfill Site – Stormwater Management Plan for Area E (Project 26831) Report on the establishment of monitoring boreholes for monitoring groundwater quality at Cell 1, Tonk Meter Road Waste Disposal Facility Tonkmeter Resource Facility Landfill Area E Detail Design Report (P077d-05)
Appendix H	EMPr	Attached
Appendix I	Other information	N/A

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COMPLIANCE CHECKLIST (PER DEPARTMENT'S OWN TEMPLATE)

☐ Where requested, supporting documentation has been attached

☒ All relevant sections of the form have been completed

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