

Draft Basic Assessment Report



THE DEVELOPMENT OF SENDING WASTEWATER TREATMENT WORKS, NORTHERN CAPE PROVINCE.

Khâi-Ma Local Municipality

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The Acting Director
Department of Agriculture, Environmental Affairs, Rural Development and Land Reform
Attention: Ms. Dineo Moleko
Private Bag X6102
Kimberley
8300

04 May 2026

Subject: Draft Basic Assessment Report – Proposed Sending Wastewater Treatment Works, Sending, Northern Cape Province.

Dear Ms. Moleko,

Please find attached our Draft Basic Assessment Report for Environmental Authorisation in terms of the National Environmental Management Act (Act No. 107 of 1998) and the 2014 EIA Regulations.

The Environmental Authorisation application is for the Proposed Wastewater Treatment Works and associated infrastructure on Onseepkans, Farm no. 88, in Onseepkans, submitted on behalf of Khâi-Ma Local Municipality.

Should you have any project-related queries, please do not hesitate to contact the undersigned.

Sincerely,

CW Vermeulen
Environmental Management Group (Pty) Ltd.

EMG

BASIC ASSESSMENT REPORT



agriculture, environmental affairs,
rural development and land reform

Department:
agriculture, environmental affairs,
rural development and land reform .
NORTHERN CAPE PROVINCE
REPUBLIC OF SOUTH AFRICA

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(For official use only)

File Reference Number:

Application Number:

Date Received:

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

Kindly note that:

1. This **basic assessment report** is a standard report that may be required by a competent authority in terms of the EIA Regulations, 2014 and is meant to streamline applications. Please make sure that it is the report used by the particular competent authority for the activity that is being applied for.
2. This report format is current as of 07 April 2017. It is the responsibility of the applicant to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
3. 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.
4. Where applicable **tick** the boxes that are applicable in the report.
5. An incomplete report may be returned to the applicant for revision.
6. The use of “not applicable” in the report must be done with circumspection because if it is used in respect of material information that is required by the competent authority for assessing the application, it may result in the rejection of the application as provided for in the regulations.
7. This report must be handed in at offices of the relevant competent authority as determined by each authority.
8. No faxed or e-mailed reports will be accepted.
9. The signature of the EAP on the report must be an original signature.
10. The report must be compiled by an independent environmental assessment practitioner.
11. Unless protected by law, all information in the report will become public information on receipt by the competent authority. Any interested and affected party should be provided with the information contained in this report on request, during any stage of the application process.
12. A competent authority may require that for specified types of activities in defined situations only parts of this report need to be completed.
13. Should a specialist report or report on a specialised process be submitted at any stage for any part of this application, the terms of reference for such report must also be submitted.

SECTION A: ACTIVITY INFORMATION

Has a specialist been consulted to assist with the completion of this section?

YES

NO ✓

If YES, please complete the form entitled "Details of specialist and declaration of interest" for the specialist appointed and attach in Appendix I.

1. ACTIVITY DESCRIPTION

a) Describe the project associated with the listed activities applied for

Introduction

Environmental Management Group (EMG) (Pty) Ltd has been appointed by Mind Shape Developments (Pty) Ltd, acting on behalf of the Khâi-Ma Local Municipality, to undertake the Basic Assessment process for the proposed upgrade of the Sending Wastewater Treatment Works (WWTW) near Sending Village in the Northern Cape Province.

The listed activities applied for relate to the development and upgrading of municipal wastewater treatment infrastructure, including the construction of treatment ponds and associated facilities, as well as the treatment, handling, storage, and beneficial reuse of treated effluent and wastewater sludge.

The purpose of the project is to upgrade the existing informal and unlined oxidation pond system currently servicing the Sending and Viljoensdraai communities. The existing system does not provide adequate treatment capacity and poses an ongoing risk to soil and groundwater resources. The proposed development will establish a formal, engineered wastewater treatment facility designed to meet operational performance standards and effluent-quality requirements as prescribed in the Water Use Licence (WUL) issued by the Department of Water and Sanitation (DWS).

Background

The existing oxidation pond receives wastewater transported by vacuum tankers from the Sending and Viljoensdraai communities. The pond is unlined and lacks formal inlet works, screening, grit removal, flow measurement, and monitoring infrastructure. These deficiencies have resulted in seepage, uncontrolled infiltration, and limited treatment efficiency, contributing to non-compliance with applicable water-resource protection requirements.

The proposed upgrade has been designed to accommodate projected wastewater flows up to the year 2035 and to operate as a fully lined, contained, and monitored system. The upgraded facility will replace the existing informal system with engineered treatment infrastructure that significantly reduces environmental risk and improves operational reliability.

As part of the broader site rehabilitation and long-term operational planning, the technical design allows for the planned establishment of date palm orchards within a designated irrigation area of the facility, subject to final layout and operational considerations. These plantings are intended to support the controlled reuse of treated effluent in accordance with WUL conditions and do not form part of the existing natural vegetation baseline.

Project location

The proposed Wastewater Treatment Works (WWTW) site is located approximately 1.4 km south-west of the settlement of Sending on **Portion 0 of Farm No. 88/RE in Onseepkans**, within the jurisdiction of the Khâi-Ma Local Municipality in the Namakwa District Municipality. The site forms part of a previously disturbed municipal services area adjacent to a historical landfill footprint and existing wastewater infrastructure.

The proposed WWTW infrastructure will occupy an area of approximately **2 hectares**, while the associated treated effluent irrigation area will cover approximately **4.5 hectares**.

The site falls within the **Lower Orange Water Management Area (WMA 14)** and is situated within **Quaternary Catchment D81F**. A non-perennial drainage line occurs downslope of the site and ultimately drains toward the Orange River system.

Infrastructure components

Components	Area	Volume per day	Capacity of the ponds
Anaerobic pond 1	306.3 m ²	135 m ³	557.38 m ³
Anaerobic pond 2	306.3 m ²	135 m ³	557.38 m ³
Facultative pond 1	3098.5 m ²	108 m ³	4101.55 m ³
Maturation ponds 1	889.1 m ²	109 m ³	1521.72 m ³
Maturation ponds 2	889.1 m ²	109 m ³	1521.72 m ³
Irrigation pond	121 m ²	102.3 m ³	123.40 m ³
Sludge drying beds	75 m ²	0.0070 m ³	6.25 m ³
Composting area	50 m ²	N/A	6.25 m ³
Evaporation area	25 m ²	7.13 mm	6.25 m ³
Date palm orchard	2.05 ha	102.70 m ³	N/A
Fenced area	20 037 m ²	N/A	N/A

According to the **Northern Cape Biodiversity Plan (2016)**, the site is mapped as an **Ecosystem Service Area (ESA)**. ESAs are identified to support ecological processes and landscape connectivity and differ from Critical Biodiversity Areas (CBAs), which represent areas required to meet biodiversity conservation targets.

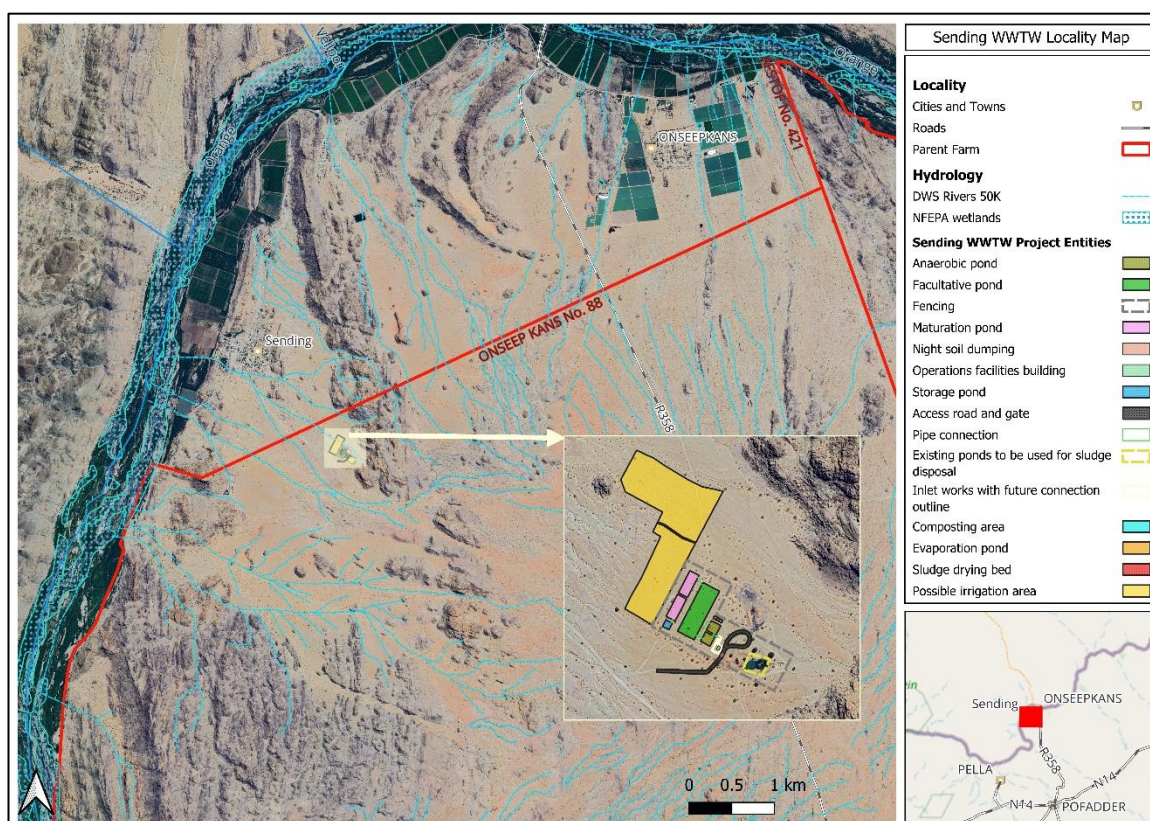


Figure 1 The map highlights the development property, along with the nearby towns and roads.

Project Flow

The proposed WWTW will comprise a gravity-driven oxidation pond treatment system constructed within an existing, transformed municipal services footprint. Wastewater will continue to be transported to the site by vacuum tanker trucks and discharged at a formalised inlet works facility.

The treatment process will consist of the following components:

-  **Inlet handling and screening**, where incoming wastewater will pass through screening and grit removal units to protect downstream infrastructure
-  **Flow measurement** to enable accurate recording of influent volumes in accordance with regulatory monitoring requirements
-  **Anaerobic ponds** providing primary treatment through solids settling and anaerobic digestion
-  **A facultative pond** providing secondary treatment under mixed aerobic and anaerobic conditions
-  **Maturation ponds** providing tertiary treatment and pathogen reduction through extended retention time and solar exposure
-  **A lined effluent storage pond** to retain treated effluent prior to reuse and to provide operational buffering
-  **An effluent reuse system** comprising drip irrigation infrastructure for the irrigation of a planned communal date palm orchard or vineyard, to be funded by the Khâi-Ma Local Municipality and implemented in accordance with Water Use Licence conditions
-  **Sludge drying beds** for the dewatering and stabilisation of sludge removed during periodic pond desludging activities.

All treatment ponds will be lined with High-Density Polyethylene (HDPE) liners to prevent seepage and protect underlying soil and groundwater resources.

Sludge Management

Wastewater sludge generated during routine operation and periodic desludging of the treatment ponds will be managed in accordance with DWS acceptable standards and guidelines applicable to wastewater sludge handling, treatment, and reuse.

The primary sludge management approach under consideration involves on-site sludge drying using dedicated drying beds, followed by composting once appropriate moisture reduction and stabilization criteria have been achieved. These options are currently being assessed to ensure compliance with applicable regulatory requirements, health standards, and operational feasibility.

Once stabilised and deemed suitable for reuse, the composted sludge will be beneficially reused either within the on-site or adjacent date palm orchards as a soil conditioner, or alternatively distributed or sold to local farmers, subject to compliance with DWS requirements and any relevant agricultural or waste-related regulations. Should reuse not be feasible at any stage, sludge will be managed and disposed of at a suitably licensed facility.

Ancillary Infrastructure

Ancillary infrastructure associated with the proposed WWTW includes inter-pond pipelines, stormwater diversion and erosion control measures, internal access routes (including limited gravel access roads within the site), perimeter security fencing, and a small operations building.

Water required for construction and routine operational cleaning will be delivered to site by tanker and stored in a 2,500-litre tank. No groundwater abstraction or borehole development forms part of the proposed project.

Facility layout

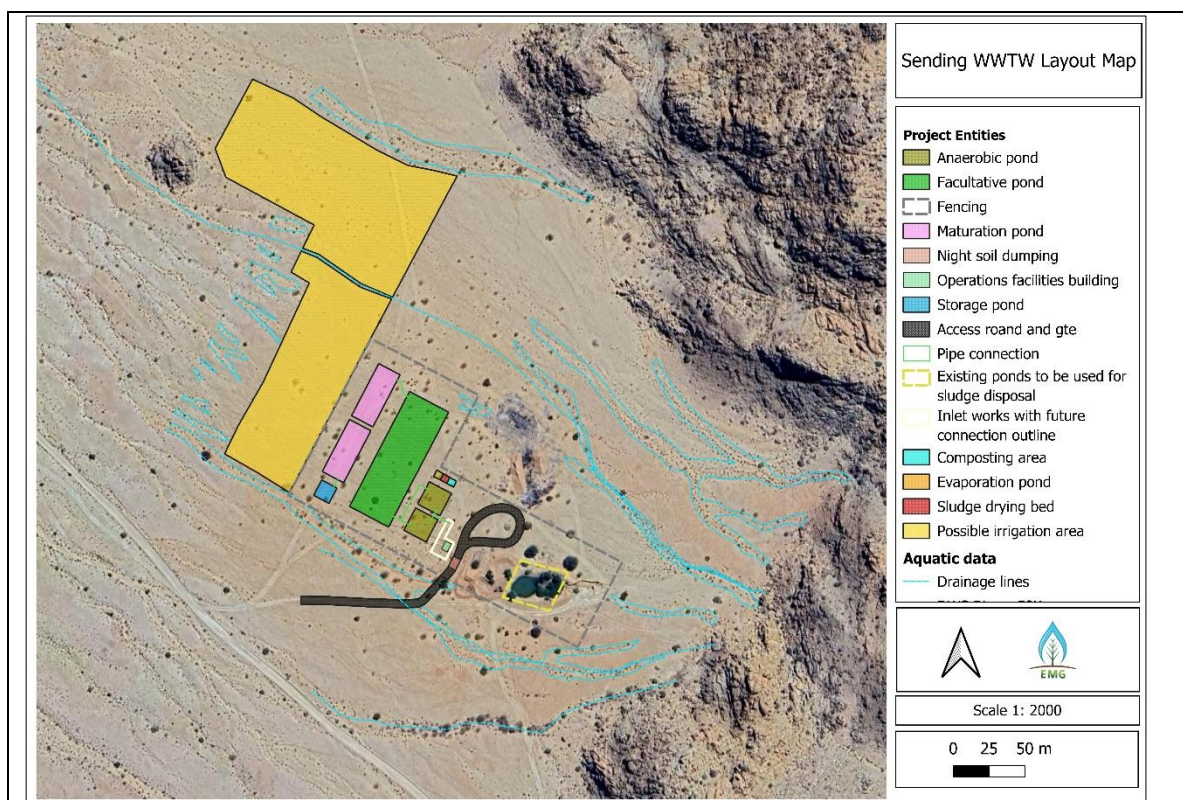


Figure 2 Proposed site layout for the Sending WWTW upgrade, depicting the spatial arrangement of the anaerobic, facultative, and maturation ponds and related works.

Receiving Environment

The site is located within the Desert Biome and occurs within two vegetation types, namely the **Eastern Gariep Plains Desert** and **Eastern Gariep Rocky Desert**, both classified as **Least Concern**. Vegetation cover is generally sparse and discontinuous, and portions of the site have been previously disturbed by historical municipal activities and associated service infrastructure.

A non-perennial drainage line occurs in the vicinity of the site, necessitating the implementation of appropriate stormwater management and erosion control measures to protect downstream hydrological features. The proposed layout has been positioned predominantly within already disturbed areas to minimise additional environmental impact. All wastewater treatment ponds will be fitted with HDPE liners to prevent seepage and reduce the risk of groundwater contamination.

Socio-Economic Benefits

The project will support improved municipal service delivery by providing a compliant wastewater treatment system for the Sending and Viljoensdraai communities. Short-term benefits include temporary employment and local procurement during construction. Long-term benefits include improved sanitation, reduced environmental and health risks, enhanced environmental compliance, and strengthened municipal infrastructure capacity.

- b) Provide a detailed description of the listed activities associated with the project as applied for

Listed activity as described in GN 327, 325 and 324	Description of project activity
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GN R.327, 1 Activity 19: The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.	The proposed development involves bulk earthworks exceeding 10 m³ associated with the construction of wastewater treatment infrastructure, including treatment ponds, embankments, access roads, and stormwater management measures. A non-perennial drainage line occurs downslope of the proposed WWTW site. Although no direct infilling of the watercourse is proposed, excavation and movement of soil within the regulated watercourse buffer may occur during construction, including shaping of berms and implementation of stormwater diversion and erosion control measures. These activities constitute the movement of soil exceeding 10 m³ within proximity to a watercourse and therefore trigger Activity 19 of Listing Notice 1.
GN R.327, Activity 27: The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.	The proposed development includes a wastewater treatment works (WWTW) footprint of approximately 2 hectares and an associated effluent irrigation area of approximately 4.50 hectares for a planned date palm orchard. The combined project footprint is therefore approximately 6.50 hectares. The development will require the clearance of indigenous vegetation within portions of this footprint to accommodate the WWTW infrastructure and preparation of the irrigation area. The affected vegetation occurs within the Eastern Gariep Plains Desert and Eastern Gariep Rocky Desert vegetation types, both classified as Least Concern. As the extent of vegetation clearance exceeds one hectare but remains below 20 hectares, the project triggers Activity 27 of Listing Notice 1 (GN R.327).
GN R.324 Listing Notice 3 Activity 14 (ii) (a) (c) (g) (ii) (bb) (ff): The development of— (ii) infrastructure or structures with a physical footprint of 10 square metres or more. where such development occurs— (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse. g. Northern Cape (ii) Outside urban areas:	An ephemeral drainage line occurs within the proposed WWTW development footprint. Portions of the treatment ponds, stormwater diversion structures, and associated infrastructure will be located within this watercourse. As the proposed development involves infrastructure with a physical footprint exceeding 10 m² within a watercourse, and the site is located outside an urban area within the Northern Cape and within a mapped Ecosystem Service Area (ESA) and NPAES, Activity 14(ii)(a)(c)(g)(ii)(bb)(ff) of Listing Notice 3 (GN R.324) is triggered.

(bb) National Protected Area Expansion Strategy Focus areas. (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans	
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2. FEASIBLE AND REASONABLE ALTERNATIVES

“alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to—

- (a) the property on which or location where it is proposed to undertake the activity;
- (b) the type of activity to be undertaken;
- (c) the design or layout of the activity;
- (d) the technology to be used in the activity;
- (e) the operational aspects of the activity; and
- (f) the option of not implementing the activity.

Describe alternatives that are considered in this application as required by Appendix 1 (3)(h), Regulation 2014. Alternatives should include a consideration of all possible means by which the purpose and need of the proposed activity (NOT PROJECT) could be accomplished in the specific instance taking account of the interest of the applicant in the activity. The no-go alternative must in all cases be included in the assessment phase as the baseline against which the impacts of the other alternatives are assessed.

The determination of whether 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. 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.

Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees, minutes and seconds. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection.

a) Site alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The preferred site is located on Portion 0 of Farm Onseep Kans RE/88 (SG C036000000000008800000) and coincides with the footprint of the existing informal oxidation pond system on municipal land south-west of Sending. The area is already transformed as a result of historical wastewater treatment activities and adjacent municipal landfill use. The site provides sufficient space to accommodate the upgraded pond configuration and benefits from existing topography that supports	28°46'57.13"S	19°16'48.09"E

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gravity-driven flow, reducing the need for energy-intensive pumping. Utilizing the existing site avoids disturbance of previously undisturbed land, supports the continued use of land for municipal service infrastructure, and consolidates wastewater operations within a single, established location. For these reasons, the preferred site represents the most practical option and the alternative with the lowest additional environmental impact.		
Alternative 2		
Description	Lat (DDMMSS)	Long (DDMMSS)
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

In the case of linear activities:

Alternative:

Alternative S1 (preferred)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

Latitude (S):

Longitude (E):

Alternative S2 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

Alternative S3 (if any)

- Starting point of the activity
- Middle/Additional point of the activity
- End point of the activity

For route alternatives that are longer than 500m, please provide an addendum with co-ordinates taken every 250 meters along the route for each alternative alignment.

In the case of an area being under application, please provide the co-ordinates of the corners of the site as indicated on the lay-out map provided in Appendix A of this form.

b) Lay-out alternatives

Alternative 1 (preferred alternative)		
Description	Lat (DDMMSS)	Long (DDMMSS)
The preferred layout comprises anaerobic, facultative, and maturation ponds arranged to achieve required retention times and gravity flow within an existing disturbed municipal footprint.	28°46' 57.13"S	19°16' 48.09"E

The layout includes formal inlet works, sludge drying beds, a lined effluent storage pond, and a drip-irrigation system for planned communal date palm orchards or vineyards. This configuration limits land disturbance relies on low-energy natural treatment processes and supports long-term regulatory compliance.		
Alternative 2		
Description	Lat (DDMMSS) Long (DDMMSS)	
Alternative 3		
Description	Lat (DDMMSS)	Long (DDMMSS)

c) Technology alternatives

Alternative 1 (preferred alternative) - Oxidation Pond System
The preferred technology is a natural pond-based wastewater treatment system comprising anaerobic, facultative, and maturation ponds operated in sequence. This system relies on passive biological processes, has low energy demand, and is well suited to rural municipalities where wastewater is transported to the site by vacuum tankers and inflows are variable. The oxidation pond configuration is compatible with the existing site layout, requires limited mechanical equipment, and aligns with the operational and maintenance capacity of the Khâi-Ma Local Municipality. The technology provides stable and robust treatment performance with comparatively low maintenance requirements. The incorporation of HDPE lining and improved stormwater management significantly reduces environmental risks associated with the historic unlined pond system, particularly with respect to seepage and groundwater contamination. The proposed system is designed to produce treated effluent that complies with the General Limit Values stipulated by the Department of Water and Sanitation (DWS) for wastewater treatment works. Oxidation pond systems are effective in achieving reductions in biochemical oxygen demand (BOD), chemical oxygen demand (COD), and pathogen levels under appropriate design and loading conditions. However, due to the presence of algae inherent to pond-based systems, consistently low suspended solids concentrations required for direct discharge to a natural watercourse are difficult to achieve. For this reason, the treated effluent will not be discharged to a drainage line or watercourse, but will instead be beneficially reused for agricultural irrigation, which is an accepted and appropriate practice for pond-based systems under South African conditions. This approach avoids potential surface water quality impacts while supporting resource recovery objectives. Importantly, the pond-based system is particularly well suited to the proposed irrigation of the date palm orchard. The sequential treatment process produces effluent of relatively consistent quality with reduced pathogen load, while retaining nutrients such as nitrogen and phosphorus that are beneficial for crop growth. In addition, the inclusion of maturation ponds and a dedicated lined storage/irrigation pond allows for buffering of flows, enabling controlled release and application of treated effluent in accordance with irrigation demand. Effluent will be routed to a lined storage pond prior to reuse and applied via a low-pressure, gravity-fed drip irrigation system. This irrigation method has been specifically selected to eliminate aerosol formation, prevent surface runoff, minimise public health risks, and protect underlying groundwater resources. The reuse scheme is designed to be fully water-balanced, environmentally protective, and compliant with the National Water Act (Act 36 of 1998) and applicable DWS reuse requirements.

This buffering and controlled application is especially important in an arid environment, where evapotranspiration rates are high and irrigation scheduling must be carefully managed. The passive nature of the system further reduces the risk of operational failure that could compromise effluent quality and negatively affect soil conditions or crop health.

The expected effluent quality described is based on the performance of a properly designed and operated oxidation pond system under the anticipated design loading conditions.

The selected technology therefore supports both environmental protection and resource recovery objectives by enabling safe, controlled, and beneficial reuse of treated wastewater. It represents the most practical, sustainable, and cost-effective solution for the Sending WWTW upgrade, particularly in the context of integrated wastewater treatment and agricultural reuse.

Alternative 2: Enhanced Pond System (PETRO-type Enhancements)

A PETRO-type system incorporates additional engineered features such as mechanical aeration, flow control structures, and intensified mixing to improve treatment efficiency. While such systems are effective in high-load or space-constrained environments, they require a continuous power supply, skilled operation, and routine mechanical maintenance to function optimally.

In the context of the Sending WWTW, the implementation of a PETRO-type system is not considered appropriate. The rural setting, reliance on tanker-delivered wastewater with variable inflows, and limited municipal operational capacity increase the risk of mechanical or operational failure. Any interruption in aeration or system control could result in rapid deterioration of effluent quality, which would directly compromise the suitability of the treated wastewater for irrigation purposes.

In contrast, the selected oxidation pond system provides a passive, robust, and low-maintenance treatment solution that is inherently more resilient to fluctuations in flow and load. The sequential anaerobic, facultative, and maturation processes allow for gradual stabilisation of wastewater and produce a more consistent effluent quality over time. Importantly, the pond system facilitates the retention of nutrients such as nitrogen and phosphorus, which are beneficial for the proposed irrigation of the date palm orchard.

Furthermore, the inclusion of maturation and storage ponds enables buffering of treated effluent, allowing for controlled release aligned with irrigation demand. This is a critical advantage in an arid environment, where irrigation scheduling must respond to climatic conditions and crop water requirements. A PETRO-type system, by contrast, typically produces a more immediate effluent output with limited inherent storage, requiring additional infrastructure to achieve similar buffering capacity.

The oxidation pond system also presents a significantly lower risk of operational failure, as it does not rely on mechanical aeration or complex control systems. This ensures greater reliability in maintaining acceptable effluent quality for reuse, which is essential for protecting soil quality and sustaining agricultural productivity within the irrigation area.

For these reasons, the oxidation pond system is considered more appropriate than a PETRO-type system for the Sending WWTW upgrade, as it better aligns with the site conditions, municipal capacity, and the integrated objective of wastewater treatment and agricultural reuse.

Alternative 3

d) Other alternatives (e.g. scheduling, demand, input, scale and design alternatives)

Alternative 1 (preferred alternative)

The proposed wastewater treatment works has been designed to accommodate current wastewater flows from the Sending and Viljoensdraai communities, with provision for reasonable increases over the municipal planning horizon. A smaller-scale treatment option was considered but deemed infeasible, as it would not adequately address existing non-compliance or provide sufficient treatment capacity to meet current and

anticipated demand. Conversely, an oversized facility was not considered appropriate, as this would introduce unnecessary operational complexity and impose an avoidable long-term financial burden on the municipality. The selected scale therefore represents a balanced and sustainable design alternative aligned with actual service delivery needs.

In terms of pond lining options, various containment alternatives were assessed to ensure effective protection of groundwater resources. Reliance on natural soil compaction and clay lining was rejected due to the calcrete-dominated soil conditions and the absence of suitable clay material within the region. High-Density Polyethylene (HDPE) lining was selected as the preferred alternative, as it provides a proven impermeable barrier, is well suited to arid Northern Cape conditions, and offers long-term durability and resistance to seepage when replacing the existing unlined pond system.

A phased construction and commissioning approach was identified as the most practical scheduling alternative. This approach allows for continuity of sanitation services during construction, reduces operational risk during the transition from the existing informal ponds, and enables treatment units to be brought online in a controlled and manageable sequence.

No feasible site or layout alternatives were identified, as the upgrade is constrained to an already disturbed municipal service area incorporating the existing informal wastewater ponds and historical landfill footprint. Relocation to a new site would result in unnecessary disturbance of previously undisturbed land and additional infrastructure requirements. The selected footprint therefore represents the option with the lowest overall environmental impact.

Alternative 2

A bitumen-impregnated lining system was considered as an alternative pond lining option. This system offers improved impermeability compared to unlined or compacted soil ponds and has been applied in wastewater treatment facilities under certain conditions.

However, this alternative was not selected as the preferred option due to concerns regarding long-term durability, maintenance requirements, and susceptibility to degradation under prolonged exposure to high temperatures and ultraviolet radiation typical of the Northern Cape environment. In addition, bitumen-impregnated systems generally require more frequent inspection and repair over their operational lifespan, increasing long-term maintenance costs and operational risk for the municipality.

While technically feasible, the bitumen-impregnated lining option was therefore assessed as less suitable than HDPE lining in terms of longevity, environmental protection, and life-cycle cost efficiency. It was accordingly not selected as the preferred design alternative.

Alternative 3

e) No-go alternative

Under the No-Go Alternative, the existing informal wastewater pond system would remain in operation. This option is not environmentally or legally feasible. The current facility is unlined, hydraulically inefficient, and provides no formal inlet works, flow control, or monitoring capability. These deficiencies allow ongoing seepage into surrounding soils, elevate the risk of groundwater contamination, and result in untreated or poorly treated effluent entering the natural drainage system during overflow events. The municipality has already been issued directives for non-compliance, and maintaining the status quo would prolong this regulatory risk.

From an environmental perspective, the No-Go Alternative would continue to expose the nearby non-perennial drainage feature and downstream Orange River system to pollution risks. It would also fail to address public health concerns associated with inadequate sanitation for Sending and Viljoensdraai.

Socio-economically, the No-Go Alternative offers no improvement in service delivery and prevents the municipality from achieving long-term, sustainable wastewater management within its planning horizon. The

absence of upgrades would undermine future development potential and perpetuate the operational challenges associated with tanker-based wastewater disposal.

For these reasons, the No-Go Alternative is not considered viable, as it leads to continued environmental degradation, contravention of statutory requirements, and the persistence of unacceptable public health and service-delivery risks.

Paragraphs 3 – 13 below should be completed for each alternative.

3. PHYSICAL SIZE OF THE ACTIVITY

- a) Indicate the physical size of the preferred activity/technology as well as alternative activities/technologies (footprints):

Alternative:

Alternative A1¹ (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the activity:

Approximately 65 000 m ²	
	m ²
	m ²

or, for linear activities:

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Length of the activity:

	m
	m

- b) ~~Indicate the size of the alternative sites or servitudes (within which the above footprints will occur):~~

Alternative:

Alternative A1 (preferred activity alternative)

Alternative A2 (if any)

Alternative A3 (if any)

Size of the site/servitude:

	m ²
	m ²

4. SITE ACCESS

Does ready access to the site exist?

If NO, what is the distance over which a new access road will be built

YES	NO ✓
	156m

Describe the type of access road planned:

Access to the site is obtained from the gravel road that branches off the N14 toward Sending. A short gravel access road of approximately 156 metres will be constructed within the project area to connect the existing municipal track to the upgraded WWTW footprint.

¹ "Alternative A.." refer to activity, process, technology or other alternatives.

Include the position of the access road on the site plan and required map, as well as an indication of the road in relation to the site.

5. LOCALITY MAP

An A3 locality map must be attached to the back of this document, as Appendix A. The scale of the locality map must be relevant to the size of the development (at least 1:50 000. For linear activities of more than 25 kilometres, a smaller scale e.g. 1:250 000 can be used. The scale must be indicated on the map). The map must indicate the following:

- an accurate indication of the project site position as well as the positions of the alternative sites, if any;
- indication of all the alternatives identified;
- closest town(s);
- road access from all major roads in the area;
- road names or numbers of all major roads as well as the roads that provide access to the site(s);
- all roads within a 1 km radius of the site or alternative sites; and
- a north arrow;
- a legend; and
- locality GPS co-ordinates (Indicate the position of the activity using the latitude and longitude of the centre point of the site for each alternative site. The co-ordinates should be in degrees and decimal minutes. The minutes should have at least three decimals to ensure adequate accuracy. The projection that must be used in all cases is the WGS84 spheroid in a national or local projection).

6. LAYOUT/ROUTE PLAN

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

The site or route plans must indicate the following:

- the property boundaries and numbers of all the properties within 50 metres of the site;
- the current land use as well as the land use zoning of the site;
- the current land use as well as the land use zoning each of the properties adjoining the site or sites;
- the exact position of each listed activity applied for (including alternatives);
- servitude(s) indicating the purpose of the servitude;
- a legend; and
- a north arrow.

7. SENSITIVITY MAP

The layout/route plan as indicated above must be overlain with a sensitivity map that indicates all the sensitive areas associated with the site, including, but not limited to:

- watercourses;
- the 1:100 year flood line (where available or where it is required by DWS).

- ridges;
- cultural and historical features;
- areas with indigenous vegetation (even if it is degraded or infested with alien species); and
- critical biodiversity areas.

The sensitivity map must also cover areas within 100m of the site and must be attached in Appendix A.

8. SITE PHOTOGRAPHS

Colour photographs from the centre 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 Appendix B to this report. It must be supplemented with additional photographs of relevant features on the site, if applicable.

9. FACILITY ILLUSTRATION

A detailed illustration of the activity must be provided at a scale of at least 1:200 as Appendix C 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.

10. ACTIVITY MOTIVATION

Motivate and explain the need and desirability of the activity (including demand for the activity):

1. Is the activity permitted in terms of the property's existing land use rights?	YES ✓	NO	Please explain
The proposed upgrade of the Sending WWTW will take place on municipal land already used for wastewater treatment purposes. The existing oxidation pond system is located on the same property, and the site has long been designated for municipal infrastructure related to sanitation services. The proposed development therefore does not introduce a new land use, nor does it alter the purpose for which the property is currently zoned and utilised. Instead, it involves the rehabilitation and formal upgrading of wastewater treatment infrastructure within the established municipal service precinct. The project aligns with the Khâi-Ma Local Municipality's Integrated Development Plan (IDP), which identifies the upgrading of sanitation infrastructure as a priority intervention to improve service delivery, address non-compliance, and mitigate environmental risks associated with the current informal system. Accordingly, the activity is permitted within the existing land use rights, aligns with municipal planning instruments, and supports the municipality's statutory obligations for safe and sustainable wastewater management.			

2. Will the activity be in line with the following?			
(a) Provincial Spatial Development Framework (PSDF)	YES ✓	NO	Please explain
The proposed Sending WWTW upgrade is consistent with the Northern Cape Provincial Spatial Development Framework (PSDF, 2020), which supports the upgrading and consolidation of basic service infrastructure within existing rural settlements in order to address service backlogs and improve environmental compliance. The PSDF promotes sustainable infrastructure investment that improves municipal service delivery while avoiding unnecessary expansion into undisturbed or environmentally sensitive areas. In this context, the proposed activity involves the upgrade of an existing municipal wastewater treatment site within a previously disturbed service footprint, rather than the development of new greenfield infrastructure. The project directly advances PSDF objectives by replacing a non-compliant and environmentally risky wastewater system with a formalised, lined, and regulated treatment facility, thereby improving water-resource protection and reducing pollution risks. Although the broader area is environmentally sensitive, the location of the upgrade within an already transformed municipal services area ensures that the spatial intent of the PSDF is upheld. The activity therefore supports provincial priorities for sustainable service delivery, environmental management, and infrastructure resilience. Accordingly, the proposed development is aligned with the strategic goals and spatial principles of the Northern Cape PSDF.			
(b) Urban edge / Edge of Built environment for the area	YES	NO ✓	Please explain
The Sending WWTW is located on the periphery of the Sending settlement within an area already utilised for municipal wastewater infrastructure. Although no formally delineated urban edge exists for Sending, the site is functionally associated with the settlement's municipal services footprint and is not located within an undisturbed or intact natural area. The Sending WWTW is located on the periphery of the Sending settlement within an area already utilised for municipal wastewater infrastructure. Although no formally delineated urban edge exists for Sending, the site is functionally associated with the settlement's municipal services footprint and is not located within an undisturbed or intact natural area.			
(c) Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality (e.g. would the approval of this application compromise the integrity of the existing approved and credible municipal IDP and SDF?).	YES ✓	NO	Please explain
The proposed WWTW upgrade is aligned with the Khâi-Ma Local Municipality's Integrated Development Plan (IDP) and Spatial Development Framework (SDF), which prioritise the upgrading of wastewater infrastructure, improved sanitation service delivery, and the reduction of environmental risks associated with non-compliant municipal systems. As the project involves the upgrade of existing infrastructure on municipal land already used for wastewater treatment, it supports the intent and implementation of the IDP and SDF and does not compromise their spatial or strategic integrity.			

(d) Approved Structure Plan of the Municipality	YES	NO ✓	Please explain
There is no formally adopted municipal Structure Plan applicable to the Khâi-Ma Local Municipality. In the absence of such a plan, the IDP and SDF function as the primary spatial and development planning instruments. The proposed WWTW upgrade is aligned with these documents, which prioritise improvements to water and sanitation infrastructure in rural settlements such as Sending. The project therefore supports the municipality's planned development framework and does not conflict with any adopted spatial planning policies.			
(e) An Environmental Management Framework (EMF) adopted by the Department (e.g. Would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?)	YES	NO ✓	Please explain
No Environmental Management Framework (EMF) has been adopted by the competent authority for the Khâi-Ma Local Municipality. The proposed activity therefore does not occur within an EMF-regulated area, and no EMF-specific spatial development restrictions apply to the site. In the absence of an adopted EMF, broader provincial planning instruments, including the Northern Cape Biodiversity Plan (2016), were considered. The project area is identified as an Ecosystem Service Area (ESA), which supports landscape-scale ecological processes but is not designated as a formal conservation or exclusion zone. The proposed Sending WWTW upgrade is located entirely within an existing, previously disturbed municipal services footprint that already accommodates informal wastewater treatment infrastructure and historical waste disposal activities. The development does not extend disturbance into surrounding, less-transformed areas of the ESA. The project reduces existing environmental risks through the formalization and containment of wastewater treatment infrastructure, including lined treatment ponds to prevent groundwater contamination, controlled stormwater management measures, and formalized sludge handling. Approval of the application would therefore not compromise environmental management priorities. Instead, the project represents an improvement on the current situation by addressing ongoing pollution risks, protecting water resources, and supporting sustainable municipal service delivery in line with environmental management objectives.			
(f) Any other Plans (e.g. Guide Plan)	YES	NO ✓	Please explain
No additional guide plans, master plans, or other statutory or non-statutory planning instruments are applicable to the proposed development. The proposed upgrade is aligned with the applicable municipal spatial planning framework and is governed by relevant environmental legislation. Environmental management and impact mitigation are addressed through the Environmental Management Programme (EMPr) prepared as part of this Basic Assessment process, which provides enforceable management measures for both the construction and operational phases.			

3. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?	YES ✓	NO	Please explain
The proposed WWTW upgrade is aligned with the Khâi-Ma Local Municipality Integrated Development Plan (IDP) and Spatial Development Framework (SDF), which identify the maintenance and upgrading of basic sanitation infrastructure as a municipal priority to address service delivery backlogs and regulatory non-compliance. The activity involves the upgrade and formalisation of existing municipal wastewater infrastructure on land already designated and utilised for this purpose. It therefore does not introduce a new or incompatible land use and falls within the municipality's approved infrastructure planning framework and implementation timeframe. The project supports planned municipal interventions aimed at improving sanitation services, protecting water resources, and achieving compliance with environmental and water legislation. As such, the proposed development is consistent with the objectives, programmes, and spatial intent of the approved IDP and SDF, as well as broader provincial priorities relating to basic service delivery and environmental protection.			
4. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? (This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate.)	YES ✓	NO	Please explain
The Sending and Viljoensdraai communities require an improved and compliant wastewater treatment system to address existing environmental and public health risks associated with the current informal oxidation pond. The existing facility is unlined, has limited treatment capacity, and lacks formal inlet works, resulting in ongoing non-compliance with national effluent standards and an increased risk of groundwater and surface water contamination. The proposed upgrade directly responds to these deficiencies by improving sanitation service delivery, protecting water resources, and reducing environmental and health risks associated with inadequate wastewater management. The project has been formally identified by the municipality as a priority intervention and is locally appropriate, as it upgrades existing infrastructure within a designated municipal services area rather than introducing a new or incompatible land use. In this context, the activity constitutes a clear societal need at both local and strategic levels and is aligned with municipal service delivery objectives and legislative requirements.			

5. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development? (Confirmation by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES ✓	NO	Please explain
The upgraded Sending WWTW will not require additional bulk municipal services, as the project is located within an existing municipal wastewater treatment site that is already designated and utilised for this purpose. All essential services required for construction and operation will be provided through existing municipal arrangements or temporary on-site measures. A temporary water supply for construction and limited operational activities will be provided via on-site storage tanks, which will be filled by water tanker trucks delivering non-potable water to the site as required. No groundwater abstraction or permanent water supply infrastructure forms part of the proposed development. Access to the site is obtained from an existing gravel road branching off the N14 toward Sending. A short internal gravel access road of approximately 156 metres will be constructed within the project area to formalise access between the existing municipal track and the upgraded WWTW footprint. This access improvement is confined to the site and does not require external road upgrades. The upgraded facility will operate as a passive oxidation pond system and will not require high-voltage electricity supply or expansion of municipal electrical services. Construction-related waste will be managed through existing municipal waste management arrangements with adequate capacity to accommodate anticipated volumes. As the Khâi-Ma Local Municipality is the project proponent, the institutional and operational capacity to manage the upgraded facility is already in place, and no additional municipal service upgrades are required to support the development.			
6. Is this development provided for in the infrastructure planning of the municipality, and if not what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)? (Comment by the relevant Municipality in this regard must be attached to the final Basic Assessment Report as Appendix I.)	YES ✓	NO	Please explain
The proposed Sending WWTW upgrade is provided for within the Khâi-Ma Local Municipality's infrastructure planning framework and aligns with priorities identified in the Integrated Development Plan (IDP), which emphasises the upgrading and rehabilitation of wastewater infrastructure to improve sanitation service delivery and regulatory compliance in rural settlements. The project involves the upgrade of existing municipal infrastructure on land already allocated for wastewater treatment purposes. As such, it does not displace other planned infrastructure investments or alter the municipality's prioritisation of services. Instead, it addresses an existing operational and compliance risk associated with the current informal system. From an infrastructure planning perspective, the project represents a corrective and enabling intervention rather than a competing demand on limited municipal resources. By formalising and improving an existing facility, the development reduces long-term operational risks, avoids future remediation costs, and strengthens the municipality's capacity to deliver basic sanitation services. No adverse opportunity costs or conflicts with other planned infrastructure projects are anticipated.			

7. Is this project part of a national programme to address an issue of national concern or importance?	YES	NO ✓	Please explain
The project is not part of a formally designated national infrastructure programme. It is, however, directly aligned with national policy objectives aimed at improving sanitation service delivery, protecting water resources, and addressing non-compliance in municipal wastewater systems. National frameworks such as the National Development Plan (NDP 2030) emphasise the upgrading of inadequate sanitation infrastructure in rural settlements, the protection of surface and groundwater resources, and the reduction of pollution from failing wastewater systems. The proposed upgrade responds directly to these objectives by replacing an unlined, non-compliant wastewater disposal system with a controlled and environmentally sound treatment facility. Although locally initiated and implemented, the project contributes meaningfully to addressing issues of national concern, particularly water resource protection, public health, and sustainable municipal service delivery. In this context, development supports national priorities without forming part of a specific national programme.			
8. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)	YES ✓	NO	Please explain
The location favours the proposed land use, as the development will occur on land already utilised for municipal wastewater treatment purposes. The site accommodates the existing oxidation pond system and forms part of an established municipal services area associated with waste management and service infrastructure, rather than an undeveloped or residential land-use zone. The site has been subject to historical disturbance resulting from municipal service activities and is functionally suited to wastewater treatment operations. The continued use of this site avoids the establishment of new wastewater infrastructure on undisturbed land and limits further environmental transformation. The surrounding rural setting and absence of sensitive residential receptors reduce the potential for nuisance impacts such as odour, noise, and visual intrusion. The site is accessible via existing municipal access routes, with only limited internal gravel access road construction required within the existing municipal services footprint to facilitate construction and operational access. In this context, the location is appropriate, practical, and environmentally preferable for the proposed land use. The upgrade represents an improvement of an existing municipal function, enhancing environmental performance and regulatory compliance while remaining compatible with the surrounding land-use context.			

9. Is the development the best practicable environmental option for this land/site?	YES ✓	NO	Please explain
Upgrading the existing wastewater treatment works on its current site represents the best practicable environmental option for this development. The site is already transformed, accommodates existing municipal wastewater infrastructure, and is functionally suited to wastewater treatment activities, including the receipt of wastewater transported by vacuum tankers from Sending and Viljoensdraai. The proposed upgrade addresses the key environmental risks associated with the existing unlined oxidation pond, including seepage, groundwater contamination, and uncontrolled discharge during high-flow events. The introduction of HDPE-lined treatment ponds, formal inlet works, controlled effluent handling, and stormwater management measures will substantially reduce these risks and improve overall environmental performance. Alternative options, such as developing a new treatment facility on an undisturbed site, would result in additional land transformation, increased ecological disturbance, and higher infrastructure and operational costs, without providing a commensurate environmental benefit. Re-using and improving the existing site avoids unnecessary expansion of the development footprint, ensures continuity of sanitation services, and represents the most environmentally sustainable and practicable option available to the municipality.			
10. Will the benefits of the proposed land use/development outweigh the negative impacts of it?	YES ✓	NO	Please explain
The benefits of the proposed wastewater treatment works upgrade outweigh the limited and largely temporary negative impacts associated with the development. The existing informal and unlined pond system poses ongoing environmental and public-health risks, including seepage into surrounding soils, inadequate treatment of wastewater, and potential contamination of the adjacent non-perennial drainage line. The proposed upgrade will replace this system with a formal, lined wastewater treatment facility that significantly improves containment, treatment efficiency, and operational control. This results in long-term benefits, including improved protection of surface and groundwater resources, reduced public-health risks, and improved sanitation service delivery for the affected communities. Construction-related impacts, such as dust, noise, and limited vegetation clearance, will be short-term, localised, and confined to an already disturbed municipal services area. These impacts can be effectively mitigated through the implementation of the EMPr, resulting in low residual environmental significance. When assessed over the full lifecycle of the project, the long-term environmental, social, and regulatory benefits substantially outweigh the short-term and manageable negative impacts. The development therefore represents a net positive outcome.			
11. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?	YES	NO ✓	Please explain
The proposed development will not set a precedent for new or inappropriate land uses within the Khâi-Ma Local Municipality. The project constitutes the upgrade and formalization of existing municipal wastewater infrastructure on a site historically used as a sewage disposal pit and landfill. This is not a new land use, but rather environmental compliance-driven improvement of an existing facility that currently operates informally and poses known groundwater and public health risks. While the site falls within an Ecosystem Service Area, the ecological assessment explicitly confirms that approval is justified solely because the existing WWTW already occupies this degraded location, not because ESAs are generally available for development. The facility will operate as a closed system with zero discharge to natural watercourses; treated effluent will be reused for irrigation under controlled conditions. Any future infrastructure upgrades elsewhere in the municipality will remain confined to existing service sites and subject to their own site-specific environmental authorisation processes. Approval of this project therefore does not create a general development right or lower the regulatory threshold for similar activities.			

12. Will any person's rights be negatively affected by the proposed activity/ies?	YES	NO ✓	Please explain
No person's rights are expected to be negatively affected by the proposed development. The Sending WWTW upgrade is situated within an already disturbed area previously used as a landfill, meaning no displacement or loss of privately owned land will occur. The project therefore respects property rights and community interests while improving essential municipal infrastructure. On the contrary, the development will enhance the rights to a safe and healthy environment, as enshrined in Section 24 of the Constitution of South Africa, by reducing pollution risks, improving sanitation standards, and safeguarding local water resources. Furthermore, the project aligns with the principles of sustainable development, ensuring that environmental, social, and economic benefits are realized without compromising the wellbeing of current or future residents.			
13. Will the proposed activity/ies compromise the "urban edge" as defined by the local municipality?	YES	NO ✓	Please explain
The proposed Upgrading of the Sending WWTW will not compromise the urban edge as defined by the Khâi-Ma Local Municipality. The project site is located outside the main settlement area of Sending, within a previously disturbed municipal services zone that currently accommodates the informal wastewater ponds and the old municipal landfill area. Since the project involves upgrading existing infrastructure rather than expanding the footprint into undisturbed or natural areas, it will not lead to urban sprawl or encroachment beyond established development boundaries. The activity is therefore compatible with existing land use and supports the municipality's goal of improving service infrastructure within defined rural settlements. Furthermore, the proposed upgrade will enhance environmental protection by preventing wastewater leakage and contamination, thereby safeguarding surrounding ecological areas located beyond the built-up zone. The development also aligns with sustainable development principles, as outlined in the Khâi-Ma Local Municipality Integrated Development Plan (IDP), by improving essential infrastructure without increasing the municipality's spatial footprint. In summary, the project will not compromise the urban edge but will strengthen existing municipal infrastructure and contribute to the sustainable and responsible management of land already designated for public service use.			
14. Will the proposed activity/ies contribute to any of the 17 Strategic Integrated Projects (SIPS)?	YES	NO ✓	Please explain
The proposed project does not form part of 17 Strategic Infrastructure Projects (SIPs).			
15. What will the benefits be to society in general and to the local communities?	Please explain		
The proposed upgrade delivers significant benefits for local communities and broader society. For residents of Sending and Viljoensdraai, the project will replace the current unlined, non-compliant pond system with engineered, DWS-compliant wastewater treatment, eliminating health risks from raw sewage exposure and improving public sanitation for a projected population of 1,687 people by 2044. The closed-system design, featuring HDPE-lined ponds and drip irrigation reuse for a communal date palm orchard, will protect groundwater resources and the downstream Orange River while creating a sustainable community agricultural asset. Construction and operation will generate local employment opportunities, including a Class I Process Controller with site-specific training provided. At the municipal level, the upgrade ends costly 55 km vacuum truck trips to Pofadder, addresses active DWS non-compliance charges, and aligns with national goals for sustainable service delivery and environmental protection.			

16. Any other need and desirability considerations related to the proposed activity?	Please explain
The proposed upgrade addresses a legacy infrastructure risk by formalizing an informal wastewater system that currently operates without adequate containment or environmental safeguards. Replacing unlined ponds with a properly engineered, HDPE-lined system significantly reduces groundwater contamination risk and protects the downstream Orange River, while reducing the municipality's exposure to ongoing DWS enforcement actions. The project consolidates wastewater treatment within an existing, previously disturbed municipal services area, avoiding expansion into undeveloped land. This represents an environmental improvement over the current situation rather than new or intensified land use. Additional benefits include improved public health protection, enhanced service reliability, and short-term local employment during construction. Collectively, these considerations confirm the activity is both necessary and desirable, delivering long-term environmental, social and institutional benefits that outweigh its manageable short-term impacts.	
17. How does the project fit into the National Development Plan for 2030?	Please explain
The proposed upgrade aligns with NDP 2030 Chapter 4 priorities on economic infrastructure and Chapter 5 on environmental sustainability and resilience.  Universal basic services: The NDP targets 90% access to reliable sanitation by 2030. The project replaces an informal, unlined pond serving ~1,374 people with a DWS-compliant system designed for 1,687 people by 2044, directly addressing the current service gap in this rural, under-served municipality.  Environmental protection: The NDP emphasises water resource protection and climate resilience. The closed-system design with HDPE-lined ponds and effluent reuse for irrigation prevents groundwater contamination and eliminates discharge to the Orange River, a National Freshwater Ecosystem Priority Area.  Rural employment and skills: The NDP prioritises job creation in peripheral areas. The project provides construction employment and a permanent process controller position with site-specific training, building local capacity for ongoing facility management.	
18. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.	
Section 23 of NEMA promotes the application of appropriate environmental management tools in order to ensure the Integrated Environmental Management (IEM) of activities. The general objectives of IEM have been actively incorporated into the planning and assessment of the proposed WWTW. The project has applied appropriate environmental management tools, including comprehensive EIA and specialist studies, to ensure informed and transparent decision-making. Sustainable development principles have guided the selection of treatment technologies and site layout, balancing ecological protection with long-term service delivery. The full lifecycle of the WWTW-from construction through to operation-has been considered to identify and mitigate potential environmental impacts. Public participation has been facilitated to promote inclusivity and accountability, while intersectoral coordination has ensured alignment with municipal planning frameworks. The precautionary principle has been applied where uncertainty exists, and adaptive management measures have been incorporated in the EMP to ensure ongoing responsiveness to environmental risks.	

19. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

The proposed upgrade applies Section 2 principles through its design and assessment approach. Sustainable development is addressed by a 20-year design horizon serving 1,374 current residents with capacity for 1,687 by 2044, ensuring long-term sanitation delivery without compromising groundwater or downstream water resources. Environmental justice is advanced by eliminating current health risks from raw sewage exposure and unlined pond seepage in this underserved rural municipality, where vacuum truck disposal currently operates with no formal treatment. Pollution prevention is achieved through HDPE-lined ponds and a closed-system design with drip irrigation reuse for 552 date palms, delivering zero discharge to the nearby Orange River. Integrated management is ensured by aligning the Basic Assessment with Water Use Licence applications under the National Water Act and the Khâi-Ma IDP. The public participation and transparency are upheld through a PPP with documented IAP responses and an EMPr defining enforceable construction and operational controls.

11. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

List all legislation, policies and/or guidelines of any sphere of government that are applicable to the

Title of legislation, policy or guideline	Applicability to the project	Administering authority	Date
The Constitution of South Africa Act 108 of 1996	The proponent should comply with the Constitution by ensuring that no pollution or ecological degradation occurs due to the proposed development and by conducting environmentally sustainable developmental practices	Department of Justice and Constitutional Development	1996
National Environmental Management Act, 1998 (Act No. 107 of 1998)	Establishes the duty of care and environmental management principles applicable throughout the project. Requires environmental authorisation for listed activities triggered by the WWTW upgrade.	Department of Forestry, Fisheries and the Environment (DFFE) / Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform (DAERL)	1998
National Environmental Management Biodiversity Act 10 of 2004	The proposed site falls within a CBA category 2 area, therefore a terrestrial biodiversity study will need to be conducted to evaluate the site for possible protected species or Species of Conservation Concern within the development footprint.	DFFE	07 June 2004
The National Water Act 36 of 1998	The proposed WWTW includes anaerobic ponds, facultative ponds, and maturation ponds, which are designed to treat sewage effluent. The proposed development will have to apply for	DWS	28 Aug 1998

BASIC ASSESSMENT REPORT

	WUL due to triggering a Section 21 (c) (e) (g) (i)		
Environmental Impact Assessment Regulations, 2014 (as amended)	The upgrade triggers listed activities requiring a Basic Assessment process, including public participation, impact assessment, and submission of a BAR and EMPr.	DFFE / DAERL	2014 (as amended 2017)
National Water Act, 1998 (Act No. 36 of 1998)	Regulates Section 21(c) and (i) water uses. The project occurs within 500 m of an ephemeral drainage line and involves structures affecting a watercourse and potential discharge, requiring a Water Use Licence.	Department of Water and Sanitation (DWS)	1998
National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)	Governs classification, storage, handling, disposal, and transportation of construction waste, sludge, and general waste generated during the upgrade and operation of the WWTW.	DFFE / Local Municipality	2008
National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004)	Requires protection of indigenous species and biodiversity. Relevant due to vegetation clearing within a mapped Ecosystem Service Area (ESA) and the need to avoid impacts on species of conservation concern.	DFFE / South African National Biodiversity Institute (SANBI)	2004
National Heritage Resources Act, 1999 (Act No. 25 of 1999)	Applies to excavation and ground disturbance. A Chance Finds Procedure is required to protect archaeological or palaeontological resources.	South African Heritage Resources Agency (SAHRA) / Northern Cape Heritage Resources Authority	1999
Northern Cape Nature Conversation Act 09 of 2009	The proposed development site falls within CBA 2. After the specialist studies are completed and the flora and fauna species have been identified, necessary Fauna and Flora provincial permits may need to be acquired from DAERL.	DAERL	15 December 2009
Northern Cape Provincial Spatial Development Framework (PSDF, 2021)	Supports rural infrastructure upgrades, improvement of municipal services, and protection of ecological corridors. The WWTW upgrade aligns with provincial priorities for sustainable service delivery.	Northern Cape Department of Cooperative Governance, Human Settlements and Traditional Affairs (COGHSTA)	2021
Khâi-Ma Local Municipality Integrated Development Plan (IDP) & Spatial Development Framework (SDF) (2022–2027)	Identifies the need to upgrade and maintain sanitation infrastructure as a municipal priority.	Khâi-Ma Local Municipality	2022

Northern Cape Nature Conversation Act 09 of 2009	The proposed development site falls within ESA. After the specialist studies are completed and the flora and fauna species have been identified, necessary fauna and flora provincial permits may need to be acquired from DAERL.	DAERL	2009
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12. WASTE, EFFLUENT, EMISSION AND NOISE MANAGEMENT

a) Solid waste management

Will the activity produce solid construction waste during the construction/initiation phase?

YES ✓	NO
± 1.5 - 2 m ³ /month	

If YES, what estimated quantity will be produced per month?

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

Solid waste generated during the construction and upgrade of the Sending WWTW will be managed in accordance with the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008). Waste is expected to consist primarily of general, non-hazardous construction waste, including packaging materials, scrap metal, offcuts, and domestic waste generated by construction personnel.

Waste will be collected and temporarily stored in designated waste collection areas on site before being removed and disposed of at a licensed municipal waste disposal facility. Where feasible, recyclable materials will be separated and removed for recycling. No uncontrolled dumping, burning, or burial of waste will be permitted. Waste handling procedures will be implemented and monitored in accordance with the Environmental Management Programme (EMPr).

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

Construction waste and existing refuse from the site will be disposed of within the licensed landfill (Permit No. 16/2/7/D730/D12/Z12/P355), in designated trenches and approved disposal areas within the landfill boundary.

Will the activity produce solid waste during its operational phase?

YES ✓	NO
+- 2.5 m ³ /month	

If YES, what estimated quantity will be produced per month?

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

During operation, solid waste generated at the WWTW will include sewage sludge and small quantities of general operational waste.

Sludge will be managed through on-site drying beds (3 beds, 20–25 m² each) where it undergoes passive dewatering and stabilisation. Dried sludge will be mixed with carbon-rich bulking agents and windrow-composted for 6–12 weeks. The resulting stable compost may be reused as soil conditioner for local agricultural purposes, subject to compliance testing in accordance with WRC TT 261/06. Drainage liquor from drying will be contained in a lined evaporation area. General operational waste will be removed to authorised municipal disposal facilities.

If the solid waste will be disposed of into a municipal waste stream, indicate which registered landfill site will be used.

Sending (Permit No. 16/2/7/D730/D12/Z12/P355).

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

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, then 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 NEM:WA?

~~YES~~ NO ✓

If YES, inform the competent authority and request a change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

Is the activity that is being applied for a solid waste handling or treatment facility?

~~YES~~ NO ✓

If YES, then the applicant should consult with the competent authority to determine whether it is necessary to change to an application for scoping and EIA. An application for a waste permit in terms of the NEM:WA must also be submitted with this application.

b) Liquid effluent

Will the activity produce effluent, other than normal sewage, that will be disposed of in a municipal sewage system?

~~YES~~ NO ✓

If YES, what estimated quantity will be produced per month?

m³

Will the activity produce any effluent that will be treated and/or disposed of on site?

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.

Will the activity produce effluent that will be treated and/or disposed of at another facility?

~~YES~~ NO ✓

If YES, provide the particulars of the facility:

Facility name:

Contact

person:

Postal

address:

Postal code:

Telephone:

E-mail:

Cell:

Fax:

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

Construction phase:

Limited volumes of wastewater are expected during construction, primarily from the cleaning of concrete-mixing equipment. Where practicable, wash water will be reused during concrete preparation to reduce freshwater demand. Residual wash water from final cleaning will be collected in a designated settling container to allow cementitious solids to settle. Clarified water will be reused on site where feasible (e.g. dust suppression), while the remaining cementitious residue will be allowed to dry and disposed of as solid waste at a licensed landfill. No uncontrolled discharge of construction wastewater will be permitted.

Operational phase:

The operational design of the proposed WWTW prioritises the beneficial reuse of treated effluent. Oxidation pond systems are capable of achieving the Department of Water and Sanitation's General Limit Values; however, due to the presence of algae-related suspended solids typical of such systems, final effluent reuse via drip irrigation is proposed. Treated effluent will be stored in a lined effluent storage pond and reused for irrigation of a planned communal date palm orchard or vineyard (subject to landowner agreement), in accordance with Water Use Licence conditions. Drip irrigation will ensure controlled application directly to the root zone, minimising evaporation, runoff, and the risk of groundwater contamination. Nutrients contained in the treated effluent will contribute to soil fertility, reducing reliance on chemical fertilisers. Effluent quality, irrigation performance, and soil conditions will be monitored to ensure ongoing compliance and sustainable reuse.

c) Emissions into the atmosphere

Will the activity release emissions into the atmosphere other than exhaust emissions and dust associated with construction phase activities?

YES	NO ✓
YES	NO

If YES, is it controlled by any legislation of any sphere of government?

If YES, the applicant must 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:

The proposed Sending WWTW Upgrade will not release atmospheric emissions other than construction-related vehicle exhaust emissions and fugitive dust associated with earthworks and vehicle movement. The activity does not involve any listed atmospheric emission activities and does not require an Atmospheric Emission Licence in terms of the National Environmental Management: Air Quality Act (Act No. 39 of 2004).

During construction, emissions will be limited to diesel exhaust emissions from machinery and vehicles, as well as dust generated from excavation, reworking of the existing pond footprint, and movement on unpaved surfaces. These emissions will be temporary, localised, and confined to the construction period.

The upgraded facility will operate as a predominantly passive, natural treatment system with no mechanical aeration or industrial processes. As such, no significant operational atmospheric emissions are anticipated, aside from occasional vehicle movement for maintenance. Potential nuisance odours, typical of wastewater treatment infrastructure, are expected to be low and localised and will be managed through appropriate operational controls.

The site is located within an arid area where dust generation may be exacerbated during dry and windy conditions; however, the footprint is within an existing disturbed municipal services area. With the implementation of standard dust suppression and good housekeeping measures as set out in the EMP, atmospheric emissions are expected to remain of low environmental significance.

d) Waste permit

Will any aspect of the activity produce waste that will require a waste permit in terms of the NEM:WA?

YES	NO ✓
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If YES, please submit evidence that an application for a waste permit has been submitted to the competent authority

e) Generation of noise

Will the activity generate noise?

YES ✓	NO
YES	NO ✓

If YES, is it controlled by any legislation of any sphere of government?

Describe the noise in terms of type and level:

The upgrade will generate noise primarily during the construction phase due to site preparation and pond construction activities. Construction noise will originate from earthmoving equipment, compactors, trucks, and general on-site construction activities, resulting in elevated but temporary noise levels within the construction footprint and along access routes.

The site is located within a rural, previously disturbed municipal services area with generally low ambient noise levels. No sensitive noise receptors are located in close proximity to the project footprint, and surrounding open land provides a natural buffer.

During the operational phase, noise generation will be minimal and limited to occasional vehicle movement, intermittent pump operation, and periodic maintenance activities. The upgraded facility will operate as a predominantly passive biological treatment system with no mechanical aeration or continuous industrial noise sources.

Noise will be managed in accordance with standard construction practices, relevant municipal by-laws, and accepted environmental noise guidelines.

13. WATER USE

Please indicate the source(s) of water that will be used for the activity by ticking the appropriate box(es):

Municipal ✓	Water board	Groundwater	River, stream, dam or lake	Other	
-------------	-------------	-------------	----------------------------	-------	--

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:

litres

Does the activity require a water use authorisation (general authorisation or water use license) from the Department of Water Affairs?

YES ✓

NO

If YES, please provide proof that the application has been submitted to the Department of Water Affairs.

* Water Use License Application process is in its initiation stage. Proof of submission will be attached with the final BAR.

14. ENERGY EFFICIENCY

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

The design of the proposed Sending WWTW upgrade incorporates measures to ensure energy efficiency. The selected oxidation pond system is inherently a low-energy treatment technology that relies on natural processes such as sunlight, wind action, and microbial activity, thereby minimising the need for mechanical aeration and energy-intensive infrastructure. The layout of the ponds has been designed to optimise hydraulic flow and retention time, improving treatment performance without additional energy inputs. Where possible, the system operates on a gravity-driven basis, further reducing the need for pumping. Collectively, these design measures ensure that the facility operates efficiently while maintaining effective wastewater treatment performance with minimal energy demand.

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

The proposed Sending WWTW upgrade has been designed as a passive, natural treatment system based on anaerobic, facultative, and maturation ponds. This approach inherently minimises energy requirements by relying on natural processes such as sunlight, wind action, and microbial activity, thereby avoiding the need for mechanical aeration and other energy-intensive treatment components.

Alternative energy options, including renewable energy systems such as solar power, were considered during the design phase. However, due to the very low and non-continuous energy demand of the facility, primarily limited to routine monitoring and minor maintenance activities, the incorporation of dedicated alternative energy infrastructure was not considered necessary at this stage.

The design prioritizes energy efficiency through the use of gravity-driven flow and optimized hydraulic layout, which further reduces reliance on external energy inputs. Provision can be made during future upgrades, if required, to incorporate renewable energy solutions should operational demands increase.

Overall, the project achieves energy efficiency through its low-energy design, which is appropriate for the scale, location, and operational context of the facility, while remaining adaptable to future energy requirements.

SECTION B: SITE/AREA/PROPERTY DESCRIPTION

Important notes:

- For linear activities (pipelines, etc) as well as activities that cover very large sites, it may be necessary to complete this section for each part of the site that has a significantly different environment. In such cases please complete copies of Section B and indicate the area, which is covered by each copy No. on the Site Plan.

Section B Copy No. (e.g. A):

- Paragraphs 1 - 6 below must be completed for each alternative.

- Has a specialist been consulted to assist with the completion of this section?

YES ✓	NO
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If YES, please complete the form entitled "Details of specialist and declaration of interest" for each specialist thus appointed and attach it in Appendix I. All specialist reports must be contained in Appendix D.

Property description/physical address:

Province	Northern Cape
District Municipality	Namakwa District Municipality
Local Municipality	Khâi-Ma Local Municipality
Ward Number(s)	01
Farm name and number	Onseep Kans, Farm No.88/RE
Portion number	0
SG Code	C03600000000008800000

Where a large number of properties are involved (e.g. linear activities), please attach a full list to this application including the same information as indicated above.

Current land-use zoning as per local municipality IDP/records:

Agriculture

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Is a change of land-use or a consent use application required?

YES	NO ✓
-----	------

1. GRADIENT OF THE SITE

Indicate the general gradient of the site.

Alternative S1:

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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Alternative S2 (if any):

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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Alternative S3 (if any):

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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2. LOCATION IN LANDSCAPE

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

2.1 Ridgeline	☐	2.4 Closed valley	☐	2.7 Undulating plain / low hills	☒
2.2 Plateau	☐	2.5 Open valley	☒	2.8 Dune	☐
2.3 Side slope of hill/mountain	☐	2.6 Plain	☒	2.9 Seafront	☐
2.10 At sea	☐				

3. GROUNDWATER, SOIL AND GEOLOGICAL STABILITY OF THE SITE

Is the site(s) located on any of the following?

	Alternative S1:		Alternative S2 (if any):		Alternative S3 (if any):	
Shallow water table (less than 1.5m deep)	YES	NO ☒	YES	NO	YES	NO
Dolomite, sinkhole or doline areas	YES	NO ☒	YES	NO	YES	NO
Seasonally wet soils (often close to water bodies)	YES	NO ☒	YES	NO	YES	NO
Unstable rocky slopes or steep slopes with loose soil	YES	NO ☒	YES	NO	YES	NO
Dispersive soils (soils that dissolve in water)	YES	NO ☒	YES	NO	YES	NO
Soils with high clay content (clay fraction more than 40%)	YES	NO ☒	YES	NO	YES	NO
Any other unstable soil or geological feature	YES	NO ☒	YES	NO	YES	NO
An area sensitive to erosion	YES ☒	NO	YES	NO	YES	NO

If you are unsure about any of the above or if you are concerned that any of the above aspects may be an issue of concern in the application, an appropriate specialist should be appointed to assist in the completion of this section. Information in respect of the above will often be available as part of the project information or at the planning sections of local authorities. Where it exists, the 1:50 000 scale Regional Geotechnical Maps prepared by the Council for Geo Science may also be consulted.

4. GROUNDCOVER

Indicate the types of groundcover present on the site. The location of all identified rare or endangered species or other elements should be accurately indicated on the site plan(s).

Natural veld—good condition^E	Natural veld with scattered aliens^E	Natural veld with heavy—alien infestation^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

If any of the boxes marked with an “E” is ticked, please consult an appropriate specialist to assist in the completion of this section if the environmental assessment practitioner doesn’t have the necessary expertise.

5. SURFACE WATER

Indicate the surface water present on and or adjacent to the site and alternative sites?

Perennial River	YES	NO ✓	UNSURE
Non-Perennial River	YES ✓	NO	UNSURE
Permanent Wetland	YES	NO ✓	UNSURE
Seasonal Wetland	YES	NO ✓	UNSURE
Artificial Wetland	YES	NO ✓	UNSURE
Estuarine / Lagoonal wetland	YES	NO ✓	UNSURE

If any of the boxes marked YES or UNSURE is ticked, please provide a description of the relevant watercourse.

Non-Perennial River

The project area contains several non-perennial (ephemeral) drainage lines that form part of the natural stormwater drainage system within the Sending area. These drainage features convey surface runoff during rainfall events and ultimately contribute to the broader Orange River catchment. The proposed infrastructure, including the wastewater treatment ponds, stormwater diversion structures, and associated pipelines, is located in proximity to these drainage lines.

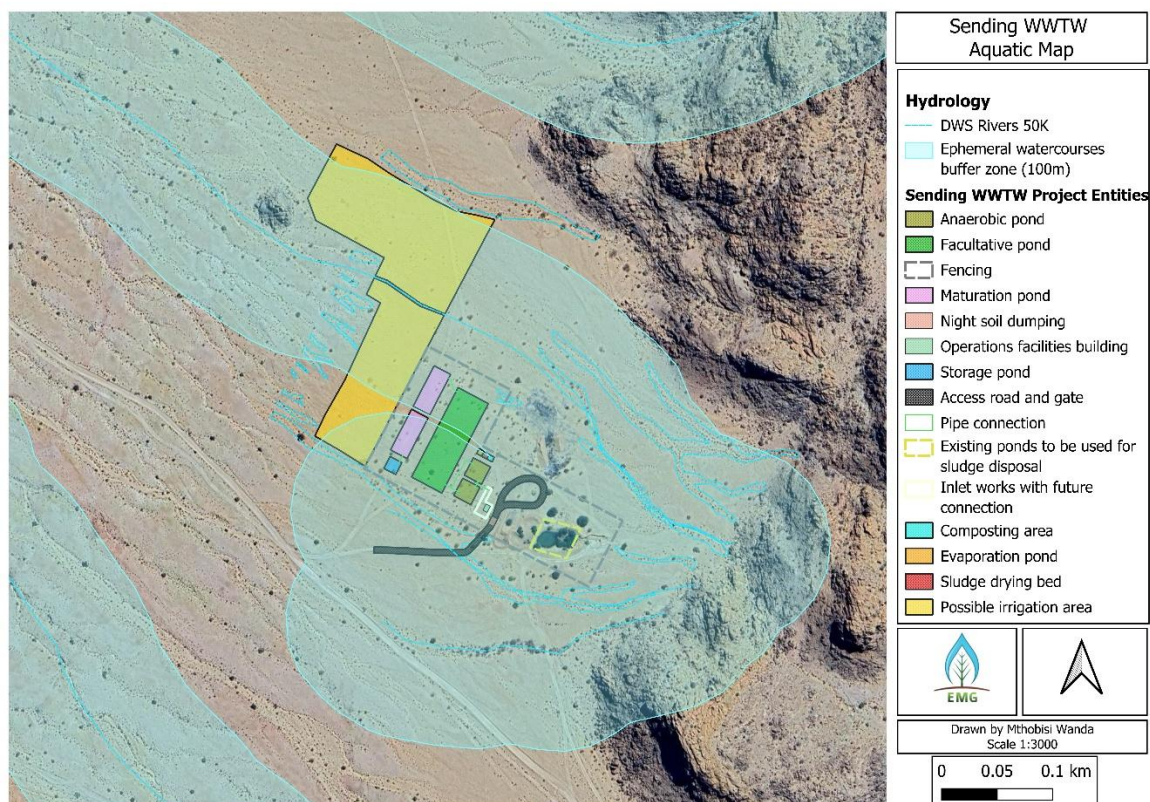


Figure 3 Site plan illustrating the proposed wastewater treatment facility and pond systems in relation to surrounding ephemeral watercourses and 100m aquatic buffer zones.

Although these drainage lines remain dry for most of the year due to the arid climatic conditions of the region, they play an important ecological and hydrological role by facilitating the natural conveyance of stormwater and sediment during episodic rainfall events. The aquatic specialist report indicates that the drainage lines must maintain their natural flow patterns. Accordingly, the project layout incorporates stormwater diversion berms and erosion protection measures to ensure that surface runoff is diverted around the wastewater treatment works and that the natural drainage pathways remain unobstructed during both the construction and operational phases.

6. LAND USE CHARACTER OF SURROUNDING AREA

Indicate land uses and/or prominent features that currently occur within a 500m radius of the site and give description of how this influences the application or may be impacted upon by the application:

Natural area	Dam or reservoir	Polo fields
Low density residential	Hospital/medical centre	Filling station ^H
Medium density residential	School	Landfill or waste treatment site
High density residential	Tertiary education facility	Plantation
Informal residential	Church	Agriculture
Retail commercial & warehousing	Old age home	River, stream or wetland
Light industrial	Sewage treatment plant ^A	Nature conservation area
Medium industrial ^{AN}	Train station or shunting yard ^N	Mountain, Koppie or ridge
Heavy industrial ^{AN}	Railway line ^N	Museum
Power station	Major road (4 lanes or more) ^N	Historical building
Office/consulting room	Airport ^N	Protected Area
Military or police base/station/compound	Harbour	Graveyard
Spoil heap or slimes dam ^A	Sport facilities	Archaeological site
Quarry, sand or borrow pit	Golf course	Other land uses (describe)

If any of the boxes marked with an "N" are ticked, how this impact will / be impacted upon by the proposed activity? Specify and explain:

If any of the boxes marked with an "AN" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

If any of the boxes marked with an "H" are ticked, how will this impact / be impacted upon by the proposed activity? Specify and explain:

Does the proposed site (including any alternative sites) fall within any of the following:

Critical Biodiversity Area (as per provincial conservation plan)	YES	NO ✓
Core area of a protected area?	YES	NO ✓
Buffer area of a protected area?	YES	NO ✓
Planned expansion area of an existing protected area?	YES	NO ✓
Existing offset area associated with a previous Environmental Authorisation?	YES	NO ✓

Buffer area of the SKA?	YES	NO ✓
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If the answer to any of these questions was YES, a map indicating the affected area must be included in Appendix A.

7. CULTURAL/HISTORICAL FEATURES

Are there any signs of culturally or historically significant elements, as defined in section 2 of the National Heritage Resources Act, 1999, (Act No. 25 of 1999), including Archaeological or paleontological sites, on or close (within 20m) to the site? If YES, explain:	YES	NO ✓
	Uncertain	

If uncertain, conduct a specialist investigation by a recognised specialist in the field (archaeology or palaeontology) to establish whether there is such a feature(s) present on or close to the site. Briefly explain the findings of the specialist:

A specialist heritage assessment, including a field-based pedestrian survey, was undertaken by a qualified specialist to determine the presence of archaeological and palaeontological resources within the proposed development area.

The study found that the site is underlain by geologically old metamorphic rocks of the Namaqua–Natal Metamorphic Complex, which are not considered palaeontologically sensitive. Superficial valley-floor sediments, including recent soils and aeolian sands, were also assessed as having a very low likelihood of containing fossil material.

No evidence of archaeological resources was identified during the field survey. This includes the absence of Stone Age artefacts, rock art, graves, historical structures, or any material older than 60 years. Subsurface archaeological potential was assessed as low, and the presence of significant buried heritage resources is considered unlikely.

Based on these findings, the proposed development is expected to have a negligible impact on archaeological and palaeontological resources.

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 ✓

If YES, please provide proof that this permit application has been submitted to SAHRA or the relevant provincial authority.

8. SOCIO-ECONOMIC CHARACTER

a) Local Municipality

Please provide details on the socio-economic character of the local municipality in which the proposed site(s) are situated.

Level of unemployment:

The Khâi-Ma Local Municipality IDP (2022/23–2026/27) does not provide a specific local unemployment rate. The document cites national unemployment figures of 35% (general) and 23.6% (youth) for contextual reference. However, given the municipality's narrow economic base and reliance on capital-intensive sectors, actual local unemployment is likely significantly higher than the national average, particularly among youth and low-skilled residents.

Employment opportunities are heavily concentrated in mining (Vedanta Zinc International's Black Mountain Complex and Gamsberg operations), which directly and indirectly employs approximately 1,800–2,700 persons, and the renewable energy sector (Kaxu Solar One, Xina Solar One, Aggeneys Solar Plant, and Konkoonies II), providing several hundred permanent positions. Additional employment exists in municipal services, agriculture (commercial irrigation farming and emerging livestock schemes), and limited informal trading. The proposed Sending WWTW upgrade is not expected to generate significant long-term employment. Limited short-term employment may arise during the construction phase, dependent on the contractor's labour policy, while operational-phase employment will be restricted to routine municipal operation and maintenance functions.

Economic profile of local municipality:

The local economy is predominantly rural and narrowly based, but with significant capital-intensive components. According to the IDP, the mining and quarrying sector contributed 56% of Gross Value Added (GVA-R) in 2017, followed by community services (12%), finance (7%), transport (7%), and trade (6%). This reflects the dominance of Vedanta's zinc, lead, and silver mining operations at Black Mountain (Aggeneys) and Gamsberg, which have driven positive annual sectoral growth of 3.8%—outperforming provincial and district averages.

Agriculture constitutes an important secondary activity, with commercial irrigation farms (dates, grapes, raisins) at Karsten Boerdery, Rooipad Boerdery, and Cape Span Vrugbaar, alongside extensive livestock farming (sheep, goats, cattle) on communal and commercial land. The Department of Agriculture supports emerging farmers at Onseepkans, Charlie's Pass (Pella), and other locations.

Renewable energy represents a growing economic pillar, with four operational solar plants (Kaxu Solar One: 100 MW; Xina Solar One: 100 MW; Aggeneys Solar: 40 MW; Konkoonies II: 86 MWp) and additional applications pending. The proposed Namakwa Special Economic Zone (SEZ) near Aggeneys and Gamsberg, focused on mineral processing, agro-processing, and logistics, has attracted investor commitments of R26 billion and is anticipated to create approximately 6,000 permanent and temporary jobs.

Income and poverty indicators reflect structural constraints. The IDP income distribution (2016) indicates that approximately 63.7% of households earn below R54,000 annually, with 56% in the lowest income brackets (none to R38,200) and significant concentration in the R19,601–R38,200 range (22.3%). Only 5.1% of households earn above R153,800 annually. These figures indicate widespread low-income status and limited economic mobility.

Within the Sending area, livelihoods depend on low-to-moderate skill activities with limited diversification. The proposed Sending WWTW upgrade constitutes essential municipal infrastructure investment that does not introduce new economic sectors but supports existing activity by improving sanitation services, reducing environmental and regulatory risk, and contributing to stable service delivery.

Level of education:

Educational attainment in Khâi-Ma reflects its rural character and limited access to higher-order facilities. According to the IDP (2016 data), the distribution of highest education levels among persons aged 20 years and above is as follows:

Year	No schooling	Some primary	Complete primary	Some secondary	Grade 12/Std 10	Higher	Total
Number							
1996	446	1 112	615	2 187	673	324	5 359
2001	482	1 755	855	2 810	1 062	282	7 247
2011	314	1 404	672	3 712	1 449	462	8 013
2016	238	983	571	4 316	1 922	438	8 468
Percent (%)							
1996	8.3	20.8	11.5	40.8	12.6	6.1	100.0
2001	6.6	24.2	11.8	38.8	14.7	3.9	100.0
2011	3.9	17.5	8.4	46.3	18.1	5.8	100.0
2016	2.8	11.6	6.7	51.0	22.7	5.2	100.0

*Excludes "do not know" and "unspecified"

Figure 4 Highest level of education for persons aged 20 years and above, 1996-2016.

The data show improvement since 1996, when 8.3% had no schooling, but the majority of the working-age population has incomplete secondary education. Only 22.7% have completed Grade 12 and merely 5.2% hold higher education qualifications.

Within the Sending area, similar educational constraints apply. The proposed WWTW upgrade will not directly influence education levels but contributes indirectly by improving public health and basic service delivery, which supports broader socio-economic stability and enables regular school attendance.

b) Socio-economic value of the activity

What is the expected capital value of the activity on completion?

R27.6 million
(including VAT)

What is the expected yearly income that will be generated by or as a result of the activity?

Activity not intended to generate direct income.

Will the activity contribute to service infrastructure?

YES ✓ NO

Is the activity a public amenity?

YES NO ✓

How many new employment opportunities will be created in the development and construction phase of the activity/ies?

Subject to the appointed contractor's labour requirements.

What is the expected value of the employment opportunities during the development and construction phase?

Not specified, as employment terms and remuneration will be determined by the appointed contractor.

What percentage of this will accrue to previously disadvantaged individuals?

Not specified but local labour will be prioritised.

How many permanent new employment opportunities will be created during the operational phase of the activity?

Unknown at this point.

What is the expected current value of the employment opportunities during the first 10 years?

Unknown at this point

What percentage of this will accrue to previously disadvantaged individuals?

Unknown at this point

*** kindly note that the values and percentages listed are merely speculation and may not be a true representative of the actual economic value.

9. BIODIVERSITY

Please note: The Department may request specialist input/studies depending on the nature of the biodiversity occurring on the site and potential impact(s) of the proposed activity/ies. To assist with the identification of the biodiversity occurring on site and the ecosystem status consult <http://bgis.sanbi.org> or BGIShelp@sanbi.org. Information is also available on compact disc (cd) from the Biodiversity-GIS Unit, Ph (021) 799 8698. This information may be updated from time to time and it is the applicant/ EAP's responsibility to ensure that the latest version is used. A map of the relevant biodiversity information (including an indication of the habitat conditions as per (b) below) and must be provided as an overlay map to the property/site plan as Appendix D to this report.

- a) **Indicate the applicable biodiversity planning categories of all areas on site and indicate the reason(s) provided in the biodiversity plan for the selection of the specific area as part of the specific category)**

Systematic Biodiversity Planning Category				If CBA or ESA, indicate the reason(s) for its selection in biodiversity plan
Critical Biodiversity Area (CBA)	Ecological Support Area (ESA) ✓	Other Natural Area (ONA)	No Natural Area Remaining (NNR)	The site is located within a ESA as identified on SANBI BGIS (refer to Figure 4 below). The ESA designation is primarily associated with the area's role in supporting landscape-scale ecological processes, including hydrological connectivity along non-perennial drainage features and maintaining ecological functionality within an arid environment. While the broader area contributes to ecosystem support functions, the immediate development footprint is highly disturbed due to existing municipal infrastructure and historical waste disposal activities and does not contain intact or high-value natural habitat. The ESA designation therefore reflects regional ecological process support rather than site-specific biodiversity sensitivity.

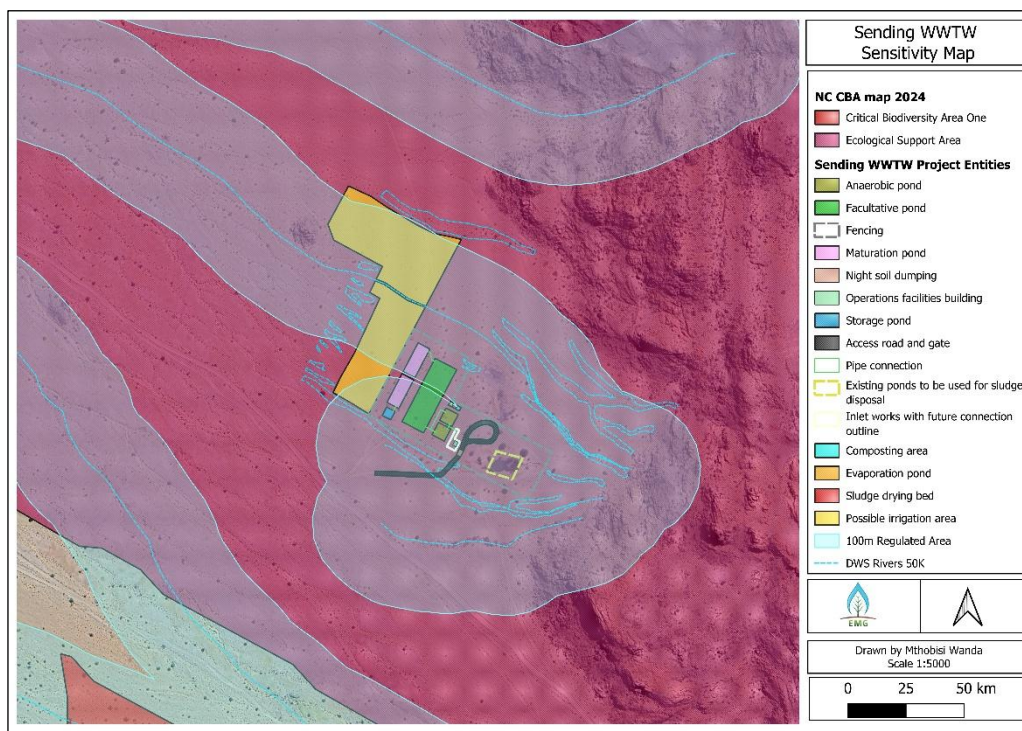


Figure 5 Map indicating the location of Sending WWTW within the ESA

b) Indicate and describe the habitat condition on site

Habitat Condition	Percentage of habitat condition class (adding up to 100%)	Description and additional Comments and Observations (including additional insight into condition, e.g. poor land management practises, presence of quarries, grazing, harvesting regimes etc).
Natural	35%	Portions of the study area remain largely natural but sparsely vegetated, consistent with the Eastern Gariep Plains Desert vegetation type. These areas are characterised by bare ground with scattered indigenous shrubs and grasses adapted to arid conditions. Although species richness is low, these areas retain natural ecological processes and are primarily influenced by extensive grazing by free-roaming horses rather than direct development.
Near Natural (includes areas with low to moderate level of alien invasive plants)	25%	Semi-natural areas occur adjacent to disturbed zones and include indigenous shrub and grass assemblages influenced by ongoing land use pressures such as grazing, littering, and proximity to municipal infrastructure. These areas show moderate ecological disturbance but still retain elements of natural structure and function. Limited alien invasive species presence has been recorded, mainly <i>Neltuma glandulosa</i> saplings near the existing WWTW fence.
Degraded (includes areas heavily invaded by alien plants)	25%	Degraded areas are associated with historical waste disposal activities, informal dumping, dirt roads, litter accumulation, erosion, and long-term disturbance from municipal service operations. Vegetation cover is poor, with dominance of hardy pioneer species and reduced ecological functioning. These areas are considered to be in fair ecological condition due to ongoing anthropogenic pressure.

BASIC ASSESSMENT REPORT

Transformed (includes cultivation, dams, urban, plantation, roads, etc)	20%	Transformed habitat is limited to the existing oxidation ponds, constructed embankments, cleared working areas, internal access tracks, and infrastructure associated with the existing WWTW and nearby landfill footprint. In these areas, the natural habitat has been permanently altered, and ecological functionality is largely lost.
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c) Complete the table to indicate:

- (i) the type of vegetation, including its ecosystem status, present on the site; and
- (ii) whether an aquatic ecosystem is present on site.

Terrestrial Ecosystems		Aquatic Ecosystems						
Ecosystem threat status as per the National Environmental Management: Biodiversity Act (Act No. 10 of 2004)	Critical	Wetland (including rivers, depressions, channelled and unchanneled wetlands, flats, seeps pans, and artificial wetlands)			Estuary		Coastline	
	Endangered							
	Vulnerable							
	Least Threatened	YES	NO ✓	UNSURE	YES	NO ✓	YES	NO ✓

- d) Please provide a description of the vegetation type and/or aquatic ecosystem present on site, including any important biodiversity features/information identified on site (e.g. threatened species and special habitats)

Vegetation Type and Aquatic Ecosystems

The proposed Sending Wastewater Treatment Works (WWTW) is located approximately 5.2 km from Onseepkans in the Northern Cape Province, within a landscape characteristic of the Desert Biome. The development footprint covers less than 6 ha of predominantly natural but sparsely vegetated terrain, with portions historically disturbed by waste disposal activities, existing infrastructure, and informal land use practices.

Terrestrial Vegetation

The majority of the study area falls within the Eastern Gariep Plains Desert vegetation type (Dg9), with a minor portion extending into the Eastern Gariep Rocky Desert (Dg10) (Mucina & Rutherford, 2006; SANBI, 2006–2018). The Eastern Gariep Plains Desert is characterised by gently sloping sheet-wash plains between rocky hills and mountains near the lower Orange River valley, at altitudes of 250–900 m above sea level. Vegetation typically comprises sparse grasslands dominated by *Stipagrostis* species, with scattered shrubs and herbs concentrated along drainage lines and gravelly soils.

Within the immediate development footprint, vegetation is largely representative of disturbed desert vegetation, characterised by extensive bare soil and very low vegetation cover. Field observations confirmed low species richness, with the limited vegetation primarily comprising scattered shrubs and small trees, notably *Senegalia mellifera* subsp. *detinens* and *Boscia albitrunca*, which provide patchy structural cover within an otherwise open landscape. The site serves as informal rangeland, with evidence of grazing by free-roaming horses, and additional disturbances including scattered litter, a dirt access road, and historical waste disposal to the north and east. These factors have contributed to the ecosystem being classified as being in fair ecological condition with moderate functional integrity.

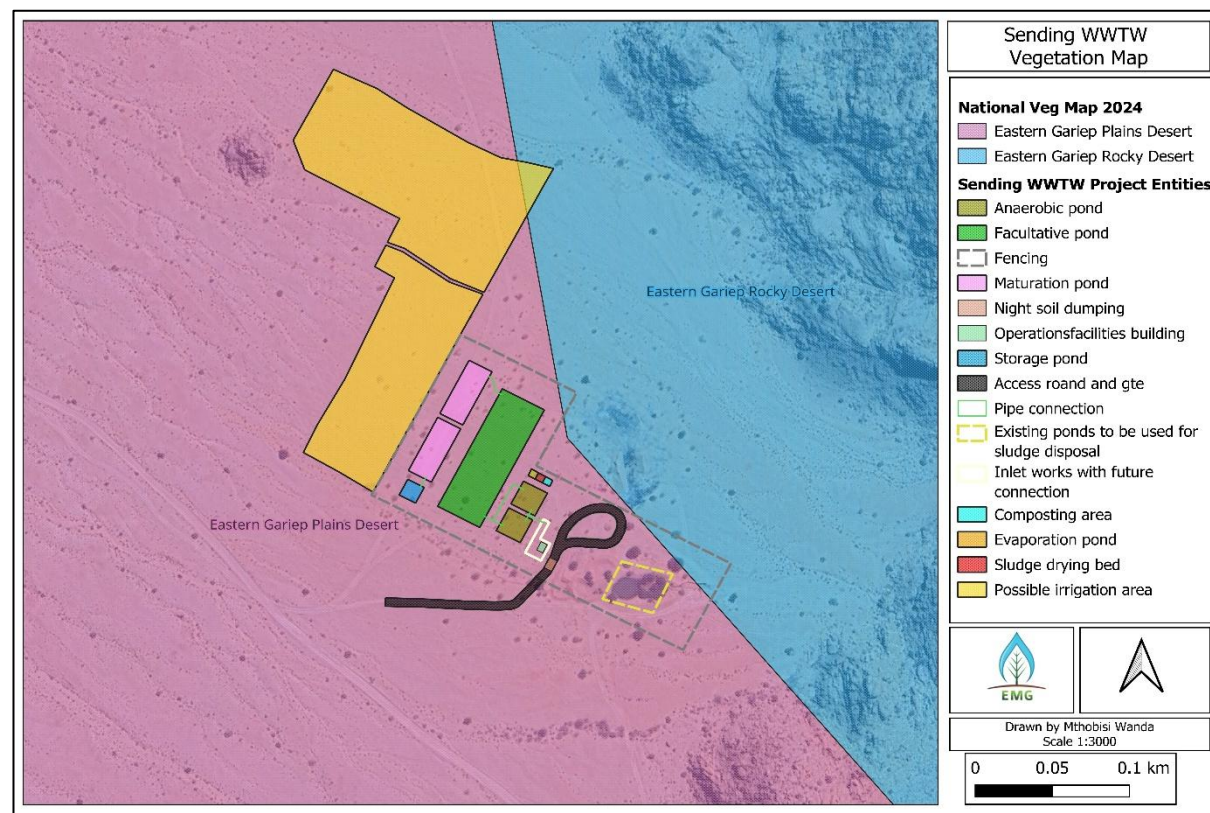


Figure 6 Regional vegetation types occurring within and surrounding the proposed development area.

Three protected plant species were recorded within the study area:



Boscia albitrunca (tree) – protected under the National Forests Act

-  *Euphorbia gregaria* (succulent) – provincially protected under the Northern Cape Nature Conservation Act
-  *Microlooma incanum* (climber) – provincially protected under the Northern Cape Nature Conservation Act.

These species occurred at low densities. No confirmed occurrences of Species of Conservation Concern (SCC) or range-restricted species were recorded, and the likelihood of such species occurring within the proposed footprint is considered low given the degraded condition of the site and its disturbance history.

One alien and invasive species was recorded: *Neltuma glandulosa* (Mesquite), listed as **Category 1B** under the National Environmental Management: Biodiversity Act. Individuals were primarily saplings located close to the existing WWTW fence line, appearing to have originated from intentional plantings within the facility grounds with only minimal spread into surrounding natural vegetation.

The Biodiversity Sensitivity Rating (BSR) for the site is 22/30, classifying it as Degraded (Class 3). The ecological resilience of the site is considered low due to the aridity of the region, which limits recovery rates following disturbance. Consequently, development activities of moderate impact may be acceptable provided appropriate mitigation and rehabilitation measures are implemented.

Aquatic Ecosystems

Aquatic features within the study area consist of ephemeral drainage lines that originate in the hills to the north and east and flow westward toward the Orange River, approximately 3 km distant. These are first-order watercourses (Strahler classification) with small but distinct channels ranging from <1 m to approximately 2 m in width. They form part of a natural drainage network approximately 3 km long and function as stormwater conduits during rainfall events only, with flow occurring via flash floods under heavy rainfall conditions.

The drainage lines contain riparian conditions but no wetland conditions, neither hydromorphic soils nor obligate wetland vegetation were identified. Riparian vegetation is sparse but visible, dominated by species such as *Schmidtia kalahariensis*, *Sisymbrium sparteae*, *Codon royerii*, and *Blepharis mitrata*. Soils within the drainage lines consist of yellow, sandy soils with gravel and show no evidence of anaerobic conditions.

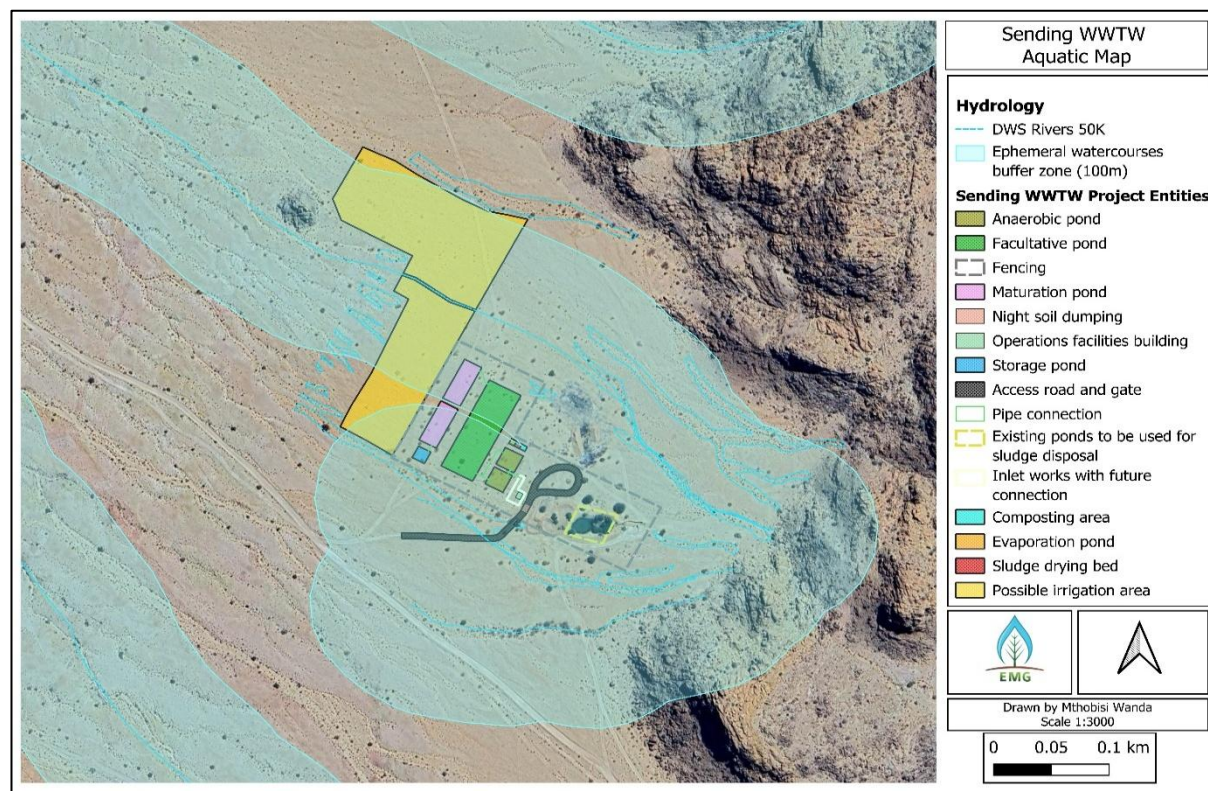


Figure 7 Aquatic features and drainage lines associated with the proposed development area.

Several drainage lines occur within or adjacent to the proposed development area, particularly within the proposed irrigation area. The **Index of Habitat Integrity (IHI)** assessment rated both instream and riparian conditions as **Category C: Moderately Modified** (Instream: 76.9%; Riparian: 74.5%). The Ecological Importance and Sensitivity (EI&S) is rated as Moderate—ecologically important on a provincial or local scale, playing a small role in moderating water quantity and quality of major rivers.

No permanent wetlands, estuaries, or lagoonal environments were identified within the study area. The Orange River downstream is listed as a **National Freshwater Ecosystem Priority Area (NFEPA)**, underscoring the importance of managing the WWTW as a closed system to prevent downstream impacts.

SECTION C: PUBLIC PARTICIPATION

1. ADVERTISEMENT AND NOTICE

Publication name	Pofadder Rekord	
Date published	21 November 2025	
Site notice position	Latitude	Longitude
	28°46'58.0"S	19°16'51.7"E
Date placed	30 October 2025	

Include proof of the placement of the relevant advertisements and notices in Appendix E1.

2. DETERMINATION OF APPROPRIATE MEASURES

Provide details of the measures taken to include all potential I&APs as required by Regulation 41(2)(e) and 41(6) of GN 733.

To ensure that all potential Interested and Affected Parties (I&APs) were identified and provided with a reasonable opportunity to participate, a range of complementary notification and engagement measures were implemented in accordance with Regulation 41(2)(e) and 41(6) of GN 733.

Site notices were placed at visible and publicly accessible locations near the project site to inform local land users and passers-by of the proposed development and application process. Written notifications, together with a Background Information Document (BID), were distributed to identified stakeholders, including the landowner, relevant municipal officials, ward representatives, and organs of state.

A newspaper advertisement was placed in a local newspaper circulating within the Khâi-Ma Local Municipality to reach a broader audience, including individuals not residing in the immediate vicinity of the site. All notices provided clear information on the nature of the project, the application being undertaken, and contact details for registration and submission of comments.

A minimum 30-day comment period was provided, allowing sufficient time for review and response. Project information was made available in an accessible format, and reasonable alternative communication measures were available upon request to accommodate potential barriers such as literacy or access constraints.

These combined measures ensured that the public participation process was inclusive, transparent, and proportionate to the scale and nature of the proposed activity.

Key stakeholders (other than organs of state) identified in terms of Regulation 41(2)(b) of GN 733

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Title, Name and Surname	Affiliation/ key stakeholder status	Contact details (tel number or e-mail address)
Crystal View Vineyards	Neighbouring plantation	082 610 5172/steph@cvv.co.za
Nel Brothers Premium Grapes	Neighbouring plantation	054 451 7007/admin@rooipad.co.za
Elmboog Organiese Boerdery	Neighbouring plantation	081 052 8469/ roconnell@mweb.co.za or breyton@elmboog.co.za
Elsabe	Interested party	elsabe@cvv.co.za
Oranjedal Guesthouse Onseepkans	Interested/affected party	066 297 0555/ gastehuisodl@rooipad.co.za
Gravity Adventures	Interested/affected party	021 683 3698/ 082 692 4399/ andrew@gravity.co.za
Red Rock River Camp	Interested/affected party	083 660 7798/ redrockrivercamp@outlook.com
Aurick Holdings (Pty) Ltd	Adjacent landowner	082 831 0897
Long Island Trading 346 CC	Adjacent landowner	078 21 02933
Capespan Farm Holdings	Adjacent landowner	083 702 5742/071 218 3758 bernie@cfarms.co.za/philip@csfarms.co.za
Khâi-Ma Local Municipality	Adjacent landowner	054 933 0040/ munman@khaima.gov.za

Include proof that the key stakeholder received written notification of the proposed activities as Appendix E2. This proof may include any of the following:

- e-mail delivery reports;
- registered mail receipts;
- courier waybills;
- signed acknowledgements of receipt; and/or
- or any other proof as agreed upon by the competent authority.

3. ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

Summary of main issues raised by I&APs	Summary of response from EAP
Adelaine Breedts expressed strong support for the proposed wastewater treatment plant, particularly for its role in preventing pollution of the Orange River and protecting local tourism and environmental health. However, she has raised several socio-economic concerns, including the need for clarity on employment opportunities for the community, especially for young people. She also wishes to explore the possibility of engaging a local BEE-registered construction company to ensure the project's benefits reach the local economy and has	The concerns will be forwarded to the contractor for their input, and a reply will be provided once their feedback has been received.

inquired about potential subsidies or partnerships to support smaller contractors. Finally, she has requested a meeting to discuss these matters further.

4. COMMENTS AND RESPONSE REPORT

The practitioner must record all comments received from I&APs and respond to each comment before the Draft BAR is submitted. The comments and responses must be captured in a comments and response report as prescribed in the EIA regulations and be attached to the Final BAR as Appendix E3.

5. AUTHORITY PARTICIPATION

Authorities and organs of state identified as key stakeholders:

Authority/Organ of State	Contact person (Title, Name and Surname)	Tel No	Fax No	e-mail	Postal address
Khâi-Ma Local Municipality Municipal Manager	Mr. Kgomodikae Leserwane	054 933 1000		munman@khaima.gov.za	PO Box 108, Pofadder, 8890
Namakwa District Municipality	Mr. Rodrigo Losper	027 712 8000/ 073 554 3068	027 712 8040	rodrigo@namakwa-dm.gov.za	Private Bag X20, Riebeeck Street, Springbok, 8240
Northern Cape Department of Agriculture, Environmental Affairs, Rural Development and Land Reform	Ms Gail Letimela	053 807 7430	053 831 3530	gletimela@ncpg.gov.za/ gaildenc@gmail.com	Private Bag X6102, Kimberley, 8300
Department of Water and Sanitation (DWS)	Ms. Sebola Azwindini Patricia	054 338 5816	054 334 0205	sebolaA@DWS.gov.za	Lyvenhouts Drift Settlement, Louisvale Road, Private Bag X5912, Upington, 8800
South African Heritage Resources Agency (SAHRA)	Ms Nokusho Ngobeni	021 462 4502	021 462 4509	nngobeni@sahra.org.za	111 Harrington Street Cape Town, 8001.

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Ngwao Boswa Kapa Bokone	Mr. Andrew Timothy	053 831 2537/ 079 036 9695	053 833 1435	rtimothy@nbkb.org.za	1 Monridge Office Park, c/o Kekewich Drive & Memorial Road, Kimberley, 8301
khâi-Ma Local Municipality- local councillor ward 01	Cllr. Bernard Bock	076 506 7823		johnnybock@48@gmail.com	PO Box 108, Pofadder, 8890

Include proof that the Authorities and Organs of State received written notification of the proposed activities as appendix E4.

In the case of renewable energy projects, Eskom and the SKA Project Office must be included in the list of Organs of State.

6. CONSULTATION WITH OTHER STAKEHOLDERS

Note that, for any activities (linear or other) where deviation from the public participation requirements may be appropriate, the person conducting the public participation process may deviate from the requirements of that sub-regulation to the extent and in the manner as may be agreed to by the competent authority.

Proof of any such agreement must be provided, where applicable. Application for any deviation from the regulations relating to the public participation process must be submitted prior to the commencement of the public participation process.

A list of registered I&APs must be included as appendix E5.

Copies of any correspondence and minutes of any meetings held must be included in Appendix E6.

SECTION D: IMPACT ASSESSMENT

The assessment of impacts must adhere to the minimum requirements in the EIA Regulations, 2014 and should take applicable official guidelines into account. The issues raised by interested and affected parties should also be addressed in the assessment of impacts.

1. IMPACTS THAT MAY RESULT FROM THE PLANNING AND DESIGN, CONSTRUCTION, OPERATIONAL, DECOMMISSIONING AND CLOSURE PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Provide a summary and anticipated significance of the potential direct, indirect and cumulative impacts that are likely to occur as a result of the planning and design phase, construction phase, operational phase, decommissioning and closure phase, including impacts relating to the choice of site/activity/technology alternatives as well as the mitigation measures that may eliminate or reduce the potential impacts listed. This impact assessment must be applied to all the identified alternatives to the activities identified in Section A (2) of this report.

Impact type	Phase	Status	Significance pre mitigation	Significance post mitigation
Aspect: Ecological impacts				
Habitat loss <i>Small areas of already disturbed and degraded vegetation will be cleared during construction to accommodate treatment ponds, access roads, sludge drying beds, and associated infrastructure. This will result in incremental habitat loss within a transformed municipal footprint, rather than the loss of intact natural habitat.</i>	Construction	Negative	Low	Very Low
	Operation	Negative	Very Low	Very Low
Loss of provincially protected flora <i>Construction activities, including vegetation clearance and earthworks, may result in the accidental damage or removal of individual provincially protected plant species occurring at low densities within the disturbed habitat,</i>	Construction	Negative	Very Low	Very Low
	Operation	Negative	Very Low	Very Low

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<i>particularly where such species are not immediately visible prior to construction.</i>				
Loss of floral SCC	Construction	Negative	Very Low	Very Low
<i>Although no confirmed floral SCC were recorded during the ecological assessment, soil disturbance and vegetation clearance during construction may pose a low-probability risk to any undetected or cryptic SCC that could occur within the study area, particularly in less disturbed peripheral zones.</i>	Operation	Negative	Very Low	Very Low
Loss of ESA area	Construction	Negative	Low	Very Low
<i>The site falls within an Ecosystem Service Area (ESA), but its ecological function is already degraded. The proposed upgrade will not significantly alter the current condition and may improve environmental management on site.</i>	Operation	Negative	Very Low	Very Low
Alien and Invasive Species	Construction	Negative	Medium	Very Low
<i>Construction activities may create conditions for the spread of alien and invasive species, particularly in disturbed areas. This risk is manageable through standard control measures.</i>	Operation	Negative	Low	Low
Aspect: Heritage impacts				
Disturbance of unknown subsurface archaeological or cultural heritage material	Construction	Negative	Negligible	Negligible
<i>Excavation for ponds and access roads may expose unknown heritage material.</i>	Operation	Negative	Negligible	Negligible
Aspect: Water resource impacts				
Encroachment into ephemeral drainage lines	Construction	Negative	Low	Low
<i>The proposed WWTW footprint will marginally encroach into small portions of two drainage lines around the site, potentially modifying their natural flow paths.</i>	Operation	Negative	Low	Low

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Increased erosion and sedimentation of drainage lines. <i>Vegetation clearing and soil disturbance during construction may increase erosion and result in deposition of sediment within nearby drainage lines.</i>	Construction	Negative	Low	Low
	Operation	Negative	Low	Low
Risk of effluent discharge into drainage lines <i>Failure of the WWTW system or exceeding operational capacity may result in sewage overflow entering surrounding drainage lines.</i>	Construction	Negative	Low	Low
	Operation	Negative	Low-Medium	Low
Groundwater contamination from WWTW seepage	Construction	Negative	Low	Low
	Operation	Negative	Medium	Low
Alteration of drainage line hydrology due to irrigation runoff <i>Irrigation of the proposed agricultural area may generate runoff that could modify the moisture and flow regime of adjacent drainage lines.</i>	Construction	Negative	Negligible	Negligible
	Operation	Negative	Low	Low
Aspect: Aesthetics				
Temporary visual disturbance from construction activities <i>Construction machinery and earthworks will alter the visual environment temporarily.</i>	Construction	Negative	Low-Medium	Low
	Operation	Negative	Low	Low
Aspect: Air quality and noise				
Dust generation from earthworks and vehicle movement <i>Dust will arise from excavation, stockpiles, and vehicle traffic.</i>	Construction	Negative	Low-Medium	Low
	Operation	Negative	Low	Low
Noise from construction machinery and activities <i>Excavators, trucks, and compactors create short-term noise.</i>	Construction	Negative	Low	Low
	Operation	Negative	Low	Low
Odour emissions from wastewater treatment processes <i>Odours may be generated from wastewater treatment activities, particularly from oxidation ponds, sludge</i>	Construction	Negative	Low	Low
	Operation	Negative	Low-Medium	Low

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<i>handling and the decomposition of organic matter during treatment processes.</i>				
Aspect: Socio-economic impacts				
Short-term job creation and local procurement <i>Employment and procurement opportunities for local labour and businesses.</i>	Construction	Positive	Low-Medium	Low-Medium
	Operation	Positive	Low	Low
Public health and sanitation improvement <i>Upgraded system improves effluent quality and community health outcomes.</i>	Construction	Positive	Low-Medium	Low-Medium
	Operation	Positive	Medium-High	Medium-High
Long-term municipal service reliability <i>Improved regulatory compliance, reduced environmental liability, and strengthened municipal infrastructure capacity</i>	Construction	Positive	Low-Medium	Low-Medium
	Operation	Positive	Medium-High	Medium-High
Skills transfer and local capacity building <i>Training and operational capacity development for municipal staff and plant operators</i>	Construction	Positive	Low-Medium	Low-Medium
	Operation	Positive	Medium	Medium
Aspect: Decommissioning and closure				
Construction waste generation <i>General building waste and rubble will be produced during decommissioning.</i>	Decommissioning	Negative	Medium	Low

A complete impact assessment in terms of Regulation 19(3) of GN 733 must be included as Appendix F.

2. ENVIRONMENTAL IMPACT STATEMENT

Taking the assessment of potential impacts into account, please provide an environmental impact statement that summarises the impact that the proposed activity 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.

Alternative A (preferred alternative)

The proposed upgrade of the Sending WWTW will replace the existing unlined and non-compliant oxidation pond with a formalised, lined pond system designed to improve wastewater treatment, contain effluent, and reduce environmental risks. The site is already highly transformed due to the existing ponds and adjacent municipal landfill, and the remaining vegetation within the footprint is degraded. Although the broader area falls within an Ecosystem Service Area (ESA) and a FEPA catchment, the actual development footprint has low ecological integrity. As a result, residual ecological impacts after mitigation are expected to be low in significance.

Construction-phase impacts, such as soil disturbance, dust, vehicle movement, noise, and localised habitat loss, will be short-term and manageable through standard mitigation measures. These include limiting disturbance to the existing footprint, applying dust suppression, implementing erosion control, and rehabilitating temporarily disturbed areas. The likelihood of these impacts occurring is high during construction, but their duration is temporary and the significance is low after mitigation.

Portions of the proposed infrastructure fall within 100m of an ephemeral drainage line, and associated impacts relate mainly to the risk of sedimentation, stormwater contamination, or accidental overflow. These impacts are unlikely to occur following implementation of HDPE lining, stormwater diversion, controlled discharge structures, and operational monitoring. The upgrade will substantially reduce the current seepage and leakage risks, resulting in a net improvement to groundwater and surface-water protection.

Heritage, air-quality, noise, and visual impacts are expected to be low. No heritage resources are known within the footprint, and any unexpected finds can be effectively managed through a Chance Find Procedure. Dust, emissions, and noise during construction will be temporary and will reduce to very low levels during operation. Visual change will be minimal because the site already accommodates wastewater infrastructure.

During operation, the upgraded facility is expected to produce a long-term positive impact by improving effluent containment, reducing odour, protecting groundwater and drainage features, and ensuring compliance with water-quality requirements. The likelihood of operational impacts is low when mitigation and monitoring measures are implemented, while the positive outcomes (public health protection, improved sanitation services, and reduced contamination) are highly likely and long-term in duration.

Overall, the preferred alternative results in low residual environmental impacts and provides substantial environmental and socio-economic benefits within an already disturbed setting.

Alternative B**Alternative C****No-go alternative (compulsory)**

Under the no-go alternative, no upgrading of the existing WWTW would occur. While this avoids short-term construction-related disturbances, it would allow the current environmental risks associated with the unlined oxidation pond to continue. These include seepage to soils and groundwater, uncontrolled discharge to nearby drainage features, odour, and ongoing non-compliance with water-quality requirements.

The duration of these impacts would be long-term and the likelihood of continued contamination would remain high. Public-health risks linked to inadequate sanitation services would persist, and the municipality would not achieve the required improvement in service delivery. The no-go alternative would also forfeit socio-economic benefits such as temporary employment, local procurement, and infrastructure investment.

In balance, the no-go alternative is environmentally and socially unsustainable compared to the upgrade, and results in greater long-term negative impacts.

SECTION E. RECOMMENDATION OF 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)?

YES ✓	NO
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If "NO", indicate the aspects that should be assessed further as part of a Scoping and EIA process 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 opinion of the Environmental Assessment Practitioner (EAP), the Basic Assessment Report (BAR) contains sufficient information for the Competent Authority to reach an informed decision regarding the proposed upgrade of the Sending Wastewater Treatment Works.

The assessment indicates that the anticipated impacts can be effectively mitigated, and that the project will result in a low level of residual environmental risk together with improved sanitation services, public health benefits, and protection of water resources.

Should the Competent Authority grant Environmental Authorisation, the following conditions are recommended for inclusion to ensure that impacts remain within acceptable limits:

-  All mitigation and management measures contained in the BAR and EMPr must be implemented for the duration of the construction and operational phases.
-  A qualified Environmental Control Officer (ECO) must be appointed prior to construction to monitor compliance and provide reporting as required.
-  Construction activities must remain strictly within the approved development footprint, and no disturbance may occur outside the demarcated boundary.
-  Vegetation clearance must be limited to the areas required for construction, and no removal of indigenous vegetation outside the footprint may occur.
-  Appropriate dust, noise and stormwater management measures must be applied throughout construction.
-  Erosion control measures must be installed wherever earthworks could generate sediment runoff.
-  All wastewater ponds must be lined with an impermeable material to prevent seepage and protect groundwater.
-  Effluent monitoring must be undertaken in accordance with applicable water-use requirements, and records kept for audit purposes.
-  Waste must be managed in accordance with relevant legislation, with disposal only at licensed facilities.
-  A Chance Find Procedure must be implemented if any archaeological or palaeontological material is uncovered.
-  All disturbed areas must be rehabilitated following completion of construction.

These conditions will ensure that the proposed activity is undertaken in an environmentally responsible manner consistent with the objectives of NEMA and the EIA Regulations.

Is an EMPr attached?

YES ✓	NO
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The EMPr must be attached as Appendix G.

The details of the EAP who compiled the BAR and the expertise of the EAP to perform the Basic Assessment process must be included as Appendix H.

BASIC ASSESSMENT REPORT

If any specialist reports were used during the compilation of this BAR, please attach the declaration of interest for each specialist in Appendix I.

Any other information relevant to this application and not previously included must be attached in Appendix J.

CW Vermeulen
NAME OF EAP



SIGNATURE OF EAP

30 April 2026

DATE

SECTION F: APPENDIXES

The following appendixes must be attached:

Appendix A: Maps

Appendix B: Photographs

Appendix C: Facility illustration(s)

Appendix D: Specialist reports (including terms of reference)

Appendix E: Public Participation

Appendix F: Impact Assessment

Appendix G: Environmental Management Programme (EMPr)

Appendix H: Details of EAP and expertise

Appendix I: Specialist's declaration of interest

Appendix J: Additional Information