EARTHWORTH
ENVIRONMENTAL CONSULTANTS

THE PROPOSED EXPANSION AND UPGRADING OF THE OXIDATION POND SYSTEM AT THE CARNARVON WWTW

EMPr

Project Summary

The proposed project entails the upgrading and expansion of the existing Carnarvon oxidation pond system as well as associated infrastructure.

Applicant Information

Kareeberg Local Municipality

Reference Information

EW Ref: 013CarOXI
NC DENC: NC/BA/18/PIX/KAR/CAR1/2025
NEAS: TBC
Date: June 2025

Contact Details
082 412 5592
hanlie@earthworth.africa
www.earthworth.africa

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1. INTRODUCTION

The existing pond system at the Carnarvon WWTW are currently overflowing during winter months. The Kareeberg Local Municipality intends to eventually provide all the erven in Carnarvon with a waterborne gravitational sanitation system in place of the existing conservancy tanks being used throughout older developed areas. The municipality are also in process of submitting business plans for the development of 300 erven in Carnarvon to address the housing shortfall. All of these mentioned factors will require the capacity of the existing WWTW to be increased. The proposed project entails the upgrading and expansion of the existing Carnarvon oxidation pond system.

This EMPr should form an integral part of the contract documents which will inform the Contractor/s of their duties in the fulfilment of the project objectives, with particular reference to the prevention and mitigation of environmental impacts caused by the proposed activities associated with the project as stipulated in the EMPr. The Contractor/s should note that conditions imposed by the EMPr are legally binding in terms of environmental legislation and that administrative and punitive actions can be taken against them should the conditions of the EMPr not be complied with. Furthermore, the EMPr is enforceable through additional conditions to the general conditions of contract that pertain to this project.

It is expected that the Contractor/s are conversant with all legislation pertaining to the environment, including provincial and local government ordinances, which may be applicable to the contract.

The EMPr is a dynamic document that will be periodically reviewed and updated if needed. As part of on-going implementation, this EMPr has also been publicly disclosed during the Public Participation Process of the Basic Assessment process for this project. An opportunity has been provided to participating stakeholders to comment on it.

2. PROJECT DESCRIPTION

The Carnarvon Wastewater Treatment Works utilises an oxidation pond system for the treatment of raw wastewater emanating from the population of Carnarvon. The number of households in Carnarvon is currently estimated to be 1,552 of which approximately 889 households are serviced by waterborne sewage. The balance uses septic and conservancy tanks. The conservancy tank contents are also being discharged at the Carnarvon Wastewater Treatment Works.

The existing Carnarvon WWTW comprises of a five-stage pond system in total with a calculated design capacity of 440 m^3/day. Final treated effluent overflow to an irrigation pond with a surface area of 4 333 m^2 from where chlorination takes place before being pumped to the nearby sport facility for irrigation purpose.

The existing works are currently overflowing at an uncontrolled point within the retaining structure wall and without the necessary means of managing the effluent within the neighbouring properties, which is a clear indication that the hydraulic load i.e. the volume of water that is discharged to the WWTW, exceeds the allowable capacity of the current system.

The proposed project entails the upgrading and expansion of the existing Carnarvon oxidation pond system, based on expected population and flow, of which the details are listed below:

- A new Inlet works and provision of an additional anaerobic pond
- To ensure sufficient volume/retention is provided the primary-, secondary-, tertiary- and irrigation ponds' areas will be enlarged by combining some ponds as well as the construction of new ponds.
- Construct a new Chlorine Contact Channel with pump station for irrigation
- Construct new recirculation pump station with pumps
- Provision of new overflows and bypasses between the dams to incorporate the new infrastructure in the process train.
- The oxidation ponds will be lined using HDPE lining.
- The existing Head of Works at the treatment plant will be replaced with a similar unit, sized to accommodate the future flow.

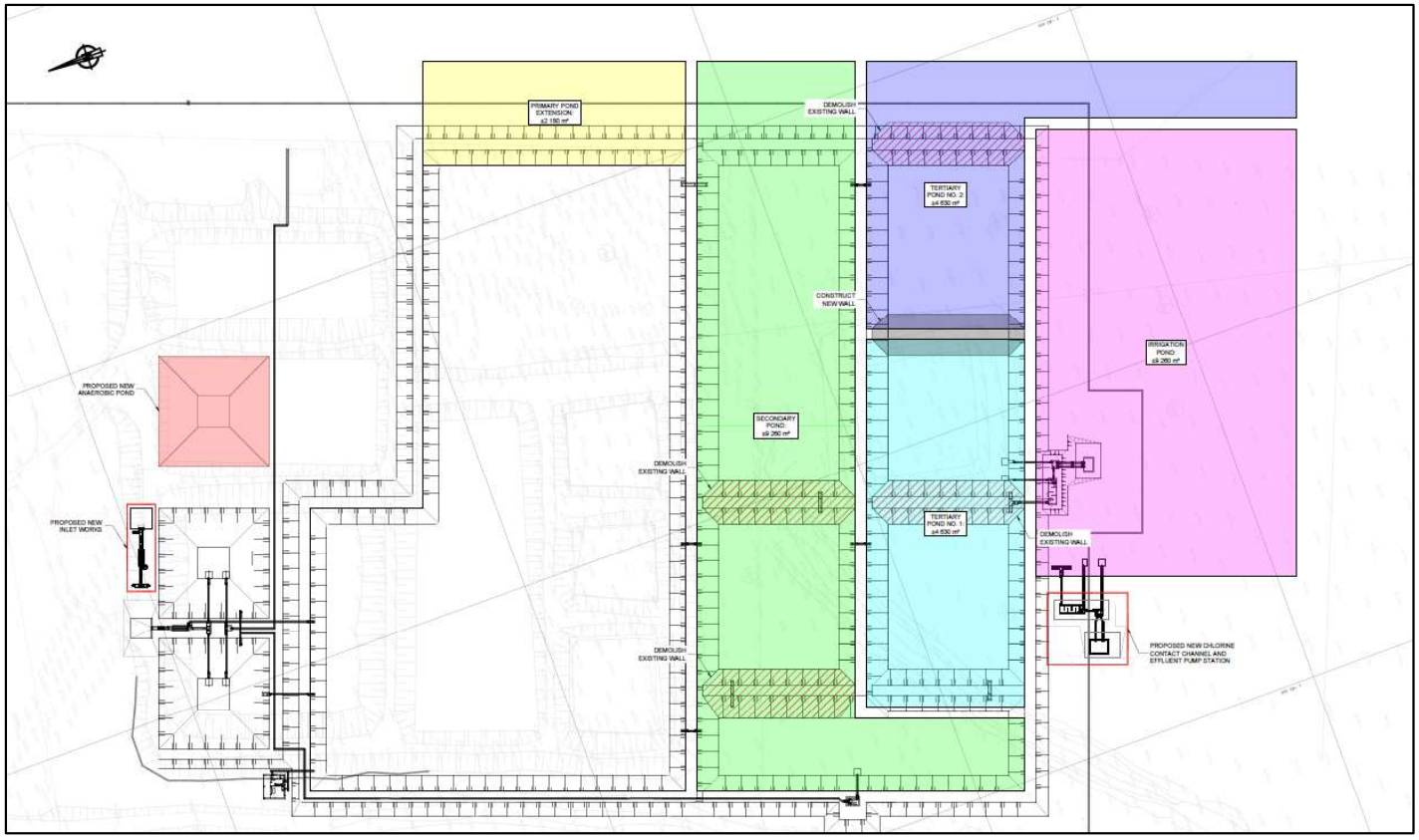

Figure 2-1: Indication of the proposed upgrading and expansion of the oxidation pond system at the Carnarvon WWTW

As part of the above-mentioned process, an Environmental Management Programme (EMPr) has been compiled as per requirements of GNR 326(23). The said document complies with the requirements of Appendix 4 of GNR 326. The purpose of the EMPr is to ensure that the potential social and environmental impacts, risks and liabilities identified during the Environmental Impact Assessment Process is effectively managed during the various phases associated with the proposed development. The Developer should commit to the recommended mitigation and management measures as described in the EMPr.

The main construction activities associated with the proposed project will include the following:
- Site Clearing and Preparation
- Civil Works and Trenching
- Construction of oxidation ponds and associated infrastructures
- Expansion of existing oxidation ponds and associated infrastructures
- Rehabilitation of disturbed area.

2.1. POTENTIAL RISKS TO THE RECEIVING ENVIRONMENT

The following potential risks to the receiving environment as a result of the proposed project have been identified:

a) Geology and Geohydrology

Potential groundwater contamination due to leakage of raw sewage. Potential groundwater seepage of leachate from leaks from the WWTW. Overflow from the WWTW due to stormwater ingress.

b) Surface Water Resources

The Carnarvonleegte is located in close proximity to the existing WWTW.

c) Fauna and Flora

According to Mucina & Rutherford (2006) and utilising current mapping resources (National Biodiversity Assessment 2018) the site falls within Northern Upper Karoo (NKu 3). This vegetation type contains a varied topography with undulating plains, ridges, hills and uneven, rocky terrain, incised by a high number of small watercourses. This vegetation type is currently listed as being of Least Concern (LC) under the National List of Threatened Ecosystems (Notice 1477 of 2009) (National Environmental Management Biodiversity Act, 2004). The vegetation type is not under sufficient development pressures to be considered a threatened ecosystem. This will also decrease the conservation value of remaining natural vegetation.

The topography of the site consists of undulating plains, with a gently slope from northeast to southwest and towards the Carnarvonleegte. Several prominent hills and ridges are situated to the north and east and these also generate significant runoff which leads to the formation of several drainage lines within the lower lying plains. One of these drainage lines is also situated on the site and is also being affected by the WWTW. These drainage lines incised into the landscape also contribute toward the diversity of topography and habitats. The topography of the existing WWTW is heavily modified as a result of the current oxidation ponds while the adjacent surroundings are still largely natural though two artificial impoundments situated immediately downstream of the site do contribute toward some modification of the natural surface topography and drainage patterns. Two artificial wetlands formed at the two artificial impoundments.

d) Agricultural

The area in which the proposed construction activities will be undertaken, as very low to no agricultural potential due to the existing activities undertaken at the said areas

e) Heritage

A Phase 1 Heritage Impact Assessment was carried out for the proposed upgrading of the existing oxidation pond system utilized by the local Wastewater Treatment Works for the treatment of raw sewage in Carnarvon, Northern Cape Province. The site is located south of the R384 provincial road on the Remainder of Erf 353 and covers ~ 10 ha of partially to severely degraded terrain that also includes the Carnarvon Waste Water

Treatment Works. The site is located on low relief terrain and the relatively undisturbed area to the south is capped by a veneer of superficial sediments made up of sands, silty soils and down-weathered sedimentary parent material, primarily associated with several ephemeral watercourses draining into the Carnarvonleegte located to the south. The pedestrian survey revealed no indication of fossils, or in situ Stone Age archaeological material, capped or distributed as surface scatters on the landscape. There are also no indications of rock engravings, prehistoric structures, graves or buildings with historical significance older than 60 years situated within the boundaries of the development footprint. The superficial sediments are considered low to very low in terms of palaeontological sensitivity and do not require further specialist palaeontological evaluation, but a Chance Find Protocol is attached in case of earthmoving activities that may expose trace and plant fossil- yielding, Ecca Group mudstones. Impact on potential in situ archaeological remains, engraving localities or historically significant structures within the study area is considered unlikely and the site is assigned a site rating of Generally Protected C (Low Significance).

f) Air Pollution

During the construction phase, the clearing activities as well as the movement of vehicles could result in the formation of dust and noise. This can be mitigated to an acceptable level. It is not anticipated that dust will be produced during the operational phase.

g) Traffic

An insignificant increase in traffic will be applicable to the construction phase as construction vehicles will visit the site on a regular basis. In addition, private and / or public vehicles may transport employees to the construction sites during the said period.

h) Soil

Erosion and loss of topsoil may be applicable to the proposed development. It should be noted that the proposed project entails the upgrading and expansion of the existing WWTW. The sites adjacent to the proposed development areas were already transformed due to previous construction activities. Topsoil removed from the development footprint during the construction phase must be stockpiled and used for rehabilitation purposes.

i) Waste

Construction waste should be collected and stored in clearly marked, enclosed containers, within a suitable designated area within the camp site. Waste should be disposed of on a regular basis, to the nearest registered landfill site. Hazardous waste should be disposed of at a suitable registered landfill site for the specific hazardous

materials. If the indicated mitigation measures included in the EMPr are implemented, the risk of pollution of the surrounding environment is low.

j) Stormwater

Flooding and overflow at the oxidation ponds is regarded as low, if all stormwater mitigation measures are implemented. Stormwater mitigation measures will be implemented at the WWTW. Maintenance of all stormwater structures should be conducted on a regular basis, during the construction and operational phase.

2.2. Environmental Sensitivities

The most significant environmental sensitivities associated with the proposed construction activities are:

- Potential groundwater contamination due to leakage of raw sewage
- Potential surface water contamination due to leakage of raw sewage
- Overflow of raw sewage at the WWTW due to insufficient capacity / faulty equipment
- Erosion

Refer to Figure 2-2 to Figure 2-4 for more information on the locality of the proposed project.

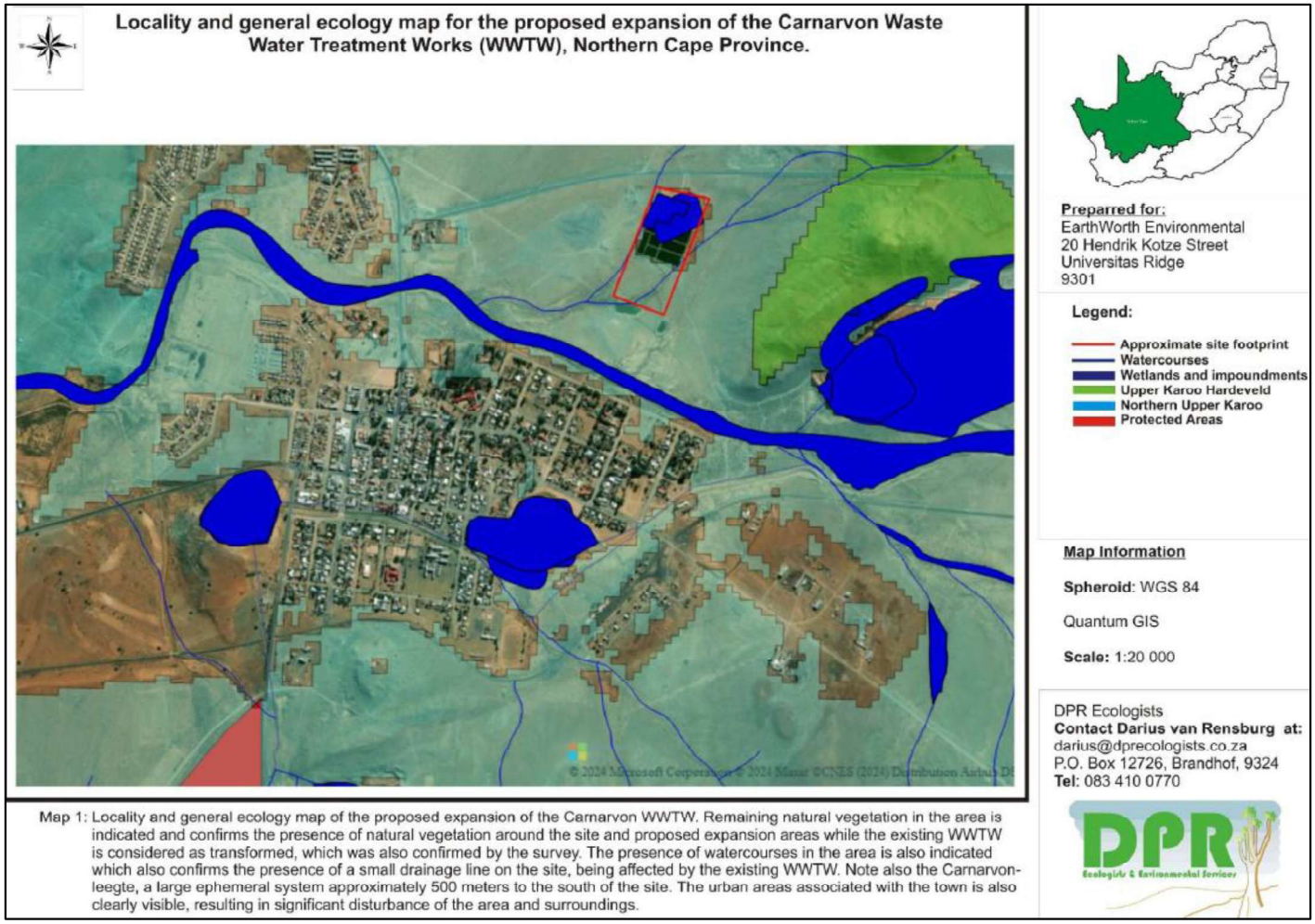

Figure 2-2: Locality and general ecology map of the proposed upgrading and expansion of the Carnarvon WWTW

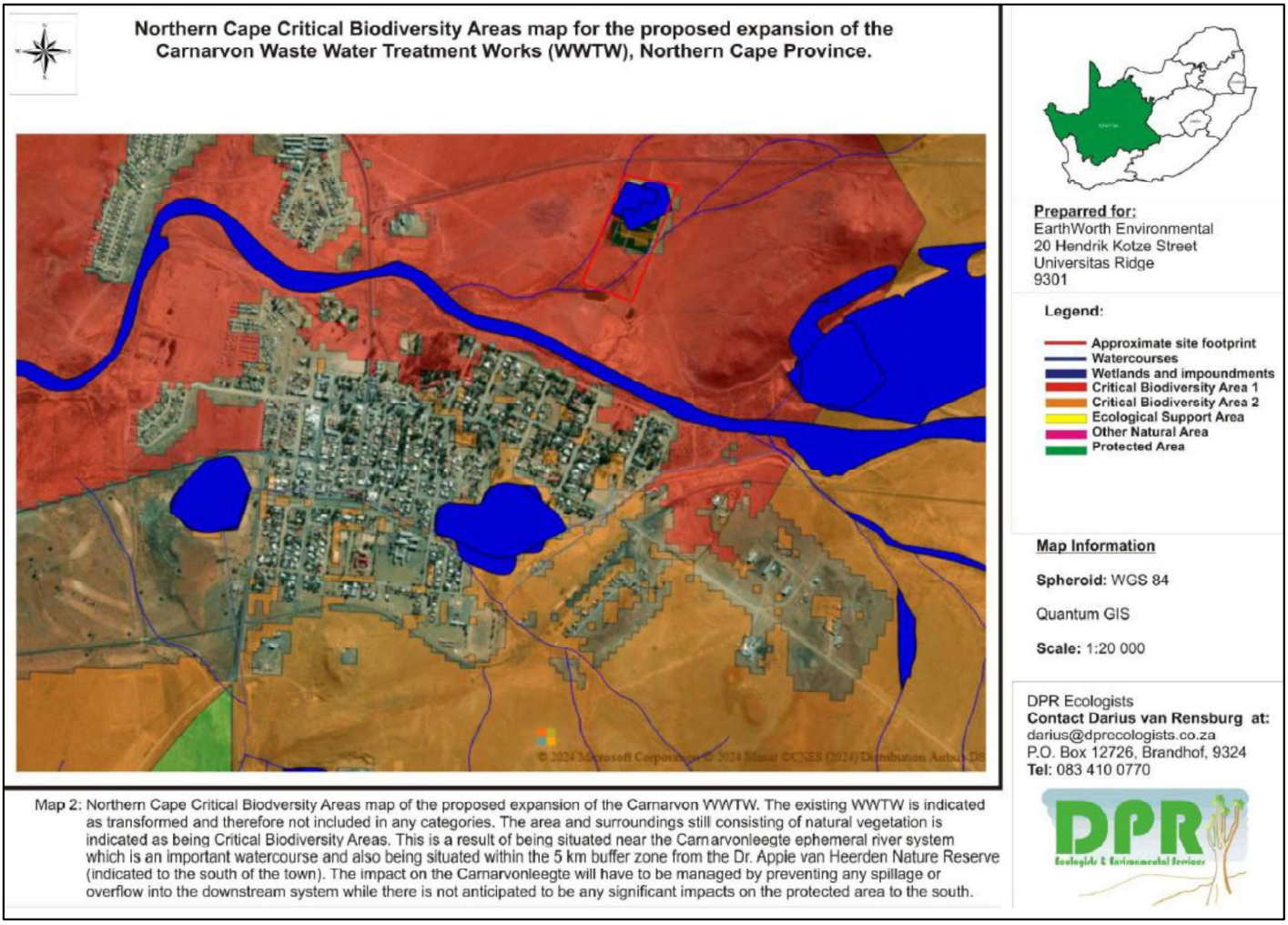

Figure 2-3: Northern Cape Critical Biodiversity Areas map associated with the proposed upgrading and expansion of the oxidation pond system at the Carnarvon WWTW

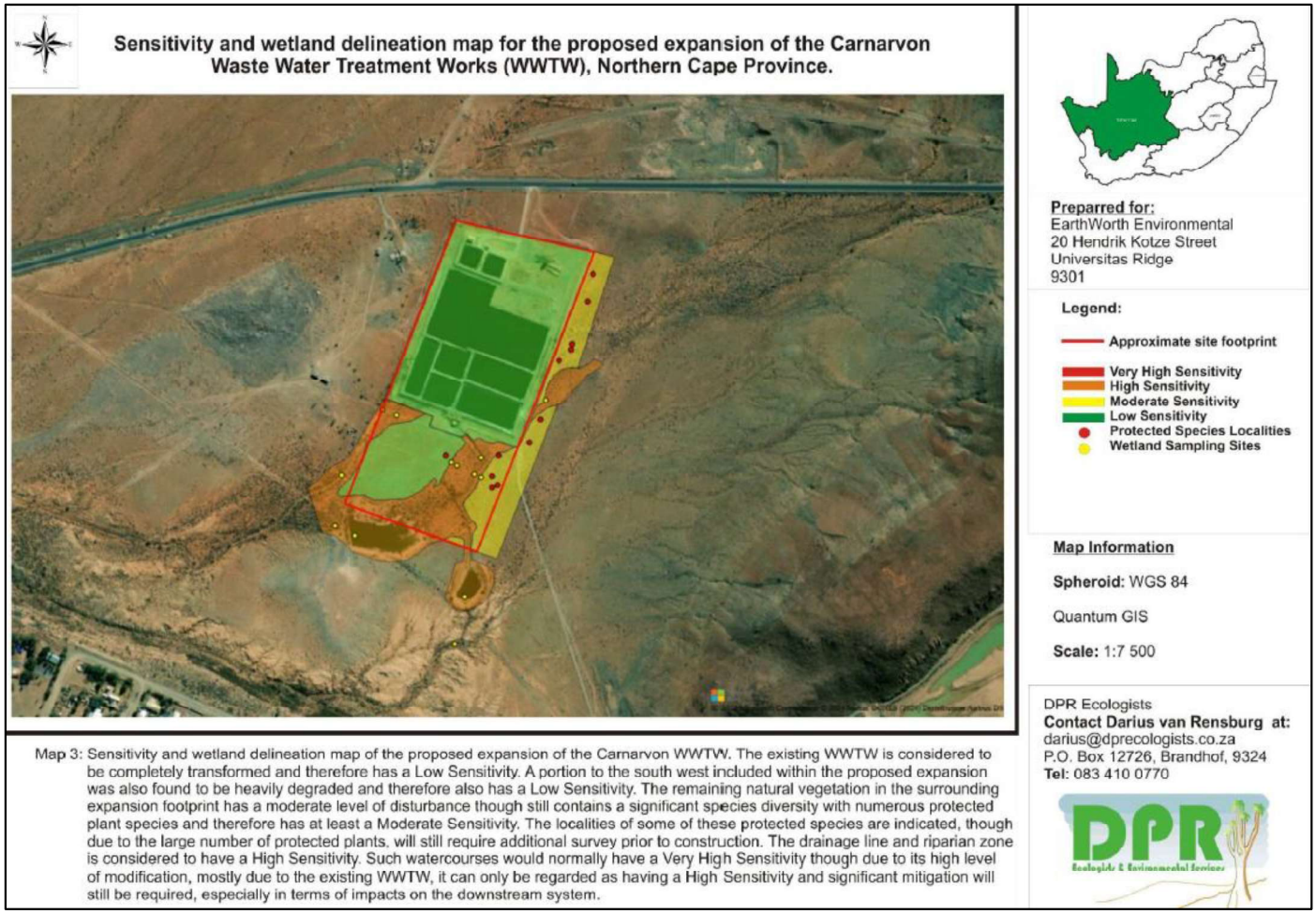

Figure 2-4: Sensitivity and wetland delineation map associated with the proposed upgrading and expansion of the oxidation pond system at the existing Carnarvon WWTW

3. OBJECTIVES OF THE EMPR

The EMPr aims to fulfil the requirements in terms of the National Environmental Management Act (Act 107 of 1998), with the following objectives:

- To identify, predict and evaluate actual and potential impacts on the environment, socio-economic conditions and cultural heritage, the risks and consequences and alternatives and options for mitigation of activities, with a view to minimizing negative impacts, maximizing benefits, and promoting compliance with the principles of environmental management.
- To identify and employ the modes of environmental management best suited to ensuring that the activity is pursued in accordance with best environmental management practices.
- To be able to respond to unforeseen events and
- To provide feedback on compliance.

All mitigation measures recommended by the applicable specialists are included in the EMPr. The EMPr contain mitigation measures for the pre-construction (planning) phase, construction phase, operational phase as well as the rehabilitation (decommissioning) phase.

4. IMPLEMENTATION OF THE EMPR AND ROLES AND RESPONSIBILITIES

The successful implementation of the conditions of the EMPr and EA is dependent on the adequate distribution of the requirements of the said conditions to all stakeholder associated with the proposed development. An Environmental Awareness Plan must be commissioned by the Developer prior to commencement of pre-construction activities, to familiarise all the members of the Project Management Team and their respective employees with the conditions of the EMPr and EA.

In addition, appropriate monitoring and review should be undertaken to ensure the effective functioning of the EMPr and to identify and implement corrective measures in a timely manner. Thus, an audit of the environmental monitoring and management actions is essential to ensure its effectiveness. Audits should be undertaken at least:
- Once, prior to the commencement of the construction phase
- Monthly during the construction phase
- Once, post-construction

4.1. ROLES AND RESPONSIBILITIES

Table 4-1 provides more details on the roles and responsibilities of various individuals that will be working on the proposed project.

Table 4-1: Roles and Responsibilities of individuals working on the project

ROLES AND RESPONSIBILITIES OF INDIVIDUALS WORKING ON THE PROPOSED PROJECT	
DEVELOPER (D) / PROPONENT (P)	The Developer is responsible for the implementation of the EMPr. All contractors should be supplied with a copy of the EMPr and should ensure that construction staff adheres to the mitigation measures. - The Developer will appoint Principal Contractor/s for each logical project phase in writing to assume the role of Principal Contractor/s as intended by the Construction Regulations and as determined by the Bills of Quantities; - The Developer or its appointed Agent shall discuss and negotiate with the Principal Contractor/s the contents of the Health and Safety Plan of both the Principal Contractor/s and Sub-Contractor/s for approval; - The Developer or its appointed Agent will take reasonable steps to ensure that the Health and Safety Plan of both the Principal Contractor/s and Sub-Contractor/s is implemented and maintained. The steps taken will include periodic audits at intervals of at least once every month during the construction phase; - The Developer or its appointed Agent will prevent the Principal Contractor/s and/or the Sub-Contractor/s from commencing or continuing with construction work should the Principal Contractor/s and/or the Sub-Contractor/s at any stage in the execution of the works be found to: o have failed to comply with any of the administrative measures required by the Construction Regulations in preparation for the construction project or any physical preparations necessary; o have failed to implement or maintain their Health and Safety Plan; o have executed construction work, which is not in accordance with their Health and Safety Plan. - Act in any way which may pose a threat to the Health and Safety of any person(s) present on the site of the works or in its vicinity, irrespective of him/them being employed or legitimately on the site of the works or in its vicinity; and - The Developer or its appointed Agent will ensure compliance of all contractors and sub-contractors with the conditions set in the approved EMPr and EA. - The Developer needs to give 14 (fourteen) days written notice to inform the Competent Authority that the activity will commence. The notification must include a date when the activity will commence as well as the reference number.

CONTRACTOR (C)	**The Principal Contractor/s appointed for the construction of the different phases of the development will be responsible for the following:** - Ensure that he/she is fully conversant with the requirements of the specifications of this EMPr and all relevant Health and Safety legislation. This EMPr is not intended to supersede the Occupational Health and Safety Act (Act 85 of 1993) (the Act) nor the Construction Regulations or any part of either. Those sections of the Act and the Construction Regulations which apply to the scope of work to be performed by the Principal Contractor/s in terms of this contract (entirely or in part) will continue to be legally required of the Principal Contractor/s to comply with. The Principal Contractor/s will in no manner or means be absolved from the responsibility to comply with all applicable sections of the Act, the Construction Regulations or any Regulations proclaimed under the Act or which may perceivable be applicable to this contract; - Provide and demonstrate to the Developer a suitable and sufficiently documented Health and Safety Plan based on this EMPr, the Act and the Construction Regulations, which shall be applied from the date of commencement of and for the duration of execution of the works. This plan shall, as appendices, include the Health and Safety Plans of all sub-contractors for which he/she has to take responsibility in terms of this contract; - Provide proof of his/her registration and good standing with the Compensation Fund or with a licensed compensation insurer prior to commencement with the works; - In submitting his/her tender, the Principal Contractor/s will demonstrate that he/she has made provision for the cost of compliance with the specified occupational health and safety requirements, the Act and Construction Regulations (Note: This shall have to be contained in the conditions of tender upon which a renderer's offer is based); - Consistently demonstrate his/her competence and the adequacy of his/her resources to perform the duties imposed on the Principal Contractor/s in terms of this Specification, the Act and the Construction Regulations; - Ensure that a copy of his/her Health and Safety Plan is available on site and is presented upon request to the Client, an Inspector, Employee or Sub-contractors; - Ensure that a Health and Safety file, which shall include all documentation required in terms of the provisions of this EMPr, the Act and the Construction Regulations, is opened and kept on site and made available to the Client or Inspector upon request. Upon completion of the works, the Principal Contractor/s shall hand over a consolidated Health and Safety file to the Developer; - Throughout execution of the contract, the Principal Contractor/s will ensure that all conditions imposed on his sub-contractors in terms of the Act and the Construction Regulations are complied with as if they were the Principal Contractor/s; - From time to time the Principal Contractors shall evaluate the relevance of the Health and Safety Plan and revise the same as required, following which a revised plan shall be submitted to the Developer and/or his/her Agent for approval; - In terms of Construction Regulation 5(7), keep a Health and Safety file on site at all times that must include all documentation required in terms of the Act and Regulations and must also include a list of all Contractors and sub-contractors on site that are accountable to the Principal Contractor/s and the agreements between the parties and details of work being done; - Comply with the EMPr and EA commitments and any other legislative requirements as applicable to their workings; - Adhere to any instructions issued by the relevant Local Municipality's Environmental Manager and/or the Developer and/or his/her Agent and/or the ECO / SHE Representative;

ROLES AND RESPONSIBILITIES OF INDIVIDUALS WORKING ON THE PROPOSED PROJECT	
	- Submit an environmental report on any environmental incidents that have occurred within 48 hours of the incident occurring; and - Arrange that all employees and those of the sub-contractors receive appropriate training prior to the commencement of construction, taking cognisance of this EMPr and EA. These functions will be performed by the Construction Supervisor of each Principal Contractor/s. **Sub-contractors are responsible for:** - Ensuring compliance of their workforce with the requirements of the conditions as set out in the EA and EMPr, and any other legislative requirements as applicable to their workings; and - Reporting any health, safety and environmental incidents to the construction supervisor within 24 hours of the incident.
CONSTRUCTION SUPERVISOR / PROJECT MANAGER (PM)	The Construction Supervisor will be responsible for: - Ensuring compliance with the EMPr and EA commitments and any other legislative requirements as applicable to their workings; - Adhering to any instructions issued by the relevant Local Municipality's Environmental Manager and/or the Developer and/or his/her Agent and/or the ECO / SHE Representative; and - Ensuring that all employees receive adequate training in the requirements of the conditions as set out in the EA and EMPr.
OPERATIONAL SUPERVISOR / OPERATIONAL MANAGER	The Operation Supervisor will be responsible for the following, during the Operational Phase: - Ensuring compliance with the EMPr and EA commitments and any other legislative requirements as applicable to their workings; - Adhering to any instructions issued by the relevant Local Municipality's Environmental Manager and/or the Developer and/or his/her Agent and/or the ECO / SHE Representative; and - Ensuring that all employees receive adequate training in the requirements of the conditions as set out in the EA and EMPr
SAFETY, HEALTH AND ENVIRONMENTAL REPRESENTATIVE (SHE) / (HSO)HEALTH AND SAFETY OFFICER (HSO)	The SHE Representative will be responsible for: - Reporting to the Developer and/or it's Agent; - Familiarising him / herself with the project and EMPr, and ensuring compliance with the relevant legislation applicable to the project and the relevant Local Municipality's Health, Safety and Environment Policy as well as the Health and Safety Specifications and procedures; - Authorising the removal of personnel and / or equipment should they contravene the requirements of any applicable Health and Safety legislation and policies; - Advising the Developer on environmental issues and recommendations for the proposed development; - Arranging for liaison with interested and affected parties (I&APs) on environmental issues of concern, should the need arise; - Ensuring that all environmental and health and safety conditions are undertaken by all staff and contractors on site; and - Ensuring that corrective actions are followed up and closed out in accordance with the conditions set out in the EMPr.

ROLES AND RESPONSIBILITIES OF INDIVIDUALS WORKING ON THE PROPOSED PROJECT	
ENVIORNMENTAL CONTROL OFFICER (ECO)	An independent ECO is to be appointed prior to the commencement of any authorized activities. Once appointed, the name of the ECO must be submitted to the Director: Compliance Monitoring at the relevant Competent Authority. This is the responsibility of the developer/owner. The ECO will be responsible for the following: - Reporting directly to the Developer and/or its Agent; - Familiarising him / herself with the project and EMPr, and ensuring compliance with the relevant legislation applicable to the project as well as the Health and Safety Specifications and procedures; - Communicating the contents and conditions of the EMPr and EA to the Principal Contractor/s and sub-contractor's employees. Training will be required to ensure all staff members are aware of the requirements of the EMPr; - Monitoring the implementation of the conditions of the EMPr and EA throughout the project by means of site inspections and meetings; - Recommending amendments to the EMPr; - Undertaking regular monthly site inspections to assess compliance with the conditions of the EMPr and EA and take appropriate action to rectify non–conformances, during the construction phase; - Liaising with environmental statutory bodies, including but not limited to relevant Local Municipality's Environmental Manager, and the Competent Authority, where deemed necessary; - Compiling monthly progress reports during the construction phase for submission to the Developer and/or his Agent and Competent Authority; - Advising the Developer on environmental issues and recommendations for the proposed development; - Arranging for liaison with I&APs on environmental issues of concern, should the need arise; - Recording all environmental concerns raised by I&APs; - Ensuring that all environmental and health and safety conditions are undertaken by all staff and contractors on site; and - Ensuring that corrective actions are promptly followed up and closed out. - The ECO should immediately, in writing, report any breach of the EMPr to the PM. The PM should then discuss the matter with the contractor and ensure that the problem is rectified asap. Should this require additional cost, then the developer should be notified immediately before any additional steps are taken.
COMMUNITY LIAISON OFFICER	The "CLO" refers to an independent Community Liaison Officer who is a member of a local community. The role of the CLO will include: - Facilitation of community relations for the duration of the construction phase. - Providing recommendations for, and facilitation the notification or information dissemination methods for issues such as any planned service disruptions or nuisance disturbances. - Liaise with the complainants to address any issues.

ROLES AND RESPONSIBILITIES OF INDIVIDUALS WORKING ON THE PROPOSED PROJECT	
ENVIRONMENTAL LIAISON OFFICER/ ENVIRONMENTAL SITE OFFICER (ESO)	The 'ELO / ESO' refers to the nominated staff member of the Contractor who will fulfil the role of the Contractor's environmental representative to monitor, review and verify compliance with the EMPr. The ELO shall liaise closely with the Contract Manager and the ECO and shall ensure that the works on site are conducted in an environmentally responsible manner and in compliance with the requirements of the EMPr. The role of the ELO will include: - Liaison between the Contractor and ECO on matters relating to the environmental considerations on site. - Assisting with the compilation of environmental components of Method Statements on behalf of the Contractor. - Undertaking daily environmental compliance inspections of the various work areas. - Providing a regular and routine account on environmental matters for the ECO, including any environmental incidents, events or accidents, and reporting on any entries in the Environmental Incident Report File or Complaints Register. This account may take the form of a written report or checklist or similar, or meeting with the ECO. - Ensuring that any environmental monitoring requirements are being fulfilled and including results in the weekly submissions. - Responding to and reporting on environmental accidents, incidents, and events immediately, and overseeing all works requiring remediation are undertaken in accordance with the ECO or Contract Manager's instructions.
AUTHORITY (A)	The authorities are the relevant environmental department that has issued the Environmental Authorisation. The authorities are responsible for ensuring that the monitoring of the EMPr and other authorization documentation is carried out by means of reviewing audit reports submitted by the ECO and conducting regular site visits.
OTHER AUTHORITIES (OA)	Other authorities are those that may be involved in the approval process of the EMPr or related applications such as a Water Use License Application submitted to the Department of Water and Sanitation.

4.2. REPORTING OF EMPR NON-COMPLIANCES

The ECO should immediately report any breach of the EMPr to the Project Manager in writing. The Project Manager should then be responsible for rectifying the problem on-site after discussion with the contractor. Should this require additional cost, then the EA/Licence holder should be notified immediately before any additional steps are taken. The Environmental Control Officer shall report to the EA/Licence holder regarding EMPr compliance during monthly site meetings.

4.3. REPORTING OF ENVIRONMENTAL POLLUTION INCIDENTS

All environmental pollution incidents occurring on site must be reported by the ESO to the ECO immediately, in order for the ECO to inform the competent authority, as stipulated in the EA.

"pollution means any change inthe environment caused by

(i) substances;

(ii) radioactive or other waves; or
(iii) noise, odours, dust or heat
emitted from any activity, including the storage or treatment of waste or substances, construction and the provision of services, whether engaged in by any person or an organ of state, where that change has an adverse effect on human health or well-being or on the composition, resilience and productivity of natural or managed ecosystems, or on materials useful to people or will have such an effect in the future".
Any pollution incidents should be immediately reported to the ECO (within 12 hours). The ECO shall report to the developer regularly (site meetings).

4.4. SITE INSTRUCTION ENTRIES

The site instruction book entries will be used for the recording of general site instructions as they relate to the works on site. There should be issuing of a *stop-work*order to immediately halt any activities of the contractor that may pose an environmental risk.

4.5. ESO DIARY ENTRIES

Each of these books must be available in duplicate, with copies for the engineer and environmental site officer. These books should be available to the authorities for inspection or on request. All spills are to be recorded in the environmental site officer's diary.

4.6. METHOD STATEMENTS

Methods statements from the contractor will be required for specific sensitive actions at the request of the authorities or ECO. All method statements will form part of the EMPr documentation and are subject to all terms and conditions contained within the EMPr document. Refer to Table 4-2 for an example of the information required for each instance where it is requested that the contractor submit a method statement to the satisfaction of ECO. The contractor and/or responsible party should submit the method statement before any particular construction and/or decommission activity is due to start. Work may not commence until the method statement has been approved by the ECO.

Table 4-2: Method Statement Information

ASPECT	DESCRIPTION
What	A brief description of the work to be undertaken
Who	Who will be responsible for executing the work
Where	A description/sketch map of the locality of work;
How	A detailed description of the process of work, methods and materials to be used
When	The sequencing of actions with due commencement dates and completion date estimate

4.7. Record Keeping

All records related to the implementation of this management plan (e.g., site instruction book, ESO dairy, methods statements, etc.) must be kept together in an office where it is safe and can be retrieved easily. These records should be kept for two years at any time and should be readily available for scrutiny by any relevant authority.

5. APPLICABLE LEGISLATION

The developer / proponent should comply with all relevant legislation related to environmental protection. Refer to Table 5.1 for more information.

Table 5-1: Legislation to be complied with

NR	ACT	RELEVANCE
1	The National Water Act, 1998 (Act no. 36 of 1998)	Impeding and / or alterations of the beds / banks of a water resource Pollution prevention of a water resource
2	National Environmental Management Act, 1998 (Act no. 107 of 1998 as amended) (NEMA)	Listed Activities will be undertaken
3	National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004, as amended) (NEM: AQA)	Formation of dust
4	The Municipal Systems Act (Act 32 of 2000)	Provision of basic services to the local community
5	National Environmental Management Waste Act, 2008 (Act No. 59 of 2008, as amended)	Generation of construction waste Treatment of sewer effluent
6	Conservation of Agricultural Resources Act, 1983 (Act No. 43 of 1983)	The proposed development area has a low agricultural potential due to previous and current activities undertaken at / close to the proposed development

6. THE RECOMMENDED MANAGEMENT AND MITIGATION MEASURES

The following tables includes the recommended management and mitigation measures to be implemented during the different development stages of the proposed project. Refer to Table 6-1 for a list of applicable abbreviations. Please note that the existing works at the Carnarvon WWTW has an approved EMPr. However, for ease of auditing, monitoring and reporting purposes, the current EMPr is applicable for the upgrading and expansion of the oxidation pond system at the Carnarvon WWTW.

Table 6-1: List of abbreviations

ABBREVIATION	DESCRIPTION
A	Authorities
C	Contractors
CHS	Cultural and Heritage Specialist
COPSM	Construction and Operational Phase Security Management
D	Developer / proponent / applicant
E	Engineer
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
ESO	Environmental Site Officer – internal officer / Environmental Liaison Officer
FFS	Fauna and Flora Specialist
HSO	Health and Safety Officer
MSDS	Material Safety Data Sheets
OA	Other Authorities
OPLC	Operational Phase Leasing Company
OPMMCMT	Operational Phase Maintenance, Management and Compliance Monitoring Team
PM	Project Manager / Construction Supervisor
SWMP	Stormwater Management Plan
WS	Wetland Specialist

6.1. Pre-Construction Phase

This phase refers to the period following final project planning and the tender phase. This phase does not include the establishment on-site by the appointed contractor. Should the following aspects not be taken into consideration during the Planning and Design Phase, the environmental impacts associated with the construction and operation phase will be of high significance as the environment will be negatively affected (Table 6-2).

Table 6-2: Pre-Construction Phase

PRE-CONSTRUCTION PHASE (PLANNING AND DESIGN PHASE)						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
1.	Availability of EMPr, BAR and EA on site	- Non-compliance to EMPr	- Ensure effective management of the construction, operation and decommissioning phases of the proposed project	- An EMPr must be developed and made available to the ECO. - The EMPr should be available on site for reference purposes. - Proponent will ensure that contractors adhere to the recommendations of the EMPr and conditions of the EA.	EAP	Pre-Construction
2.	Availability of Stormwater Management Plan (SWMP)	- Poor stormwater management on site - Minimise risk of stormwater runoff	- Ensure effective stormwater management	- The stormwater management plan (SWMP) must be developed by the engineer and approved by DWS and COTMM. - SWMP must be available to ECO. - The stormwater drainage network system must be kept separate from the wastewater (water containing waste) system. Storm water must be diverted from the construction works and roads and must be managed in such a manner as to disperse runoff and to prevent the concentration of storm water flow. Where necessary, works must be constructed to attenuate the velocity of the storm water discharge and to protect the banks of the watercourse. Storm water	Engineer	Pre-Construction

PRE-CONSTRUCTION PHASE (PLANNING AND DESIGN PHASE)						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				control works must be constructed, operated and maintained in a sustainable manner throughout the project. - Increased runoff due to vegetation clearance and/or soil compaction must be managed, and steps must be taken to ensure that storm water does not lead to bank instability and excessive levels of silt entering the watercourse. - Storm water leaving the applicant's premises must in no way be contaminated by any substance, whether such substance is a solid, liquid, vapour or gas or a combination thereof which is produced, used, stored, dumped or spilled on the premises. - Should there be anticipation that the storm water will be contaminated from the proposed development, it must be directed to the pollution control dam. - Cut-off drains shall be provided around the properties to prevent storm-water ingress into the surrounding of the works. These drains shall be designed to contain the maximum runoff, which could be expected over a period of 24 hours with a frequency of once in every 20 years.		

PRE-CONSTRUCTION PHASE (PLANNING AND DESIGN PHASE)						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
3.	Construction Master Plan	- Negative impacts to sensitive areas	- Ensure sensitive areas and buffer zones are protected	- Construction activities should be planned outside of sensitive areas, as far as possible	Developer Engineer Contractor EAP	Pre-Construction
4.	Method Statements	- Pollution	- Limit occurrence and risk of pollution	- Contractors must provide and maintain a method statement for cement and concrete mixing. This report should also include plans for storage and disposal of construction materials to avoid pollution.	Engineer Contractor	Pre-Construction
5.	Erosion Management	- Erosion	- Minimise risk of erosion - Loss of soil - Loss of vegetation	- Construction activities should be undertaken in the dry season, if possible, to minimise the occurrence of erosion	Developer Engineer Contractor	Pre-Construction
6.	DWS Authorisation	- Non-Compliance to EMPr / DWS	- Ensure effective management of water. - Ensure compliance with EMPr and DWS Authorisation	- Application to DWS should be undertaken. Authorisation should be in place before any construction activities are undertaken. - All requirements as stipulated in the national water Act (NWA) 1998 (Act no.36 of 1998) must be adhered to. - Abstraction of water (if any) from the water course for proposed development Preparation and operation required to be authorised from DWS. - Any activities within 100m of a water resource or within1:100-year flood line (whichever is the greatest), and any development within 500m from the boundary of any wetland requires a water use	Developer Contractor	Pre-Construction

PRE-CONSTRUCTION PHASE (PLANNING AND DESIGN PHASE)						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				authorisation according to the National Water Act (NWA)1998(Act No.36 of 1998). - The water course should be delineated to provide appropriate buffer to maintain such water course. - The delineation should be done according to the appropriate Departmental delineation document. - A detailed layout plan needs to be submitted to DWS showing all the facilities in the proposed development, distance from the water course and any dry river and bathroom facility. - Details of the final design must also be supplied as soon as a decision has been made, as the details of this factor may influence the environmental impact both during the construction and operational phases of the project. - Should sewage arising from this development required to be stored or treating onsite, please note that this constitute section 21g water use and will need to be authorised from DWS.		
7.	Permit for the removal / transplantation of protected plant species	- Non-compliance to EMPr - Loss of protected plant species	- Ensure the safety of protected plant species.	- Permit for the removal / transplantation of protected plant species should be available on site.	Developer Contractor	Pre-Construction

PRE-CONSTRUCTION PHASE (PLANNING AND DESIGN PHASE)						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
8.	Permit for the removal / translocation of protected animal species	- Non-compliance to EMPr - Loss of protected animal species	- Ensure the safety of protected animal species.	- Permit for the removal / transplantation of protected animal species should be available on site.	Developer Contractor	Pre-Construction
9.	Appointment of ECO	- Non-compliance to EMPr	- Ensure compliance with the EMPr	- An Environmental Control Officer (ECO) will be appointed to monitor the construction phase.	Developer Contractor	Pre-Construction
10.	Availability of MSDS	- Non-compliance to EMPr	- Ensure compliance with the EMPr	- Material Safety Data Sheets (MSDS) should be available on site. Where possible and available, MSDS should include information on ecological impacts and measures to minimize negative environmental impacts during accidental releases or escapes.	Developer Contractor ECO	Pre-Construction
11.	Traffic and road safety in general	- Increase in traffic and dangerous driving conditions	- Ensure safe driving conditions	- The necessary precautions regarding road safety will be implemented for construction work to be undertaken within road crossings (if any).	Developer Contractor	Pre-Construction
12.	Blasting Permit	- Dangerous construction activities	- Ensure safe environment for construction personnel	- A blasting permit will be obtained before blasting activities are undertaken (if any).	Developer Contractor	Pre-Construction

6.2. CONSTRUCTION PHASE

This phase refers to the period of which the actual services and construction works are implemented – including site establishment and site works. Should the following aspects not be taken into consideration, the environmental impacts associated with the construction phase will be of high significance as the environment will be negatively affected (Table 6-3).

Table 6-3: Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
1.	Implementation of sensitive areas / environmental buffers	- Construction impacts on sensitive areas / environmental buffers	- Prevent impacts to sensitive areas	- Construction activities will be limited to designated construction areas to prevent peripheral impacts on surrounding natural habitats. - Camp shall not be located within the 1:100-year flood line or within 100 meters whatever is - the greatest from any watercourse. Operation and storage of equipment within the riparian - zone must be limited as far as possible. - Construction vehicles will also keep to constructed roads where possible, so that natural vegetation is not destroyed unnecessarily. - Designate the boundaries of the active construction start-up site, by erecting fencing / danger tape (where applicable) - All human movement and activities will be contained within designated construction areas in order to prevent peripheral impacts on surrounding natural habitat. - All sensitive areas must be marked as No-Go areas and no activities may be undertaken within these areas.	Developer Engineer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**

				- Fence off operational footprint area with danger tape or similar product (if possible) to ensure all operational activities are contained within the designate area.
				- All construction and operational activities must be contained within the demarcated servitude determined in consultation with the ECO.
				- ECO should be provided with a layout of the site, indicating the position of the following prior to the site establishment, for acceptance:
				  - Ablution Facilities
				  - Storage Areas
				  - Ready-mix Areas
				  - Stockpile Areas
				  - Waste Disposal Facilities
				  - Hazardous Substances Storage Area
				  - Etc.		

2.	Traffic and road safety in general	- Increase in traffic and dangerous driving conditions	- Ensure safe driving conditions - Ensure construction vehicle movement is controlled	- Necessary drawings for the upgrading of intersections (if any) are to be submitted to the relevant authority (SANRAL / Provincial Department of Roads / Municipality's Department of Roads) for approval, and the upgrades are to be implemented - The necessary precautions regarding road safety will be implemented for construction work to be undertaken within road crossings (if any). - Only use designated access roads - Construction vehicles should be serviced and maintained regularly	Developer Contractor Engineer	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- Access road should be maintained - Proper storm water measures are to be implemented to avoid run-off of water and washing of sand / soil onto the road - Access roads or temporary crossings must be non-erosive, structurally stable and not induce flooding / safety hazard. - If any access road or temporary crossing is impaired, it will be repaired immediately to prevent any future / further damage. - Speed limit will be enforced on the construction vehicles and these vehicles will only make use of designated roads / pathways.		
3.	Flora	- Loss of indigenous vegetation - Loss of protected plant species - Outbreak of alien invasive species - Loss of animals / animal species	- Protection of indigenous vegetation - Protection of protected plant species - Control of alien invasive species	- Retain indigenous vegetation where possible - Limit vegetation clearing to the development area - Care will be taken to prevent unnecessary damage to vegetation near to construction activities. - An alien control and monitoring programme will be developed starting during the construction phase and will be carried over into the operational phase. - Alien vegetation must not be allowed to further colonise the area, and all new alien vegetation recruitment must be eradicated or controlled, using standard methods approved by DWS.	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- Any proclaimed weed or alien species that germinates during the contract period will be cleared by hand / approved chemicals before flowering thereof. - The exotic species occurring on both the site must be eradicated during construction and operation - Adequate monitoring of weed establishment and their continued eradication must be maintained. Where category 1 and 2 weeds occur, they require removal by the property owner according to the Conservation of Agricultural Resources Act, No. 43 of 1983 and National Environmental Management: Biodiversity Act, No. 10 of 2004. - Fire-fighting equipment will be available on site, where applicable. - Indigenous tree species in the vicinity of the operational site (if any) should be marked with danger tape. Disturbance to such species should be avoided, where possible. - All threatened or protected plant species as specified by the NEM: Biodiversity Act (2004) will be identified on site. Permits are required for the removal / transplantation of these plants. - Imported fill material will be monitored during and after construction for the presence of any alien species. Any		

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				such species will be removed immediately. - The area proposed for the WWTW contain numerous protected species which has significant conservation value and will require mitigation. - Many of the affected protected species are cryptic and inconspicuous and it is recommended that a walkthrough survey be conducted prior to the site being cleared. This should include identification and marking of all protected plants on the site and should be performed by an ecologist or botanist. - Species occurring on the site that may be affected by the development include *Colchisum sp., Babiana bainesii, Ammocharis coranica, Oxalis primuloides, Oxalis annae, Ruschia intricata, Mesembryanthemum guerichianum, M. geniculiflora, M. noctiflorum, M. nodiflorum, Euphorbia braunsii, Euphorbia juttae, Ruschia unidens, Crassula muscosa, C. deltoidea, C. subaphylla, Euphorbia rhombifolia* and *Euphorbia mauritanica*. Where the development will affect any of these, the necessary permits will have to be obtained. - Most of these species are fairly common, widespread and abundant and, with the necessary permits, can simply be removed.		

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- However, several are uncommon, localised species and at least a fair portion of affected plants should be transplanted to adjacent areas where they will remain unaffected. These species include *Colchicum sp., Babiana bainesii, Ammocharis coranica, Euphorbia braunsii, Euphorbia juttae, C. deltoidea* and *Euphorbia rhombifolia*. These geophytic and succulent species are easily transplanted with a high success rate. - Protected plants occurring on the site are listed as such under the Northern Cape Nature Conservation Act No. 9 of 2009.		
4.	Fauna	- Loss of animal individuals - Loss of animal species - Loss of protected animal species - Outbreak of pests	- Protection of animals - Protection of protected animal species - Control of animal pests	- No animals will be hunted / captured on site (only to be undertaken by a relevant specialist) - Do not harm nests / burrows unnecessarily - Control animal pests by means of approved chemicals (if needed) - Construction and operational activities may affect the mammal population and care should therefore be taken to ensure none of the faunal species on site is harmed. The hunting, capturing or harming in any way of mammals on the site should not be allowed. - Open excavations may act as pitfall traps to mammals, reptiles and amphibians and trenches should be	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				daily monitored for trapped animals which should be removed promptly. - In the event of poisonous snakes or other dangerous animals encountered on the site an experienced and certified snake handler or zoologist must remove these animals from the site and re-locate them to a suitable area. - No littering must be allowed and all litter must be removed from the site. - Monitoring of construction and compliance with recommended mitigation measures must take place.		
5.	Soil	- Erosion	- Limit the occurrence of erosion	- Site clearance should not be undertaken well in advance of construction activities in a area, as to limit exposed soil and erosion - Visual inspections for the occurrence of erosion should be undertaken on a weekly basis.	Developer Contractor ECO	Construction Phase
6.	Surface water	- Impacts on small drainage line on the site - Impacts on the downstream system	- Limit the impact on small drainage line on the site - Limit the impact on the downstream system	- An adequate storm water management system must be implemented, which should mainly consist of a low berm around the perimeter of the WWTW. This is also a standard management practise at WWTW's. This berm should then enable dirty water to be retained within the operational area and separate from clean water around the site and within the drainage line. - Effluent discharge should not be done via an outfall sewer into the downstream Cararvonleegte but	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				should continue to make use of an irrigation scheme. - Emergency overflow mechanism should be implemented which should ensure that no discharge takes place into the Carnarvonleegte downstream of the site. This may also make use of the two artificial impoundments within the drainage line downstream of the site but should then ensure that these have sufficient capacity and prevent spillages of effluent into the Carnarvonleegte downstream of the site. - Monitoring and eradication of exotic weeds and invasive species on and around the WWTW should be implemented and maintained throughout the operation of the WWTW. This should also specifically target the highly invasive *Prosopis glandulosa* trees in the area. - The drainage line downstream of the site should constantly be monitored for erosion, especially where any discharge from the WWTW takes place. Where erosion is evident this must be remedied. Should erosion occur within the drainage line or downstream, it is recommended that geotextiles be utilised to stabilise soils. Available options include gabions and geotextile materials. - A comprehensive monitoring programme should be followed to		

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				quantify impacts and recommend mitigation on the drainage line at the site as well as the Carnarvonleegte downstream of it. Such monitoring should include assessment through Index of Habitat Integrity and water quality assessment or a combination thereof conducted at six monthly intervals. - The required authorisations must also be lodged with the Department of Water and Sanitation (DWS) for the expansion of the WWTW and the consequent impacts on the drainage line being affected by it.		

7.	Stockpiled Material	- Erosion
		- Stormwater run-off
			- Implement proper stockpile management	- Stockpiled soil will be stockpiled in an area where it will not be disturbed by vehicles.
				- Removed soil must be stockpiled and replaced to the same area once construction is completed, where possible.
				- Topsoil must be stored separately and replaced to the same area once construction is completed, where possible.
				- Stockpiled soil will be protected from washing away during rainstorms. For example:
				  - One layer of bricks or stones can be placed around the stockpiled topsoil.
				  - Bricks may be placed around the stockpiles, to limit the loss thereof due to rainy events.
					Developer
					Contractor
					ECO
						Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- Stockpiles should not be higher than 1.5 m. - The gradient of stockpiles should not be greater than 1:1.5. - Stockpiles should be located away from drainage lines, watercourses, and areas of temporary flood - All soil excavated is to be separated into top- and subsoil. Subsoil must be used for backfilling and topsoil for landscaping and rehabilitation of disturbed areas - Stockpiled material will be placed on the cleared areas once construction is completed. Re-spreading of topsoil is preferably to be done to the natural level. - Fertilisers should be used where topsoil and subsoil were mixed or where the topsoil is not up to original standard		
8.	Sedimentation	- Erosion - Stormwater run-off	- Prevent sedimentation	- Proper mitigation measures must be implemented to contain sediment entering the Carnarvonleegte during the construction phase. - No stockpile material may enter environmental sensitive areas - Silt fence should be placed around stockpiles to minimise the risk of erosion and / or contamination of stormwater	Developer Contractor ECO	Construction Phase
9.	Pollution Control	- Soil contamination - Groundwater pollution - Surface water pollution	- No pollution on site - No pollution on nearby areas	- According to Section 28 of the NEMA Act 107, every person who cause, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
		- Stormwater pollution and run-off - Environmental incidences and pollution		degradation from occurring, continuing or recurring and if it can't be avoided or stopped, to minimize and rectify such pollution or degradation of the environment. - No littering must be allowed and all litter must be removed from the site. - All pollutants should be contained in designated areas - Demarcated and secure storage facilities should be used for the storage and handling of hazardous material - Material with pollution generating potential must be limited to Project area. Any hazardous substances must be handled according to the relevant legislation relating to transport, storage and use of the substance. - Any spillage of any hazardous materials including diesel that may occur during construction and operation must be reported immediately to DWS. - Proper sanitation, water and waste facilities will be in place for construction workers throughout the construction phase. - The use of potentially polluting and hazardous substances should be strictly controlled - Services of vehicles as well as the cleaning of vehicles and equipment should be undertaken on a bermed area, designated for the use thereof.		

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- Vehicles and other machinery must be serviced above the 1:100-year flood line or within a horizontal distance of 100 meters from any watercourse or estuary and 500m from the wetland. - Oils and other potential pollutants must be disposed off at an appropriate licensed site, with the necessary agreement from the owner of such a site. - Spillages must be contained. - Drip-trays must be used to prevent oil spills. - Minor vehicle repair / maintenance will be conducted on site and impacts like oil spills should be appropriately mitigated. Spill response procedures must be clearly defined and well known by all staff. - Any spillage of any hazardous materials including diesel that may occur during construction and operation must be reported immediately to DWS. - All infrastructure construction and installations must be done according to the applicable SABS - standards to minimize the potential for leakage and contamination of water resources. - The pollution control provision in Section 19(1) of the National Water Act (Act 36 of 1998) should be adhered to at all times.		

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- If soil is significantly contaminated by hazardous substances, then this soil is considered as hazardous and should be disposed of according to best practices		
10.	Pollution Control	- Ablution facilities	- No pollution	- No open areas or the surrounding vegetation may be used as 'toilet facilities'. - Toilets should be available for all employees. Where waterborne sewerage is not available, the ECO must designate an area within the boundaries of the site for the erection of portable chemical toilets. - The sanitation facilities should be positioned away from sensitive areas - Toilet facilities shall occur at a minimum ration of 1 toilet per 15 employees. - Chemical toilets will be cleaned and serviced regularly, and proof thereof will be available on site. At least one toilet facility will be provided for each 15 employees. - All sewage, grey and wash water, as well as any waste generated during the construction phase of the facilities must be collected, contained and disposed of at the permitted and / or licensed facilities of the Local Authority and this must be confirmed in writing by the local authority. - Sufficient number and types of Rubbish bins and Enviro loose/mobile toilets must be used for the people on site	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				during construction. A signed copy of the service level agreement shall be submitted to DWS to demonstrate that indeed provision will be made to render such service.		
11.	Pollution Control	- Hydrocarbon Spillages	- No pollution - No veld fires	- Spill kits are to be made permanently available at areas which have the potential to be subjected to spillage of hazardous substances and dangerous goods. - Remediation of spillages must be conducted immediately and closed out within 24 hours. - No waste water or waste will be disposed of into the surrounding environment at any time. Water collected in bunded areas must be collected in containers and disposed of as hazardous waste. - Machinery will be kept maintained in line with manufactures specifications to minimise the risk of hydrocarbon spillages. - An incident reporting system will be implemented in order to ensure incidents, where spillages has occurred, are closed out and appropriate measures are taken to prevent further incidents. - Incidents must be reported to DWS within 24 hours. - Any Hazardous materials on site must be stored in a banded area and all hazardous waste generated must be	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				disposed of in a permitted hazardous landfill site. - For instance, contaminated soil must be disposed of in a hazardous materials skip and removed to a licensed hazardous landfill facility by a licensed contractor. -		
12.	General Waste Management	- Pollution due to poor waste management	- Ensure that construction activities are occurring at designated and approved areas - No littering	- Suitable containers (weather and vermin proof) will be placed on site to collect all solid waste. These will be emptied regularly. - All solid waste produced will be disposed of at an authorized landfill site. Recyclable waste may also be sold to recycling contractors. - No littering is permitted. During the construction and operational phase the site will be maintained in a neat and tidy condition. - Designated waste management areas should be used for the storage of waste. - The contractor is responsible for the removal of construction waste. - No dumping, burning or burying of waste will be undertaken on site. - A waste management plan will be compiled and designed to ensure that adequate waste management activities are undertaken. - Areas used for waste storage and loading of materials should be lined and bund walls have to be erected to contain any spills that might occur.	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- Waybills providing evidence of correct disposal procedure must be provided for the ECO's inspection. - Waste classification should be undertaken. - Visual inspections for the occurrence of pollution should be undertaken daily. - Spills should be cleaned up immediately according to best practices - Record should be kept on site to indicate date of visual inspection, any spillages observed, and manner in which spill was treated.		
13.	Management of Hazardous Material (General)	- Pollution due to poor waste management	- Ensure that construction activities are occurring at designated and approved areas - No littering	- All hazardous waste will be disposed of at an authorized hazardous landfill site. Recyclable hazardous waste may be re-used or sold to recycling contractors, where possible. - Cement / concrete should be mixed on a bermed area - Where concrete is utilised the detrimental impacts of uncured cement on watercourses must be taken into consideration. - All visible remains of excess material will be treated as hazardous waste. - Solid concrete waste may be treated as inert construction rubble. However, wet cement and liquid slurry and cement powder must be treated as hazardous waste - Hazardous wastes must be separated from general wastes, stored within	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				secondary containment in appropriate containers. - Proper storage facilities for the storage of hazardous / dangerous goods must be provided to prevent the migration of spillage into the soil and or groundwater. - Certificates / waybills of hazardous waste disposals are to be available on request as well as auditing purposes. This includes the removal of soil contaminated with hydrocarbons. - Storage of hazardous substances and refuelling areas are to be bunded with an impermeable liner to protect groundwater quality and must comply with the relevant SANS codes. - Areas used for the storage of hazardous materials are to be clearly indicated as such. - Compliance with SANS codes and hazardous substances bylaws should be adhered to. - All lids must be properly sealed / closed to prevent Volatile Organic Compounds (VOCs) and other potentially harmful gaseous compounds from escaping.		
14.	Delivery of Hazardous and Flammable Materials	- Pollution due to poor waste management	- Ensure that construction activities are occurring at designated and approved areas - No littering	- All deliveries (especially of hazardous nature) must be supervised. - Subcontractors and delivery companies should be informed of the delivery procedures and made aware of restrictions as to where materials may be stored.	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- Loads must be secured to prevent spillage during transportation thereof. - Hazardous substances are to be transported in sealed drums or bags		
15.	Storage of Gaseous Hazardous and Flammable Materials	- Pollution due to poor waste management	- Ensure that construction activities are occurring at designated and approved areas - No littering	- All combustible materials are to be store at least 3 m from any gas storage areas. In case of any flammable or any other gas storage areas, open flames, welding and cutting operations, smoking, etc. shall be prohibited in or near the storage area. - No gas will be delivered until the site is registered with local Fire Safety. - Cylinders should always be stored in a well-ventilated area away from spark, flames or any source of heat or ignition. - Cylinders should always be handled, stored, used and transported in an upright position. It should not be dropped, dragged or rolled on their sides or allowed to skid. Cylinders that are too large to be carried shall be tilted and rolled on the rims of their foot rings or bases. - Valves should be kept properly closed.	Developer Contractor ECO	Construction Phase
16.	Handling and Storage of Materials	- Pollution	- Limit the occurrence of pollution	- All chemicals used during the development, including fuel, will be stored in a proper storeroom or protected area to prevent pollution. - Vehicles will be serviced at designated areas. No oil, diesel or other chemicals may be spilled or discharged anywhere.	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- Where applicable, the contractors will ensure that all relevant national, regional and local legislation regarding storage, transport, use and disposal of petroleum, chemical, harmful or hazardous substances and materials are adhered to, where necessary. - Cement and concrete mixing, if applicable, will only take place within the construction site. No concrete will be mixed directly on the ground. - All environmental problems occurring on the site such as chemical spillage, wasteful water disposal, etc. will be reported to the ECO. The ECO should implement best practices to rectify the impacts thereof on the environment. - Spill response equipment must be available during the handling and loading of hazardous waste (if any). - Hazardous substances are to be stored in bunded areas. - Bund walls will have a capacity of at least 110% of the total capacity of the stored volume. - No oil, diesel or other chemicals may be spilled or discharged anywhere and contact with bare soil should be avoided at all cost. - Drip trays will be used during the servicing of vehicles as well as the transfer of chemicals / substances from transportation vehicles.		

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- A monitoring system should be implemented to determine the occurrence (if any) of any fuel / oil spillages / untreated sewer. - The necessary mitigation measures should be implemented immediately, should any leakages / spills be detected. - Material stockpiles, such as bricks and pipes, must be stable and well secured to avoid collapse and possible injury - Material and Safety Data Sheets (MSDSs) should be readily available on site for all hazardous materials. MSDSs should additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases or escapes. - Procedures in the MSDS should be implemented in case of an emergency - Storage areas should be kept clean and free from any accumulation of combustible matter (such as paper) and any possible source of ignition should be removed.		
17.	Monitoring	- Non-compliance to EMPr	- Ensure compliance with the EMPr	- Regular monitoring and / or spot inspections at least every fortnight during the construction phase is recommended. - Inspections should be documented, and any shortcomings addressed immediately.	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- A report will be provided by the independent ECO to the contractor upon completion thereof. The findings thereof should be made available to the competent authority (for example PED, DWS), should it be requested. - Any emergency or unforeseen impact will be reported to the relevant environmental department / DWS within 24 hours after identification for telephonic approval and will be confirmed in writing. - In case of leakages or spillages of any hazardous substances, this department must be informed within 24 hours and immediate cleanup procedure must be conducted as stipulated in section 19 of the National Water Act; (Act 36 of 1998), any cleanup of the contaminants must be disposed of in a permitted hazardous landfill site and remediation report for the clean-up measures must be sent to the department for comments before implementation.		
18.	Record Keeping	- Non-compliance to EMPr	- Ensure compliance with the EMPr	- The following documents should be available on site, and made available to the competent authority on request (if applicable): - Complaints Register - Environmental Incident Register - Disposal Certificates of waste generated during the construction / operational phase	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- Disposal Certificates of waste generated due to the construction activities - Environmental Monitoring (Audit) Reports - Written Corrective Action Instructions - Environmental Authorisation - DWS Permit / License - Blasting Permit - EMPr		
19.	Provision of potable water	- Non-compliance to EMPr	- Ensure compliance with the EMPr	- Potable water will be made available daily to workers on site. - The water for domestic use must comply with the SANS 241: 2015 guidelines for drinking water (edition 6). Regular monitoring must be done to ensure compliance.	Developer Contractor ECO	Construction Phase
20.	Heritage Resources	- Damage to Heritage Resources	- Ensure that no known or unknown heritage resources are damaged due to the construction activities	- Potential for high negative palaeontological impact is considered low. Anticipated impact will have negligible negative effects on archaeological and cultural resources and will require no mitigation. - Identification of anomalous / irregular shapes or forms within rocks is a first step in recognizing potential fossil remains or fossil-bearing landforms at the site. Vertebrate fossils in unconsolidated (late Neogene) sediments may resemble cylindrical and elongated, stone-like objects with odd-looking patterns and surfaces representing long bones, horn cores and teeth.	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- If material proves to be significant, a Phase 2 rescue operation may be required subject to permits issued by SAHRA. The decision regarding the EA Application must be communicated to SAHRA and uploaded to the SAHRIS Case application. In the meantime, excavated or removed remains must be wrapped in paper towels or heavy-duty tin foil and stored in a safe place. The material should not be washed or cleaned in any way. Undisturbed material must be kept in place and protected from further damage by avoiding the area or covering it with a light but rigid object like a box, bucket or metal sheet if possible and the area must be avoided by implementing a no-go buffer zone until further confirmation by a heritage specialist. - In the case of the discovery of any heritage, archaeological or palaeontological significance, the work in the area will be stopped and reported to the archaeologist and SAHRA. Any construction activities in the nearby vicinity may only commence after approval is obtained from SAHRA as well as the ECO. - Known heritage resources (if any) must be avoided as far as possible. - Employees should be encouraged and informed of the need to be on the look-out for potential fossils / buried archaeological material.		

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- In the case of the discovery of any stone tools or other archaeological or palaeontological material, the work in the immediate vicinity should temporarily cease and reported to the archaeologist and SAHRA. Should any human remains be exposed, the archaeologist as well as the local SAPS should be notified. - The recommendations as per SAHRA should be adhered to: - 38(4)b - The recommendations of the specialists are supported and must be adhered to. No further additional specific conditions are provided for the development; - 38(4)c(i) - If any evidence of archaeological sites or remains (e.g. remnants of stone-made structures, indigenous ceramics, bones, stone artefacts, ostrich eggshell fragments, charcoal and ash concentrations), fossils or other categories of heritage resources are found during the proposed development, SAHRA DAU (Khanyisile Bonile 021 202 8669/ kbonile@sahra.org.za) must be alerted as per section 35(3) of the NHRA. Non-compliance with this section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule; - 38(4)c(ii) - If unmarked human burials are uncovered, the SAHRA DAU (Khanyisile Bonile 021 202		

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				8669/ kbonile@sahra.org.za) must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with this section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule; - 38(4)d - See section 51(1) of the NHRA regarding offences; - 38(4)e - The following conditions apply with regards to the appointment of specialists: - If heritage resources are uncovered during the course of the development, a professional archaeologist or palaeontologist, depending on the nature of the finds, must be contracted as soon as possible to inspect the heritage resource. If the newly discovered heritage resources prove to be of archaeological or palaeontological significance, a Phase 2 rescue operation may be required subject to permits issued by SAHRA; - The Final BAR must be submitted to the SAHRIS application for record purposes; - The decision regarding the EA application must be submitted to the SAHRIS application for record purposes.		
21.	Social Aspects	- Non-compliance to EMPr	- Ensure compliance with the EMPr	- Any construction is disruptive, and the environment must be given consideration with every activity undertaken	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
22.	Health, Safety & Security	- Non-compliance to EMPr	- Ensure compliance with the EMPr	- Site should be fenced / marked with danger tape, where possible. - The contractors will comply with the Occupational Health and Safety Act, National Building Regulations and any other national, regional or local regulations with regard to safety on site. - Construction contracts will include safety and security measures for staff. - Precautions to ensure that construction staff and sites are visible and proper PPE will be provided to all employees. - Suitable warning and information signage should be available at the storage facilities. In addition, telephone numbers of emergency services (including local firefighting services) must be posted conspicuously on site. - Employees should be made aware of the health risks associated with any hazardous substances / dangerous goods used or stored on site. This includes soil that was contaminated with oil or diesel, etc. - Employees should receive relevant safety training in handling of hazardous substances / dangerous goods associated with the proposed project. - Construction work within road reserves will accommodate road users as far as possible. This includes the following:	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- Roads will be crossed in half widths at a time to minimise the impact on vehicular traffic, where possible. - Construction along and across existing roads will be executed in such a manner that both pedestrian and vehicular traffic is always accommodated. - The contractor will be required to always maintain adequate access to all public and private property. - Contractor will supply, erect, and maintain road signs for all work areas conforming to the prescribed layout and requirement of the South African Road Traffic Signs Manual and other relevant notices. - Fire extinguishers will be available on site and in the construction camp (if any). - The contractor will be required to always maintain adequate access to all public and private property. - Speed limits of 20km/h will be enforced. - All relevant IAPs will be notified prior to any blasting activities - All relevant IAPs will be notified 24 hours prior to any known potential risks associated with the site and the activities to be undertaken on site (for example, possible downstream flooding due to removal of upstream diversion). - All injuries should be recorded.		

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
23.	Employee Conduct on Site	- Non-compliance to EMPr	- Ensure compliance with the EMPr	- No animals may be harmed / captured / trapped and / or hunted. This must be strictly enforced. - Animals found at the construction site will be removed and relocated to an appropriate area, by a suitable, qualified person - No open fires are allowed. Provision will be made that no accidental fires are started. - No firewood will be collected on site or in surrounding areas, without written approval from the landowner. - No smoking or open fires will be allowed near storage facilities - No waste may be dumped on site - Employees should make use of the ablution facilities provided - All employees will be provided with the correct PPE. All employees will make use of the correct PPE.	Developer Contractor ECO	Construction Phase
24.	Noise and Dust Control	- Formation of nuisance dust - Formation of nuisance noise	- Ensure that dust control measures are implemented - Ensure that noise control measures are implemented	- Construction activities will be limited to normal daytime hours, where possible - Site will be kept neat and tidy. - Noise levels will be kept as low as possible during the construction phase in order not to disturb adjacent landowners - Proper mitigation measures will be implemented to limit noise (e.g. the installation of silencers, where required). - Proper mitigation measures will be implemented to limit the formation of	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				dust (e.g. wetting of construction area, when required). - The speed of the construction vehicles will be limited to avoid dangerous conditions, the formation of dust and the excessive deterioration of roads being used.		
25.	Management of Water Resources	- Pollution of water resources - Degradation of water resources	- Safeguard water resources	- No activities will be undertaken within 32 m of a watercourse / within the 1:100 year floodline / 500m of a wetland, without the necessary authorisations (for example from the relevant Environmental Department and DWS). - Caution will be taken to ensure that construction materials are not dumped or stored within storm water management systems. - Construction activities in the storm water infrastructure will be limited through proper demarcation and appropriate environmental awareness training. - The Contractor is responsible to inform all staff of the need to be vigilant against any practice that will have a harmful effect on waterways. - Infilling, excavation, drainage and hardening of surfaces will not occur unnecessarily in storm water infrastructure. - Emergency plans will be in place in case of fuel spillages (to limit the occurrence of soil as well as groundwater pollution).	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- A monitoring system should be implemented to determine the occurrence (if any) of any fuel / oil spillages. - The necessary mitigation measures should be implemented immediately, should any leakages / spills be detected. - Weather forecasts from the South African Weather Bureau of up to three days in advance will be monitored daily to avoid exposing soil or construction works or materials during a storm event and appropriate action will be taken in advance to protect construction works should a storm event be forecasted. - All no-go areas will be demarcated under guidance of the Environmental Control Officer (ECO). - The design of drainage systems will ensure that there is no contamination or eutrophication. Drainage systems will be maintained regularly in order to minimize the runoff of harmful chemical substances into the waterway(s). - It will be ensured that the construction activities have minimal effects on the flow of water through the storm water infrastructure. - Occurrence of erosion will be monitored. Reparations will be undertaken as soon as possible.		

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
26.	Upgrading and expansion of oxidation pond system	- Pollution of water resources - Degradation of water resources	- Safeguard water resources	- The design of the final effluent storage pond must make provision for the storage of a minimum of 14 days of wet weather flow during periods when irrigation cannot take place. - The oxidation pond system must be operated and maintained in such a manner to ensure that a) No unpleasant odours due to anaerobic conditions or activity may cause discomfort, or hazards, or health risks to the general public. b) Grid waste, floating material and plant growth should be removed from the inside of the ponds and pond structures on a periodic basis to ensure that no overloading, health risks or secondary contamination occurs. c) A minimum freeboard of 0,5m inside all ponds are to be kept in good condition to prevent erosion of the side slopes near the full water level of the ponds, caused by wave action due to wind. d) The pond system should remain functional at all times by removing all floating material from the surfaces and by emptying the ponds periodically and removing the accumulated sludge layers at the bottom of the ponds. - The oxidation ponds will be lined using HDPE lining.	Developer Contractor ECO	Construction Phase

CONSTRUCTION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- Groundwater monitoring programme will be implemented, as per DWS requirements - Ground Water Management and monitoring must form part of risk management plan. - Ensure that appropriate borehole monitoring points are sited and used for ground water level and quality monitoring only.		

6.3. REHABILITATION PHASE

It is not anticipated that the proposed project will cease / decommission in the nearby future. However, if decommissioning is decided upon, a decommissioning plan will be developed and submitted for approval. The end-use of the area will be kept in mind during the compilation of the decommissioning plan.

Activities associated with the rehabilitation phase will be limited to the rehabilitation of areas disturbed during the construction phase. These activities may also coincide with maintenance and operational activities. Rehabilitation should be undertaken as and when required, during the construction phase. Should the following aspects not be taken into consideration, the environmental impacts associated with the rehabilitation phase will be of high significance as the environment will be negatively affected (Table 6-4).

Table 6-4: Rehabilitation Phase

REHABILITATION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
1.	All aspects mentioned in 6.2 should be adhered to					
2.	Rehabilitation activities	- Removal of indigenous vegetation - Loss of fauna - Erosion - Stormwater run-off - Pollution - Generation of dust	- Previously disturbed areas should be rehabilitated	- Concurrent rehabilitation should be undertaken, where possible.	Contractor Proponent ECO	Construction Phase Rehabilitation Phase Operational Phase (maintenance)
3.	Re-vegetation of disturbed area	- Removal of indigenous vegetation - Re-vegetation with alien species	- Previously disturbed areas should be rehabilitated with natural occurring vegetation	- Species, especially grasses, trees and shrubs occurring in the region will be used to rehabilitate disturbed areas. - The establishment of natural occurring vegetation will be encouraged at disturbed areas. - Hydro-seeding will be implemented if the establishment of natural occurring vegetation does not occur within reasonable time.	Contractor Proponent ECO	Construction Phase Rehabilitation Phase Operational Phase (maintenance)

REHABILITATION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- Concurrent rehabilitation of disturbed areas will be undertaken to help the recovery of the vegetation.		
4.	Soil	- Erosion	- Limit the occurrence of erosion	- The soil surface should be re-instated to the virgin soil level and not depressed or elevated as this will promote erosion and cause flow barriers. After rehabilitation any excess soil or material should be removed and disposed of at a registered disposal facility. - Compacted soils (such as dirt tracks not to be utilised during the operational phase) must be ripped to ensure the establishment of natural occurring vegetation. - The soil surface should be re-instated to the virgin soil level and not depressed or elevated as this will promote erosion and cause flow barriers. After rehabilitation any excess soil or material should be removed and disposed of at a registered disposal facility.	Contractor Proponent ECO	Construction Phase Rehabilitation Phase Operational Phase (maintenance)
5.	Clearance of disturbed area	- Erosion - Loss of natural occurring vegetation - Stormwater run-off	- Limit the occurrence of erosion - Limit the loss of natural occurring vegetation - Limit stormwater run-off	- Temporary structures and office sites (if any) will be dismantled and removed after completion of the construction phase of the project. - Temporary concrete surfaces (if any) will be removed and compacted areas ripped. - All waste, equipment, materials, etc. used during construction will be cleared from the site. The contractors will ensure that the site is cleared and rehabilitated to the satisfaction of the ECO.	Contractor Proponent ECO	Construction Phase Rehabilitation Phase Operational Phase (maintenance)

REHABILITATION PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- All disturbed area must be rehabilitated to the original state or closer as per the proposed development Rehabilitation plan. - Soils that have become compacted through the activities of the development must be loosened to an appropriate depth to allow seed germination. - The necessary erosion prevention mechanisms must be employed to ensure the sustainability of all structures and activities and to prevent in-stream sedimentation. The slope must enable free water draining to prevent damming of water.		

6.4. OPERATIONAL PHASE

This phase refers to the period of which the site will be operational. Should the following aspects not be taken into consideration, the environmental impacts associated with the operational phase will be of high significance as the environment will be negatively affected (Table 6-5).

Table 6-5: Operational Phase

OPERATIONAL PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
1.	Availability of EMPr	- Non-compliance to EMPr	- Ensure effective management of the construction, operation and decommissioning phases of the proposed project.	- An EMPr must be developed and made available to the ECO. - The EMPr should be available on site for reference purposes. - Proponent will ensure that contractors adhere to the	Proponent Contractor	Operational Phase

OPERATIONAL PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				recommendations of the EMPr and conditions of the EA.		
2.	Monitoring and Materials Failure	- Non-compliance to EMPr	- Ensure compliance with the EMPr	- During the operational phase the oxidation ponds and associated infrastructure must be routinely audited, and maintenance schedule adjusted accordingly in order to prevent leakage / spillages. - These will be attended to immediately. - Any emergency or unforeseen impact will be reported to the relevant environmental department / DWS within 24 hours after identification for telephonic approval and will be confirmed in writing. - Confirm with the designer if there are design problems. Rectify with materials to match, or other agreed solution.	Proponent Contractor	Operational Phase
3.	Establishing Plants	- Slow or no re-vegetation to stabilise soil; loss or degradation of habitat	- To ensure re-vegetation to stabilize soil.	- Agreed schedule for regular follow-up watering, weed control, mulch supplements and amenity pruning, if needed. - Replace all plant failures within three months after planting.	Contractor	Operational Phase
4.	Materials Failure	- Structural damage. - Loss of site materials.	- To ensure structural integrity.	- Maintenance and monitoring should be undertaken in regular intervals.	Contractor	Operational Phase
5.	Drainage Failure	- The flooding of structures etc., due to drainage failure	- To ensure effective stormwater management on-site	- All site drainage works should be inspected and maintained continuously.	Maintenance contractor	Operational Phase

OPERATIONAL PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
			during the operational phase.			
6.	Site Audit	- Eventual project failure.	- Successful project establishment	- Routinely audit the works and adjust maintenance schedule accordingly.	Contractor	Operational Phase
7.	General	- Fires	- No Fire incidences on site.	- Open fires and smoking during maintenance works are strictly prohibited.	Contractor Maintenance Contractor	Operational Phase
8.	General Waste Management	Pollution due to poor waste management	- Ensure that construction activities are occurring at designated and approved areas No littering	- No littering must be allowed and all litter must be removed from the site. - No waste material shall at any stage be disposed of in the adjacent open spaces.	Developer Contractor ECO	Operational Phase
9.	General	- Disturbed vegetation	- Rehabilitation	- Disturbed areas will be rehabilitated and re-vegetated. All declared weeds and invaders should be removed from the open space areas on an ongoing basis.	Landscape Contractor	Operational Phase
10.	Hydrology	- Soil erosion and siltation of wetland.	- Prevent siltation of adjacent wetland due to erosion.	- Implement Surface and Groundwater Monitoring Plan conditions related to the operational phase	Project Manager ECO	Monthly
11.	Groundwater quality	- Pollution of groundwater	- Prevent pollution of groundwater	- Implement Surface and Groundwater Monitoring Plan	Licence holder	Continuous
12.	Groundwater quality	- Waste site operation	- Spillages or leakages	- Ensure adequate lining and drainage systems are installed - Ensure surface water runoff is contained and treated before disposal - Groundwater monitoring to ensure early detection of pollution should be implemented at the WWTW.	Licence holder	Continuous
13.	Groundwater quality	- Waste site operation	- Chemical spillages or leakages	- Ensure adequate lining and drainage systems are installed	Licence holder	Continuous

OPERATIONAL PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- Ensure surface water runoff is contained and treated before disposal - Groundwater monitoring to ensure early detection of pollution should be implemented at the WWTW.		
14.	Surface Water Resources	- Surface Water Resources - integrity and impacts on the water quality	- Protect the watercourse from degradation as a result of operational activities	- Make use of sediment traps/berms to prevent sedimentation of the watercourse. - Replace topsoil and revegetate once work is completed. - Prevent erosion by limiting the amount of soil and vegetation to be removed. - Rehabilitate the area immediately once completed. - Implement WWTW Maintenance Management and Emergency Response Plan for the WWTW	Project Manager ECO	Monthly
15.	Soil	- Erosion	- Limit the occurrence of erosion	- Visual inspections for the occurrence of erosion should be undertaken on a monthly basis. - Proper erosion mitigation measures should be implemented. - Soil erosion occurrences will be attended to immediately.	Developer Contractor ECO	Monthly
16.	Flora	- Establishment of alien vegetation	- Limit the establishment of alien vegetation	- Monitor the establishment of alien vegetation. - Problematic weeds must be eradicated where these establish at the proposed development footprint. - The development footprint should be monitored for establishment of weeds.	Developer Contractor ECO	Monthly

OPERATIONAL PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
				- Adequate monitoring of weed establishment and their continued eradication must be maintained. - Where category 1 and 2 weeds occur, they require removal by the property owner according to the Conservation of Agricultural Resources Act, No. 43 of 1983 and National Environmental Management: Biodiversity Act, No. 10 of 2004.		
17.	Fauna	- Loss of animals	- Limit the loss of natural occurring animals	- No hunting, harming, capturing or trapping must be allowed and this must be strictly prohibited.	Developer Contractor ECO	Operational Phase
18.	Pollution Control	- Ablution facilities	- No pollution	- No open areas or the surrounding vegetation may be used as 'toilet facilities'. - Toilets should be available for all employees. Where waterborne sewerage is not available, the ECO must designate an area within the boundaries of the site for the erection of portable chemical toilets. - The sanitation facilities should be positioned away from sensitive areas - Toilet facilities shall occur at a minimum ration of 1 toilet per 15 employees. - Chemical toilets will be cleaned and serviced regularly, and proof thereof will be available on site. At least one toilet facility will be provided for each 15 employees.	Developer Contractor ECO	Construction Phase

OPERATIONAL PHASE						
NR	**ENVIRONMENTAL ATTRIBUTE**	**ENVIRONMENTAL RISK OR ISSUE**	**OBJECTIVE OR REQUIREMENT**	**MITIGATION MEASURE**	**RESPONSIBILITY**	**FREQUENCY OF ACTION**
19.	Provision of potable water	- Non-compliance to EMPr	- Ensure compliance with the EMPr	- Potable water will be made available daily to workers on site.	Developer Contractor ECO	Construction Phase

6.5. DECOMMISSIONING PHASE

A decommissioning plan will be developed, if it is decided to remove the oxidation pond system and associated infrastructure before the cessation of the operation aspects of the proposed project. The decommissioning plan will include management and mitigation measures to be implemented during the decommissioning of the project.

6.6. NO-GO OPTION

The municipality will have to use trucks to transport sewer to the WWTW of adjacent towns, for the treatment of the sewer. However, this option will largely depend on the accessibility of the WWTW of the neighbouring towns, the capacity of the WWTW of the neighbouring towns, availability of employees as well as suitable trucks. Note that this option will be time consuming, and dependant on the availability of trucks and truck drivers. It should be noted that the WWTW of adjacent towns do not have the capacity to treat sewer from Carnarvon as well. Therefore, this option is not seen as a feasible option.

7. PROCEDURES FOR ENVIRONMENTAL INCIDENTS

7.1. LEAKAGES AND SPILLS

- Any environmental incidents must be reported within 24 hours to the relevant authority.
- Identify the source of the problem.
- Stop leak, if safe to do so.
- Contain spilt material, using spills kit or sand.
- Notify Environmental Control Officer.
- Remove spilt material and place in a sealed container for disposal (if possible).
- Environmental Control Officer to follow Incident Management Plan.

7.2. FAILURE OF EROSION/SEDIMENT CONTROL DEVICES

- Prevent the further escape of soil/sediment.
- Contain escaped material using silt fence, hay bales, pipes, etc.
- Notify ECO.
- Repair or replace the failed device as appropriate.
- Dig/scrape up escaped material; take care not to damage vegetation.
- Return escaped material to the area where it originated from.
- ECO to follow Incident Management Plan.
- Monitor for effectiveness until re-establishment.

7.3. BANK/SLOPE FAILURE

- Stabilize toe of slope to prevent sediment escape using aggregate bags, silt fence, logs, hay bales, pipes, etc.
- Notify ECO.
- ECO to follow Incident Management Plan.
- Divert water upslope from failed bank/slope.
- Protect area from further collapse as appropriate.
- Restore as advised by ECO.
- Monitor for effectiveness until stabilized.

7.4. DISCOVERY OF RARE OR ENDANGERED SPECIES

- Cease work in the area of discovery.
- Notify ECO.
- If a plant is found, mark location of plants.
- If an animal, mark the location where sighted, take pictures if possible.
- ECO to identify or arrange for identification of species, and or the rescue and relocation of the species if possible.
- If confirmed significant, ECO to liaise with Endangered Wildlife Trust.
- Recommence work when cleared by ECO and SAHRA.

7.5. DISCOVERY OF ARCHAEOLOGICAL OR HERITAGE FINDS

- Cease work in the area of discovery. Do not disturb the area of the find.
- Notify ECO.
- ECO to arrange an appraisal of the specimen.
- If confirmed significant, ECO to liaise with SAHRA.
- Recommence work when cleared by ECO and SAHRA.

8. EMPR REVIEW AND COMPLIANCE

The Site Supervisor is responsible for ensuring the work crew is complying with procedures, and for informing the work crew of any changes. The site supervisor is responsible for ensuring the work crew is aware of changes that may have been implemented by GDARD before starting any works.

If the contractor cannot comply with any of the activities as described above, they should inform the ECO with reasons within 7 working days. The EMPr is a dynamic document that should be reviewed and amended as the need arises, in accordance with the EIA Regulations.

In terms of Section 32 (1) of the EIA Regulations, 2014 as amended, if the project scope is changed after the EA is granted, then a Part 2 Amendment Application together with an amended EMPr has to be subjected to another public participation process of at least 30 days. In terms of Section 34 (1) and (2) of the EIA Regulations, 2014 as amended the holder of the EA must have the EA and EMPr audited by an independent person and submit an audit report to the relevant authority at intervals stipulated in the EA. If the auditor finds insufficient mitigation measures or non-compliance to the EA or EMPr, the holder must submit recommendations to the competent authority to amend the EMPr together with the audit report.

The audit report and amended EMPr must be made available to potential and registered interested and affected parties within 7 days of submission to the competent authority. In terms of Section 35 (1) and (2) of the EIA Regulations, 2014 as amended the competent authority may approve the amended EMPr resulting from an audit or request further amendments to manage and mitigate environmental impacts. In terms of Section 37 of the EIA Regulations, 2014 as amended the holder of the EA may apply for amendment of the EMPr from the competent authority following publications of the amended EMPr for 30-day review as part of the public participation process.

Appendix A – Information on Content of EMPr

EARTHWORTH
ENVIRONMENTAL CONSULTANTS

Contents of the EMPr as per Requirement in Appendix 4 of the 2014 EIA Regulations, as amended

SEC	REQUIREMENT	EMPR
1(a)	Details of; (i) the EAP who prepared the EMPr and; (ii) the expertise of that EAP to prepare an EMPr.	Appendix J
1(b)	A detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description.	Chapter 1
1(c)	A map at an appropriate scale which superimposes the proposed activity, its associated structures and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers.	Chapter 1
1(d)	A description of the impact management outcomes, including management statements, identifying the impacts that need to be avoided, managed and/or mitigated as identified through the environmental impact assessment process for all phases of the development including; (i) Planning and design, (ii) Pre-construction activities; (iii) Construction activities; (iv) Rehabilitation of the environment after construction and where applicable post-closure and; (v) Where relevant, operation activities and rehabilitation of the environment after construction and, where applicable, post-closure.	Chapter 6
1(e)	A description of impact management actions, identifying the manner in which the impact management outcomes contemplated in paragraph (d) will be achieved and may include actions to; (i) Avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) Comply with any prescribed environmental management standards or practices; (iii) Comply with any applicable provisions of the Act regarding closure, where applicable and; (iv) Comply with any provisions of the Act regarding financial provisions for rehabilitation, where applicable.	Chapter 6
1(f)	The method of monitoring the implementation of the impact management actions contemplated in paragraph (e).	Chapter 6
1(g)	The frequency of monitoring the implementation of the impact management actions contemplated in paragraph (e).	Chapter 6
1(h)	An indication of the persons who will be responsible for the implementation of the impact management actions.	Chapter 6
1(i)	The time periods within which the impact management actions contemplated in paragraph (e) must be implemented.	Chapter 6
1(j)	The mechanism for monitoring compliance with the impact management actions contemplated in paragraph (e).	Chapter 6
1(k)	A program for reporting on compliance, taking into account the requirements as prescribed by the Regulations.	Chapter 6
1(l)	An environmental awareness plan describing the manner in which; (i) The applicant intends to inform his or her employees of any environmental risk which may result from their work and; (ii) Risks must be dealt with in order to avoid pollution or the degradation of the environment.	Appendix C
1(m)	Any specific information that may be required by the competent authority.	N/A
2	Where a government notice *gazetted* by the Minister provides for a generic EMPr, such generic EMPr as indicated in such notice will apply.	N/A

Appendix B – Environmental Impacts

EARTHWORTH
ENVIRONMENTAL CONSULTANTS

Environmental Impacts

As per the Environmental Impact Assessment undertaken, the proposed development will have an overall low to medium negative impact on the receiving environment should the mitigation and management measures stipulated in the EMPr be adhered to.

The proposed mitigation and management measures will be required to:
- Minimise visual impacts
- Enhance the use of local skills and uplift the local community
- Enhance the use of local goods and services
- Avoid the loss of potential archaeological / cultural resources
- Avoid the loss of potential palaeontological resources
- Minimise the impact on wetlands and / or other surface water resources
- Avoid / reduce the loss of natural fauna and flora
- To minimise social impacts.

The above can be achieved by the following:
- Avoiding activities that could result in adverse impacts and/or resources or areas considered sensitive.
- Preventing the occurrence of negative environmental impacts and/or preventing such an occurrence having negative impacts.
- Preventing any future actions that might adversely affect an environmental resource.
- Limiting or reducing the degree, extent, magnitude or duration of adverse impacts through scaling down, relocating, redesigning and/or realigning elements of the project.
- Measures taken to minimise adverse impacts on the environment.
- Magnifying and/or improving the positive effects or benefits of a project.
- Repairing affected resources, such as natural habitats or water resources.
- Restoring affected resources to an earlier (possibly more stable and productive) state, typically 'background' or 'pristine' condition. These resources may include soils and biodiversity.
- Compensating for lost resources, and where possible, the creation, enhancement or protection of the same type of resource at another suitable and acceptable location.

PREPARATION OF THE EMPR

Regulation 13(1)(a) and (b) states that an independent and suitably qualified and experienced EAP should conduct the Environmental Impact Assessment Process. EarthWorth was appointed by the applicant as the independent Environmental Assessment Practitioner to conduct the said process, including the compilation of the EMPr.

CONTACT INFORMATION FOR EARTHWORTH			
CONTACT PERSON	**ADDRESS**	**E-MAIL**	**TELEPHONE**
Hanlie Stander	20 Hendrik Kotze Street Universitas Ridge Bloemfontein 9301	hanlie@earthworth.com	082 412 5592
EXPERTISE OF THE EAP			
Key Competencies and Experience	- Environmental Management - Environmental Monitoring - Water Use Applications - Mining Permit Applications - Compilation of BAR's, EIA's and Section 24G Applications - Mentoring students		
Education	- B.Sc. (Zoology), University of the Free State, South Africa, 2005 - B.Sc. Honors (Zoology), University of the Free State, South Africa, 2006 - M.Sc. (Zoology), University of the Free State, South Africa, 2012		
Member of Associations / Registering Bodies	- EAPASA Registered Environmental Assessment Practitioner: Number 2019/1997 - IAIAsa Membership Number 6881		

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

Office of the Head of Department
90 Long Street, Kimberley, Northern Cape, South Africa, 8300, Tel: (053) 807 7306
zmogorosi@ncpg.gov.za / web: www.agrinc.gov.za

Our Reference: L1.3.5
Your Reference: NC/BA/17/PIX/KAR/CAR1/2025

Enquiries: Ms M MADISA
Date: 29th January 2025

KAREEBERG LOCAL MUNICIPALITY
Mr. M Manuel (Municipal Manager)
Private Bag x226
CARNAVON
8925

Email: faried411@gmail.com

THE GRANTING OF AN ENVIRONMENTAL AUTHORISATION FOR: ACTIVITY NO.12 (i)(ii)(a)(b)(c), ACTIVITY N0. 13, ACTIVITY NO.19, ACTIVITY NO.25, ACTIVITY NO.26, (i)(ii), ACTIVITY NO.27, ACTIVITY NO.57, ACTIVITY NO.67, OF GN. R.327, ACTIVITY NO.2, ACTIVITY NO.12 (g)(ii)(iv), ACTIVITY NO.14 (i)(ii)(a)(c)(g)(ii) (ff), ACTIVITY NO.16 (g)(bb)(ff) OF GN. R324 OF APRIL 2017 (AS AMENDED): PROPOSED EXPANSION & UPGRADING OF THE OXIDATION POND SYSTEM AT CARNARVON WASTE WATER TREATMENT WORKS, KAREEBERG LOCAL MUNICIPALITY OF THE PIXLEY KA SEME DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE.

By virtue of the powers conferred to me by the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 as amended, **THE DEPARTMENT HEREBY GRANTS ENVIRONMENTAL AUTHORISATION FOR: ACTIVITY NO.12 (i)(ii)(a)(b)(c), ACTIVITY N0. 13, ACTIVITY NO.19, ACTIVITY NO.25, ACTIVITY NO.26, (i)(ii), ACTIVITY NO.27, ACTIVITY NO.57, ACTIVITY NO.67, OF GN. R.327, ACTIVITY NO.2, ACTIVITY NO.12 (g)(ii)(iv), ACTIVITY NO.14 (i)(ii)(a)(c)(g)(ii)(ff), ACTIVITY NO.16 (g)(bb)(ff) OF GN. R324 OF APRIL 2017 (AS AMENDED): PROPOSED EXPANSION & UPGRADING OF THE OXIDATION POND SYSTEM AT CARNARVON WASTE WATER TREATMENT WORKS, KAREEBERG LOCAL MUNICIPALITY OF THE PIXLEY KA SEME DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE.**

A detailed description of the activity is given in the **Basic Assessment Report dated September 2025** subject to the conditions listed in the Environmental Authorisation and reasons for the decision are attached herewith.

In terms of regulation 4 (2) of the Environmental Impact Assessment Regulations, 2014, you are instructed to notify all registered interested and affected parties, in writing and within fourteen (14) days of receiving of this letter, of the Department's decision in respect of your application as well as the provisions regarding the making of appeals that are provided for in the regulations.

Your attention is drawn to chapter 2 of the National Appeal Regulation which regulates appeal procedures. Should you/ any person affected by this decision wish to appeal, any aspect as prescribed in regulation 4 of the National Appeal Regulations 2014, with the Member of the Executive Council, Ministry of the Department agriculture, environmental affairs, rural development and land reform within 20 days of receiving this letter, by means of one of the following methods:

By facsimile: (053) 8077328
By post: Private Bag X 6102, Kimberley, 8300 or
By hand: 90 Long Street, Kimberley, 8300

Should you decide to appeal, you must serve a copy of your notice of intention to appeal on all registered interested and affected parties as well as a notice indicating where, and for what period, the appeal submission will be available for inspection.

Yours Faithfully

MR. Z MONAKALI: HEAD OF DEPARTMENT
DEPARTMENT: AGRICULTURE, ENVIRONMENTAL AFFAIRS, RURAL DEVELOPMENT AND LAND REFORM

DATE OF DECISION: 10/02/2026

Cc: Hanlie Stander
EARTHWORTH CONSULTING (PTY) ltd
hanlie@earthworth.africa

agriculture, environmental affairs,
rural development and land reform

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

ENVIRONMENTAL AUTHORISATION

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

Authorisation Register Number:	**PERMIT 03/2026**
Reference Number:	**NC/BA/17/PIX/KAR/CAR1/2025**
Last Amended:	**N/A**
Holder of Authorisation:	**KAREEBERG LOCAL MUNICIPALITY**
Location of activity:	**REMAINING EXTENT OF ERF 353, IN CARNARVON, WARD 1, KAREEBERG LOCAL MUNICIPALITY, PIXLEY KA SEME DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE.**

DEFINITIONS

"Activity" means an activity identified in any notice published by the Minister or MEC in terms of section 24D (1) (a) of the Act as a listed activity or specified activity;
"Proponent" means a person intending to submit an application for environmental authorisation and is referred to as an applicant once such application for environmental authorisation has been submitted;
"Application" means an application for an -

(a) environmental authorization in terms of Chapter 4 of the 2014 Environmental Impact Assessment regulations;
(b) amendment to an environmental authorisation in terms of Chapter 5 of the 2014 Environmental Impact Assessment regulations;
(c) amendment to an EMPr in terms of Chapter 5 the 2014 Environmental Impact Assessment regulations;
(d) amendment of a closure plan in terms of Chapter 5 of the 2014 Environmental Impact Assessment regulations;

"Basic Assessment Report" means a report contemplated in regulation 19 of the 2014 Environmental Impact Assessment regulations;
"Environmental Impact Assessment Report" means a report contemplated in regulation 23 of the 2014 Environmental Impact Assessment regulations;
"Plan of Study for Environmental Impact Assessment" means a study contemplated in regulation 22 which forms part of a scoping report and sets out how an environmental impact assessment will be conducted;
"Scoping Report" means a report contemplated in regulation 21 of the 2014 Environmental Impact Assessment regulations;
"EAP" means an Environmental Assessment Practitioner as defined in section 1 of the Act;
"EMPr" means an environmental management programme contemplated in regulations 19 and 23 of the 2014 Environmental Impact Assessment regulations;
"Registered Interested and Affected Party" in relation to an application, means an interested and affected party whose name is recorded in the register opened for that application in terms of regulation 42;
"Public Participation Process" means the process in which potential interested and affected parties are given an opportunity to comment on, or rare issues relevant to specific activity;
"Department" means the Northern Cape Department of Agriculture, Environmental Affairs, Rural Development & Land Reform.
"The Act" means the National Environmental Management Act, 1998 (Act No. 107 of 1998).

DECISION

The Department is satisfied, on the basis of information available to it and subject to compliance with conditions of this environmental authorisation, that the applicant should be authorised to undertake the activity specified below.

Details regarding the basis on which the Department reached this decision are set out in Annexure 1.

ACTIVITIES AUTHORISED

By virtue of the powers conferred on it by the National Environmental Management Act, 1998 (Act No. 107 of 1998) and the Environmental Impact Assessment Regulations, 2014 the Department hereby authorises – **KAREEBERG LOCAL MUNICIPALITY** with the following contact details –

Mr. M.F Manual
Private Bag X226
Hanau Street
Carnarvon
8925

Cell: (082) 317 2841
Tel: 053 382 3012
Email: faried411@gmail.com

to undertake the following activities (hereafter referred to as "the activity")

PROPOSED EXPANSION & UPGRADING OF THE OXIDATION POND SYSTEM AT CARNARVON WASTE WATER TREATMENT WORKS, KAREEBERG LOCAL MUNICIPALITY OF THE PIXLEY KA SEME DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE.

Activity No.12 (i)(ii)(a)(b)(c) of GN. R327 of April 2017 (as amended)
The development of-

(i) dams or weirs, where the dam or weir including infrastructure and water surface area, exceeds 100 square metres; or
(ii) infrastructure or structures with a physical footprint of 100 square metres or more;
where such development occurs-
(a) Within a watercourse
(b) In front of a development setback; or
(c) If no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.

Activity No.13 of GN. R327 of April 2017 (as amended)
The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000 cubic meters or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.

Activity No.19 of GN. R327 of April 2017 (as amended)
The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse.

Activity No.25 of GN. R327 of April 2017 (as amended)
The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput capacity of more than 2 000 cubic metres but less than 15 000 cubic metres.

Activity No.26 of GN. R327 of April 2017 (as amended)
Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:

(i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or
(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hactare.

Activity No.27 of GN. R327 of April 2017 (as amended)
The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.

Activity No.57 of GN. R327 of April 2017 (as amended)
The expansion and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage where the capacity will be increased by 15 000 cubic metres or more per day and the development footprint will increase by 1 000 square meters or more.

Activity No.67 of GN. R327 of April 2017 (as amended)
Phased activities for all activities of-
Listed in this Notice, which commenced on or after the effective date of this Notice or similarly listed in any of the previous NEMA notices, which commenced on or after the effective date of such previous NEMA Notices...

Activity No.2 of GN. R324 of April 2017 (as amended)
The development of reservoirs, excluding dams, with a capacity of more than 250 cubic metres.

g. Northern Cape
(iii) Outside urban areas:
(aa) National Protected Area Expansion Strategy Focus areas;
(dd) Critical biodiversity areas identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.

Activity No.12 (g)(ii)(iv) of GN. R324 of April 2017 (as amended)
The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.

g. Northern Cape
(ii) within critical biodiversity areas identified in bioregional plans
(iii) On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.

Activity No.14 (i)(ii)(a)(c)(g)(ii) (ff) of GN. R324 of April 2017 (as amended)

The development of-

(i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square meters; or

(ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs-

(a) within a watercourse;

(b) if no development setback has been adopted within 32 metres of a watercourse, measured from the edge of a watercourse;

g. Northern Cape

(ii) Outside urban areas:

(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;

Activity No.16 (g)(bb)(ff) of GN. R324 of April 2017 (as amended)

The expansion of reservoirs, excluding dams, where the capacity will be increased by more than 250 cubic metres.

g. Northern Cape

(i) outside urban areas:

(bb) National Protected Area Expansion Strategy Focus areas;

(ff) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority Or in bioregional plans;

Remaining Extent of Erf 353, Carnarvon: Kareeberg Local Municipality: Pixeley ka Seme District, Northern Cape province. With the following co-ordinates;

Assessment Area

Assessment Area	Latitude (S)			Longitude (E)		
Point 1	30°	57′	29.24″	22°	08′	25.78″
Point 2	30°	57′	30.84″	22°	08′	33.92″
Point 3	30°	57′	45.85″	22°	08′	27.03″
Point 4	30°	57′	43.47″	22°	08′	19.61″

Hereafter referred to as "the property".

The granting of this Environmental Authorisation is subject to the conditions set out below

CONDITIONS

Scope of authorisation:

1. Authorisation of the activity is subject to the conditions contained in this authorisation, which conditions form part of the environmental authorisation and are binding on the holder of the authorisation.

2. The holder of the authorisation **must** be responsible for ensuring compliance with the conditions by any person acting on his or her behalf, including but not limited to, an agent, sub-contractor, employee or person rendering a service to the holder of the authorisation.

3. The activities which are authorised **must** only be carried out at the property indicated above.

4. Any changes to, or deviations from, the project description set out in this authorisation must be approved, in writing, by the Department before such changes or deviations may be affected. In assessing whether to grant such approval or not, the Department may request such information as it deems necessary to evaluate the significance and impacts of such changes or deviations and it may be necessary for the holder of the authorisation to apply for further authorisation in terms of the regulations.

5. This authorisation does not negate the holder of the authorisation's responsibility to comply with any other statutory requirements that may apply to the undertaking of the activities.

General conditions:

6. A copy of this authorisation must be kept at the property where the activities will be undertaken. The authorisation must be produced to any authorised official of the Department who requests to see it and must be made available for inspection by any employee or agent of the holder of the authorisation who works or undertakes work at the property.

7. Where any of the applicant's contact details change, including the name of the responsible person, the physical or postal address and/ or telephonic details, the applicant must notify the Department as soon as the new details become known to the applicant.

8. The holder of the authorisation must notify the Department, in writing and within 24 (Twenty-Four) hours, if condition 16 of this authorisation cannot be or is not adhered to. In all other cases, the holder of the authorisation must notify the Department, in writing, within seven (7) days if any condition of this authorisation is not adhered to. Any notification in terms of this condition must be accompanied by reasons for the non-compliance.

9. Non-compliance with a condition of this authorisation may result in criminal prosecution or other actions provided for in the National Environmental Management Act, 1998 and the regulations.

10. This authorization is subject to the approval by the relevant local authorities i.e. in terms of any relevant legislation administered by those local authorities.

11. The activities **must** not commence without the necessary permits/licenses/approvals and/or service agreements, where it is relevant, from or with the relevant regulatory authorities whether national, provincial or local (these include but are not limited to National Department of Forestry, Fisheries & the Environment; National Department of Agriculture, Land Reform & Rural Development; Department of Human Settlement; Department of Water & Sanitation; Department of Mineral Resources & Energy; Department of Transport; Department of Employment & Labour; Department of Public Works & Infrastructure; Department of Sports, Arts & Culture; South African Heritage Resources Agency; South African Civil Aviation Authority).

12. The activities, including site preparation, may not commence before the twenty (20) day appeal period expires or until such time as the Department has considered any appeals that have been lodged;

    a. **Seven (7) days** written notice must be given to the Department before commencement with the activity.
    b. Such notice shall make clear reference to the site location details and the reference number given above.
    c. The said notice must also include proof of compliance with the following condition described herein:
        i. Condition: 11

13. The applicable conditions of this authorization must form part of all contractors' and sub-contractors' conditions of contract. A performance-based requirement with regard to environmental impact management must be included in all contracts related to any aspect of this authorization.

14. The applicant must carry out regular environmental audits to establish compliance with the conditions of this authorization and contracts.

15. Any complains regarding the said development must be brought to the attention of the Department within 24 hours after receiving the complaint. A complaints register must be kept up to date for inspection by the Department.

16. Environmental Management Inspectors (EMI) employed by the Department shall be given access to the property as described above (see detailed description of the activities) for the purposes of assessing and/or monitoring compliance with the conditions contained in this Environmental Authorization. Where the activity is located on a third party's property the applicant shall be responsible to arrange access for departmental officials.

17. This Department may add to, change and/or amend any of the conditions in this authorization if, in the opinion of the Department, the addition, change of amendment is environmentally justified. In the event that such impacts exceed their significance as predicted in the independent consultant's environmental assessment report and supporting documentation, the authorization may be withdrawn after proper procedures are followed.

18. In the event of any dispute concerning the significance of a particular impact, the opinion of this department in respect of its significance will prevail.

19. This Department and any national department, provincial department, local authorities or committees appointed in terms of the conditions of this application or any other public authority or organization shall not be held responsible for any damage of losses suffered by the applicant or his successor in title in any instance where construction or operation subsequent to construction be temporarily or permanently stopped for reasons of non-compliance by the applicant with the conditions of approval as set out in this document or any other subsequent document emanating from these conditions of approval.

20. The applicant shall be responsible for all costs necessary to comply with the above conditions unless otherwise specified.

21. The applicant must apply the principle of best practicable environmental option for all technologies used/ implemented during construction and operation phase.

Appeal of authorisation:

22. The holder of the authorisation must notify every registered interested and affected party, in writing and within 14 (fourteen) calendar days, of receiving notice of the Department's decision to authorize the activity.
23. The notification referred must-
    - Specify the date on which the authorisation was issued;
    - Inform the interested and affected party of the appeal procedure provided for in Chapter 7 of the regulations; and
    - Advise the interested and affected party that a copy of the authorisation and reasons for the decision will be furnished on request.
24. If the applicant should appeal against this Environmental Authorisation, the applicant/appellant must provide each person and organ of state which was a registered interested and affected party in relation to the applicant's application, within 10 days of having submitted a notice to appeal with a copy of the notice to appeal indicating that the appeal submission will be made available on the day of lodging it with the Minister or MEC, where and for what period the appeal submission will be available for inspection by such person or organ of state.

Management of activity:

25. The Environmental Management Programme ("EMPr") dated September 2025 (as compiled by Earthworth Consulting PTY LTD) and submitted as part of the application for Environmental Authorisation is hereby approved and must be adhered to. The recommendations and mitigation measures of the specialist studies recorded in the Basic Assessment Report dated September 2025 are binding and must be complied with.

26. Ensure that all "NO-GO" areas are clearly defined and adequately demarcated.

27. All works are to be conducted in an environmentally sensitive manner and in accordance with the EMPr and conditions of this authorization.

Monitoring

28. The EMPr must be strictly enforced during all phases of the project.

29. Changes to the EMPr, which are environmentally defendable, must be submitted to this Department for acceptance before such changes are affected.

30. The Department reserves the right to amend the EMPr should any impacts that were not anticipated or covered in the Basic Assessment Report dated June 2025 be discovered.

31. The EMPr must be included in all contract documentation for all phases of implementation.

32. In the event of oil spillages and contamination of soil by hazardous substances that contaminated area must be cleaned up immediately by removing the contaminated soil and disposing it off into the designated hazardous skip bin for correct disposal.

33. A stormwater management plan to be implemented during the construction and operation of the facility. The plan must comply with applicable regulations and prevent off-site migration of contaminated stormwater.
34. A fire management plan must be always available on-site and employees must be made aware of the plan.
35. Erosion prevention measures must be employed to ensure the sustainability of all structures and activities.
36. An effective monitoring system to detect any leakage or spillage of all hazardous substances must be implemented during all phases of development. The must include precautionary measures to limit the possibility of fuel and other toxic liquids from contaminating watercourse and soil.
37. The level of noise during the construction phase of the project must be kept as low as possible and must comply with the Noise Control Regulations (GN R 154) as well as the acceptable day rating levels as per the SANS10103:2008 guidelines.

Environmental Control Officer (ECO) and Duties

38. The holder of this authorisation must appoint an independent Environmental Control Officer (ECO) before commencement with experience or expertise in the field for the construction phase of the development. The ECO will have the responsibility to ensure that the conditions referred to in this authorisation are implemented and to ensure compliance with the provisions of the EMPr and recommendations of the attached specialist studies.

39. The ECO must be appointed before the commencement of any authorised activity.

40. The ECO must meet with the contractors to discuss the conditions of the **Environmental Authorisation** and the contents of the EMPr prior to commencement of activities.

41. Once appointed, the name and contact details of the ECO must be submitted to the Director: Compliance Monitoring of the Department.

42. The ECO must keep a record of all activities on site, potential impacts, problems identified, transgressions noted, and a task schedule of tasks undertaken by the ECO.

43. The ECO must remain employed until all rehabilitation measures, as required for implementation due to construction damage, are completed and the site is ready for operation.

44. Records relating to monitoring and auditing must be kept on-site and made available for inspection to any relevant and competent authority in respect of this development.

45. Photographs must be taken (before, during and immediately after construction as a visual reference).

Recording and Reporting to the Department

46. The holder of this authorisation must keep all records relating to monitoring and auditing on site and make it available for inspection to any relevant and competent authority in respect of this development.

47. Records relating to compliance or non-compliance with any condition of this authorization must be kept in good order. Such records must be made available to any Official from the Monitoring Compliance and Enforcement section of the Directorate: Environmental Management within seven (7) days of a written request by the said Officer.

48. Any complaints regarding the said development must be brought to the attention of the Department within 24 hours of receiving the complaints; the register must be kept up to date for inspection by the Department. Where any of the applicant's contact details change, including the name of the responsible person, the physical or postal address and/ or telephonic details, the applicant must notify the Department as soon as the new details become known to the applicant.

Environmental audit report

49. The holder of the authorization must submit an environmental audit report to the Department within 30 days of completion of the construction phase and within 30 days of completion of rehabilitation activities.

50. The Environmental audit report must:
    - Be compiled by an independent environmental auditor;
    - Indicate the date of the audit, the name of the auditor and the outcome of the audit in terms of compliance with the environmental authorisation conditions as well as the requirements of the EMPr.
    - Include measures to be implemented to attend to any non-compliance.
    - Include copies of any approvals granted by other authorities relevant to the department for the reporting period.
    - Highlight any outstanding environmental issues that must be addressed, along with recommendations for ensuring that they are appropriately addressed.
    - Include evidence of adherence to the conditions of this authorisation and the EMPr where relevant such as training records.

Commencement of the activity

51. Fourteen (14) days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence.
52. The authorised activities must not commence before the statutory 20 days of an appeal period has expired.
53. Should you be notified by the minister of a suspension of the authorisation pending appeal procedures, you must commence with the activities unless authorised by the minister in writing.
54. The conditions of this authorisation must be brought to the attention of all persons (employees, sub-consultants, etc) associated with the undertaking of this activity and the applicant must take measures necessary to bind such persons to these conditions.
55. All recommendations and mitigation measures as laid down in the Basic Assessment Report and EMPr dated June are binding and must be implemented.

Specific Conditions

56. No blanket clearing of vegetation to take place on the site. The removal of natural vegetation must be restricted to the footprint of the proposed activity to facilitate the installation of infrastructure and the construction of the various components of the proposed development.
57. The holder of this Environmental Authorisation must ensure that environmental impacts are monitored and managed effectively throughout the life cycle of the project.

58. The removal, cutting, pruning or relocation plants must be authorised by the relevant authority, ie. Department of Forestry, Fisheries & the Environment (DFFE).
59. Should any archaeological remains be found on site, the South African Heritage Agency (SAHRA) must be contacted and all works must cease immediately in that area, failure to do so constitute an offence in terms of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) as amended.
60. All the necessary permits must be obtained from all the relevant authorities before commissioning of the proposed project start(s).

Operation of the activity

61. Seven (7) days written notice must be given to the Department that the activity will commence. Commencement for the purposes of this condition includes site preparation. The notice must include a date on which it is anticipated that the activity will commence.

62. The authorised activities must not commence before the statutory 20 days of an appeal period has expired.

63. Should you be notified by the Minister of a suspension of the authorization pending appeal procedures, you must not commence with the activities unless authorized by the Minister in writing.

64. Environmental training must be conducted for the staff/employees before commencement of the project and environmental awareness must be given throughout the life cycle of the project. Workers should be informed that the hunting, snaring and killing of fauna is not allowed on site.

65. The Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) must be implemented by an independent Health and Safety Officer.

66. The level of noise generated on site must be kept as low as possible and must be restricted within normal working hours.

67. Noise levels must also comply with the Noise Control Regulations (GN R 154) as well as the acceptable day rating levels as per the SANS10103:2008 guidelines.

68. Chemical mobile toilets must be made available for workers on site and they must be serviced regularly.

69. The removal of natural vegetation must be restricted to the footprint of the proposed activity.

70. Any waste generated during the construction and operation phase must be disposed of at a waste disposal site licensed for such waste.

71. No on-site burning or burying of solid waste is permitted.

72. Hazardous waste/materials must be safely stored in designated areas, with properly visible signs, in a manner that does not endanger human health or the environment.

73. The holder of this environmental authorization must take adequate precautions to ensure that open fires do not ignite as a result of construction works on site.

74. The construction area must be demarcated, no construction or dumping activities are allowed outside the proposed footprint.

75. The Holder of this Environmental Authorisation must ensure construction and operation adhere to the National Water Act; 1998 (Act No.36 of 1998) Part 4 Section 19: Pollution Prevention and Part 5 Section 20 Emergency Incidents.

76. The Holder of this Environmental Authorisation must ensure construction and operation adhere to Government Notice No. 36784; No. R. 634: Department of Environmental Affairs; National Environmental Management Waste Act; 2008 (Act No.59 of 2008); Waste Classification and Management Regulations.

77. The Holder of this Environmental Authorisation must ensure that all activities associated with the proposed project consider Integrated Environmental Management by ensuring that development is socially, environmentally and economically sustainable.
78. The holder of this Environmental Authorization must ensure that soil compaction is limited to the proposed footprint of the activity.

79. Dust control measures must be implemented during the clearing phase and must comply with the dust regulations promulgated under the Air Quality Act, 2004 (Act No.39 of 2004).
80. If any new evidence of archaeological sites or artefacts, paleontological fossils, graves or other heritage resources is found during development or construction, SAHRA and an archaeologist and/or palaeontologist, depending on the nature of the resources found, must be alerted immediately.
81. The spreading of declared weedy and alien invasive plant species must be controlled and monitored at all times.

82. Topsoil from all excavations and construction activities must be salvaged and reapplied during reclamation.
83. Backfill material must only be obtained from legal sources, which have permits to source such materials.

84. If erosion occurs and causes environmental degradation as a result of this authorized activity, the holder of this environmental authorization must take responsibility for recovering the damaged properties as soon as possible.

85. Vehicle repairs and repairs of any construction machinery must not be conducted on-site.

86. All mitigation measures detailed in the Environmental Management Programme report must be implemented.

Site Closure and Decommissioning:

87. Should the proposed activity ever cease or become redundant, the applicant must undertake the required actions as prescribed by legislation at the time and comply with all relevant legal requirements administered by any relevant and competent authority.

88. The holder of this Environmental Authorization must consult with the Department prior to decommissioning of this activity.

89. All areas disturbed by the project must be rehabilitated to an acceptable condition.

DURATION AND PERIOD OF VALIDITY

This activity(s) must commence within a period of ten (10) years from the date of issue. If commencement of the activity(s) does not occur within that period and the intention is to extend the validity period of the authorization, an application for amendment to extend the validity period must be launched at least three (3) months prior to the expiry date of the validity period. If commencement of the activity does not occur within that period, the authorisation lapses and a new application for environmental authorisation must be made in order for the activity to be undertaken.

APPEAL

An appellant must submit an appeal to the appeal administrator, and a copy of the appeal to the applicant, any registered interested and affected party and any organ of state with interest in the matter within 20 days from the date that the notification of the decision was sent to the applicant by the competent authority.

Appeals must be submitted in writing to:

The Member of the Executive Council
Ministry of Agriculture, Environmental Affairs, Rural Development & Land Reform
Private Bag X6102
Kimberley
8300
Fax: (053) 832 1026

Please note that in terms of section 43(7) of the National Environmental Management Act, 1998, an appeal under section 43 of that Act will suspend the environmental authorisation or any provision or condition attached thereto. In the instance where an appeal is lodged, you may not commence with the activity until such time that the appeal is finalised.

MR. Z. MONAKALI
HEAD OF DEPARTMENT
DEPARTMENT OF AGRICULTURE, ENVIRONMENTAL AFFAIRS, RURAL DEVELOPMENT & LAND REFORM

DATE OF ENVIRONMENTAL AUTHORISATION: 10/02/2026

ANNEXURE 1: REASONS FOR DECISION

1. Background

The applicant **KAREEBERG LOCAL MUNICIPALITY** applied for environmental authorization to carry on the following activity –

Mr. M.F Manual
Private Bag X226
Hanau Street
Carnarvon
8925

Cell: (082) 317 2841
Tel: 053 382 3012
Email: faried411@gmail.com

to undertake the following activities (hereafter referred to as "the activity")

PROPOSED EXPANSION & UPGRADING OF THE OXIDATION POND SYSTEM AT CARNARVON WASTE WATER TREATMENT WORKS, KAREEBERG LOCAL MUNICIPALITY OF THE PIXLEY KA SEME DISTRICT MUNICIPALITY, NORTHERN CAPE PROVINCE.

Activity No.12 (i)(ii)(a)(b)(c) of GN. R327 of April 2017 (as amended)

The development of-

(iii) dams or weirs, where the dam or weir including infrastructure and water surface area, exceeds 100 square metres; or

(iv) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs-

(c) Within a watercourse

(d) In front of a development setback; or

(c) If no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.

Activity No.13 of GN. R327 of April 2017 (as amended)

The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000 cubic meters or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.

Activity No.19 of GN. R327 of April 2017 (as amended)

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

Activity No.25 of GN. R327 of April 2017 (as amended)
The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput capacity of more than 2 000 cubic metres but less than 15 000 cubic metres.

Activity No.26 of GN. R327 of April 2017 (as amended)
Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:

(i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or
(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hactare.

Activity No.27 of GN. R327 of April 2017 (as amended)
The clearance of an area of 1 hectare or more, but less than 20 hectares of indigenous vegetation.

Activity No.57 of GN. R327 of April 2017 (as amended)
The expansion and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage where the capacity will be increased by 15 000 cubic metres or more per day and the development footprint will increase by 1 000 square meters or more.

Activity No.67 of GN. R327 of April 2017 (as amended)
Phased activities for all activities of-
Listed in this Notice, which commenced on or after the effective date of this Notice or similarly listed in any of the previous NEMA notices, which commenced on or after the effective date of such previous NEMA Notices...

Activity No.2 of GN. R324 of April 2017 (as amended)
The development of reservoirs, excluding dams, with a capacity of more than 250 cubic metres.

g. Northern Cape
(iii) Outside urban areas:
(aa) National Protected Area Expansion Strategy Focus areas;
(dd) Critical biodiversity areas identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans.

Activity No.12 (g)(ii)(iv) of GN. R324 of April 2017 (as amended)
The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.

g. Northern Cape
(ii) within critical biodiversity areas identified in bioregional plans

(iv) On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.

Activity No.14 (i)(ii)(a)(c)(g)(ii) (ff) of GN. R324 of April 2017 (as amended)
The development of-

(iii) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square meters; or

(iv) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs-

(c) within a watercourse;

(d) if no development setback has been adopted within 32 metres of a watercourse, measured from the edge of a watercourse;

g. Northern Cape

(ii) Outside urban areas:

(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;

Activity No.16 (g)(bb)(ff) of GN. R324 of April 2017 (as amended)

The expansion of reservoirs, excluding dams, where the capacity will be increased by more than 250 cubic metres.

g. Northern Cape

(i) outside urban areas:

(bb) National Protected Area Expansion Strategy Focus areas;

(ff) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority Or in bioregional plans;

Remaining Extent of Erf 353, Carnarvon: Kareeberg Local Municipality: Pixley Ka Seme District, Northern Cape province. With the following co-ordinates;

Assessment Area

Assessment Area	Latitude (S)			Longitude (E)		
Point 1	30°	57′	29.24″	22°	08′	25.78″
Point 2	30°	57′	30.84″	22°	08′	33.92″
Point 3	30°	57′	45.85″	22°	08′	27.03″
Point 4	30°	57′	43.47″	22°	08′	19.61″

Hereafter referred to as "the property".

The applicant appointed Earthworth Consulting PTY LTD to undertake an Environmental Impact Assessment process. The Basic Assessment (BAR) process was followed.

2. Information considered in making the decision

In reaching its decision, the Department took, *inter alia,* the following into consideration –

(i) The Environmental Assessment Practitioner complied with Regulation 19 of April 2017.

(ii) Public participation followed is in line with Regulation 41 of 19 April 2017 and the proof and response from SAHRA & DWS were submitted together with the final Basic Assessment Report.

(iii) This project entails the upgrading of the existing Carnarvon oxidation pond system, based on the increasing population, capacity & flow.

(iv) The information contained in the final Basic Assessment Report (BAR) dated September 2025 submitted by EAP Ms. Hanlie Stander (Earthworth Consulting PTY LTD).

(v) The comments received from interested and affected parties as included in the final Basic Assessment Report (BAR).

(vi) The objectives and requirements of relevant legislation, policies, and guidelines, including sections 2 and 23 of the National Environmental Management Act, 1998 (Act No. 107 of 1998), The Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002) and the Northern Cape Conservation Act, 2009 (Act No. 9 of 2009).

(vii) The findings of the site visit undertaken by Ms. Madisa (Agriculture, Environmental Affairs, Rural Development, and Land Reform), EAP Ms. Hanlie Stander (Earthworth Consulting PTY LTD) the site inspection on 10 October 2025.

3. Key factors considered in making the decision

All information presented to the Department was considered in the Department's consideration of the application. A summary of the issues which, in the Department's view, were of the most significance is set out below.

a) The EAP who prepared the report has the expertise to carry out the Environmental Impact Assessment Report (S&EI) procedures.
b) Impacts of the proposed activity on the receiving environment were described in terms of geographical, physical, biological, social, economic, and cultural aspects.
c) The final Basic Assessment Report (BAR) identified all legislation and guidelines it considered in preparing the report.
d) The EAP considered comments from interested and affected parties and incorporated them into making the Basic Assessment Report (BAR).
e) The need and desirability for the proposed activity are urgent and indispensable.

4. Findings

After consideration of the information and factors listed above, the Department made the following findings -

a) The identification and assessment of impacts are detailed in the Final Basic Assessment Report (BAR) dated September 2025.
b) The development/upgrade of existing Carnarvon WWTW oxidation pond system by means of combining of the existing ponds as well as the construction of new ponds.
c) The proposed project is in line with the Provincial Spatial Development Framework (PSDF) and considered essential for the basic services delivery of the municipality.
d) The project is part of the IDP (Integrated Development Plan) and SDF (Spatial Development Framework) SDF.
e) All interested and affected parties had no objections to the project.

In view of the above, the Department is satisfied that, subject to compliance with the conditions contained in the environmental authorization, the proposed activity will not conflict with the general objectives of integrated environmental management laid down in Chapter 5 of the National Environmental Management Act, 1998 and that any potentially detrimental environmental impacts resulting from the proposed activity can be mitigated to acceptable levels. The application is accordingly. Granted.