











ENVIRONMENTAL MANAGEMENT PROGRAMME

for

HOOGEKRAAL DAM

on

Portion 1 of Farm 182 Hoogekraal

In terms of the

National Environmental Management Act (Act No. 107 of 1998, as amended) & 2014 Environmental Impact Regulations (as amended)

Prepared for Applicant: Swartvlei Equestrian Estate (Pty) Ltd

Date: 17 January 2022

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PURPOSE OF THIS REPORT:

Environmental Management Programme for EA Application

APPLICANT:

Swartvlei Equestrian Estate (Pty) Ltd

CAPE EAPRAC REFERENCE NO:

KNY652/08

SUBMISSION DATE

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Submitted for:

Stakeholder Review & Comment

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ENVIRONMENTAL MANAGEMENT PROGRAMME REQUIREMENTS

Appendix 4 of Regulation 982 of the 2014 EIA Regulations contains the required contents of an Environmental Management Programme (EMPr). The checklist below serves as a summary of how these requirements were incorporated into this EMPr.

Table 1: Checklist in terms	of Appendix 4	of Regulation 982	of 2014 EIA Regulations

Requirement	Description
Details and expertise of the EAP who prepared the EMPr;	Ms Melissa Mackay
including curriculum vitae.	of Cape Environmental
	Assessment Practitioners.
	See Cover Page.
	Appendix 6.
A detailed description of the aspects of the activity that are	Section 1
covered by the EMPr as identified by the project	
description.	
A map at an appropriate scale which superimposes the	Appendix 1
proposed activity, its associated structures, and	
infrastructure on the environmental sensitivities of the	
preferred site, indicating any areas that must be avoided,	
including buffers	
A description of the impact management objectives,	Section 4 – Environmental
including management statements, identifying the impacts	Impacts & Mitigations
and risks that need to be avoided, managed and mitigated	Section 5 - Responsibilities
as identified through the environmental impact assessment	Section 6 – Pre-Construction
process for all the phases of the development including –	Design
(i) Planning and design;	Section 7 – Construction
(ii) Pre-construction activities;	Phase
(iii) Construction activities;	Section 8 – Operation Phase
(iv) Rehabilitation of the environment after construction	
and where applicable post closure; and	
(v) Where relevant, operation activities.	
A description and identification of impact management	Section 4
outcomes required for the aspects contemplated above.	
A description of the proposed impact management actions,	Section 4
identifying the manner in which the impact management	Section 6
objectives and outcomes contemplated above will be	Section 7
achieved and must, where applicable include actions to –	Section 8
(i) Avoid, modify, remedy control or stop any action,	
activity or process which causes pollution or	
(ii) Comply with any properihed environmental	
(ii) Comply with any prescribed environmental	
(iii) Comply with any applicable provisions of the Act	
(iii) Comply with any applicable provisions of the Act	
(iv) Comply with any provisions of the Act regarding	
financial provisions for robabilitation where	
annlicable	
The method of monitoring the implementation of the impact	Section 9
management actions contemplated above	Section 11
The frequency of monitoring the implementation of the	Section 9
impact management actions contemplated above	
impaor management actions contemplated above.	

Requirement	Description
An indication of the persons who will be responsible for the	Section 5
implementation of the impact management actions.	
The time periods within which the impact management	Not Applicable
actions must be implemented.	
The mechanism for monitoring compliance with the impact	Section 9
management actions.	
A program for reporting on compliance, taking into account	Section 9
the requirements as prescribed in the Regulations.	
An environmental awareness plan describing the manner	Section 5
in which –	Section 6
(i) The applicant intends to inform his or her employees	Section 7
of any environmental risk which may result from their	Section 8
work; and	Section 9
(ii) Risks must be dealt with in order to avoid pollution or	
the degradation of the environment.	
Any specific information that may be required by the	Not Applicable.
competent authority.	

ABBREVIATIONS AND ACRONYMS

- **BSP** Biodiversity Sector Plan to inform land use planning, environmental assessments, land and water use authorisations, as well as natural resource management, undertaken by a range of sectors whose policies and decisions impact on biodiversity.
- **CARA** Conservation of Agricultural Resources Act (Act 43 of 1983) provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.
- **CBA** Critical Biodiversity Area areas required to meet biodiversity targets for ecosystems, species and ecological processes, as identified in a systematic biodiversity plan.
- **DFFE** National Department of Forestry, Fisheries and the Environment the national authority responsible for the sustainable environmental management and integrated planning.
- **DEA&DP** Department of Environmental Affairs and Development Planning the provincial authority for sustainable environmental management and integrated development planning. The competent authority is this case.
- **DoA** WC Provincial Department of Agriculture the national authority responsible for the provincial agricultural sector and its management..
- **DWS** Department of Water & Sanitation Affairs National authority mandated to enforce the National Water Act (NWA).
- **EA** Environmental Authorisation Authorisation obtained on completion of an Environmental Impact Assessment in terms of the National Environmental Management Act (NEMA).
- **ECA** Environment Conservation Act, 1989 To provide for the effective protection and controlled utilization of the environment and for matters incidental thereto.
- **ECO** Ecological Control Officer independent site agent appointed to observe and enforce the implementation of environmental policies and principles on a development site.
- **EIA** Environmental Impact Assessment a process of evaluating the likely environmental impacts of a proposed project or development, taking into account inter-related socio-economic, cultural and human-health impacts, both beneficial and adverse.
- **EMPr** Environmental Management Programme an environmental management tool used to ensure that undue or reasonably avoidable adverse impacts of the construction, operation and decommissioning of a project are prevented and that positive benefits of the projects are enhanced.
- **GIS** Geographic Information System system designed to capture, store, manipulate, analyse, manage, and present all types of geographical data.
- **GPS** Global Positioning System a radio navigation system that allows land, sea, and airborne users to determine their exact location, velocity, and time 24 hours a day, in all weather conditions, anywhere in the world.

- NEMA National Environmental Management Act (Act 107 of 1998, as amended) national legislation that provides principles for decision-making on matters that affect the environment.
- **NEM:BA** National Environmental Management: Biodiversity Act (Act No.10 of 2004) provides for the management and conservation of South African biodiversity within the framework of NEMA.
- **NFA** National Forestry Act (Act No.84 of 1998) provides for the protection of forests, as well as specific tree species within South Africa.
- NSBA National Spatial Biodiversity Assessment aims to assess the state of South Africa's biodiversity based on best available science, with a view to understanding trends over time and informing policy and decision-making across a range of sectors.
- **NWA** National Water Act (Act No.36 of 1998) ensures that South Africa's water resources are protected, used and managed.

Knysna

Emergency and Important Numbers

Emergency Response / Disaster Management	10177
Eden Control Room	044 805 5055
Eden Fire Services	044 801 6376
Police	10111
Knysna SAPS	044 302 6600
National Disaster Management (Cell phone)	112
Disaster Management (Provincial)	021 937 0800
Knysna Hospital	044 302 8400
Knysna Municipality	044 302 6300
Emergency (All hours)	044 302 8911
All Services (after hours)	044 279 1415
Fire Services	044 302 6400
Traffic Department	044 302 6372
Electricity	0860 103 089
Knysna	044 384 0422
Water: (24 hours)	0860 103 054
Sea Rescue (Provincial)	021 449 3500
Knysna	044 384 0211
	044 382 5610
Mountain Rescue	021 948 9900
Western Cape Tygerberg Poison Centre	021 931 6129
Poisons Information Hotline	0861 555 777
African Snakebite Institute	082 494 2039
Child Emergency	0800 123 321
Citizens Advice Bureau	021 422 0300
SANParks, Knysna	044 382 2095
Marine & Coastal Management	044 382 1938
Heritage Western Cape	021 483 9685
Department of Water & Sanitation: Water Pollution	0800 200 200
ROSE Foundation	021 448 7492

1. INTRODUCTION

Cape Environmental Assessment Practitioners (Cape EAPrac) was appointed by the Applicant, <u>Swartvlei Equestrian Estate (Pty) Ltd</u> to develop an Environmental Management Programme (EMPr) which will be used to promote and ensure environmental monitoring and control during all phases (construction, operation and possible decommissioning) associated with the development of an off stream dam to replace four existing off stream dams on Portion 1 of Farm 182, Hoogekraal, near Sedgefield in the Western Cape. The national Department of Forestry, Fisheries & the Environment (DFFE) has been identified as the competent authority for this application.

The applicant is proposing the following:

- Off-stream dam of ±3ha on old crop fields to replace 4 existing off-stream dams;
- Storage capacity of the new dam is expected to be ±106 000m³;
- The dam wall will not exceed 5m in height.

This activity requires an Environmental Authorisation in terms of the National Environmental Management Act (NEMA, Act 107 of 1998) before commencing. This document provides part of a series of documents that is being circulated for public and stakeholder input as part of the Environmental Impact Assessment (EIA) process, before being provided to the competent authority, the national Department of Forestry, Fisheries & the Environment (DFFE) for decision making.



Figure 1: Location Plan



Figure 2: Dam Area location



Figure 3: Dam location with dams identified for closure

The property has been utilised for mixed use agriculture, mostly associated with pine plantations, crop production and livestock for many decades. The zoning of the property is Agriculture Zone I.

Two of the existing dams have failed due to poor construction materials used in the walls, one has been inundated with alien vegetation which has weakened the walls and the fourth is very small and requires electricity to use any of the water. The new dam will replace all four of these. Its location is in an area that has a clay soil content which will provide better material for the walls, it is located downhill of the main holding dam so can be gravity fed thus saving on electrical costs and equipment.



Figure 4: Location of proposed new dam

This EMPr contains **management requirements** and **recommendations** made by *Cape EAPrac*, the appointed specialists (freshwater & terrestrial biodiversity) as well as in terms of the regulations contained in the **National Environmental Management Act** (NEMA, Act 62 of 2008), and best practice principles. The EMPr should be updated to include any conditions of the **Environmental Authorisation** (EA) as issued.

1.1 PURPOSE OF THE EMPR

The purpose of this EMPr is to ensure that the environmental impacts and management of the various phases of the development on the receiving environment are managed, mitigated and kept to a minimum (i.e., the **outcome** of implementing the EMPr). The EMPr must provide easily understood and provide clearly defined **actions** that must be implemented during each phase of the development of the proposal. The EMPr is a dynamic document that is flexible and responsive to new and changing circumstances.

The document is binding on the Applicant, all contractors and sub-contractors and visitors to the site. It must be included as part of any tender documents / agreements, as well as contractual documents between the Applicant and any contractors. Copies of this EMPr must be kept on site and all **senior personnel** are expected to familiarise themselves with the content of this EMPr.

Any changes or deviations to this EMPr must be authorised by the competent authority.

1.2 STATUS OF THE EMPR

It is of utmost importance that this EMPr be read in conjunction with any legally obtained authorisations such as an Environmental Authorisation (EA). This EMPr is viewed as a dynamic document that must be reviewed and updated on a continual basis.

The EMPr is valid for the duration of the project with each applicable phase corresponding to the identified requirements.

2 EMPR PHASING

2.1 PRE-CONSTRUCTION PHASE

The pre-construction phase refers to the design phase of the project. This will ensure that any requirements and best practise mechanisms are built into the planning / design phase to be developed in the construction and operational phase. In term of this application, the pre-construction refers to the site selection and soil testing undertaken to confirm the optimal site for the dam.

2.2 CONSTRUCTION PHASE

The construction phase refers to the actual construction of the development on the property and includes all earthworks and installation of bulk services (water, sewerage, roads, stormwater, electricity etc.). In terms of this application, this phase relates to the excavation that will be undertaken to develop the dam.

2.3 OPERATIONAL PHASE

The Operation Phase of this project relates to the ongoing management required to ensure sustainable agricultural practises and farm management. In terms of this application, this mostly refers to alien invasive management control in the surrounds and dam maintenance.

The Applicant must ensure that the Operational Phase maintains the underpinning principles 'Dutyof-Care-to-the-Environment' and ideals of sustainable development.

2.4 CLOSURE AND DECOMMISSIONING PHASE

Decommissioning refers to the process of removing the operating assets of any development after completion of the operating life cycle.

Agriculture is a long term commitment to production on land. This means that enterprise is a long term one and it is thus not known when, if at all, closure may occur. However, since this is an unknown co-efficient, specific management recommendations are not included with this EMP. In the event that decommissioning is required, all relevant legal processes must be complied with.

3 LEGISLATIVE REQUIREMENTS

The project Applicant is required to comply with all necessary legislation and policies applicable to development and management of the development. These include but are not limited to:

3.1 NATIONAL ENVIRONMENTAL MANAGEMENT ACT (NEMA, ACT 107 OF 1998)

The National Environmental Management Act (**NEMA**, Act 107 of 1998, as amended), makes provision for the identification and assessment of **activities** that are potentially detrimental to the environment and which require authorisation from the competent authority (in this case, the provincial Department of Environmental Affairs & Development Planning (DEA&DP)) based on the findings of an Environmental Impact Assessment (EIA).

NEMA embraces the notion of sustainable development as contained in the Constitution of South Africa (Act 106 of 1996) in that everyone has the right:

- to an environment that is not harmful to their health or wellbeing; and
- to have the environment protected for the benefit of present and future generations through reasonable legislative and other measures.

NEMA aims to provide for cooperative environmental governance by establishing principles for decision-making on all matters relating to the environment and by means of Environmental Implementation Plans (EIP) and Environmental Management Plans/Programmes (EMPr), of which this CMP is one.

Principles contained in Section 2 of the NEMA, amongst other things, prescribe that environmental management must:

- In order of priority aim to: avoid, minimise or remedy disturbance of ecosystems and loss of biodiversity;
- Avoid degradation of the environment and avoid jeopardising ecosystem integrity;
- Pursue the best practicable environmental option by means of integrated environmental management;
- Protect the environment as the people's common heritage;
- Control and minimise environmental damage; and
- Pay specific attention to management and planning procedures pertaining to sensitive, vulnerable, highly dynamic or stressed ecosystems.

It is incumbent upon the landowner, to ensure that the abovementioned principles, entrenched in this EMPr are upheld and complied with.

NEMA is applicable to this application in that a Basic Assessment process is being followed for obtaining Environmental Authorisation for the development of the off stream storage dam.

3.2 ENVIRONMENT CONSERVATION ACT, 1989 (ECA)

The EIA regulations contained in the Environmental Conservation Act (ECA) have been replaced by NEMA. However, property owners must comply with the draft regulations pertaining to noise as published in the province of Western Cape Provincial Extraordinary Gazette as provision made in section 25 of the ECA), as well as Section 24 of the ECA regarding waste management and Section 20 of the ECA dealing with waste management under Part IV, Control of Environmental Pollution.

3.3 <u>NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT (NEM:BA)</u> (ACT 10 OF 2004)

This Act controls the management and conservation of South African biodiversity within the framework of NEMA. Amongst others, it deals with the protection of species and ecosystems that warrant national protection, as well as the sustainable use of indigenous biological resources. Sections 52 & 53 of this Act specifically make provision for the protection of critically endangered, endangered, vulnerable and protected ecosystems that have undergone, or have a risk of undergoing, significant degradation of ecological structure, function or composition as a result of human intervention through threatening processes.

The National List of Threatened Ecosystems (Notice 1477 of 2009, Government Gazette No. 32689, 6 November 2009) was gazetted in 2014. The list of threatened terrestrial ecosystems supersedes the information regarding terrestrial ecosystem status in the National Spatial Biodiversity Assessment (NSBA) 2004 & 2011.

The South African National Biodiversity Institute (SANBI) released the National Biodiversity Assessment (NBA) 2018. The NBA is the primary tool for monitoring and reporting on the state of biodiversity in South Africa and is prepared as part of the SANBI mandate under the National Environmental Management: Biodiversity Act (Act 10 of 2004). This report provided some changes in classification of ecosystem types and classifications.

In the case of this application, the property is zoned for agriculture and has a history of agricultural practise. There are some areas heavily infested with alien invasive vegetation on the site, particularly in the vicinity of watercourses. The clearing of the AIS is a requirement of NEM:BA and as such an AIS Control Plan was developed and is included in this EMPr.

The vegetation type on the site has been identified as follows:

- Garden Route Shale Fynbos, VU (2011), VU (2018); and
- Knysna Sand Fynbos, CR (2011), CR (2018);

Given the years of agriculture on the site and the extent of the alien invasive vegetation infestation, it is unlikely that much of the mapped vegetation remained on site. There are pockets that have not been disturbed and it is crucial that these areas are a focus for alien invasive clearing, along with on site watercourses.



Figure 5: Vegetation Type & Ecosystem Status



Figure 6: Site Development Plan (Confluent Environmental, 2021)

3.4 NATIONAL WASTE MANAGEMENT STRATEGY

The National Waste Management Strategy presents the South African government's strategy for integrated waste management for South Africa.

It deals among others with: Integrated Waste Management Planning, Waste Information Systems, Waste Minimisation, Recycling, Waste Collection and Transportation, Waste Treatment, Waste Disposal and Implementing Instruments.

In the case of the property, an integrated waste management system must be adopted, which includes waste minimisation, waste recycling and the proper storage and disposal of waste, which does not impact of the health of the environment and human health.

3.5 OUTENIQUA SENSITIVE COASTAL AREAS (OSCAE)

The OSCA regulations were enacted in terms of ECA and make provision for properties within specified geographic locations between Groot Brak River and Plettenberg Bay to apply for a permit to undertake construction and vegetation removal activities. According to Schedule 3 of *GNR*.1526 of 27 November 1998: Identification of activities which may have a detrimental effect on the environment: Outeniqua Sensitive Coastal Area Extension, Portion 1 of Farm 182 Hoogekraal is listed as being one of the properties located in an OSCAE area. It must be noted that the mapped area provided shows only a portion 1 of Farm 182 Hoogekraal falling into the scheduled area.

However, since the area has been ploughed and utilised for agriculture for many decades, and prior to the introduction of the OSCAE regulations, the proposed dam area should not require a permit in terms of the following as taken from the regulations: "*Provided that this Notice shall not apply to activities of a like nature carried out in the normal pursuit and within the existing extent, as at the date of this Notice, of agriculture or domestic gardening in areas utilised for the said purposes,".*

Confirmation that no OSCAE application is required was obtained from the competent authority, Knysna Municipality.

3.6 CONSERVATION OF AGRICULTURAL RESOURCES ACT (CARA)

The CARA aims to provide for the conservation of natural agricultural resources by maintaining the production potential of land, combating and preventing erosion and weakening or destruction of water resources, protecting vegetation and combating weeds and invader plant species.

As with NEM:BA, alien invasive plant / weed species listed in terms of CARA must be controlled and/or removed. In the case of the operation of the development, the conservation of soil and water resources is applicable, in the sense that measures must be in place to avoid the pollution or degradation of these resources within the open space areas of the property.

3.7 NATIONAL WATER ACT (NWA, ACT 36 OF 1998)

The National Water Act (NWA) gives effect to the constitutional right of access to water. The Act's overall purpose is to ensure that South Africa's water resources are protected, used and managed in ways which take into account a number of factors, including inter-generational equity, equitable access, redressing the results of past racial and gender discrimination, promoting sustainable and beneficial use, facilitating social and economic development, and providing for water quality and environmental protection.

The NWA makes persons who own, control, occupy or use land responsible for taking measures to prevent pollution of water resources, and empowers Government authorities to take measures to enforce this obligation.

A Water Use License Application (WULA) has been submitted to the Breede Gouritz Catchment Management Agency (BGCMA) for the storage of water in the dam.

3.8 NATIONAL FOREST ACT (ACT 84 OF 1998)

The NFA provides for the **protection of forests**, as well as **specific tree species**, quoting directly from the Act: "no person may cut, disturb, damage or destroy any protected tree or possess, collect, remove, transport, export, purchase, sell, donate or in any other manner acquire or dispose of any protected tree or any forest product derived from a protected tree, except under a licence or exemption granted by the Minister to an applicant and subject to such period and conditions as may be stipulated". The Department of Agriculture, Forestry & Fisheries (DAFF) is responsible for the implementation and enforcement of the NFA, which includes **prohibition of damage to indigenous trees in any natural forest without a licence** (Section 7 of the NFA), as well as the prohibition of the cutting, disturbing, damaging destroying or removing **protected trees** without a licence (Section 15 of the NFA).

In the case of the development, no protected trees have been identified on the developable area.

3.9 NATIONAL VELD AND FOREST FIRE ACT (ACT 101 OF 1998)

The purpose of the National Veld and Forest Fire Act is to **prevent and combat veld**, **forest and mountain fires** throughout the RSA and to provide institutions, methods and practices for achieving this purpose. Institutions include the formations of such bodies as **Fire Protection Associations** (FPA's) and **Working on Fire**. The Act provides the guidelines and constitution for the implementation of these institutions as well as their functions and requirements.

All landowners are required in terms of this Act to prepare and maintain **firebreaks** on the boundary of their property and any adjoining land. Only the Minister may exempt a landowner from providing firebreaks.

In areas that are considered a high fire risk, especially in vegetation types that tend to be fire driven ecosystems, it is recommended that a fire management plan is put in place, or the owner becomes a

member of the local FPA and fall under the umbrella of the regional fire management strategy. **The Southern Cape is considered to be a fire driven ecosystem.**

The clearance of high risk AIS is significant in this area which has been inundated with serious, life threatening fires in the past years. The applicant is a member of the South Cape FPA, who has been assisting them to manage their biomass and conduct controlled burns.

3.10 NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999)

The purpose of the National Heritage Resources Act is to:

- Introduce an integrated and interactive system for the management of the national heritage resources;
- Promote good government at all levels,
- Empower civil society to nurture and conserve their heritage resources so that they may be bequeathed to future generations;
- To lay down general principles for governing heritage resources management throughout South Africa;
- To introduce an integrated system for the identification, assessment and management of the heritage resources of South Africa;
- To establish the South African Heritage Resources Agency together with its Council to coordinate and promote the management of heritage resources at national level;
- To set norms and maintain essential national standards for the management of heritage resources in South Africa and to protect heritage resources of national significance;
- To control the export of nationally significant heritage objects and the import into South Africa of cultural property illegally exported from foreign countries;
- To enable the provinces to establish heritage authorities which must adopt powers to protect and manage certain categories of heritage resources;
- To provide for the protection and management of conservation-worthy places and areas by local authorities; and
- To provide for matters connected therewith.

The appointed heritage specialist has confirmed that the dam will not impact on any heritage resources. In terms of the proposed development, if any evidence of archaeological remains are unearthed, this must be communicated to the Heritage Western Cape immediately. See the Heritage Requirements in this report for detailed instructions as to communicating any finds.

3.11 OCCUPATIONAL HEALTH AND SAFETY ACT (ACT 85 OF 1993)

The Act provides for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work.

In terms of this Act, a Health and Safety Officer and Protocol must be implemented on any sites. The appointment of a Health and Safety Officer is the responsibility of the proponent and contractor and is included in this report to ensure due diligence on construction sites. It is the responsibility of the appointed to HSO to conduct any required audits and as such only the appointment of an HSO will be auditable in terms of this document.

4 ENVIRONMENTAL IMPACTS & MITIGATIONS

The following specialist studies were undertaken for the proposal:

- Aquatic Compliance Statement;
- Terrestrial Biodiversity Compliance Statement;
- Heritage Notice of Intent of Develop (NID)

In addition, the following technical studies were undertaken:

- Dam Engineering;
- Geotechnical;
- Site Development Plan; and
- Water Use License Application (WULA).

None of the participating specialists identified any impacts that would be considered high after mitigation. Because of the risk adverse approach followed for the development of the preferred layout, all the main sensitive features, (most notably steep lopes and sensitive areas) were avoided.

The affected area is considered suitable for development and there are no impacts associated with the activity that rate higher than Very Low. Mitigation measures proposed are Best Practise which will aid in the overall management of the property achieving some conservation outcomes. There are no fatal flaws or high post-mitigation impacts that should prevent the development from proceeding.

4.1 IMPACTS & MITIGATIONS

The table below summarises the significance (with mitigation) of all impacts assessed in the sections above¹.

For ease of easy references, impacts are visually reflected using the following colour scheme².

All positive impacts (regardless of their significance)

Neutral or Negligible negative impacts

Very Low and Low negative impacts

Medium negative impacts

Medium – High, High and Very High negative impacts

Impact	ificance (with mitigation)					
Aquatic Impacts						
Loss and/or fragmentation of indigenous natural vegetation due to clearing	Very Low					
Terrestrial Biodiversity Impacts						
Loss and/or fragmentation of indigenous natural vegetation due to clearing	None					
Heritage Impacts						
Loss of heritage resources	None					

Please refer to the table below, which summarises the mitigation measures recommended by both the Specialists and Cape EAPrac, in terms of Best Practise. This table summarises the mitigations, and details whether they should be included as conditions of approval, or whether they have been included as actions in the EMPr. The table furthermore reflects to which stage of the development

¹ In order to attain these outcomes, the mitigation measures reflected in section 7 of the report need to be implemented.

² Where specialist ratings fall across 2 of the groups, the worst case is reflected in the quick reference.

the proposed mitigation measures are applicable. In instances where suggested mitigations have already been incorporated into the design phase, they have been reflected as such.

Mitigation	Idition of Approval	uded in EMPr	itruction se	ational e	missioning e
	Cor	Incl	Cons Phas	Dper)eco Phas
			- U		
Aquatic & Terrestrial Ecology					
All Invasive Alien Plant species must be controlled as new and re-emerging plants continue to appear or spread. Continue with the implementation of an Alien Invasive Control Plan.	~	~	~	~	
Construction and operational management of the development must ensure that no encroachment by agriculture or edge effects impacts upon the remaining undisturbed natural areas, as identified in the Confluent SDP.		~	~	~	
Undertake regular monitoring to detect erosion features early so that they can be controlled.		~	~		
Implement the 15m vegetated buffer along the Swartvlei.	✓	\checkmark	✓	✓	
Excavation and earthworks proposed to be conducted for the dam must remain within the development footprint, and be demarcated from the remaining natural area. No materials may be excavated from any areas identifed as natural in the Confluent SDP. Exposed surfaces and slopes may be covered with stack pile mulch and debris, hessian cloth and / or "sausage rolls" to prevent loss of soil by natural wind and water erosion during construction.		~	✓		
Dust management during construction		\checkmark	\checkmark		
Access to sensitive areas outside of development footprint should not be permitted during construction.		✓	~		
Undertake regular monitoring to detect alien invasions early so that they can be controlled.		~	~	~	
Proper waste management must be implemented, ensuring no toxic or dangerous substances are accessible to wildlife. This should also apply to stockpiles of new and used materials to ensure that they do not become a hazard.		\checkmark	\checkmark		

5 **RESPONSIBILITIES**

This section deals with the responsibilities of various parties during the Construction Phase of any development.



5.1 HOLDER OF THE EA

The holder of the EA / property owner is the overseeing entity responsible for ensuring that all activities undertaken on the property comply with the Environmental Authorisation (EA) and associated Environmental Management Programme (EMPr) (& any other approval / licence / permit), as well as the management and maintenance of the open space areas (protected vegetation.

The responsibilities of the holder of the EA / property owner include, but are not limited to the following:

- Ensure that **all tender documentation** include reference to, and the need for compliance with, the EA and EMPr as well as any other legally binding documentation, which include and are not limited to:
 - the Municipal Approval/s (, service agreements & building plans etc.);
- Be conversant with, and ensure that all Contractors, Sub-contractors, Engineers (and future senior site managers / personnel) are made aware of, and understand the conditions and recommendations, contained in the abovementioned documentation;
- Ensure that all Contractors, Sub-contractors, Engineers (during construction activities), as well as all future visitors and service providers (during operation) are made aware of their 'Duty of Care to the Environment' and that any damage or degradation of the natural environmental within the bounds of the property will be not be tolerated and must be dealt with / remedied at the cost of the perpetrator;
- Take remedial and/or disciplinary action in circumstances where persons are found to be in contravention of the abovementioned legally binding documentation.

5.2 ENGINEERS, CONTRACTORS & SERVICE PROVIDERS

The Engineers, Contractors and Service Providers are often the parties responsible for physically carrying out the activities for which majority of the recommendations in this EMPr are intended. Service providers and Contractors include: services, building contractors, 'handy-men' and engineers overseeing the installation and maintenance of services etc. The responsibilities indicated here are also relevant to Sub-Contractors.

The responsibilities of these parties include but are not limited to the following:

- Be conversant and compliant with the EA, the EMPr, and any relevant License, Permit or any legally binding documentation relevant to their operations;
- Have a responsibility to adhering to any conditions and recommendations laid out in above mentioned documentation;
- Prevent actions that may cause harm to the environment;
- Be responsible for any remedial activities in response to an environmental incident within their scope of influence;
- Liaise with the holder of the EA in complying with the EMPr, and in the event that any industry regulated standards are in contradiction with the EMPr or any other authorisations.
- Review and amend to any construction activities to align with the EMPr and Best Practice Principles;
- Ensure compliance of all site personnel and / or visitors to the EMPr and any other authorisations.

5.3 ECOLOGICAL CONTROL OFFICER (ECO)

It is recommended that a suitably qualified Environmental Control Officer (ECO) be appointed to oversee all activities for the duration of the construction phase (i.e. demolition, construction activities, services). The ECO must have a minimum of a tertiary level qualification in the natural sciences field. The ECO must have at least 3 years' experience and proven competency as an ECO. The responsibilities of the ECO include but are not limited to the following:

- Provide environmental induction training to Contractors on site prior to construction activities commencing
- Provide maintenance, update and review of the EMPr if necessary;
- Liaison between the Project Holder of the EA, Contractors, Authorities and other lead stakeholders on all environmental concerns, including the implementation of the EMPr;
- Compilation of Environmental Control Reports (ECR) to ensure compliance with the EA, EMPr and duty of care requirements, where necessary;
- Compilation of the Environmental Audit Report or Environmental Completion Statement, after completion of construction (or as otherwise defined in the Environmental Authorisation), where necessary;
- Ensuring / guiding and monitoring compliance with the EA and EMPr and any legally binding documentation;
- Facilitating consultation with relevant environmental authorities (e.g. DEA&DP, GRDM, CapeNature or Municipality);
- Facilitating the application for any required environmental authorisation, permit or licence;
- Provide guidance and interpretation of the EA and EMPr where necessary;
- Issuing site instructions to the contractor for corrective actions required;
- The ECO is required to conduct regular site visits for the duration of the construction period, in order to ensure the Contractor receives the necessary induction and that all procedures are in place. Additional visits may be undertaken in the event of any unforeseen environmental accidents;
- The duration and frequency of these visits may be increased or decreased at the discretion of the ECO;
- Attendance of site meetings if required;
- Maintain a record of environmental incidents (e.g. spills, impacts, legal transgressions etc.) as well as corrective and preventative measures taken. This information must also be included in the ECR;
- Maintain a public complaints register in which all complaints and action taken must be recorded. This information must also be included in the ECR.

5.4 ECO SITE VISIT FREQUENCY

The following site frequency for ECO site visits has been determined:

- Every second week during construction works;
- Six months after construction is completed to inform the Completion Statement;
- Ad hoc site visits may be undertaken in the event of any incidents or specific requests from the project holder of the EA or project team.

5.5 ENVIRONMENTAL INDUCTION & TRAINING

The holder of the EA in consultation with the Contractor shall ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction presentation on the importance and implications of the EA and EMPr. The presentation shall be conducted, as far as is possible, in the employees' language of choice. The Contractor must provide a translator from their staff for the purpose of translating, if this is deemed necessary.

As a minimum, training must include:

- Explanation of the importance of complying with the EA and EMPr and the employees accountability;
- Discussion of the potential environmental impacts of construction activities;
- The benefits of improved personal performance;
- Employees' roles and responsibilities, including emergency preparedness ;

- Explanation of the mitigation measures that must be implemented when carrying out their activities;
- Explanation of the specifics of this EMPr and its specification (no-go areas, etc.);
- Explanation of the management structure of individuals responsible for matters pertaining to the EMPr.

Where staff turnover is high and with additional appointment of Sub-contractors, it may be necessary to undertake additional induction training sessions. The Contractor must keep records of all environmental training sessions, including names, dates and the information presented.

6 PRE CONSTRUCTION DESIGN CONSIDERATIONS

It is recommended that sustainable design considerations are implemented during the planning phase in order to ensure that the impacts associated with the development are avoided, minimised or managed before construction commences.

6.1 WATER RESOURCE PROTECTION Impacts & Risks Avoided Management Statement To minimise the destruction of water resources by Protection of water resources during construction improving consumption methods **Management Actions** a. Erosion control mechanisms Responsible Method of Party for Mechanism for Programme for Frequency of monitoring implementing Time period monitoring reporting on Monitoring implementation management Compliance Compliance action Visual Ad Contractor Permanent Audit Monthly hoc. or inspection particularly with until riparian by rainfall events ECO to confirm vegetation is presence matured and effectiveness of mechanisms Additional Considerations where necessary: Implement a riparian buffer zone along watercourses where no heavy machinery is permitted to enter, and vegetation is to be rehabilitated;

6.2 DEMARCATION OF WORK AND NO-GO AREAS

Management Statement

Impacts & Risks Avoided

To clearly define the work area and avoid impacting on non-works areas.			Negative construction impacts on natural and rehabilitated areas				
Management Actions							
a. Clearly	identify and dema	rcate the watercou	rse and its buffer z	zone.			
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance		
Method Statement	Once off	Owner / contractor	Pre implementation	Audit	Once off		
b. Fuel ar	nd chemicals may o	only be stored in a	designated work a	irea.			
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance		
Method Statement	Once off	Owner / contractor	Pre implementation	Audit	Once off		

7 CONSTRUCTION CONSIDERATIONS

These Construction Phase requirements are aimed at using Best Practise Principles and / or specialist recommendations to manage the impacts on the environment during the construction of the development.

7.1 STORMWATER MANAGEMENT							
Management Statement	Impacts & Risks Avoided						
To minimise the generation of contaminated stormwater.	Minimise sedimentation, erosion and / or nutrification of the watercourse						
Management Actions							
a. Minimise the quantity of stormwater entering cleared areas.							

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance		
Method Statement	Once off	Owner / contractor	Pre implementation	Audit	Once off		
Additional Considerat	ions where necess	arv.					
 Implement a riparian buffer zone along watercourses where no heavy machinery is permitted to enter, and vegetation is to be rehabilitated; 							
7.2 <u>DUST CONTROL</u>							
Manag	ement Statemer	nt	Impac	ts & Risks Avoi	ded		
To ensure there is no health risk or loss of amenity due to emission of dust to the environment. Ensure land coverage with crops / vegetation to minimise dust from vehicles					vegetation to		
Management Actions							
a. Im	plement a dust prev	vention strategy,	developed at the	project planning sta	age		
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance		
Method Statement	Once off	Owner / contractor	Pre implementation	Audit	Once off		
7.3 <u>NOISE & VI</u>	BRATION						
Manag	ement Statemer	nt	Impac	ts & Risks Avoi	ded		
To ensure nuisance f occur.	rom noise and vibra	Limited impact due to the location of the property					
Management Actions							
a. Fit ar	nd maintain approp	riate mufflers on	earth-moving and	l other vehicles on	the site		
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing	Time period	Mechanism for monitoring Compliance	Programme for reporting		

		management action			on Compliance
As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly. As required if complaints registered.	Contractor	During construction and operation	Audit	As required
b. Enclo	ose noisy equipmer	nt such as gener	ators and pumps.		
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly. As required if complaints registered.	Contractor	During construction	Audit	As required
c. Provi	de noise attenuatio	on screens, wher	e appropriate.		
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
As required	Initially when vehicle or machinery is introduced to the site and thereafter monthly. As required if complaints registered.	Contractor	During construction	Audit	As required

d. Whe hours pract	d. Where an activity is likely to cause a noise nuisance to nearby residents, restrict operating hours to between 7 am and 6 pm weekdays and 7 am to 1 pm Saturday, except where, for practical reasons, the activity is unavoidable.						
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance		
As required	As required if complaints registered.	Contractor	During construction	Audit	As required		
7.4 <u>WASTE MA</u>	7.4 WASTE MANAGEMENT						
Management Statement Impacts & Risks Avoided							
To minimise the waste load discharged to the environment.			Improve waste disposal methods during construction Reduce waste volumes to landfill sites				
Management Actions							
a. Redu recyc	uce wastes by sel cling.	ecting, in order	of preference, a	voidance, reductio	n, reuse and		
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance		
Record of volumes of material removed	As required	Contractor	As required	Audit	Records		
b. Main can b	tain a high quality be washed or blowr	of housekeeping away to becom	and ensure that e litter.	materials are not le	eft where they		
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance		
Photographic	Weekly	Contractor	As required	Audit	Records		

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance			
Photographic	Weekly	Contractor	As required	Audit	Records			
d. Conc	d. Conduct ongoing awareness with staff of the need to avoid littering.							
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance			
Induction	Once off	Contractor	As required	Audit	Attendance register			

7.5 STOCK PILE MANAGEMENT

Manag	ement Statemer	Impacts & Risks Avoided				
To manage soil stockpiles so that dust and sediment in run-off are minimised.			Pollution due to dust and sediment run off			
Management Actions						
a. Minimise the number of stockpiles, and the area and the time stockpiles are exposed.						
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance	
Photographic	As required	Contractor	As required	Audit	Records	
b. Keep topsoil and underburden stockpiles separate.						
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance	

Visual inspection of stockpiles	Daily when stripping topsoil	Contractor	Continuously during construction	Audit	Records		
c. Loca and v	te stockpiles away t where they will be le	from drainage lin east susceptible	es, at least 10 me to wind erosion.	etres away from nat	tural waterways		
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance		
Visual inspection of stockpiles	Daily when stripping topsoil	Contractor	Continuously during construction	Audit	Records		
d. Ensu (horiz	re that stockpiles zontal/vertical).	and batters a	ire designed w	ith slopes no gre	eater than 2:1		
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance		
Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly		
e. Stabi mulcl	ilise stockpiles and h or anchored fabri	batters that will r cs or seeding wi	emain bare for m th sterile grass.	nore than 28 days b	y covering with		
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance		
Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly		
f. Estal	f. Establish sediment controls around unstabilised stockpiles and batters.						
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance		

Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly	
g. Suppress dust on stockpiles and batters, as circumstances demand.						
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance	
Visual inspection of stockpiles	As required	Contractor	Continuously during construction	Audit	Monthly	

7.6 STORING FUELS & CHEMICALS						
Manag	jement Statemer	nt	Impa	cts & Risks Avo	ided	
To ensure that fuel and chemical storage is safe, and that any materials that escape do not cause environmental damage.			Avoid hydrocarbon pollution to soil and watercourses			
Management Actions						
a. Minir	a. Minimise fuels and chemicals stored onsite.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance	
Method statement	As required	Contractor	As required	Audit	Method statement records	
b. Insta	ll bunds and take o	ther precautions	to reduce the risl	k of spills.		
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance	
Method statement	As required	Contractor	As required	Audit	Method statement records	

c. Implement a contingency plan to handle spills, so that environmental damage is avoided.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
7.7 <u>CEMENT B</u>	ATCHING				
Manag	jement Statemer	nt	Impa	cts & Risks Avoi	ided
Cement powder has a high alkaline pH that may contaminate and adversely affect both soil pH and water pH negatively. A rapid change in pH can have consequences on the functioning of soil and water organisms as well as on the botanical component.			Minimises negative impacts to vegetation and soils on areas that will not be hard surfaced.		
		Management	Actions		
a. All co deve	oncrete batching m lopment.	ust take place or	n an area that is t	o be hard surfaced	as part of the
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
b. Conc run c a sui	 b. Concrete mixing areas must have bund walls or a settling pond in order to prevent cement run off. Once the settling ponds dry out, the concrete must be removed and dispatched to a suitable disposal site. 				
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records

c. When using Readymix concrete, care must be taken to prevent spills from the trucks while offloading. This form of batching is preferable for large constructions as no on site batching is required and there is a lesser likelihood of accidental spills and run off. Trucks may not be washed out on site.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Method statement	As required	Contractor	As required	Audit	Method statement records
7.8 FIRE MANA	GEMENT				
Manag	Management Statement Impacts & Risks Avoided				
To ensure prevention of unnecessary fires that may cause risk to the environment and human health.			Prevents unnecessary fires from causing damage to the vegetation and soils, as well as protecting infrastructure and lives.		
		Management	Actions		
a. In ca be re	se of an emergenc adily available (see	y, the contact de e contact list on p	tails of the local fi bage x above)	ire and emergency	services must
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Emergency	Once off	Contractor	Once off	Audit	Photographs

7.9	MINIMISING EROSION

Management Statement	Impacts & Risks Avoided		
To minimise the quantity of soil lost during construction due to land-clearing.	 Avoid overland flow by capture and store water from roof Avoid siltation by installing silt traps 		
Management	Actions		
a. Schedule measures to avoid and reduce land disturbance in the planning and des	erosion by phasing the work program to minimise ign stage.		

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance	
Method statement	As required	Contractor	As required	Audit	Method statement records	
b. Keep to a r	the areas of land on inimum	cleared to a mini	mum, and the pe	eriod of time areas	remain cleared	
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance	
Method statement	As required	Contractor	As required	Audit	Method statement records	
c. Base payir	c. Base control measures to manage erosion on the vulnerability of cleared land to soil loss, paying particular attention to protecting slopes.					
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance	
Method statement	As required	Contractor	As required	Audit	Method statement records	
d. Mulci more	h, roughen and see than 28 days, with	ed cleared slope sterile grasses.	es and stockpiles	where no works a	are planned for	
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance	
Method statement	As required	Contractor	As required	Audit	Method statement records	
e. Keep	e. Keep vehicles to well-defined haul roads.					

Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period Mechanism for monitoring Compliance Co		Programme for reporting on Compliance
Site plan	As required	Contractor	As required	Audit	Final site plan
f. Reha	abilitate cleared are	as promptly.			
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	ed Contractor Continuously Audit during construction		Audit	Final Rehabilitation statement
7.10 BOTANICA	L MANAGEMEI	<u>NT</u>			
Manag	jement Statemer	nt	Impa	acts & Risks Avo	bided
To ensure that degrad components are mining	dation to existing b mised and that any	otanical rehabilitation	To minimise the disturbance to existing flora To minimise the introduction and/or spread of		
is undertaken with co	nservation orientation	ed approach.	weed species		
		Management	Actions		
a. Imple	ement the AIS man	agement on an c	ongoing basis		
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Visual / photographic	As required	Contractor	Continuously	Audit	Visual / photographic

7.11 SOCIAL REQUIREMENTS

Management Statement	Impacts & Risks Avoided
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To ensure equitable, fair and safe social interaction on construction sites			Loss of employment opportunities to the region		
		Management	Actions		
a. It is s for th	trongly recommender e construction phase	ded that the Con se of the project.	tractor make use	of local labour as f	ar as possible
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Employment records	Ad hoc	Contractor	Ad hoc	Audit	Once off
b. Theft and other crime associated with construction sites is not only a concern for surrounding residents, but also the Developer and the Contractor.					concern for
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Site records	Ad hoc	Contractor	Ad hoc	Audit	Once off
7.12 HERITAGE	REQUIREMEN	<u>TS</u>			
Manag	ement Statemer	nt	Impacts & Risks Avoided		
To minimise the impa and maintenance of th in the Project area.	cts of development he Project on the h	a, operation eritage values	Ensure heritage impacts are minimised, and impacts outside of the approved disturbance area are avoided.		
		Management	Actions		
a. No di	sturbance of herita	ge values outsid	e of the approved	disturbance area.	
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance
Site records	Ad hoc	Contractor	Ad hoc	Audit	Once off

- Should any heritage remains of potential cultural value be exposed during excavations, these must be immediately reported to the ECO and the Provincial Heritage Resource Authority of the Western Cape, namely Heritage Western Cape in terms of the national Heritage Resources Act (Act No. 25 of 1999). Heritage remains uncovered or disturbed during earthworks may not be disturbed further until the necessary approval has been obtained from Heritage Western Cape.
- Should any archaeological remains including (but not limited to) fossil bones, fossil shells, coins, indigenous ceramics, colonial ceramics, marine shell heaps, stone artefacts, bone remains, rock art, rock engravings and any antiquity be discovered during construction, they must be immediately reported to the ECO and Heritage Western Cape and not disturbed further until the necessary approval has been obtained.
- Should any human remains be uncovered, they must immediately be reported to the ECO and the HWC archaeologist, who can be contacted on **(021) 483 9685**. Construction in the area must cease immediately and the site may not be disturbed further until the necessary approval has been obtained.

Management Statement			Impacts & Risks Avoided		
To ensure efficient communication mechanisms in the implementation of environmental performance requirements			Prevention of potential impacts are avoided during construction by means of correct communication		
Management Actions					
 a. Method statements are written submiss the requirements of this EMPr or to a rec to prepare method statements for environmental management aspects. 			ons by the Contr uest by the ECO. several specific	actor to the ECO in The Contractor sha construction acti	n response to all be required ivities and/or
Method of monitoring implementation	n Frequency of Monitoring Responsible Party for implementing management action Time period Mechanism for Compliance Programmed Progr				
Method statement	ethod statement Ad hoc Contractor As required				Once off
 Based on the specifications in this EMPr, the following method statements are required as a minimum (more method statements may be requested as required at any time under the direction of the ECO): Demarcation of No-Go areas 					

7.13 METHOD STATEMENTS

- Site clearing
- Hazardous substances and their storage.
- Cement and concrete batching.
- Solid waste control system.
- Fire control and emergency procedures
- Petroleum, chemical, harmful and hazardous materials storage, if any.

7.14 WATER MANAGEMENT

Southern Africa is the second region in the world to be confronted by a debilitating water deficit (the first was the Middle East and North Africa) (Turton, 2000). Within the region, South Africa stands out as one of the most water-scarce countries. The country is also characterised by extremely variable rainfall, both geographically and over time. In the 12% of the country that is suitable for the production of rain-fed crops, productivity tracks rainfall, making farming a challenging business. Climate change predictions are that rainfall will be more infrequent but more intense. This will shrink the country's arable land and increase agricultural unpredictability. Farmers will find it increasingly difficult to increase productivity to meet the growing demand for food. This highlights the need for sound cropping and rangeland production practices to retain soil integrity despite these predicted intense rainfall events.

It has been shown over and over that managing soils and removal of alien vegetation are the two most effective management strategies to improve water yield.

The following Best Practice in terms of water use must be implemented where applicable to this application:



Increasing supply

- Remove invasive alien plants and replace with indigenous vegetation.
- Restore and protect wetlands (remove alien plants, control burning and grazing, do not cultivate).
- Leave at least a 30-40 m natural vegetation buffer zone between cultivated land and a river, and a 25-70 m buffer around a wetland.

Reducing demand

- Build up soil organic matter to reduce evaporative water loss and maximise the soil's water-holding capacity.
- Use more efficient irrigation systems, such as drip irrigation.
- Ensure efficient irrigation techniques that take into account soil type, crop type, soil water status and weather conditions.
- Maintain irrigation systems regularly.
- Where necessary, register water use with the Department of Water Affairs.
- Record actual water use to compare against registered use.
- Implement water-harvesting and water-recycling techniques where possible.
- Use drought-resistant crop and livestock varieties.

Figure 8: Best Practise Water Use (WWF,2010)

7.15 BEST PRACTISE PRINCIPLES

Implementing Best Practise in agriculture is strongly supported both in terms of NEMA and by conservation organisations. As a general rule the following principles should be incorporated into the farming business:

Good practice

- Identify natural ecosystems on the farm and draw up a management plan for their protection. This should include activities such as invasive alien plant control, reconnecting natural systems by establishing corridors and riparian/wetland buffer zones, erosion control, judicious water use, pollution control, hunting and poaching control, species checklists, etc.
- Where applicable, enter into a biodiversity stewardship agreement with the local conservation agency.
- Use a combination of predator-friendly methods of predator control for livestock farming, such as Anatolian guard dogs, herders, livestock protection collars, fencing, kraaling, noises and smells.
- Rehabilitate and maintain water sources and wetlands.
- Ensure sustainable extraction rates and monitoring systems when harvesting indigenous species.
- Develop new crops from indigenous crops for niche markets and promote the use and improvement of indigenous animal species.
- Minimise the use of herbicides; use mulch instead.
- Minimise the use of pesticides and rather encourage plant health (through healthy soil and suitable crop varieties) and populations of pest predators (for example by leaving corridors of natural vegetation throughout the farm).
- Prevent pesticide, herbicide and fertiliser run-off into the environment.
- Apply the precautionary principle to the use of genetically modified crops, i.e. carefully research all the available information.

Figure 9: WWF Best Practise Principles (WWF, 2010)

7.16 HEALTH AND SAFETY

The Contractor must ensure compliance with the Occupational Health and Safety (No. 85 of 1993). Of key importance is the following (Section 8 of the aforesaid act):

8. General duties of employers to their employees:

(1) Every employer shall provide and maintain, as far as is reasonably practicable, a working environment that is safe and without risk to the health of his employees.

(2) Without derogating from the generality of an employer's duties under subsection (1), the matters to which those duties refer include in particular-

(a) the provision and maintenance of systems of work, plant and machinery that, as far as is reasonably practicable, are safe and without risks to health;

(b) taking such steps as may be reasonably practicable to eliminate or mitigate any hazard or potential hazard to the safety or health of employees, before resorting to personal protective equipment;

(c) making arrangements for ensuring, as far as is reasonably practicable, the safety and absence of risks to health in connection with the production, processing, use, handling, storage or transport of articles or substances;

(d) establishing, as far as is reasonably practicable, what hazards to the health or safety of persons are attached to any work which is performed, any article or substance which is produced, processed, used, handled, stored or transported and any plant or machinery which is used in his business, and

he shall, as far as is reasonably practicable, further establish what precautionary measures must be taken with respect to such work, article, substance, plant or machinery in order to protect the health and safety of persons, and he shall provide the necessary means to apply such precautionary measures;

(e) providing such information, instructions, training and supervision as may be necessary to ensure, as far as is reasonably practicable, the health and safety at work of his employees;

(f) as far as is reasonably practicable, not permitting any employee to do any work or to produce, process, use, handle, store or transport any article or substance or to operate any plant or machinery, unless the precautionary measures contemplated in paragraphs (b) and (d), or any other precautionary measures which may be prescribed, have been taken;

(g) taking all necessary measures to ensure that requirements of this Act are complied with by every person in his employment or on premises under his control where plant or machinery is used;

(h) enforcing such measures as may be necessary in the interest of health and safety;

(i) ensuring that work is performed and that plant or machinery is used under the general supervision of a person trained to understand the hazards associated with it and who have the authority to ensure that precautionary measures taken by the employer are implemented; and

(j) causing all employees to be informed regarding the scope of their authority as contemplated in section 37 (1) (b).

The Occupational Health and Safety Act aims to provide for the health and safety of persons at work and for the health and safety of persons in connection with the activities of persons at work and to establish an advisory council for occupational health and safety.

Health & Safety on site is the responsibility of the contractor and the proponent.

Although this is not the function of the ECO, it is a standard requirement for building construction and must be monitored and evaluated by a suitably qualified Health & Safety person. It will not form part of any environmental audit in the future.

8 OPERATIONAL PHASE ENVIRONMENTAL MANAGEMENT REQUIREMENTS

The Operational Phase of this EMPr refers to the day to day management activities that are required to ensure sustainability and the achievement of the principles and objectives of the development. The requirements are applicable to the proponent, all employees and all visitors to the property.

8.1 <u>ALIEN II</u>	8.1 ALIEN INVASIVE MANAGEMENT					
Man	agement Staten	nent	Impa	icts & Risks Avo	bided	
To ensure management and prevention of the spread of alien invasive vegetation leading to biodiversity impacts			To minimise the To minimise the species	disturbance to exis introduction and/or	sting flora r spread of weed	
	Management Actions					
a. The following alien invasive plant species are known to occur on the property and must be removed / eradicated as part of the initial site clearing and rehabilitation:.					erty and must be	
Method of monitoring implementation	Frequency of Monitoring	Responsible Party for implementing management action	Time period	Mechanism for monitoring Compliance	Programme for reporting on Compliance	
AIS Control	Ongoing	Contractor / landowner	As required	Audit	Audit	
Black wattle (Acacia mearnsii)						
An evergreen tree growing 5-10m high, black wattle has dark olive-green finely hairy leaves. Pale						

An evergreen tree growing 5-10m high, black wattle has dark olive-green finely hairy leaves. Pale yellow or cream spherical flowers in large fragrant sprays blooming from August to September. Fruits are dark brown, finely haired pods.

Black wattle has invaded grasslands, competing with and reducing indigenous species, and reducing grazing land for wild and domestic animals (*Invasive Species S.A:* <u>www.invasives.org.za</u>).

This exotic Acacia is listed as a Category 2 invader.



Figure 10: Acacia mearnsii (www.invasives.org.za, 2019)

The biological control: the gall midge (*Dasineura rubiformis*) has proven very successful at controlling reproduction and seed set in Black Wattle. Mechanical control techniques include ringbarking, as well as cutting the plants off at ground level and then applying herbicide to prevent resprouting from the roots (a chemical control).

This plant is listed as **Category 2** for plantations and wind-rows. b. **Category 1b** elsewhere. c. National Heritage Trees or National Monument Trees in terms of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), are not listed. d. Specimens with a diameter (calliper width) greater than 400 mm at a height of 1000 mm at the date of publication of the Notice are not listed for urban areas in Cape Town, the Overberg District Council and Winelands District Council, except when in riparian areas where they remain Category 1b.

Mechanical control is recommended.

Sugar Gum (Eucalyptus cladocalyx)

A tall slender, evergreen tree growing 15-40m high with smooth, flaky, tan-coloured bark. The dark green leaves are glossy above and pale below and the foliage is concentrated at the end of the branches. Cream flowers appear from October to February and the tree produces brown fruit capsules. The leaves are poisonous producing prussic acid. This tree invades fynbos, forest clearings, plantations, water courses and roadsides. *(Invasive Species S.A: www.invasives.org.za*).

It competes with and replaces indigenous species. Trees along watercourses are likely to reduce stream flow.

This plant is listed as a **Category 1b** within- (i) riparian areas; (ii) a Protected Area declared in terms of the Protected Areas act; or, (iii) within a Listed Ecosystem or an ecosystem identified for conservation in terms of a Bioregional Plan or Biodiversity Management Plans published under the Act. b. Not listed within Nama-Karoo, Succulent Karoo and Desert biomes, excluding within any area mentioned in (a) above. c. **Category 1b** in Fynbos, Grassland, Savanna, Albany Thicket, Forest and Indian Ocean Coastal Belt biomes, but- (i) Category 2 for plantations, woodlots, beeforage areas, wind-rows and the lining of avenues. (ii) Not listed within cultivated land that is at least 50 metres away from untransformed land, but excluding within in any area in (a) above. (iii) Not listed within 50 metres of the main house on a farm, but excluding in (a) above. (iv) Not listed

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in urban areas for trees within a diameter of more than 400 mm at 1000 mm height at the time of publishing of this Notice, but excluding in (a) above.



Figure 11: *Eucalyptus cladocalyx* (www.invasives.org.za, 2019)

A combination of mechanical and chemical control is recommended.

Monterey Pine (Pinus radiata)

A coniferous tree 12-25m high with a broad, rounded canopy. Dark green leaf needles in bundles of two to three which are very densely arranged. Yellowish-brown, woody cones 7-14cm long. This pine invades fynbos, forest clearings, grasslands, usually on moist mountain slopes. *Invasive Species S.A: <u>www.invasives.org.za</u>*). Competes with and replaces indigenous species. Dense stands can reduce water runoff and stream flow from mountain catchments, reduce grazing, and pose a fire hazard which threatens the survival of indigenous animal and plant species



Figure 12: Pinus Radiata (www.invasives.org.za, 2019)

This plant is listed as **Category 2** for plantations and wind-rows. b. **Category 1b** elsewhere. c. National Heritage Trees or National Monument Trees in terms of the National Heritage Resources Act, 1999 (Act No. 25 of 1999), are not listed. d. Specimens with a diameter (calliper width) greater

than 400 mm at a height of 1000 mm at the date of publication of the Notice are not listed for urban areas in Cape Town, the Overberg District Council and Winelands District Council, except when in riparian areas where they remain Category 1b.

Mechanical control is recommended.

<u> Kikuyu Grass (Pennisetum clandestinum)</u>

Popular as a lawn grass used in gardens, on sports grounds and public parks. Kikuyu grass is a rhizomatous grass with matted roots and a grass-like or herbaceous habit. It is a prostrate perennial, which may form a loose sward up to 46cm high when ungrazed, but under grazing or mowing, it assumes a dense turf. The grass spreads vigorously from rhizomes and stolons, which root readily at the nodes and are profusely branched. (*reference: Invasive Species S.A:* <u>www.invasives.org</u>).

This exotic plant is listed as a **Category 1b** invader if it occurs in wetlands or protected areas i.e. destroy and control future generations. It is **not listed elsewhere**, however as it is an aggressive invader, it is recommended that it not be allowed to be planted as a lawn, as it may invade into the aquatic areas. It is thus recommended that Kikuyu grass be actively controlled (removed) from the open space areas and that indigenous lawn grass species, such as Kweek (*Cynodon dactylon*)(in full sun) and/or Buffalo Grass (in full sun or partially shade), be planted within the individual erven, as an alternative.

Manual control of this grass it extremely difficult, as it regrows from any piece of rhizome left behind. Thus herbicide control should be applied, but only under with advice and supervision of a PCO.



Figure 13: Images of Kikuyu grass (<u>www.invasives.org.za</u>, 2018)

The full list of invasive alien plants and their status in terms of the National Environmental Management: Biodiversity Act (NEM:BA, Act 10 of 2004) and the Conservation of Agricultural Resources Act (CARA) is available as an Appendix in this report. The Working for Water Guide to Control Method and Herbicide Selection is also included.

8.2 IRRIGATION MANAGEMENT

Irrigation infrastructure should be developed in such a way that the right amount of water is applied to the crop at the right time so that energy is used as efficiently as possible, production is optimized and as little water as possible is lost to non-beneficial consumption. Technology and good agricultural practices should be used to optimize irrigation water management. These include:

- Remove invasive alien plants and replace with indigenous vegetation. Invasive alien plants that establish in watercourse are spread downstream.
- Restore and protect watercourses (remove alien plants, control burning and grazing, do not cultivate).
- Build up soil organic matter to reduce evaporative water loss and maximise the soil's water-holding capacity.
- Use more efficient irrigation systems.
- Ensure efficient irrigation techniques that take into account soil type, crop type, soil water status and weather conditions.
- Implementing and monitoring soil moisture to determine correct irrigation schedules.
- Implementing and monitoring flow rates to provide correct and up to date data on water usage.
- Record actual water use to compare against registered use.
- Implement water-harvesting and water-recycling techniques where possible.
- Use drought-resistant crop and livestock varieties.
- Planting of crops in correct soil types to ensure optimal growth with efficient water usage.
- Implement and monitoring of water pressure in pipes.
- Ensuring that all equipment (pumps, pipes and irrigation mechanisms) are maintained and in good working order. This will minimise leaks and other water loss and ensure a longer life cycle for equipment.
- Use of cut off valves on storage facilities (where applicable) to prevent overflow.
- Efficient use of energy by means of timing and control devices.

9 MONITORING

Monitoring is an important tool in determining the effectiveness of management actions by measuring changes in the environment. These could be in the form of fixed point photography where an area is photographed on a regular / seasonal basis to ascertain changes, monitoring of a particular aspect such as water quality parameters, recordings of animal movement from fixed point etc. The most important aspect of any monitoring programme is consistency and continuity. This will ensure a level of scientific accuracy to determine baselines / thresholds and measure changes / deviations, which then drive management reactions.

Any required monitoring reports as considered in Section 5.3 of this EMPr must be made available to the competent authority as required.

The type and frequency of monitoring must include:

- During construction photographs must be taken from pre identified fixed points and a comprehensive record maintained;
- Incident Reports.
- Records of water use and irrigation volumes must be maintained;
- The spillway and dam wall must be monitored after each rainfall event to identify hotspot areas for erosion.

9.1 MONITORING TIMEFRAMES SUMMARY

Table 2: Monitoring Timeframe Summary

MONITORING TIMEFRAMES					
Туре	Frequency	Criteria			
Management team record	Monthly	Site photographs, method statements			
keeping	6 month post construction	Completion Statement			
Auditing	One year post construction	Compliance with the EA, EMPr, municipal permits, DAFF requirements and any other approvals			

9.2 ENVIRONMENTAL AUDITS

A final construction phase Completion Statement must be submitted within 6 months of completion of the dam. This Completion Statement must include the monitoring results as above, where applicable to construction.

An Environmental Audit should be undertaken one (1) year post construction.

9.3 AUDIT REPORTS FREQUENCIES AND FORMAT

The table below provides a summary of the timeframes for the various Audit Reports specified in the EA.

Table 3: Audit Reports Timeframe Summary

ENVIRONMENTAL AUDIT TIMEFRAMES

Туре	Frequenc	Ŷ		Criteria
	•			
Final Construction Audit	One	year	post	Audit on operational aspects of the EA
	construct	ion		and EMPr

In terms of the 2014 EIA Regulations, Audit Reports must be submitted to the registered Interested & Affected Parties within 7 days of submission to the competent authority.

In order to comply with the 2014 EIA Regulations, any audits must be undertaken using the following format:

 Table 4: Environmental Audit Requirements

Appendix 7 of Regulation 326 of the 2014 EIA Regulations, as amended contains the required contents of an Environmental Audit Report. The checklist below serves as a summary of how these objectives & requirements were incorporated into this Audit Report.

Objective	Description
The objective of the environmental audit report is to -	
(a) Report on –	

Appendix 7 of Regulation 326 of the 2014 EIA Regulations, as amended contains the required contents of an Environmental Audit Report. The checklist below serves as a summary of how these objectives & requirements were incorporated into this Audit Report.

Objective	Description
(i) the level of compliance with the conditions of the environmental authorisation and the EMPr, and where applicable, the closure plan; and	
(ii) the extent to which the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan achieve the objectives and outcomes of the EMPr, and closure plan.	
(b) Identify and assess any new impacts and risks as a result of undertaking the activity.	
(c) Evaluate the effectiveness of the EMPr, and where applicable, the closure plan.	
(d) Identify shortcomings in the EMPr, and where applicable, the closure plan.	
(e) Identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr, and where applicable, the closure plan.	
Requirement	Description
(1) An Environmental audit report prepared in terms of these Regulations must contain -	
(a) Details of –	
 (i) The independent person who prepared the environmental audit report; and 	
 (i) The independent person who prepared the environmental audit report; and (ii) The expertise of independent person that compiled the environmental audit report. 	
 (i) The independent person who prepared the environmental audit report; and (ii) The expertise of independent person that compiled the environmental audit report. (b) A declaration that the independent auditor is independent in a form as may be specified by the competent authority. 	
 (i) The independent person who prepared the environmental audit report; and (ii) The expertise of independent person that compiled the environmental audit report. (b) A declaration that the independent auditor is independent in a form as may be specified by the competent authority. (c) An indication of the scope of, and the purpose for which, the environmental audit report was prepared. 	
 (i) The independent person who prepared the environmental audit report; and (ii) The expertise of independent person that compiled the environmental audit report. (b) A declaration that the independent auditor is independent in a form as may be specified by the competent authority. (c) An indication of the scope of, and the purpose for which, the environmental audit report was prepared. (d) A description of the methodology adopted in preparing the environmental audit report. 	
 (i) The independent person who prepared the environmental audit report; and (ii) The expertise of independent person that compiled the environmental audit report. (b) A declaration that the independent auditor is independent in a form as may be specified by the competent authority. (c) An indication of the scope of, and the purpose for which, the environmental audit report was prepared. (d) A description of the methodology adopted in preparing the environmental audit report. (e) An indication of the ability of the EMPr, and where applicable the closure plan to – 	

Appendix 7 of Regulation 326 of the 2014 EIA Regulations, as amended contains the required contents of an Environmental Audit Report. The checklist below serves as a summary of how these objectives & requirements were incorporated into this Audit Report.

Objective	Description
	Description
with the undertaking of the activity on an on-going basis;	
 (ii) Sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the closure of the facility; and 	
(iii) Ensure compliance with the provisions of environmental authorisation, EMPr, and where applicable, the closure plan.	
(f) A description of any assumptions made, and any uncertainties or gaps in knowledge.	
(g) A description of an consultation process that was undertaken during the course of carrying out the environmental audit report.	
(h) A summary and copies of any comments that were received during any consultation process.	
 (i) Any other information requested by the competent authority. 	

Any other requirements of the EA or any other authorisations must be incorporated into an Audit where necessary.

10 DECOMMISSIONING PHASE ENVIRONMENTAL MANAGEMENT REQUIREMENTS

It is not likely that decommissioning of this facility will take place in the near future. However, in the event that decommissioning does occur, all relevant legislation and policies must be complied with for the given period.

In general, in the future event that the facility be decommissioned, the following must be undertaken:

- Only identified infrastructure must be removed within a demarcated area to prevent unnecessary damage to the surrounding area;
- Materials that can be recycled must be correctly sorted and stacked for removal to appropriate waste stream sites;
- The footprint area of the facility must be rehabilitated.

A Demolition Certificate must be obtained from the local Municipality, if necessary, prior to demolition commencing.

11 NON-COMPLIANCE

Any person is liable on conviction of an offence in terms of regulation 49(a) of the National Environmental Laws Second Amendment Act (Act 30 of 2013) to imprisonment for a period not

exceeding ten (10) years or to a fine not exceeding R10 million or an amount prescribed in terms of the Adjustment of Fines Act, 1991 (Act No. 101 of 1991).

It is the responsibility of the ECO to report matters of non-compliance to the Employer's Representative (e.g. Project Engineer), who in turn is tasked with reporting such matters to the Holder of the EA. It is the responsibility of the Holder of the EA, and not the ECO, to report such matters of non-compliance to the competent Authority.

11.1 PROCEDURES

The Holder of the EA shall comply with the environmental specifications and requirements of this EMPr, any Approval / License issued and Section 28 of NEMA, on an on-going basis and any failure on his part to do so will entitle the authorities to **impose a penalty**³.

In the event of non-compliance the following recommended process shall be followed:

- The competent authority shall issue a **Notice of Non-compliance** to the Holder of the EA, stating the nature and magnitude of the contravention.
- The Holder of the EA shall **act to correct the transgression** within the period specified in by the authority.
- The Holder of the EA shall provide the competent authority with a **written statement** describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions.
- In the case of the Holder of the EA failing to remedy the situation within the predetermined time frame, the competent authority may recommend halting the activity.
- In the case of non-compliance giving rise to physical environmental damage or destruction, the competent authority shall be entitled to undertake or to cause to be undertaken such **remedial works** as may be required to make good such damage at the cost of the Project applicant.
- In the event of a dispute, difference of opinion, etc. between any parties in regard to or arising out of interpretation of the conditions of the EMPr, disagreement regarding the implementation or method of implementation of conditions of the EMPr, etc. any party shall be entitled to require that the issue be referred to **specialists and / or the competent authority** for determination.
- The competent authority shall at all times have the right to **stop work** and/or certain activities on site in the case of non-compliance or failure to implement remediation measures.

³ A penalty may not necessarily be a monetary fine but could also be a stoppage in work time, additional mechanisms to prevent pollution or degradation at the cost of the proponent or even a directive to cease activities from the competent authority.

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