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ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

In terms of
Regulation 22 (b) of Government Notice No. R385 in terms of Chapter 5 of the National Environmental Management Act, 1998 (Act 107 of 1998), July 2006 as amended 2008 and the Environmental Impact Assessment Regulations 2014 (as amended)

The Development of the Vryburg Mall on Erf 11883, a Portion of Erf 506, Vryburg



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**ENVIRONMENTAL MANAGEMENT PROGRAMME FOR THE CONSTRUCTION PHASE OF THE
VRYBURG MALL (ERF 11883, A PORTION OF ERF 506), VRYBURG**

Submitted for:

DEDECT Decision making purposes – submission with Final BAR

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National Environmental Management Act

An EMPr must comply with Section 24N of NEMA and the Environmental Impact Assessment Regulations 2014 (GN 982 Appendix 4) which requires that it must include the following:

REQUIREMENTS	REPORT SECTION
(a) details of- (i) the EAP who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Annexure H
(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 2
(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;	Annexure B
(d) a description of the impact management [objectives] outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and 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;	Section 5
(e) a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Throughout the EMPr
(f) a description of proposed impact management actions, identifying the manner in which the impact management [objectives and] outcomes contemplated in paragraph (d) [and (e)] will be achieved, and must, where applicable, 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 provision for rehabilitation, where applicable;	Section 5
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Throughout the EMPr
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f)	
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Throughout the EMPr
(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	
(l) a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Throughout the EMPr
(m) 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; and	Annexure B & E
(n) any specific information that may be required by the competent authority.	N/A

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
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1 INTRODUCTION

HillLand Environmental, independent Environmental Assessment Practitioners (EAP) have been appointed by the applicant, **Dusty Moon Investment 344 (Pty) Ltd**, represented by **Mr Jacques Reynecke**, to ensure compliance with the regulations contained in the National Environmental Management Act, 1998 (NEMA, Act no. 107 of 1998) and Environmental Impact Assessment Regulations, 2014 (as amended) for the construction of Vryburg Mall, Erf 11883, a Portion of Erf 506, Vryburg.

This EMPr is binding on the applicant and ALL successors in title / future developers in full or in part for the construction of the Vryburg Mall as contemplated in this application and any future amendments to the approved layout / development plan, as well as all property owners in the development.

The monitoring of compliance of the EMPr is mandatory in terms of the Construction Phase and a completion audit at the end of the Construction Phase (installation of all civil services and construction of the Mall) is required.

This EMPr **must** be included in the tender documents of all prospective contractors and must also be included in the final contract awarded. **The EMPr must be regarded as binding on all contractors, sub-contractors, agents, consultants and construction staff on the property.**

Please note that this EMPr is a dynamic document, which will grow and be changed with new developments in the field as the need arises.

2 DESCRIPTION OF THE DEVELOPMENT

The proposal entails the development of the Vryburg Mall on Erf 11883, Vryburg.

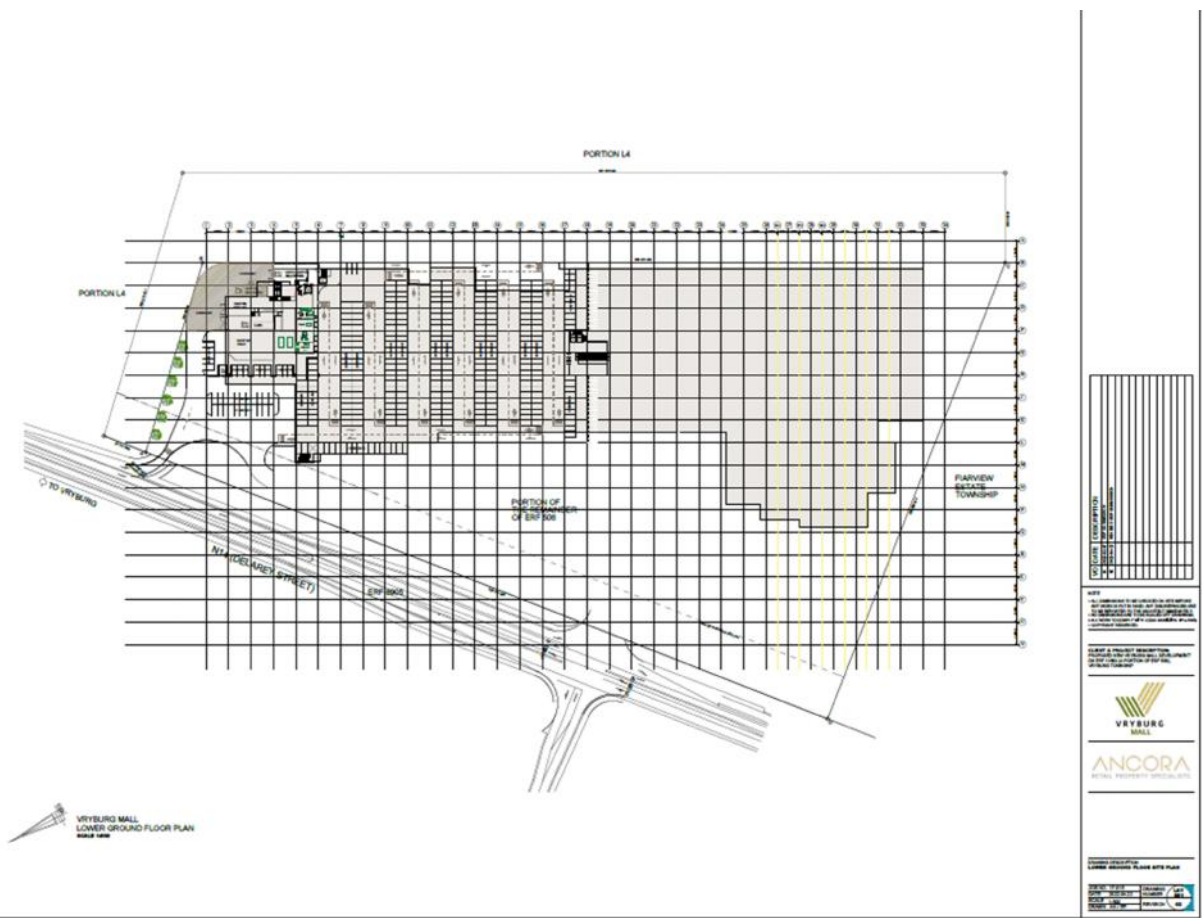
Erf 11883 (here after referred to as 'the property') is a Business Zone I property, is approximately 5ha in extent and located south of Vryburg, accessed off the National Route (N14) west.



The proposal will entail the development of Vryburg Mall that will consist of two-storeys (lower and upper ground floor).

Access to the upper floor will be gained via the N14 west and a new access road will be constructed within the north-western corner of the property. The upper floor will consist of the main part of the shopping centre consisting of various shops, delivery yards, parking bays, internal roads and landscape areas. Access to the lower ground floor will be gained from the upper floor which will provide additional parking areas, delivery areas, refuge yards and additional shops.

The development zone will require the transformation of the entire property (5ha).



Proposed lower level of the proposed centre (Frans Farmer Architects, April 2022 – see Annexure B for larger map)



Proposed upper floor level of the proposed centre (Frans Farmer Architects, April 2022 – see Annexure B for larger map)

The proposal will result in the transformation of the entire property. As per the site plan, the following scheduled areas are proposed:

Proposed scheduled areas (Frans Farmer Architects, April 2022)

SCHEDULE OF RIGHTS		
LOCATION	ERF 11883 (A PORTION OF ERF 506) VRYBURG TOWNSHIP	
ERF AREA	ERF 11883 (PORTION OF ERF 506) = 50 823 SQM	
TOWN PLANNING SCHEME	NALEDI TOWN PLANNING SCHEME	
USE ZONE	BUSINESS 1	
DENSITY	N/A	
COVERAGE	ALLOWED = 40 658.4 SQM (ERF 11883) = 80%	PROVIDED = 24 424 SQM (BUILDING) / 50 823 SQM (SITE) = 48%
	HEIGHT = 6 STOREYS = 26M	PROVIDED = 2 STOREYS = 13.975M
FLOOR AREA RATIO	ALLOWED 3	PROVIDED = 2.636 (19 269m ²)
	GLA PROVIDED TOTAL BREAKDOWN: LOWER GROUND FLOOR = 275 SQM DRIVE-TRU = 240 SQM GROUND FLOOR = 18 168 SQM TOTAL FAR PROVIDED = 18 681 SQM TOTAL PROVIDED = 0.37	
STREET BUILDING LINES	AS PER TOWN PLANNING SCHEME	
TOTAL PARKING REQUIRED		
OFFICES (2/100) - 546 m ²		10.92 PARKING SPACES
SHOPS (6/100) - 17195 m ²		1031.7 PARKING SPACES
RESTAURANTS (4/100) - 940 m ²		37.6 PARKING SPACES
TOTAL PARKING REQUIRED		1081 PARKING SPACES
TOTAL PARKING PROVIDED		
BASEMENT FLOOR PARKING PROVIDED		349 PARKING SPACES
GROUND FLOOR PARKING PROVIDED		406 PARKING SPACES
TAXI BAYS 11 BAYS X 6 = 66 TAXI BAYS PROVIDED		66 PARKING SPACES
TOTAL PARKING PROVIDED		821 PARKING SPACES

SANITARY SCHEDULE				MALES		FEMALES		
OCCUPATION CLASSIFICATION	AREA	POPULATION BREAKDOWN	TOTAL -120 = POPULATION	WC	UR	WHB	WC	WHB
F1 & F2 & A1 (SHOPS)	18781 sqm	1 / 10sqm 18781 sqm / 10 = 1878	1878 = 1758	17	17	17	35	17
G1 (OFFICES)	546 sqm	1 / 15sqm 546 sqm / 15 = 36	36	1	1	1	2	1
TOTAL				18	18	18	37	18

SUMMARY	WC	UR	WHB
TOTAL REQUIRED	55	18	36
TOTAL PROVIDED	95	20	82
SURPLUS	40	2	46

3 TERMS OF REFERENCE

The main terms of reference of this EMPr are to identify and mitigate any potential negative environmental impacts that may be associated with the construction of Vryburg Mall on Erf 11883 a portion of Erf 506, Vryburg.

The full and approved EMPr must be made available to all contractors working on the project and must be included in all tender documentation. Certain fundamental aspects are, therefore, of importance:

-) The EMPr and these requirements are **binding** on the owners and all contractors and their sub-contractors acting on their behalf.
-) **It is the responsibility of the applicant / owner** to ensure that any contractor(s) or sub-contractor(s) is made aware of the environmental requirements.
-) **The contractor will be required** to make good any damage caused through their actions or the actions of their sub-contractors (in addition to any penalties for non-compliance issued).

3.1 ENVIRONMENTAL CONTROL OFFICER (ECO)

An Environmental Control Officer (ECO) **must** be appointed to oversee the construction phase of the development (i.e. civil service installation and building construction), ensure compliance

with the Environmental Authorisation (EA) and the Environmental Management Programme (EMPr) and to assist with issues as they may arise on site.

It will be the ECO's responsibility to ensure that the mitigation / rehabilitation measures and recommendations referred to by the Wetland and Riparian Specialist, Botanical Specialist and Palaeontological Specialist (incorporated into this report) and in the EA are implemented and complied with by the applicant / owner and their represented contractor(s) as the case may be.

The **applicant / owner / manager** will be responsible for the remuneration of the ECO and any other expenses encountered in the process of environmental monitoring of the construction.

3.1.1 SELECTION OF THE ECO

The appointed ECO must be able to demonstrate that (s)he is of sufficient competency to undertake the required task. This includes:

-) Previous experience of environmental control of similar sites.
-) Working experience with contractors.
-) Knowledge of the particular project and expected areas of concern.

3.1.2 ROLES AND RESPONSIBILITIES OF THE ECO

The ECO will undertake the following tasks:

-) Ensure **compliance** with the EMPr at all times during the pre-construction and construction phase;
-) Ensure compliance with the recommendation of the Wetland and Riparian Specialist and Botanical Specialist specified within the EMPr;
-) Ensure compliance with relevant management **conditions** of the EA during the pre-construction and construction phase;
-) To work in close co-operation with the owner, contractors, management and applicant of the site;
-) Meet with the contractors to set out the environmental parameters within which they must work (pre-construction and construction phase);
-) Provide an **Environmental Induction (Environmental Education)** with all contractors **prior** to the commencement of any work (pre-construction phase);
-) Indicate where all **no-go** areas are to be demarcated and to ensure adherence to these delimitations at the induction session **BEFORE** any construction commences on-site (pre-construction phase);
-) Indicate where **erosion** protection and siltation prevention measures are required or need to be supplemented and to ensure correct implementation;
-) Advise on **rehabilitation** measures according to the different areas and landscaping practices;
-) Check up on general environmentally friendly construction practices (e.g. no littering, safe and secure environment, contamination risks, etc.);

- J Ensure that the correct earthworks practices are adhered to; e.g. no encroachment into the surrounding vegetation, separation of topsoil and subsoil, correct stockpiling and stripping of topsoil);
- J Provide a report back to the applicant (during the pre-construction and construction phase) to report on and assess the success of the environmental control and to determine any further environmental control measures which may be necessary;
- J The ECO should visit the site **every second week** during the **construction phase** and rehabilitation thereof. The ECO is to be available at any time as required by the contractors, resident engineer or authorities;
- J The ECO has the discretion to undertake more frequent visits if he/she feels this is justified due to the actions of the contractors and to make ad hoc visits in order to ensure compliance;
- J The ECO is to keep a site diary; a photographic record of activities taking place on site as well as copies of all monthly reports submitted to the Department, a schedule of current site activities including the monitoring of such activities and complaints register of all public complaints and the remedies applied to such complaints;
- J The ECO is to submit a **completion report** to the competent authority (**DEDECT**) and **applicant** upon completion of the construction phase and **before** the EA lapses;
- J It must be noted that the **ECO HAS THE AUTHORITY TO SUSPEND WORK ON SITE FOR ANY ACTION BEING UNDERTAKEN THAT DOES NOT COMPLY WITH THE ENVIRONMENTAL REQUIREMENTS OF THE SITE**. Such a stop order has immediate effect and will be communicated through the resident engineer to the contractor responsible.

3.2 DESIGNATED ENVIRONMENTAL OFFICER (DEO)

- J The main contractor(s) is to appoint a Designated Environmental Officer who is to be permanently employed and on site to ensure at all times that the conditions of the EMPr and EA are being adhered to and is to report to the ECO.
- J The DEO may double as the Health and Safety representative of the contractor(s).

4 CONDITIONS OF AUTHORISATION

The conditions contained in the Environmental Authorisation (EA) will be inserted at this point once issued. They are binding on the applicant, contractors, sub-contractors, agents, construction / maintenance staff and consultants for the activity.

5 MANAGEMENT OUTCOMES AND OBJECTIVES

The following objectives were identified:

Objective 1: Prevention of soil erosion

Impacts to avoid:

- J Unnecessary loss of topsoil – the whole site is to be disturbed and as such all topsoil is a valuable resource
- J Prevent any movement of silt towards the riparian areas and wetlands – retain movement of soil and erosion to the site
- J Disturbance of vegetation – the whole site is to be disturbed and as such plant rescue is to take place prior to earthworks commencing
- J Loss of soil on disturbed areas – erosion during construction and earthworks

Management actions:

- J Plant rescue to an on or off-site nursery prior to earthworks commencing (all bulbs and any other material that the landscaper / horticulturalist deems is suitable for reuse).
- J Vegetation clearance must be limited to the areas where bulk earthworks is taking place to avoid unnecessary exposure of areas to erosion (restricted to development footprint)
- J Topsoil recovered and stockpiled for use in the landscaping phase.
- J Areas susceptible to erosion must be protected and erosion mitigation measures must be implemented
- J Silt screens are to be installed around the entire working area and specifically at the low points where water will move during rain events.
- J Detention and retention facilities are to be monitored for silt movement and if necessary emptied to ensure that they continue to operate efficiently during the construction phase.
- J Infiltration is to be encouraged wherever possible to avoid concentrated runoff.
- J Rehabilitation / landscaping must be done following construction and to the satisfaction of the ECO to ensure that all areas are stable and vegetated.
- J Monitoring by contractor and ECO and DEO

Management Outcome:

- J Topsoil retained for reuse
- J Vegetation rescued for reuse
- J Soil erosion will be kept to a minimum
- J Silt trapping to prevent the movement of any silt off site
- J Maintenance during the construction and operational phase will ensure that erosion does not become a problem and that no sediment is transported into the surrounding riparian and wetland systems.

Objective 2: Prevention of pollution**Impacts to avoid:**

-) Potential leaks from vehicles/construction machinery
-) Spillages of hazardous substances
-) Leakage of chemical ablution facilities
-) Contamination run-off from the construction site
-) Waste, such as construction materials etc., which may be blown / washed away into the surrounding environment

Management actions:

-) Vehicles and machinery must be well-maintained
-) Drip-trays must be used for vehicles / machinery
-) Ablution facilities must be well-maintained and regularly emptied
-) Any spill to be treated immediately through "Spill Tech " or similar application
-) Litter control essential throughout construction and operational phases
-) Cement / concrete must be mixed on an impermeable surface or concrete batching areas must have surrounding bunding to prevent the movement out of the area of spillage.
-) All cementitious waste is to be collected in a bunded area and removed to an appropriate approved disposal site on completion
-) Management must be sound
-) Monitoring by contractor and ECO and DEO

Management Outcome:

-) No contamination of the environment

Objective 3: Management of Construction phase disturbances such as noise, minor traffic congestion and dust**Impacts to avoid:**

-) Unnecessary elevated noise including control during any blasting and crushing
-) Unnecessary disruption to the traffic
-) Increase in dust generated from the construction activities

Management actions:

-) Construction activities should be restricted to normal working hours
-) Installation of adequate signage
-) Use of noise attenuation where possible for blasting and crushing of material on site
-) Implementation of dust mitigation measures which can include spraying of bare areas with water or other similar practices to reduce dust

-) Use of traffic flagmen and necessary traffic accommodation while working on the access roads to reduce obstructions and delays and ensure safety
-) Monitoring by contractor and ECO and DEO

Management Outcome:

-) Limited noise, dust and traffic impacts during the construction phase

Objective 4: Prevention of impact offsite on fauna and flora

Impacts to avoid:

-) Disturbance to vegetation outside the working area.
-) Loss or harm to fauna inside or outside the working area

Management actions:

-) Clear demarcation of working areas and site boundary and STRICT NO-GO policy in all surrounding areas;
-) Transplanting of any trees and/or vegetation to be done by a specialist (in the rescue phase on site indicated above);
-) Inspection of the site, excavations, trenches etc for any incidental animals that may become trapped and careful removal and release of such into the surrounding natural areas.
-) Monitoring by contractor and ECO and DEO

Management Outcome:

-) No unnecessary damage / loss of indigenous vegetation or fauna around or on the site

Objective 5: Prevention of loss of cultural or heritage resources

Impacts to avoid:

-) Loss of or damage to Palaeontological resources
-) Loss of or damage to archaeological /heritage resources

Management actions:

-) General heritage resource measures in the event of any heritage resources discovered during the bulk earthworks.
-) Implement the Chance Find Procedure where necessary
-) Implementation of the HMP as specified by SAHRA
-) Monitoring by contractor and ECO and DEO

Management Outcome:

-) No loss of heritage or cultural resources

6 SPECIFICALLY REQUIRED ENVIRONMENTAL MANAGEMENT PRACTICES

6.1 PRE-CONSTRUCTION PHASE

6.1.1 ENVIRONMENTAL INDUCTION

All construction staff should be briefed by the ECO in an environmental education programme regarding the environmental status and requirements of the site, **prior** to any activities commencing on site. This will include providing general guidelines for minimising environmental damage during construction, as well as education with regards to basic environmental ethics, such as prevention of littering, the lighting of fires, etc. Records of environmental training (attendance register and training content) must be kept. Please refer to Annexure E of this EMPr.

Induction required for **all contractors** prior to them commencing on site.

6.1.2 METHOD STATEMENT

Before the contractor(s) begins each construction activity the contractor and Site Agent shall, **prior to the commencement** of such activity involving construction, maintenance or rehabilitation, give the ECO a written plan setting out the following:

- J Location of the construction camp (should it be required)
- J Site clearance and plant and animal rescue
- J Storage of construction materials and hazardous substances (if any)
- J Solid waste Management
- J Wastewater Management
- J Erosion and sedimentation control
- J Fire control
- J Protection of natural features
- J Cement and concrete batching
- J Stockpile areas for bulk earthworks
- J Stockpile areas for topsoil

The ECO is to approve the method statement **before** the works may commence. A pro-forma method statement showing what is required is attached in Annexure F.

6.1.3 PROTECTION OF FAUNA, FLORA AND WATERCOURSES

Fauna and Flora (animals and plants):

Specialist D. Hoare confirmed that *“There are no threatened plant or animal species that were found on site, but one Near Threatened species was found on site, listed due to harvesting for the medicinal market. Despite this occurrence, habitat on site is not considered to be important for any threatened organisms.*

A permit is required for destruction / removal / relocation of protected flora that occurs on site (*Drimia sanguinea*)”.

It will be required that the surveyor must peg the footprint out prior to the commencement of any pre-construction activities. The footprint area will be inspected by the ECO in order to determine if any of the protected flora (*Drimia sanguinea*, as highlighted in the specialist assessment) occurs within the footprint, for which a permit will be required prior to its removal (relocation to an area outside of the disturbance zone).



Image of protected flora that will require a permit to transplant/remove (PROTA4U, 2022)

The Landscaper for the project should advise on any other plant rescue required from the site for re-use within the landscaping prior to any vegetation clearing taking place on site. All identified plants must be rescued under the guidance of the landscaper/horticulturalist and ECO and be retained in an off or on-site nursery until replanted.

The removal, damage or disturbance of flora and fauna is forbidden outside of the immediate construction area (working zone) without the written approval of the ECO.

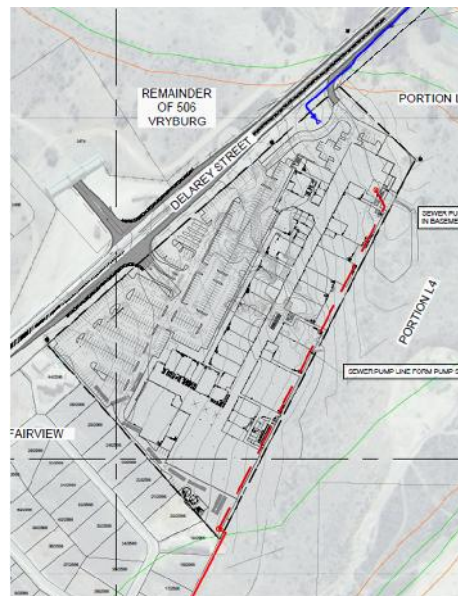
The contractor(s) shall ensure that no hunting, trapping, shooting, poisoning or otherwise disturbance of any fauna takes place on or off site.

Aquatic resources:

“Two watercourse types were recorded adjacent to the study site and are classified as:

-) Unchannelled Valley Bottom Wetland and
-) Non-Perennial Episodic (Drainage) Stream

.



Wetland buffer lines indicated on the engineering diagram (adapted from Limosella Consulting, 2021)

A general authorisation application has been made to the Department of Water and Sanitation (24 January 2022) and approval is yet to be issued. Any conditions of the GA must be implemented and adhered to and care is required when connecting to the existing sewage reticulation point in the south.

As per the Wetland and Riparian specialist the “potential impacts to the wetland and the episodic stream include the following:

-) Changes to runoff characteristics of the catchment of the watercourses leading to a cumulative increase in high energy runoff which may result in erosion and sedimentation; - **installation of detention and retention facilities to slow storm water movement down included in the design of the Storm Water Management System.**
-) Disturbance of soil is likely to result in further densification of Alien Invasive species; and - **No disturbance outside of the boundary of the site so there will be no disturbance of soil beyond the property boundary**
-) Unintended spills of sewage from new infrastructure will significantly affect water quality and consequent loss of aquatic habitat and ecological structure. - **Sewage pump station is in the basement of the new Mall and links from there into the municipal system - no opportunity for spillage into the adjacent systems**

The mitigation measures to be implemented include the following:

-) Implement Best Practice with regards to the design, placement and maintenance of sewage infrastructure;
-) Implement an Alien Plant Control Plan; - **any alien species will be removed from the landscaping areas**

-) Implement Sustainable Urban Drainage;" – **Storm water management plan with detention included**

6.1.4 SOIL MANAGEMENT

-) As topsoil is a valuable resource, it must be stripped from all construction areas **before work commences**. This topsoil should be stockpiled for use in rehabilitation and landscaping and must **not** be contaminated with other building materials.
-) The vegetation roots are to be removed together with the top 20 cm of topsoil is to be stockpiled for use during the rehabilitation phase. This topsoil is to be stockpiled in the designated topsoil stockpile areas, to be agreed on by the ECO.
-) The soil removed for construction of **services** (which will all be underground such civil construction) must not be removed, but placed to the side of the trench, while the sub-soil is placed to the other side. The soil is returned in the same order with the vegetated topsoil closing the trench and stimulating re-growth.

6.1.4.1 GEOTECHNICAL SPESIFICATIONS

Recommendations as included in the Geotechnical report (Soilkraft cc, 2013):

Structural Design

) **Borrow Pit Incorporation**

The incorporation of the depression resulting from the borrow area into the design. The existing depression can be expanded and used as a lower level to the structure (e.g. parking basement). The materials removed from the profile during such an operation will be processed (i.e. crushed), stockpiled and used during platform or layer work construction subject to quality assurance testing at the time.

) **General Measures**

Site drainage must be planned carefully to ensure effective dispersion of storm water. In addition, it is recommended that buried metal objects (e.g. services, utilities, anchoring poles, etc.) be protectively coated to protect them from mildly corrosive soils.

Conditions of Excavation

In general conditions of difficult to very difficult excavation prevail on site. The following is recommended:

Colluvium: All colluvial soils (including topsoil) may be considered excavatable by backhoe. The materials are easily excavatable.

Bedrock: Provision must be made for blasting, splitting and/or the use of pneumatic equipment to excavate bedrock materials.

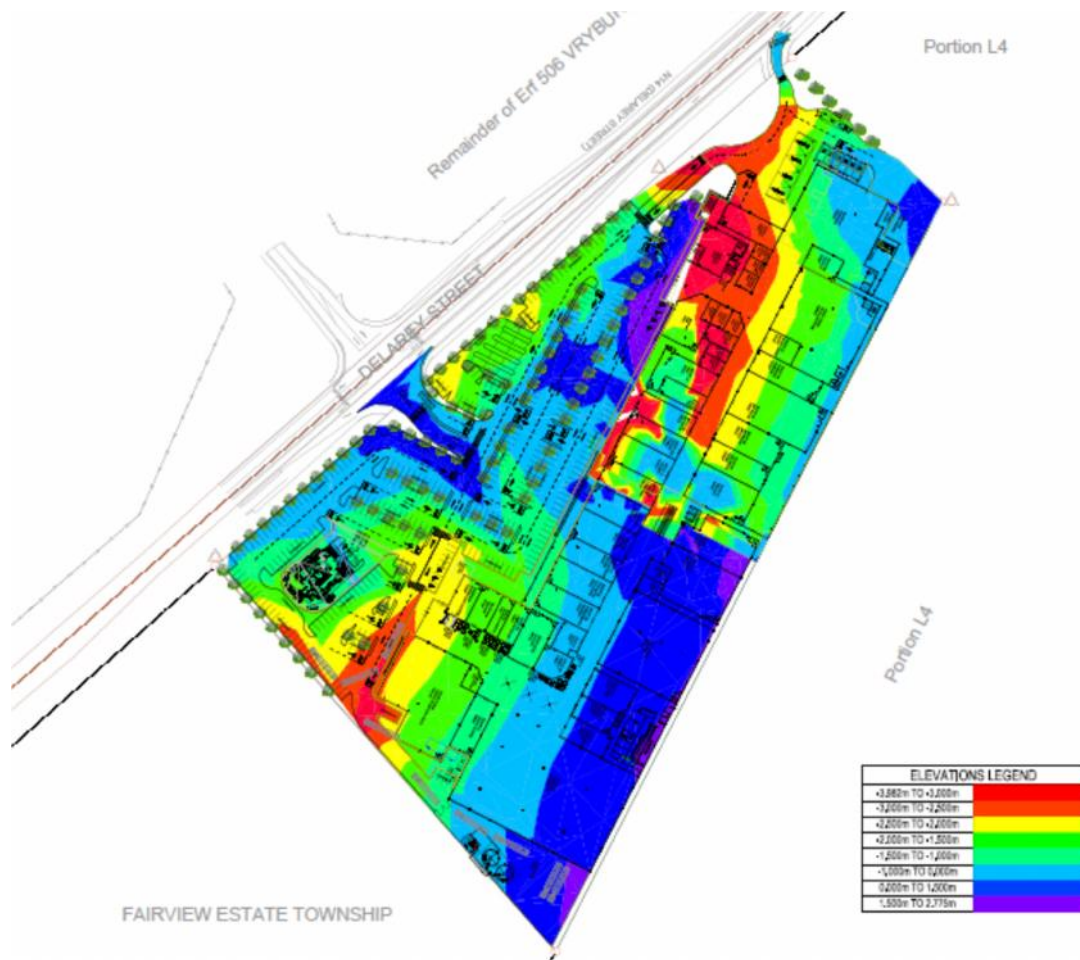
General: Excavation by backhoe was proven to a minimum depth of 100mm and seldom achieved a depth of 1000mm. Conditions of very difficult excavation prevail on site.

Material Utilisation

It is recommended that in situ materials be considered for the construction of layer works and construction platforms. Samples tested during the investigation proved to be of G5 to G6 COLTO quality and it is recommended that an overall quality of G6 be accepted.

In situ rock materials may potentially be crushed and stockpiled for use as construction aggregate.

Such materials must be adequately tested before utilisation.



Bulk earthworks – elevation plot (BSM Consulting Engineers, 2022)



Bulk Earthworks – lower parking contours plot (BSM Consulting Engineers, 2022)

6.2 GENERAL CONSTRUCTION REQUIREMENTS

6.2.1 ACCESS TO THE SITE

Construction and long term access to the site is to be approved by the Local authority.

It is important that sound traffic accommodation is implemented during the construction phase of the Vryburg Mall and should be managed by the contractor and monitored by the ECO and DEO. Clear signage must be in place for the public to take note of the construction activities and diversions (if necessary).

6.2.2 DESIGNATED ENVIRONMENTAL OFFICER

The contractor shall appoint a responsible DEO to ensure that they comply with this EMPr and all its conditions. This party is to report directly to the ECO and will need to attend the induction and be briefed on the requirements by the ECO.

6.2.3 LOCAL LABOUR

It is strongly recommended that contractors make use of local labour where possible for building and for the service installation.

6.2.4 DEMARCATION OF NO-GO AREAS

All people working on site must be made aware of the boundaries in which work is to be done. Those areas, in which no work is required, are to be considered as no-go areas.

The following applies:

-) **Contractors** - all areas **outside** that of the defined works (roads, pipeline routes, and development zone/footprint) are deemed no-go areas.
-) The development footprint should be **fenced off** for the **entire** period of the construction phase by the contractor to ensure that they are visible at all times, to all personnel. All areas outside of the demarcation will be regarded as **no-go areas**.
-) Methods of demarcation will be agreed with the ECO and may include fencing, shade cloth, mulch bags, wire fencing etc.
-) In light of the above should access be required through a no-go area, permission must be obtained from the ECO in writing prior to the use of such an area.
-) Disturbance within the work area is to be kept to the minimum, as all disturbed areas will require rehabilitation (placing topsoil and re-seeding to ensure vegetative cover) on completion of the work by the contractor.
-) **The areas of special consideration may relate to the external service lines entering and leaving the development area, e.g. the sewage line, electrical cable and water line. All such activities must first be approved by the ECO prior to the commencement of activities. Special conditions will be applied to each of these cases. All such external services are located within the existing road reserves and need to comply with municipal specifications.**
-) Adjacent properties to the construction site may not be entered by any construction staff if permission is not granted by the owner in writing.
-) The ECO should monitor adherence to the No-Go area policy.
-) **No vehicles or machinery to be operated within the Wetland and Riparian buffer zone;**
-) **The setback line must be clearly demarcated as a buffer zone and, apart from the construction and rehabilitation of stormwater infrastructure, no other construction activities must take place within the zone (to be regarded as a no-go area);**
-) A spot fine will be imposed against the contractor in the event of contravention of the no-go policy up to a maximum of R5 000 per incident).



Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Demarcation of no-go areas	Development of Vryburg Mall	<p>The contractor is to comply with the requirements of the EMPr</p> <p>Visual screening and demarcation of working areas is required by means of shade netting (around working zone) and danger tape / netting (for trenches)</p> <p>Existing roads must be used, no additional roads may be created</p>	During the construction of the development as per the SDP	ECO and contractor to continually monitor compliance during construction	<p>ECO to conduct inspections every second week of construction works</p> <p>DEO - daily</p>	<p>Contractor to implement no-go demarcation</p> <p>ECO and contractor to monitor the site</p>	ECO to monitor during the construction phase. To be included in the monitoring report to be submitted every month

6.2.5 CONSTRUCTION SITE CAMP AND MAINTENANCE

- J Area(s) for construction campsite(s) must be approved by the ECO (through the submission of the **method statement** by the contractor).
- J Adequate ablution facilities (chemical toilets) are to be provided at the site camp for use of the staff.
- J A **fenced-off** area must be created within the site camp for refuse and waste

management. **Refuse** is to be collected in two separate containers, one for recyclable materials (glass, metal, paper and plastic) and the other for non-recyclable materials. These are to be disposed of at the various approved waste disposal sites.

- J **No** accommodation with the exception of a night watchman is permitted on-site by contractors or their staff during the construction period.
- J **No open fires are to be permitted.**
- J Storage of all materials required for the contract must occur **within** this site camp, or otherwise approved area (by the ECO).
- J Silt protection measures around stockpile sites may be required.
- J **Any concrete batching plant areas** are to be approved by the ECO prior to utilisation and must be equipped with suitable settling ponds and trapping mechanisms to ensure that contaminated water does not leave the restricted area.
- J No ready-mix trucks are permitted to rinse their tanks on-site or along the access roads to and from the site. **Any spillage is to be immediately cleaned by the responsible contractor / supplier / owner.**
- J "Excavators and all other machinery and vehicles must be checked for oil and fuel leaks every day. **No** machinery or vehicles with leaks are **allowed** to work in the **watercourse**;
- J **No** fuel storage, refuelling, vehicle maintenance or vehicle depots to be allowed within the buffer of the watercourse;
- J Refuelling and fuel storage areas, and areas used for the servicing or parking of vehicles and machinery, must be located on impervious bases and should have bunds around them (sized to contain 110 % of the tank capacity) to contain any possible spills" (Confluent Environmental, 2020).
- J Adequate signage must be erected at the construction site to ensure that safety regulations are adhered to.

6.2.6 FIRE PROTECTION

The contractor should take all reasonable and active steps to avoid increasing this risk of fire (especially to prevent damage to surrounding properties). **No** open fires or naked flames for heating or cooking shall be allowed anywhere on site. The contractor shall ensure that all personnel are aware of the fire risk and the need to extinguish cigarettes before disposal. Cigarettes may **not** be disposed of onsite and must be disposed of properly in receptacles for this purpose.

NO burning of waste on ANY PART of the site is permitted.

The contractor shall identify the authorities responsible for fighting fires in the area and shall liaise with them regarding procedures should a fire start. The contractor shall ensure that his staff are aware of the fire danger at all times and are aware of the procedure to be followed in the event of a fire. The contractor shall also ensure that all the necessary telephone numbers etc. are posted at conspicuous and relevant locations in the event of an emergency. The contractor shall advise the relevant authority of a fire as soon as one starts and shall not wait until he can no longer control it.

6.2.7 WASTE MANAGEMENT

It is recommended that an integrated waste management approach must be used that is based on waste minimisation and must include reduction, recycling, re-use and disposal where appropriate. Only approved waste disposal methods are allowed. The contractor shall ensure that all site personnel are instructed in the proper disposal of all waste. The contractor shall ensure that **sufficient disposal facilities** are available within each working zone.

Recycling must be encouraged on-site and recycling bins must be provided and clearly marked.

Disposal of all waste materials must be done at suitable facilities. **No dumping** of any waste material on or off-site is permitted.

The contractor shall ensure that the site is maintained in a **neat and tidy** condition and kept **free of litter**. Measures must be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. At all places of work, the contractor shall provide **litter bins, containers** and **refuse collection facilities** for later disposal.

Solid waste may be temporarily stored on-site in a **designated area** approved by the ECO prior to collection and disposal. Solid waste must be removed **as required** to a licensed municipal waste site.

Waste storage **containers** shall be covered, tip-proof, weatherproof and scavenger proof. The **waste storage area** shall be **fenced off** to prevent wind-blown litter.

No burning, on-site burying or **dumping of waste** shall occur. Used (empty) **cement bags** shall be collected and stored in **weatherproof containers** to prevent windblown cement dust and water contamination. Used cement bags may **not** be used for any other purpose and shall be disposed of on a **weekly** basis via the solid waste management system. No illegal dumping of construction material may take place.

Any hazardous waste shall be disposed of at an approved **hazardous landfill site**. The contractor shall provide **disposal certificates** to the ECO.

The construction site must be kept clear of litter (including off-cut construction material, wire, cement bags, lunch packs etc.) at all times. No unused construction material may be left on site. Litter to be collected on site on a **daily** basis (through daily litter picking before the site is closed for the day). Rubbish bins must be provided on-site and regularly cleaned / emptied.

The contract staff must be clearly briefed on the 'no litter policy'. **The site is to be kept clean of litter, even if it is not caused by the contractor staff.**

Waste disposal and litter close to the Unchannelled Valley Bottom Wetland (to the north) and Non-Perennial Episodic (Drainage) Stream (to the south) must be prohibited. It is recommended that signage must be erected to prohibit illegal waste disposal on site.

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction and Operational phase							
Construction of buildings, associated infrastructure and their associated waste	Development of Vryburg Mall	Waste management should be done in accordance with the EMPr Refuge bins should be placed in close proximity to the watercourse as part of operational waste management and stormwater drains and canals must be cleaned regularly	During the construction of the development	ECO and contractor to continually monitor the site during construction	ECO to conduct inspections every second week of construction works DEO daily	Contractor to implement sound waste management ECO and contractor to monitor the site	ECO to monitor during the construction phase. To be included in the monitoring report to be submitted every month

6.2.8 ABLUTION FACILITIES

Contractors must provide chemical ablution facilities for all construction personnel working on the site. The number of chemical toilets required must adhere to the H&S requirements applicable at the time of the contract.

Toilets shall be of a **neat** construction and shall be provided with doors and locks and shall be secured to prevent them from blowing over.

Sanitation provision and servicing shall be to the satisfaction of the environmental control officer (ECO).

The contractor shall ensure that the toilet(s) are emptied **regularly** and also **before** weekends and public holiday periods (at least once a week).

Failure to use the chemical toilet provided and making use of the vegetation either on or off-site **will result in maximum penalty fine being awarded in addition to requiring the contractor to clean up.**

6.2.9 SOIL EROSION AND STORMWATER MANAGEMENT

) All construction material and other stockpiled material must be located within the development boundary – Construction material may not be stored/stockpiled close to the or within the wetland and non-perennial river buffer area.

) Stringent mitigation measures must be imposed during construction to minimise runoff, possible silt run-off and contamination of water leaving the site, with the use of silt-fencing,

rows of onion bags, mulch, brushwood, sandbags and deflection berms (the choice depending on the situation). These mitigation measures are essential in all exposed areas.

-) **Areas requiring erosion control mechanisms are to be identified by the contractor and ECO. Instructions by the ECO are to be given to the contractor as required.**
-) In the event of erosion damage or silt movement, the **contractor** will be liable for a fine and is responsible for the clean-up and required to reinstate the conditions to normal as determined by the ECO.
-) **In the case of contaminated water run-off, silt can be stopped by means of sandbags and following the rain the contaminated area should be cleaned.**
-) It is the responsibility of the **contractor** working inside any trench at any specific time to ensure that their works are protected from damage which may be caused through runoff of rainwater inside the trench. The use of sandbags, mulch bags or any other appropriate methods of slowing down the flow of water within a trench is required.
-) The stormwater management plan as compiled by BSM Consulting Engineers must be implemented



Stormwater management plan (BSM Consulting Engineers, 2022, also attached as Annexure D)

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Potential erosion during the construction of Vryburg Mall	Development of Vryburg Mall	The contractor is to comply with the EMPr requirements regarding erosion prevention. Emergency erosion protection materials (sandbags, geotextile fabric, shade cloth and/or biddum) are to be kept on-site to treat erosion area as soon as it appears	During the construction of the development as per the SDP	ECO and contractor to continually monitor the site during construction for signs of potential erosion	ECO to conduct inspections of construction works every second week DEO daily	ECO and contractor to monitor the site	ECO to monitor during the construction phase. To be included in the monitoring report to be submitted every month

6.2.10 CONCRETE AND CEMENT WORKS

-) Mixing areas must be defined on-site and **clearly** demarcated.
-) Cement powder has a high alkalinity pH rating, which can contaminate and affect both soil and water pH dramatically. A shift in pH can have serious consequences on the functioning of the soil, water organisms and plants.
-) All concrete must be mixed on trays / on thick plastic and not on the soil.
-) **Bunding** through the use of sandbag walls around any mixing areas is recommended.
-) When using Readymix concrete, care must be taken to prevent spills from the trucks while offloading.
-) **Cement contaminated water may not enter any open space areas or water bodies.**
-) The contractors and sub-contractors need to ensure that the used cement bags do not create a litter problem.
-) Where cement is placed directly on the ground, the contaminated soil must be removed and disposed of appropriately.
-) Excess or spilt concrete should be disposed of at a suitable registered landfill site.
-) No water for the mixing of cement may be sourced from any water body (river etc.).
-) **No** construction equipment may be cleaned near a water body (in a designated cleaning area that is well banded only).
-) **No** mixing to be done in environmentally sensitive areas or areas where there is a high risk of cement contaminated water entering the stormwater system.

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Cement and concrete works	Development of Vryburg Mall	Cement and concrete works are to comply with the EMPr Appropriate bunding and mixing on impermeable surfaces must be implemented	During the construction of the development (civil and building construction)	ECO and contractor to continually monitor the site during construction	ECO to conduct inspections of construction works every second week DEO - daily	Contractor to implement mitigation measures as per the EMPr ECO and contractor to monitor the site	ECO to monitor during the construction phase. To be included in the monitoring report to be submitted every month

6.2.11 TEMPORARY FUEL STORAGE

It should not be necessary for the storage of any fuel on this site due to its size and location. The temporary storage of fuel or any other hazardous substance is **not allowed on the construction site**. All equipment using oil, diesel etc. must be checked for spillage/leaks. Any fuel/oil should be cleaned up as soon as possible to avoid pollution of the environment and all leaking vehicles must be banned from the site until repaired.

6.2.12 NOISE AND DUST MANAGEMENT

During civil construction, work should be limited to normal working hours. No construction on public holidays except with prior approval of the ECO under exceptional circumstances.

The building construction should comply with the normal Municipal building control requirements.

Dust mitigation measure should be implemented as required. This will include spraying of water on gravel roads or exposed areas that generate dust or covering haul roads / exposed areas with wood chips to reduce the generation of dust.

Adequate safety and notification to neighbours is required in the event of any blasting required. Chemical blasting should be used where possible to avoid excessive noise. Any crushing activities taking place on site should have the necessary noise attenuators in place.

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Construction of the development	Development of Vryburg Mall	Contractor to comply with SANS 10400 regulations pertaining to noise creation. Dust mitigation measures must be implemented as necessary	During the construction of the proposed development (civil and building construction)	ECO and contractor to continually monitor the site during construction	ECO to conduct inspections of construction works every second week DEO - daily	Contractor to implement mitigation measures as per the EMPr ECO and contractor to monitor the site	ECO to monitor during the construction phase. To be included in the monitoring report to be submitted every month

6.2.13 ONGOING ALIEN INVASIVE CLEARING

Ongoing clearing of alien invasive vegetation must continue on the property and no listed alien invasive plants may be planted as part of the landscaping.

6.2.14 REHABILITATION REQUIREMENTS

Rehabilitation of disturbed area (including bulk supply lines) as a result of civil construction be to the satisfaction of the ECO. This will include, but is not limited to the following; use of sandbags, mulchbags as erosion minimisation measures, seeding of bare areas with an indigenous grass seed mixture / the use of indigenous grass sods (ECO to advice) etc.

The ECO is to advise on the rehabilitation measures that should be implemented as it will be case-specific.

Rehabilitation at stormwater outlets can be done through re-vegetation of indigenous vegetation within and around detention / retention ponds. All stormwater outlets must be protected against erosion at all times and continual maintenance thereof will be required.

Any silt trapped needs to be cleared on a regular basis to ensure that silt traps remain effective.

Landscaping is recommended to make use of locally indigenous species as far as possible.

6.2.15 PALAEOLOGICAL AND HERITAGE RELATED ARTIFACTS

The palaeontologist, Dr. JF Durand compiled the palaeontological desktop assessment and reported the following:

“The proposed development of a mall in Vryburg will take place in an area which is considered to have a Moderate Palaeontological Sensitivity.

The study area is underlain by rocks of the Vryburg Formation of the Griqualand West Supergroup and the Dwyka Group of the Karoo Supergroup. The rocks of both these geological units are considered to be of Moderate Palaeontological Sensitivity.

The chances of finding fossils in these rocks are however very poor and none have been reported from the study area.

*In the unlikely event of fossils being at the study site during development, the ECO should follow the **Chance Find Procedure**. Although disturbed fossils should be collected and stored safely until it can be inspected by a palaeontologist, no attempt should be made to remove such accidentally discovered fossils from the rock by an unqualified person."*

PROCEDURE FOR CHANCE PALAEOLOGICAL FINDS

Extracted and adapted from the National Heritage Resources Act, 1999 Regulations Reg No. 6820, GN: 548.

The following procedure must be considered in the event that previously unknown fossils or fossil sites are exposed or found during the life of the project:

Surface excavations should continuously be monitored by the DEO and any fossil material be unearthed the excavation must be halted and the ECO informed immediately – ECO to inform the Palaeontologist (jacques@rer.co.za).

1. If fossiliferous material has been disturbed during the excavation process it should be put aside to prevent it from being destroyed.
2. The DEO / ECO then has to take a GPS reading of the site and take digital pictures of the fossil material and the site from which it came.
3. The DEO / ECO then should contact a palaeontologist and supply the palaeontologist with the information (locality and pictures) so that the palaeontologist can assess the importance of the find and make recommendations.
4. If the palaeontologist is convinced that this is a major find an inspection of the site must be scheduled as soon as possible in order to minimise delays to the development.

From the photographs and/or the site visit the palaeontologist will make one of the following recommendations:

- a) The material is of no value so development can proceed, or: 13
- b) Fossil material is of some interest and a representative sample should be collected and put aside for further study and to be incorporated into a recognised fossil repository after a permit was obtained from SAHRA for the removal of the fossils, after which the development may proceed, or:
- c) The fossils are scientifically important and the palaeontologist must obtain a SAHRA permit to excavate the fossils and take them to a recognised fossil repository, after which the development may proceed.
5. If any fossils are found then a schedule of monitoring will be set up between the developer and palaeontologist in case of further discoveries.

A Heritage Impact Assessment (HIA) was requested by SAHRA which formed part of the assessment. It was recommended to compile and include a Heritage Management Plan during the construction phase of the development. The HMP has been included as Annexure G which must be implemented and adhered to.

As per the final comments provided by SAHRA (21 April 2022) the following recommendations have been made that must be implemented:

- J 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 APM Unit (Elijah Katsetse/Phillip Hine 021 462 4502)** must be alerted as per section 35(3) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of section 51(1)e of the NHRA and item 5 of the Schedule;
- J 38(4)c(ii) – If unmarked human burials are uncovered, the SAHRA Burial Grounds and Graves (BGG) Unit (**Thingahangwi Tshivhase/Nggalabutho Madida 012 320 8490**), must be alerted immediately as per section 36(6) of the NHRA. Non-compliance with section of the NHRA is an offense in terms of
- J section 51(1)e of the NHRA and item 5 of the Schedule;
- J 38(4)d – See section 51(1) of the NHRA;
- J 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;

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Construction of the development	Development of Vryburg Mall	Comply with the requirements for chance palaeontological find Implementation of the HMP	During the construction of the proposed development (civil and building construction)	ECO and contractor to continually monitor the site during construction	ECO to conduct inspections of construction works every second week DEO - daily	Contractor to implement mitigation measures as per the EMPr ECO and contractor to monitor the site	ECO to monitor during the construction phase.

6.3 REHABILITATION AND LANDSCAPING PHASE

Any damage to areas outside of the development zone must be reinstated to the state it was before construction commenced. Rehabilitation of all damaged areas will include, but is not limited to the following;

-) All building rubble must be completely removed and disposed of at an approved landfill site;
-) Compacted topsoil must be raked loose;
-) Exposed soil must be revegetated
-) Contaminated soil must be disposed of at an approved landfill site.

Landscaping to the internal development areas should make use of indigenous vegetation local to the area where possible (ECO to advise) including replanting of any rescue material.

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Rehabilitation phase							
Rehabilitation of damaged areas and landscaping	Rehabilitation of Vryburg Mall	Rehabilitation measures should be implemented as per the EMPr All building rubble must be completely removed and disposed of at an approved landfill site; Compacted topsoil must be raked loose; Contaminated soil must be disposed of at an approved landfill site Landscaping to be done using indigenous vegetation Implementation of mitigation measures for the rehabilitation of the watercourse as per the specialist recommendation	Upon completion of the construction phase	Contractor to implement mitigation measures ECO and contractor to monitor rehabilitation phase	ECO to conduct inspection following rehabilitation and advise accordingly (and should any additional inspection be required). Successful rehabilitation must then be signed off by the ECO DEO – daily where applicable	Contractor to implement mitigation measures ECO and contractor to monitor rehabilitation phase	ECO to monitor during rehabilitation phase. ECO to submit final compliance monitoring report upon completion of construction and rehabilitation and sign-off environmental compliance. To be included within compliance report.

7 MONITORING REQUIREMENTS AND REPORTS

-) An **induction** meeting with the ECO and the all contractors to ensure that they are aware of the requirements of this EMPr and the EA before the commencement of the construction phase. Induction registers to be kept for all contractors on site.
-) The ECO must inspect work areas prior to construction and demarcate no-go areas or indicated areas of sensitivity.
-) ECO to issue immediate instructions for remedial work where necessary.

- J The ECO is to do a site inspection **every second week** of all construction works and submit a compliance monitoring report **every month** to the applicant, contractor and competent authority.
- J The ECO monitoring reports are to advise on any remedial actions or changes that are required to the method statements in order to ensure that the impacts identified and any that may become evident are mitigated and managed. Should it be necessary the EMPr must be updated / amended to take these into account if they cannot be adequately handled in a revised method statement.
- J Upon **completion of construction and subsequent rehabilitation**, a final monitoring report must be submitted by the ECO to sign-off compliance with environmental requirements. The report must be submitted to DEDECT and the applicant, as the case may be.

8 AUDITING REQUIREMENTS

- J The holder of the Environmental Authorisation (EA) must appoint a suitable and qualified independent EAP as directed by the EA to undertake a final compliance audit within 6 months of completion of the construction.
- J The activities will be deemed complete when the entire Vryburg Mall has been completed, including landscaping and rehabilitation.
- J There are no operational phase requirements attached to this activity.

Table 1: Specific dates referenced in the EA (to be issued and to be filled out once EA has been received)

Date of issue of EA:	
Date of which the activity must be concluded	
Date of which the post-construction monitoring requirements should be finalised	

9 DECOMMISSIONING PHASE

Should there ever be a need for decommissioning, decommissioning activities need to adhere to the applicable legislation at the time. All material foreign to the site must be removed from the site and must be disposed of at an approved waste disposal site.

Any material that can be recycled should be recycled.

10 LEGISLATIVE REQUIREMENTS

10.1 PENALTIES FOR NON-COMPLIANCE

Penalties in terms of Chapter 12 of the North West Spatial Planning and Land use Management Bill, 2015 (as amended 2021), are applicable for any action, which leads to damage to the natural environment.

In addition to the penalties in terms of the Act (NEMA), spot fines up to a maximum value of R10 000 per offence can be instituted at the discretion of the ECO for any breach or non-compliance in terms of the EMPr and EA (FINES ISSUED WILL INCREASE EXPONENTIALLY FOR REPEAT OFFENCES).

In the event of damage being caused, the contractor will be responsible for the cost of cleanup, repair or rehabilitation as necessary, as well as being liable for the fine.

A trust fund is to be established for the collection of fines and the spending of this fund is to be at the discretion of the ECO for environmental rehabilitation of the area and must be documented.

11 CONCLUSION

This EMPr is binding on all contractors on site and constitutes Best Practice for construction activities. This EMPr may be updated with specific conditions required by the Environmental Authorisation, once issued.