GEORGE
TEL: +27 (0) 44 873 4923 **FAX:** +27 (0) 44 874 5953
EMAIL: info@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: 102 Merriman Street, George 6530
PO BOX: 9087, George , 6530

CAPE TOWN
TEL: +27 (0) 21 554 5195 **FAX:** +27 (0) 86 575 2869
EMAIL: betsy@sescc.net **WEBSITE:** www.sescc.net
ADDRESS: Tableview, Cape Town, 7441
PO BOX: 443, Milnerton, 7435

AMENDED ENVIRONMENTAL MANAGEMENT PROGRAMME

FOR THE

HARTLAND LIFESTYLE ESTATE DEVELOPMENT ON A PORTION OF THE REMAINDER OF THE FARM VAALEVALLEY 219, MOSSEL BAY WESTERN CAPE

APPLICANT:	Hartland Lifestyle Estate (Pty) Ltd
ENVIRONMENTAL CONSULTANT:	Sharples Environmental Services cc Primary Author: Michael Bennett
DEA&DP REF:	Original: EG12/2/1 - AM18 - Farm Valle Valley 219/10 (5382) Amended: 16/3/3/5/D6/29/0003/22 Addendum: 16/3/3/5/D6/29/0008/22
SES REFERENCE NUMBER:	EIR/MSB/MS/36/SD/3/8
DATE:	28 June 2023

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Project Ref. No:	EIR/MSB/MS/36/SD/3/8
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DETAILS OF PERSONS WHO COMPILED THIS DOCUMENT:

Role:	Name:	E-Mail Address:	Qualifications:
Author:	Michael Bennett	michael@sescc.net	• BSc. Environmental and Geographic Science, Ocean, and atmospheric Science • EAPASA Registration (2021/3163)
Reviewer:	John Sharples	john@sescc.net	• Master's in Environmental Management (UFS) • Bachelor's degree in Conservation • EAPASA Registration (No. 1485)

Sharples Environmental Services cc Since 1998, SES has been actively engaged in the fields of environmental planning, assessment and management. We advise private, corporate and public enterprises on a variety of differing land use applications ranging from large-scale residential estates and resorts to golf courses, municipal service infrastructure installations and the planning of major arterials. Our consultants have over 20+ years of combined experience and we operate in the Southern, Eastern and Western Cape regions.

MICHAEL BENNETT (Environmental Assessment Practitioner, Report Reviewer):
Michael studied at the University of Cape Town completing a Bachelor of Science degree majoring in Environmental and Geographic Science and Ocean and Atmospheric Science. Michael joined SES in 2014 and has extensive experience in assessments and monitoring and has worked on a variety of technical projects Michael is registered with EAPASA as a certified Environmental Assessment Practitioner. See Appendix C for his curriculum vitae.

JOHN SHARPLES (Managing Director, Report Reviewer):
John started Sharples Environmental Services in 1998 and has overseen the company's growth and development since then. John also started the Cape Town office in 2010. John holds a Master's in Environmental Management from the University of the Free State as well as a Bachelor's degree in Conservation. He has consulted for 18 years running a team of highly trained and qualified consultants and prior to this gained 12 years of experience working for environmental organizations. John is registered with EAPASA as a certified Environmental Practitioner.

1. Introduction

Sharples Environmental Services cc (SES) was appointed by *Hartland Lifestyle Estate (Pty) Ltd* to undertake the amendment of the Environmental for the Residential Development on a portion of the Farm Vaale Valley 219, Mossel Bay (Hartenbos Landgoed II), now known as Hartland Lifestyle Estate.

The Environmental Authourastion (EA) was granted in terms of Section 22 of the Environment Conservation Act, 1989 (Act No. 73 of 1989) and as such the EMPr dated March 2008, Ref: EIR/MSB/MS/36/SD/3/8 does not comply with Appendix 4 of the Amended Environmental Impact Assessment Regulation of 7 April 2017 (GN. R. 326).

This Amended EMPr therefore carries over the relevant content of the EMPr, dated March 2008 and has been updated to include the aspects of the amended EA and the requirements of an EMPr as per Appendix 4 of the NEMA EIA Regulations, 2017, as amended

2. About this EMPr

This document is intended to serve as the Environmental Management Programme (EMPr) for the Construction Phase activities as well as the rehabilitation phase.

This document provides measures that must be implemented to ensure that any environmental degradation that may be associated with the activities is avoided, or where such impacts cannot be avoided entirely, are minimised, and mitigated appropriately.

This EMPr has been prepared in accordance with the requirements of an EMPr as specified in Appendix 4 of the Environmental Impact Assessment Regulations, 2017 (as amended), and with reference to the "Guidelines for Environmental Management Programmes" published by the Department of Environmental Affairs and Development Planning (2005).

It is important to note that not only is the EMPr designed to manage the physical establishment of the development *per se*, but also as a tool which can be used to manage the environmental *impacts* of the development.

The rehabilitation, mitigation, management, and monitoring measures prescribed in this EMPr must be seen as binding to *The Applicant*, and any person acting on his behalf, including but not limited to agents, employees, associates, guests or any person rendering a service to the development site.

2.1. Important caveat to the report

In the past, some developments have had a devastating impact on the environment even though they have had Environmental Management Programmes in place, while other developments have had a low impact even though no management plans have been compiled.

The Implementing Agent and the attitude of the construction team play an integral role in determining the impact that the development will have on the environment. The ECO needs to ensure that all role-players are aware of the constraints that the EMPr places on the development and construction team and are prepared to be actively involved in enforcing these constraints. The end result relies on cooperation and mutual respect and understanding of all parties involved.

3. How to use this document

It is essential that this EMPr be carefully studied, understood, implemented, and adhered to as far as reasonably possible, throughout all phases of the activities. *The applicant* must retain a copy of this EMPr, and an additional copy must be kept on site at all times during the pre-construction, construction, and post-construction rehabilitation phases of the development.

This EMPr must be included in all contracts compiled for contractors and subcontractors employed by *The Applicant*, as this EMPr identifies and specifies the procedures to be followed by engineers and other contractors to ensure that the adverse impacts of construction and maintenance activities are either avoided or reduced. Appointed contractors must make adequate financial provision to implement the environmental management measures specified in this document.

This EMPr must be seen as a working document, which may be amended as and when needed, in order to accommodate changing circumstances on site or in the surrounding environment, or in order to accommodate requests/ conditions issued by the competent authority. Amendments to this EMPr must first be approved by the competent authority, in writing, before being implemented.

4. Location and Description of the Property

The Property is located approximately 2-km northeast of Hartenbos and about 2-km southwest of Little Brak River township

The railway line serves as the south-eastern boundary of the Property, with the ocean beyond that. The N2 National Road serves as the north-western boundary, with the old Hartenbos-Little Brak River road and tracts of zoned agricultural land on the other side of the N2 Road. The Little Brak River serves as the north-eastern boundary. Further north is the informal residential area of Power Town and the residential area of Little Brak River.

The Hartenbos Landgoed Phase I development serves as the southwestern boundary, with a host of smallholdings and the Hartenbos River. Beyond that, further south, is the residential area of Hartenbos.

Table 1: Property Details and Co-ordinates

Province	Western Cape		
District Municipality	Garden Route		
Local Municipality	Mossel Bay		
Ward number(s)	4		
Nearest town(s)	Hartenbos		
SG Code(s)	C05100000000021900011		
Co-ordinates of the farm(s):	Property	Latitude (S)	Longitude (E)
	RE/11/219	34° 6'25.12"S	22° 6'45.84"E
		34° 5'17.68"S	22° 8'4.06"E
		34° 5'30.13"S	22° 8'38.82"E
		34° 6'46.52"S	22° 7'29.76"E

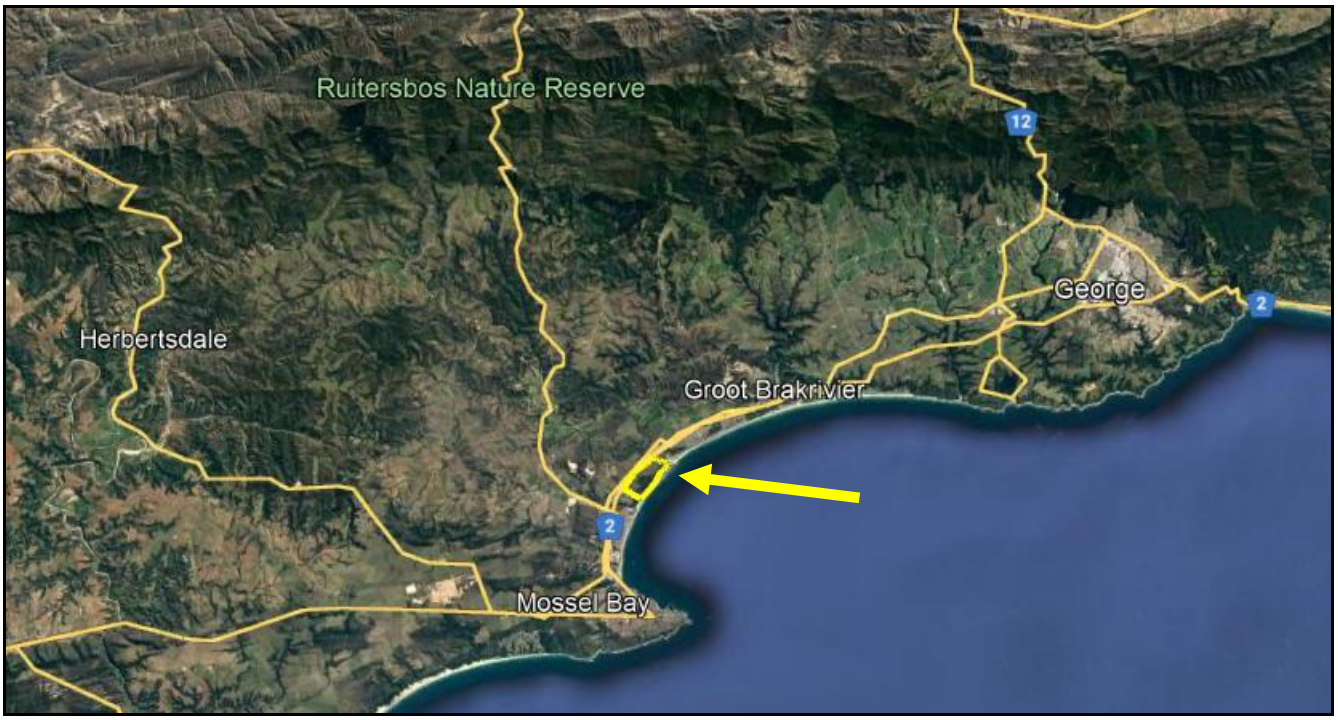

Figure 1: Locality of Vaale Valley 219, Mossel Bay

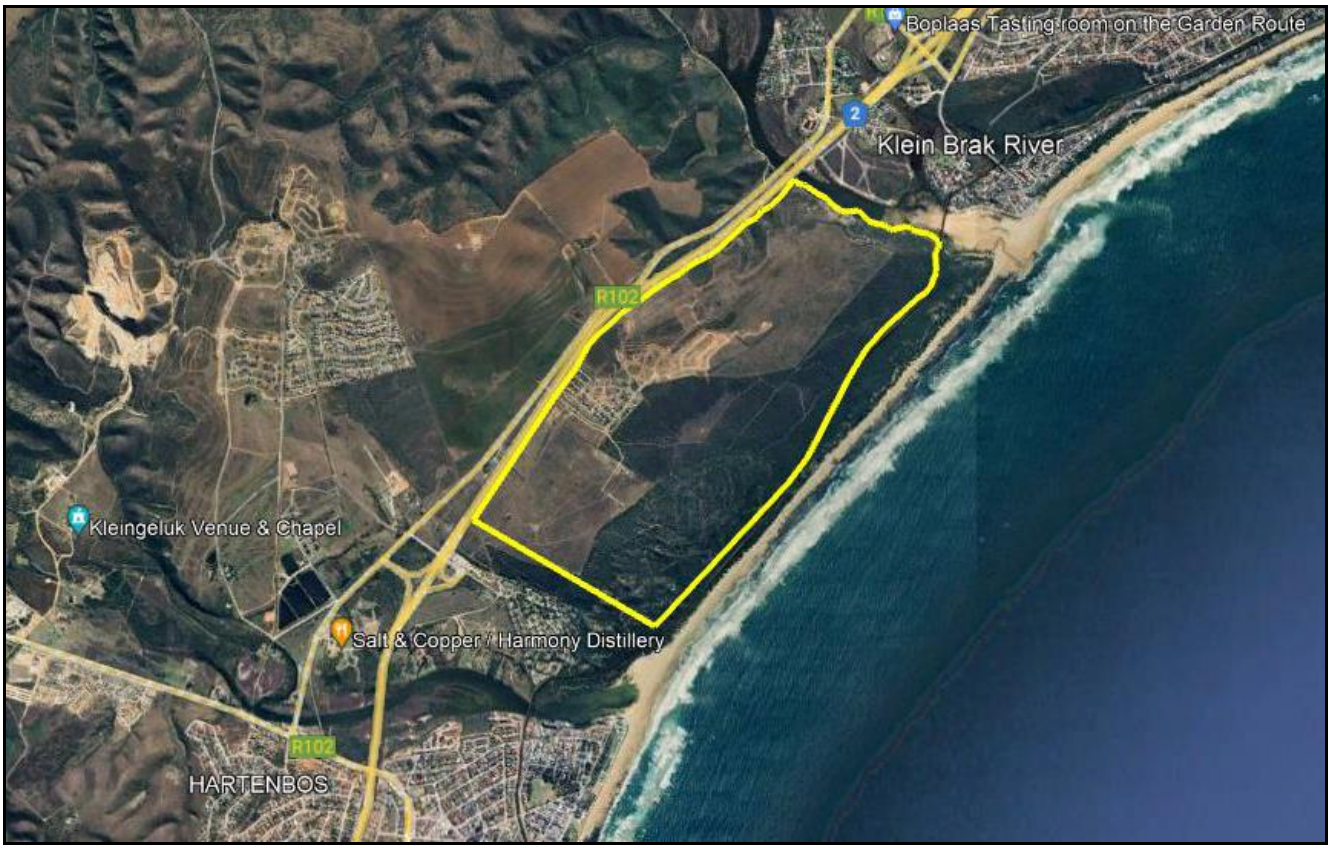

Figure 2: Vaale Valley 219, Mossel Bay

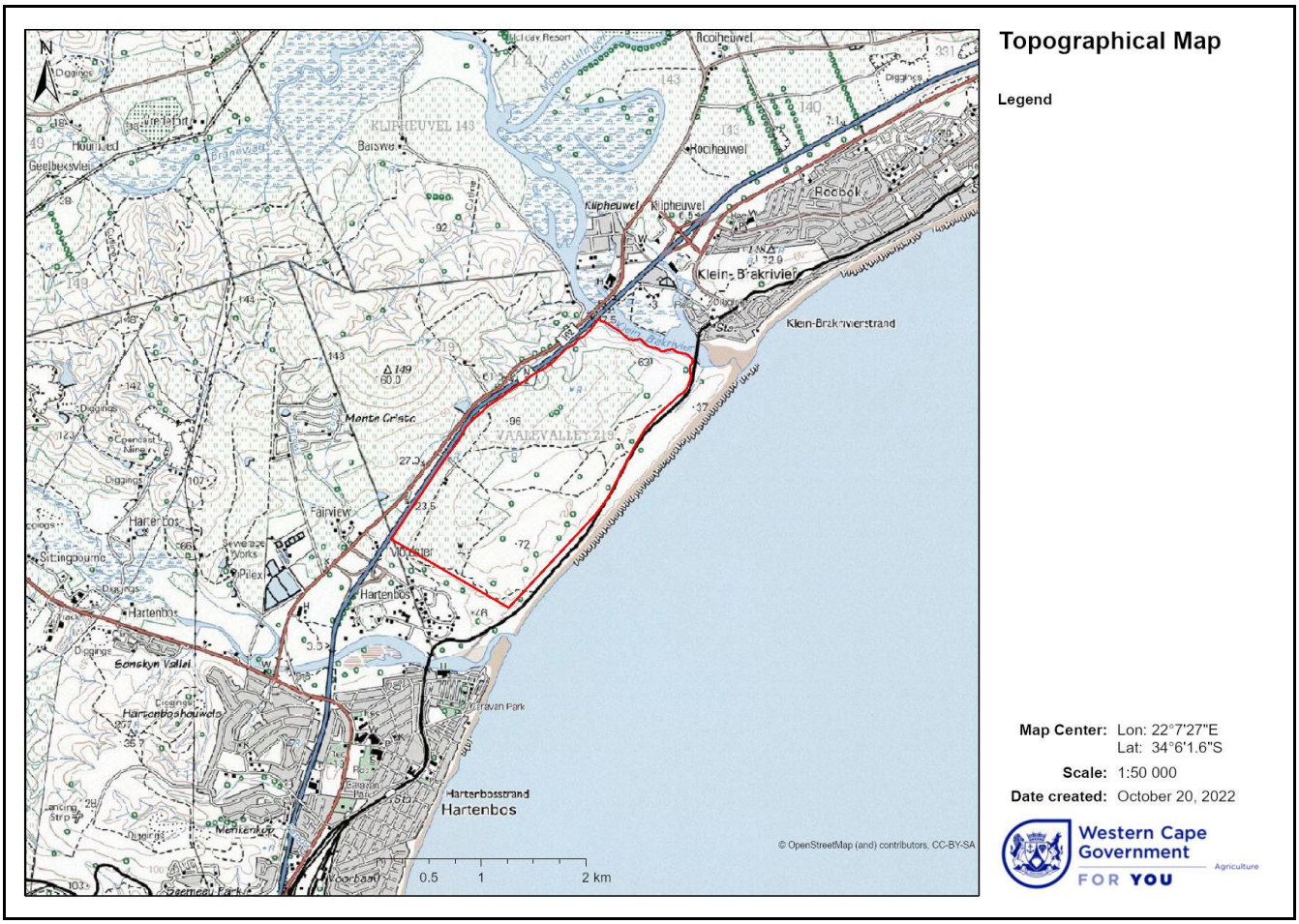

Figure 3: Topographical Map Vaale Valley 219, Mossel Bay

5. Description of the Activity

The proposed development consists of a total of 2288 Residential units made up of single residential erven and general residential (including 150 Social Housing units), a 0.88ha Business Zone, 3.24ha Community Zone (consisting of a school and sports field) and an Open Space of 235ha (excluding the internal Open Spaces), which will be- managed as a nature reserve, a road network and associated infrastructure services will be accommodated on the footprint.

The main access will be from through the New Vintage Development to the southwest of Hartland and the secondary access will be from the MR 344 through the culvert under the N2 National Road.

Water will be provided from the proposed new 15Ml reservoir that will supply both the proposed Hartland Lifestyle Estate and possible future developments in the area, in addition to a 5Ml reservoir and booster pump station.

Sewerage removal will be accommodated by means of a gravity sewer network in combination with sewage pump stations. The sewage will be pumped to a point near the north-western edge of the site from where it will gravitate and siphon to the Hartenbos Regional Sewage Treatment Works.

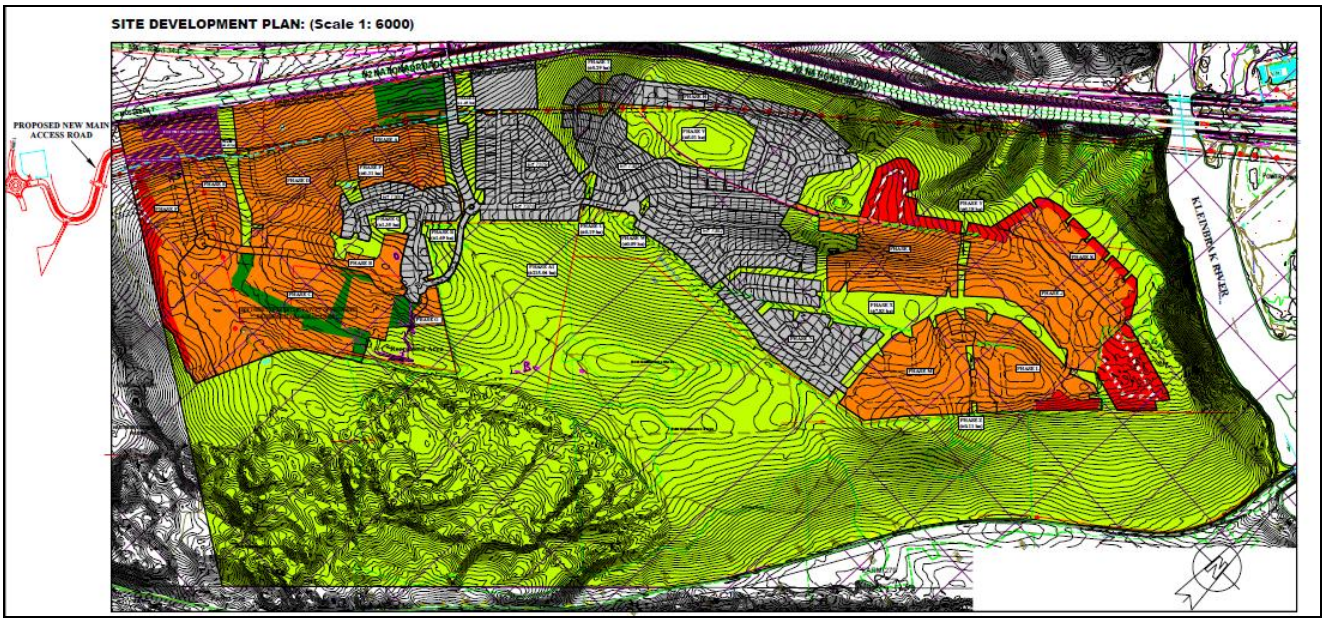

Figure 4: Site Development Plan

Please refer to Appendix A for the full-sized layouts

6. Description Receiving Environment

Section 6.1 provides a description of the environmental aspects as determined by the initial EIR and as included in the EMPr dated March 2008. Section 6.2 provides the revised environmental aspects as described by the specialist's compliance statements as part of the substantive amendment of EA undertaken in 2022.

6.1. Biophysical Environment (2008)

According to Conservation Management Services, who compiled a Vegetation and Vertebrate Fauna Sensitivity Analysis for the entire property as part of the environmental assessment process, the vegetation of the property can be broadly differentiated into transformed and un-transformed habitats. According to Conservation Management Services the un-transformed areas consist largely of Thicket and Fynbos / renosterveld vegetation. In the report it is noted that Vlok & Euston-Brown (2002) described the vegetation, in terms of the STEP project, as Herbertsdale Renoster Thicket. This is actually a mosaic of Gouritz Valley Thicket within a Renosterveld matrix. In terms of the CAPE project (Cape Action Plan for the Environment), the vegetation of the area is mapped as Riversdale Coast Renosterveld and Stilbaai Fynbos / Thicket mosaic.

In terms of detailed on-site investigation, it is noted that the vegetation of the study area appears to be most accurately described as a Fynbos / Thicket mosaic. There is no clear distinction between Renosterveld and Fynbos in this area, but the vegetation matrix in which the Thicket is located is clearly more of a Coastal Fynbos than Renosterveld.

6.1.1. Vegetation Sensitivity Analysis

According to Conservation Management Services, the general sensitivity of the dominant natural vegetation type (Fynbos / thicket) lies in the fact that the sands of the area overlie limestone, which are limited on the study area. Two species indicative of lime-rich soils are Agathosma muirii, and Euchaetis burchelli. Both of these plant species, although not yet Red Data Book species, are threatened. Otholobium fruticans, a Red Data Book plant which is listed as vulnerable, is also as widespread on the study area. Another very rare plant identified by the Report is Delosperma virens, and the small population of no more than 100 plants is notable.

Conservation Management Services indicated that another critically endangered plant of the study area is Diosma aristata. The population found on the property is of great significance for the conservation of this species. Hawarthias parksiana was also noted, and this too is a listed Red Data species (endangered).

6.1.2. Vertebrate Fauna Survey

Conservation Management Services indicated that the fauna of the study area is typical of the thicket and fynbos covered South Cape coastal areas. The fauna is relatively intact, with the exception that many of the original larger mammal species were eradicated by the end of the 19th Century.

The following description of the fauna is per vertebrate faunal group:

Amphibians - The disturbed pasture area, thicket and Fynbos habitats and earth dams provide a limited range of suitable habitats for amphibians. Of the 16 species listed to occur in the area, Conservation Management Services could not confirm that the species were currently present.

Reptiles - The following is likely to occur in the study area: 3 Tortoises; 1 Chameleon; 21 Snakes; 5 Geckos, and; 11 Lizards. According to the Conservation Management Services, of the 43 species predicted to occur, 16 are endemic to the sub-region, most with small distribution ranges. Only 2 of the predicted species were confirmed.

Mammals - The pasture, thicket and Fynbos habitats potentially provide habitat for:

- 8 Insectivores (shrews, moles);
- 13 Chiroptera (bats);
- 2 Primates (monkeys);
- 1 Lagomorph (rabbits, hares);
- 16 Rodents (rats, mice);
- 9 Carnivores (cats, mongooses, otters), and;
- Ungulates (hoofed animals).

Only 5 of the 59 species were confirmed.

Birds - Birds are comparatively more mobile, than other animals and their presence does not necessarily indicate permanent residence or occupation. The earth dams on the study area support occasional water and wetland birds. The thicket habitats of the general area are important bird habitats and may contain: Chorister robin; Forest buzzard; Forest canary; Knysna warbler, and; Knysna woodpecker. The thicket habitats of the study area may also contain elements of bird fauna typical of coastal forest, Afromontane forest and thicket / fynbos ecotones. Of the 153 bird species predicted to occur in the general area, only 16 are confirmed.

6.2. Biophysical Environment (2022)

- Mark Berry was appointed to compile the Vegetation Compliance Statement.
- Robyn Phillips of Cossypha was appointed to compile the Terrestrial Biodiversity and Animal Species Compliance Statement.
- Dr James Dabrowski of Confluent aquatic consulting and research was appointed to compile the Freshwater Compliance Statement

6.2.1. Vegetation Compliance Statement

The study site is located in a coastal fynbos/thicket environment on the Southern Cape coastal plain. The indigenous species recorded in the vegetation adjacent to the site are typical thicket species, such as Searsia pterota, Sideroxylon inerme, Schotia afra, Cussonia thyrsiflora and Aloe arborescens. The 2018 Vegetation Map of South Africa classifies the main vegetation type found here as Hartenbos Dune Thicket. The latter is easy to spot with its impenetrable, thorny thicket structure. The Vegetation

Map also shows Canca Limestone Fynbos and Mossel Bay Shale Renosterveld in the western part of the site, but this is speculative as the area has been almost completely transformed by past farming activities. There is evidence on site that the thicket may have extended across the site towards its western boundary.

Indigenous shrub species recorded inside the fallow land include *Felicia muricata, Helichrysum foetidum, Osteospermum moniliferum, Leysera gnaphalodes, Gnidia squarrosa, Drosanthemum intermedium, Delosperma litorale, Carpobrotus edulis, C. deliciosus (or C. deliciosus x edulis), Mesembryanthemum aitonis, Aizoon secunda (dominant), Euphorbia burmannii, Clutia daphnoides, Crassula multicava, C. expansa, Cotyledon orbiculata, Aloe ferox, Lycium cinereum, Searsia glauca, Sideroxylon inerme, Carissa bispinosa, Pelargonium capitatum, Anthospermum galioides, Exomis microphylla and Selago corymbosa.* The *Carpobrotus* species are excellent soil binders and should be salvaged for rehabilitation purposes. Geophytes recorded include *Oxalis pes-caprae, Drimia capensis, Bulbine lagopus, Brunsvigia orientalis* and *Moraea polyanthos*. The taller shrubs and trees, such as *Sideroxylon inerme, Carissa bispinosa and Searsia glauca*, are typically associated with dune thicket. *Sideroxylon inerme* (milkwood) is a protected tree species and a permit is required for its removal.

Indigenous species recorded in the dune thicket include *Schotia afra, Sideroxylon inerme, Pterocelastrus tricuspidatus, Mystroxylon aethiopicum, Gymnosporia buxifolia, Putterlickia pyracantha, Searsia glauca, S. pterota, Azima tetracantha, Diospyros dichrophylla, Phylica axillaris, Colpoon compressum, Hermannia holosericea, Agathosma apiculata, Aloe arborescens, Jordaaniella dubia, Crassula muscosa, Cussonia thyrsiflora, Pelargonium peltatum, Rhoicissus digitata and Commelina africana. Thamnochortus insignis* is the only restioid recorded inside the thicket.
All the recorded species are widespread and fairly common. Due to the time of the survey, spring flowering bulbs, especially members of the *Iridaceae* and *Orchidaceae* families, were not picked up. These will show themselves later in the spring season. Floristic association with dune thicket (Hartenbos Dune Thicket in this case) is strong with most of the recorded species regarded as important taxa in the unit. No SCC or regional endemics were recorded.

6.2.2. Terrestrial Biodiversity and Animal Species Compliance Statement

Faunal activity on the site was generally low with only common or generalist birds, small mammals, and butterflies recorded. Some of the bird species recorded on the site included Cape Spurfowl *Pternistis capensis*, Spotted Thick-knee *Burhinus capensis*, Barn Swallow *Hirundo rustica*, Karoo Prinia *Prinia maculosa*, Bokmakierie *Telophorus zeylonus*, Common Starling *Sturnus vulgaris*, and a pair of Jackal Buzzard *Buteo rufofuscus* that are known to nest in an alien tree on the southern border of the site (on the fringe of the indigenous dune thicket). Mammal diversity on the site was low with only small mammals such as Four-striped Grass Mouse *Rhabdomys pumilio* and Cape Gerbil *Gerbilliscus afra* recorded, with a high concentration of burrows observed throughout the site. Spoor of Small-spotted Genet *Genetta genetta* was observed on the edge of the dune thicket in the southern portion of the site. Only one common butterfly species was recorded during the field survey, Silverbottom Brown *Pseudonympha magus*. No faunal SCC were recorded during the site surveys. The habitat on the site is largely homogenous and generally of poor quality and is unlikely that the available habitat would support any significant populations of faunal SCC.

6.2.3. Freshwater Compliance Statement

The property falls within Primary Catchment K (Kromme) area and falls on the catchment divide of quaternary catchments K10B and K10F. The project area of interest (PAOI) (i.e., the surface area to be developed) falls within K10B. No freshwater features are indicated to occur within the development footprint. The PAOI was traversed by vehicle and by foot on the 26th of August 2022. No freshwater features were identified within the development footprint. Based on the results of the desktop review and the site survey, the sensitivity of aquatic biodiversity on Remaining Portion 11 of Farm 219 Vaale Valley can be confirmed as Low and a comprehensive specialist assessment is therefore not required.

7. Legal Framework

7.1. The NEMA, Act No. 107 of 1998, as amended, and the EIA Regulations (2017)

The National Environmental Management Act (NEMA; No. 107 of 1998, as amended) gives effect to the Constitution of the Republic of South Africa by providing a framework for co-operative environmental governance and environmental principles that enable and facilitate decision-making on matters affecting the environment. NEMA requires that an environmental authorisation be issued by a competent authority (CA) before the commencement of an activity listed in Environmental Impact Assessment Regulations Listing Notices G.N. 324 & 327 published on the 7th of April 2017.

The activities were authorized in terms of Schedule 1 of Government Notice No. R1182 of 5 September 1997, as amended.

The authorised activities are:

- 1(c): The construction, erection or upgrading of – with regard to any substance which is dangerous or hazardous and is controlled by national legislation – (i) infrastructure, excluding road or rail, for the transportation of any such substance; and (ii) manufacturing, storage, handling, treatment or processing facilities for any such substance
- 1(d): The construction, erection or upgrading of roads, railways, airfields and associated structures
- 1(k): The construction, erection or upgrading of reservoirs for public water supply
- 1(m): The construction, erection or upgrading of public and private resorts and associated infrastructure
- 1(n): The construction or upgrading of sewage treatment plants and associated infrastructure
- 2(c): The change of land use from agricultural or zoned undetermined use or an equivalent zoning to any other land use
- 10: The cultivation or any use of virgin land

SIMILARLY LISTED ACTIVITIES

Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 1**	Describe the portion of the proposed project to which the applicable listed activity relates.
9	The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water— (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where— (a) such infrastructure is for bulk transportation of water or storm water or storm water drainage inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	This activity relates to the bulk services which will be installed. Their internal diameters will vary between 600mm and 300mm. The lengths will exceed the 1km threshold.
10	The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes – (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more; excluding where— (a) such infrastructure is for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes inside a road reserve or railway line reserve; or (b) where such development will occur within an urban area.	The internal sewage system will be within the thresholds, and it is understood that the bulk removal will be through 2 existing 450mm siphons.
11	The development of facilities or infrastructure for the transmission and distribution of electricity— (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts; or (ii) inside urban areas or industrial complexes with a capacity of 275 kilovolts or more; excluding the development of bypass infrastructure for the transmission and distribution of electricity where such bypass infrastructure is — (a) temporarily required to allow for maintenance of existing infrastructure;	The internal network will be supplied from a 22/11kV substation, This activity will however not be applicable as the main electrical medium voltage reticulation throughout the entire Hartland Estate will be 11kV.

	(b) 2 kilometres or shorter in length; (c) within an existing transmission line servitude; and (d) will be removed within 18 months of the commencement of development.	
12	The development of— i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs— (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; — excluding— (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; (ee) where such development occurs within existing roads, road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.	No water courses or wetlands are within 32meters of the infrastructure or structures and as such this activity is not triggered
13	The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.	The combined capacity of the two reservoirs will be 2000 cubic meters (20Ml) well below this 50000 cubic meter threshold. Therefore this activity is not applicable.
14	The development and related operation of facilities or infrastructure, for the storage, or for the storage and handling, of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	This activity is similarly listed to Item 1(c) however it was likely authorised for small scale fuel storage (bowsers) during the construction phase. The capacity of bowsers will not exceed these thresholds and therefore the activity is no longer listed.
24	The development of a road— (i) for which an environmental authorisation was obtained for the route determination in terms of activity 5 in Government Notice 387 of 2006 or activity 18 in Government Notice 545 of 2010; or (ii) with a reserve wider than 13,5 meters, or where no reserve exists where the road is wider than 8 metres; but excluding a road— (a) which is identified and included in activity 27 in Listing Notice 2 of 2014; (b) where the entire road falls within an urban area; or (c) which is 1 kilometre or shorter.	The proposed project includes the development of various roads with widths which range from 8m to 20m.
25	The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput capacity of more than 2 000 cubic metres but less than 15 000 cubic metres.	The hydraulic loading of the sewage system is estimated at 1566,9 kℓ/day. This is fairly close to the threshold and as such this activity should be included
27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	Vegetation cleared for the footprint of the development will exceed the upper threshold of 20ha, as such this activity is not applicable however Activity 15 of Listing Notice 2 will be applicable.
28	Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or	The site was and still is zoned for agriculture except where houses have already been constructed

	institutional purposes.	
Activity No(s):	Provide the relevant **Basic Assessment Activity(ies)** as set out in **Listing Notice 3**	Describe the portion of the proposed project to which the applicable listed activity relates.
2	The development of reservoirs, excluding dams, with a capacity of more than 250 cubic metres. i. Western Cape i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. In areas containing indigenous vegetation; or iii. Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, or zoned for a conservation purpose.	The combined capacity of the two reservoirs will be 2000 cubic meters (20Ml)
4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. i. Western Cape i. Areas zoned for use as public open space or equivalent zoning; ii. Areas outside urban areas; (aa) Areas containing indigenous vegetation; (bb) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined; or iii. Inside urban areas: (aa) Areas zoned for conservation use; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.	The development includes the development of various roads with widths which range from 8m to 20m.
5	The development of resorts, lodges, hotels, tourism or hospitality facilities that sleep less than 15 people. - Not listed in the Western Cape -	Not listed in the Western Cape
6	The development of resorts, lodges, hotels, tourism or hospitality facilities that sleeps 15 people or more. i. Western Cape i. Inside a protected area identified in terms of NEMPAA; ii. Outside urban areas; (aa) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; or (bb) Within 5km from national parks, world heritage sites, areas identified in terms of NEMPAA or from the core area of a biosphere reserve; - excluding the conversion of existing buildings where the development footprint will not be increased.	This activity is not triggered by the development
10	The development and related operation of facilities or infrastructure for the storage, or storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 but not exceeding 80 cubic metres. i. Western Cape i. Areas zoned for use as public open space or equivalent zoning; ii. All areas outside urban areas; or iii. Inside urban areas: (aa) Areas seawards of the development setback line or within 200 metres from the high-water mark of the sea if no such development setback line is determined; (bb) Areas on the watercourse side of the development setback line or within 100 metres from the edge of a watercourse where no such setback line has been determined; or (cc) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line has been determined.	This activity is similarly listed to Item 1(c) however it was likely authorised for small scale fuel storage (bowsers) during the construction phase. The capacity of bowsers will not exceed these thresholds.
12	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan. i. Western Cape i. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; ii. Within critical biodiversity areas identified in bioregional plans; iii. Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuarine functional zone, whichever distance is the greater, excluding where	The clearance associated with the development footprint, the site is zoned agriculture which is considered equivalent to conservation.

	such removal will occur behind the development setback line on erven in urban areas; iv. On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning; or v. On land designated for protection or conservation purposes in an Environmental Management Framework adopted in the prescribed manner, or a Spatial Development Framework adopted by the MEC or Minister.	
15	The transformation of land bigger than 1000 square metres in size, to residential, retail, commercial, industrial or institutional use, where, such land was zoned open space, conservation or had an equivalent zoning, on or after 02 August 2010. f. Western Cape i. Outside urban areas, or ii. Inside urban areas: (aa) Areas zoned for conservation use or equivalent zoning, on or after 02 August 2010; (bb) A protected area identified in terms of NEMPAA, excluding conservancies; or (cc) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act as adopted by the competent authority.	The development will exceed the threshold and the site was zoned Agriculture
Activity No(s):	Provide the relevant **Scoping and EIR Activity(ies)** as set out in **Listing Notice 2**	Describe the portion of the proposed project to which the applicable listed activity relates.
15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	The development site exceeds 20ha and as such this activity should be included in the amended EA.

7.2. Other Applicable legislation

The Applicant is responsible for ensuring that all contractors, labourers and any other appointed person/entity acting on his behalf, remain compliant with the conditions of the received authorisations, as well as the provisions of all other applicable legislation and guidelines, including inter alia:

- National Heritage Resources Act (Act No 25 of 1999);
- National Environmental Management Act (Act No. 107 of 1998), as amended.
- National Forest Act (Act 84 of 1998).

The above listed legislation has general applicability to most development applications, and it is The Applicant's responsibility to ensure that all contractors and employees are aware of their obligations in terms of these Acts. This EMPr does not detract from any other legal requirements.

The proposed development activity will take place through various phases. Each phase has specific impacts or issues unique to that phase of the development activity. These phases of the development are listed below, and the impacts associated with each phase as identified through the environmental impact assessment process are identified and given a brief description. Brief management statements are provided, as well as a description of the desirable impact management outcomes.

8. Scope of this EMPr

This EMPr describes the measures that must be implemented in order to avoid, minimise, manage and monitor the potential environmental impacts of the development, during all phases of the project life cycle, namely:

- Planning and Design Phase
- Pre-construction Phase
- Construction Phase
- Post-Construction Rehabilitation

General environmental management measures that must be applied throughout the project lifecycle (as and where applicable) are described in Chapter 9 below. Additional management measures that

must be implemented to address specific impacts that may arise during each phase are provided in Chapters 10-12 of this EMPr.

9. General Environmental Management

The following general management measures are intended to protect environmental resources from pollution and degradation during all phases of the project life cycle. These measures should be implemented as and where applicable, reasonable, and practicable during the pre-construction, construction and post-construction rehabilitation and operational (maintenance) phases of the proposed development.

Code of Conduct
The purpose of the Code of Conduct (CoC) is to minimise the impact of the activities associated with the construction phase on the environment. The rules and regulations prescribed in this CoC are intended to ensure that the impacts on the environment are not prejudiced by the construction activities. Failure to adhere to or any breach of this CoC will result in a fine being levied against the offending or defaulting party / individual.

Labourers during the construction phase should conserve the natural environment, endorsing the principles of sustainable use and minimum impact. They should also be sensitive to the impact of their operation on the environment within which they work and minimise any adverse impacts.

This EMPr forms an integral part of the activities during the construction phase and as such, is legally enforceable. In addition to the restrictions and controls provided for in this EMPr, the environmental controls comprise the following:

Contractors and sub-contractors
- Unless otherwise determined, only appropriately registered contractors shall be appointed.
- It shall be the responsibility of the holder / engineer to ensure that the contractors abide by and comply with the rules and regulations of the Code of Conduct.
- Contractors shall at all times be responsible for their sub-contractors and employees whilst they are on the development property.

Rules and Regulations
It is of vital importance that engineers, and contractors understand and acknowledge that they are working on an environmentally sensitive development and agree to conform to all environmental controls specified in this EMPr and any additional input by the ECO. In addition to the EMPr, the environmental controls comprise the following:
- **Building Plan Controls**
    - A copy of the approved and signed building plans must be available on site during the construction phase of the development.
    - Variations of the building plans must be approved by the engineer / holder prior to being implemented.
    - Prior to commencing building, the contractor must remove all topsoil and store it in a berm of not more than 2 m high, away from construction activities.
- **Site tidiness**
    - The contractor must keep the appearance of his building site neat and tidy at all times. Building rubble must be removed from site at regular intervals, and litter must be removed from the site on a daily basis. Refuse drums must be available on site which waste can be placed in. The drums must be emptied on a regular basis and the waste taken to a licenced local waste disposal facility.
- **Safety**
    - The contractor shall comply with the Health and Safety Act (Act No. 85 of 1993), as amended, together with such regulations promulgated thereunder.

9.1. Heritage Resources

An Archaeological Heritage Impact Assessment was conducted by MAPCRM cc and noted a number of areas and artefacts considered sensitive from a heritage and archaeological point of view. It will be important to for the contractor to ensure that all recommendations included in the report compiled by MAPCRM cc dated 28 September 2005 are implemented. The necessary permits as stipulated in the afore mentioned report, obtainable from Heritage Western Cape, must be applied for in advance and the relevant authorizations made available to the ECO prior to construction activities commencing.

If any heritage resources are unearthed or discovered, work in that area is to be suspended immediately. These heritage resources may include, among others, features of previous human activity, such as:

- Human remains;
- Fossil bones;
- Stone tools / artefacts;
- Coins;
- Rock art & engravings;
- Pottery & ceramics;
- Shell middens / marine shell heaps; and
- Old structural remains.

Should any heritage resources, including evidence of graves and human burials, archaeological material and paleontological material be discovered during the execution of the activities, all works must be stopped immediately, and Heritage Western Cape must be notified without delay.
Heritage Western Cape:
T: 021 483 5059
E: hwc.hwc@westerncape.gov.za

9.2. Heritage Resources Current Status and Way Forward

An Archaeological Heritage site visit was undertaken by Dr. Peter Nilssen on 27 April 2021. The recommendation in his report, dated 5 May 2021 are as follows:

- Because of their vulnerable context and in order to protect them in the short to medium term, it is strongly recommended that the graves at waypoint HD32 (Figure 6) should be fenced as soon as possible and that a buffer of at least 2 to 3 meters between the graves and the fence should be observed. A decision about the future of the graves should also be made as soon as possible. It is requested that Heritage Western Cape provides input as to the best way forward in terms of relocating the graves to a more suitable site on the property or conserving the graves in situ with suitable measures for maintenance and protection. It is this author's opinion, pending results of research into living descendants or relatives of the deceased, that the former option of relocation may be preferable. This issue may require further discussion between all interested and affected parties and with consideration of Section 36 of the National Heritage Resources Act (Act No.25 of 1999).

- Due to the scarcity of heritage resources - noted in both the Nilssen 2005 report and during the recent site inspection - in the area currently under development (Figure 6), it is recommended that full time archaeological monitoring is not necessary but that part time monitoring involving daily site inspections by a suitably accredited professional archaeologist should be implemented when bulk excavations and earthworks are in progress. Dalmar or a representative should inform the appointed archaeologist of their excavation and earthworks schedules to ensure that fresh earthworks are inspected for potential buried heritage resources.

- Because the original archaeological heritage impact assessment was done 16 (sixteen) years ago, it is recommended that recorded heritage resources falling within the development footprint shown in Figure 5 should be revisited and re-evaluated and that a fresh assessment be

made of their significance and requirements for mitigation. It is recommended that only heritage occurrences considered being of medium to high significance or that were proposed for mitigation need to be investigated and re-evaluated. Due to higher incidences of Stone Age materials in certain portions of the development footprint (see Figure 5), it may be necessary to implement full time archaeological monitoring in those areas.

- Any heritage resources of high significance, but that currently fall outside the development footprint must be avoided by increased vehicular and pedestrian activity on the property. It may be necessary to revisit such sites and make appropriate arrangements for their protection and conservation.

- As stated previously, the recommendations made here need to be reviewed and responded to by Heritage Western Cape in light of the current situation as well as the earlier assessment by this author in 2005. HWC is requested to give advice on the best way forward in order to attain and maintain compliance with the heritage / archaeological component of the EA.

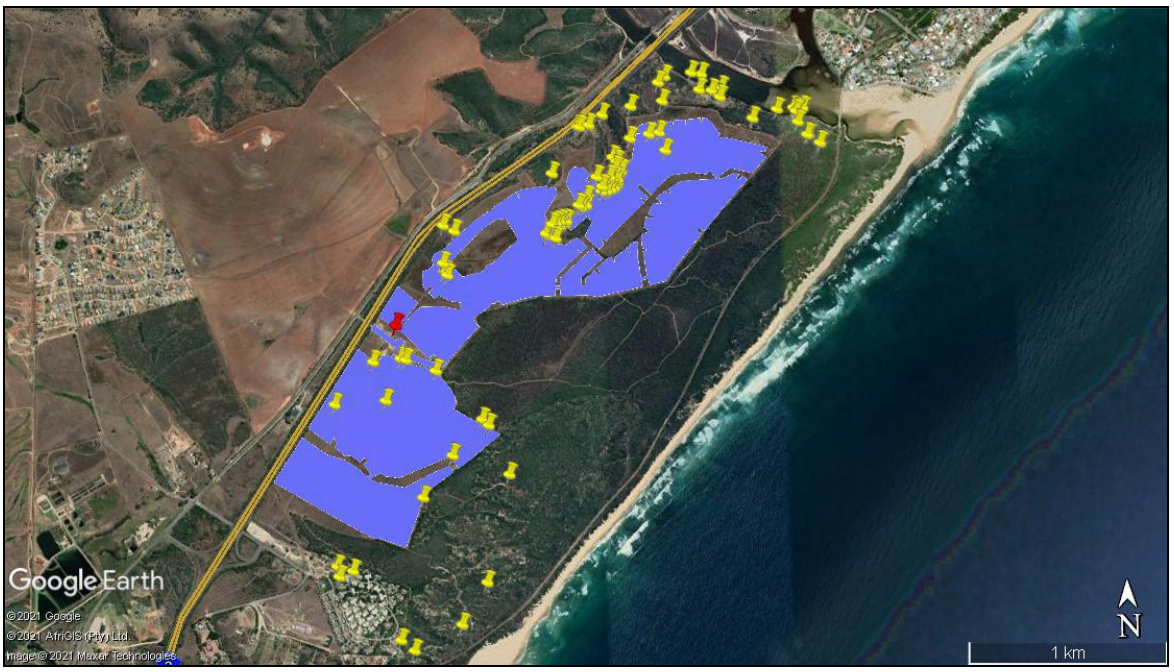

Figure 5: Hartland Development footprint in blue with heritage occurrences recorded in 2005 indicated by yellow markers (Nilssen 2005). The red marker is the location of the graves at waypoint HD32 (see Figure 6). Note that many of the documented heritage resources fall outside the Hartland Development footprint, but that a few in the south-west are in an area that is already developed. Courtesy of HilLand Environmental, Dalmar Beleggings and Google Earth 2021

Figure 6: Enlarged from Figure 5 showing the current and imminent development phases in green (Hartland Villas, Phase 1 and Phase 3), GPS fixed tracks (red lines) of the archaeological foot survey and documented heritage resources (yellow markers, Nilssen 2005). Note that HD32 is approximately 20 meters NE of the actual location of the graves enclosed with a white circle. The labourers cottages were at waypoint HW33. Courtesy of HilLand Environmental, Dalmar Beleggings and Google Earth 2021.

10. Impact Management Objectives and Outcomes

10.1. Environmental Impact Management: Planning and Design Phase

No direct environmental impacts are associated with the planning and design phase. However, poor planning or inappropriate design decisions in this phase may result in environmental impacts arising during subsequent phases of the project.

Planning and design activities must therefore take into account the environmental constraints and opportunities identified during the Environmental Impact Assessment process, in order to avoid or minimise the potential future impacts of the development. Proper planning is also essential to ensure that adequate provision is made to implement the environmental requirements of this EMPr, and to ensure that the development is compliant with additional conditions which may be included in the Environmental Authorisation.

The environmental management objectives (goals) during this phase are to:

- Appoint an Environmental Control Officer.
- Update the EMPr (if necessary).

These environmental management objectives, as well as the management actions that must be implemented in order to achieve the desired objective and avoid/minimise potential impacts are discussed in more detail below.

10.1.1. Objective 1: APPOINTMENT OF AN ENVIRONMENTAL CONTROL OFFICER

Impact Management Objective: ***To appoint a suitably qualified and experienced Environmental Control Officer.***		
Potential impact to avoid	Failure to appoint an ECO will result in non-compliance with the requirements of the EMPr.	
Impact Management Outcome	The requirements of the EMPr are implemented and monitored during all phases of the development, which will promote sound environmental management on site.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• A suitably qualified and experienced Environmental Control Officer must be appointed before any activities commence on site. • The appointed ECO must adhere to the requirements stated in Chapter 13 and any other requirements specified in the Environmental Authorisation. • The appointed ECO must be advised of the construction start date before any activities commence on site so that the ECO can perform a pre-commencement inspection and plan for environmental awareness training of construction workers.	The Applicant.	During design phase
Performance Indicator	A qualified ECO is appointed prior to the commencement of any construction activities (including pre-construction set-up activities) on site.	

10.2. Environmental Impact Management: Pre-construction Phase

Proper set-up during the pre-construction phase can set the foundation for good environmental management during the active construction phase to follow and can avoid potential impacts from arising at a later date.

The Impact Management Objectives for this phase of the project relate to:

- Identify and demarcate no-go areas and working areas.
- Establish Environmentally sensitive site camp and site facilities.
- Pre-construction ECO visit.

10.2.1. Objective 1: IDENTIFY & DEMARCATE NO-GO AND WORKING AREAS

Impact Management Objective: ***Identify and demarcate no-go areas, working areas and site facilities.***		
Potential impact to avoid	• No-Go areas include public open space to remain natural. • Insensitive location of working areas and site facilities may result in environmental impacts during the construction phase. • Failure to accurately demarcate working areas may result in an increased disturbance footprint. • Failure to demarcate no-go areas may result in disturbances to these areas during construction.	
Impact Management Outcome	Future construction activities will be restricted to within the designated areas & environmentally sensitive areas (no-go areas) will be protected from disturbance.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period

• The environmentally sensitive areas must be identified and be designated as no-go areas. • All sensitive areas, which must not be disturbed, must be demarcated using with a 1.2m high fence constructed of shade cloth netting (or similar product), staked at regular intervals of between two and three meters. Two strands of wire, one along the top of the fence and one along the bottom should be sufficient to keep the fence rigid. "No-Go" signs should be erected along the fence at prominent locations. Where a fence is considered impractical No- Go signs should be erected at frequent intervals along the edge of the no-go areas in consultation with the ECO. • "No-Go" signs should be of a minimum size of 200mm x 150mm with red letters on a white background displaying the words "No-Go Area". Demarcation put in place to protect sensitive areas should be left in position until construction has been completed. The areas must be clearly delineated to ensure that no unnecessary disturbance of the environment takes place. • The sensitive areas include all areas that are deemed to be of a high or very high sensitivity with regard to slope steepness, soil stability, vegetation cover, etc. As per the findings of Conservation Management services' report dated June 2005 and later findings by Synecology in their report dated January 2008 the areas indicated below in Figure 7 must be considered No-Go areas. • Care should be taken to ensure that a buffer area of at least three meters are implemented around afore mentioned sensitive areas to further limit construction materials or activities with construction activities near these areas. • All sensitive areas must be identified and marked in consultation with the ECO. Other sensitive areas may include areas that are stripped of or lose their vegetation as a result of the construction. The marking of these areas will be at the discretion of the ECO. • It must be impressed upon contractors that no one should enter these demarcated areas. This will minimize the effect of trampling which could lead to erosion and other environmental impacts. The demarcated areas must make allowance for reasonable space for construction activities like stockpiling of material etc, to the satisfaction of the ECO. • Before any of the work commences, the ECO must address all the contractors and their workers to ensure that they are all well informed as to where the "no-go" areas are. • It must be impressed upon the contractors and labourers that no one may cross into these lines of demarcation and move into the demarcated areas. If any contractor or their employees transgress any of the conditions of approval, the ECO will have the right to demand that the resident	Contractor	Pre-construction phase (prior to arrival of construction equipment, machinery, or workers on site)

engineer institute action against the contractor. Work is to be halted until the problem has been resolved between the ECO, resident engineer, and the contractor. • Any financial loss that may derive from such a cessation of the work will be to the cost of the contractor. If this action does not have the desired effect, the ECO may appeal to DEA&DP for further action to be taken. The contractor should be fined and must pay for reinstatement or rehabilitation of damaged areas and features. • Demarcate the protected trees on site. • Site camp facilities must be situated as far away from the No-Go areas as possible. • Demarcation of access points and haulage routes would also be important and need to remain in place for the full duration of the construction phase. This demarcation would also serve the purpose of informing and warning passing vehicular traffic of the construction activities taking place.		
Performance Indicator	No-go areas, working areas and areas for site camp facilities have been identified and appropriately demarcated to the satisfaction of the ECO, before construction activities commences on site.	

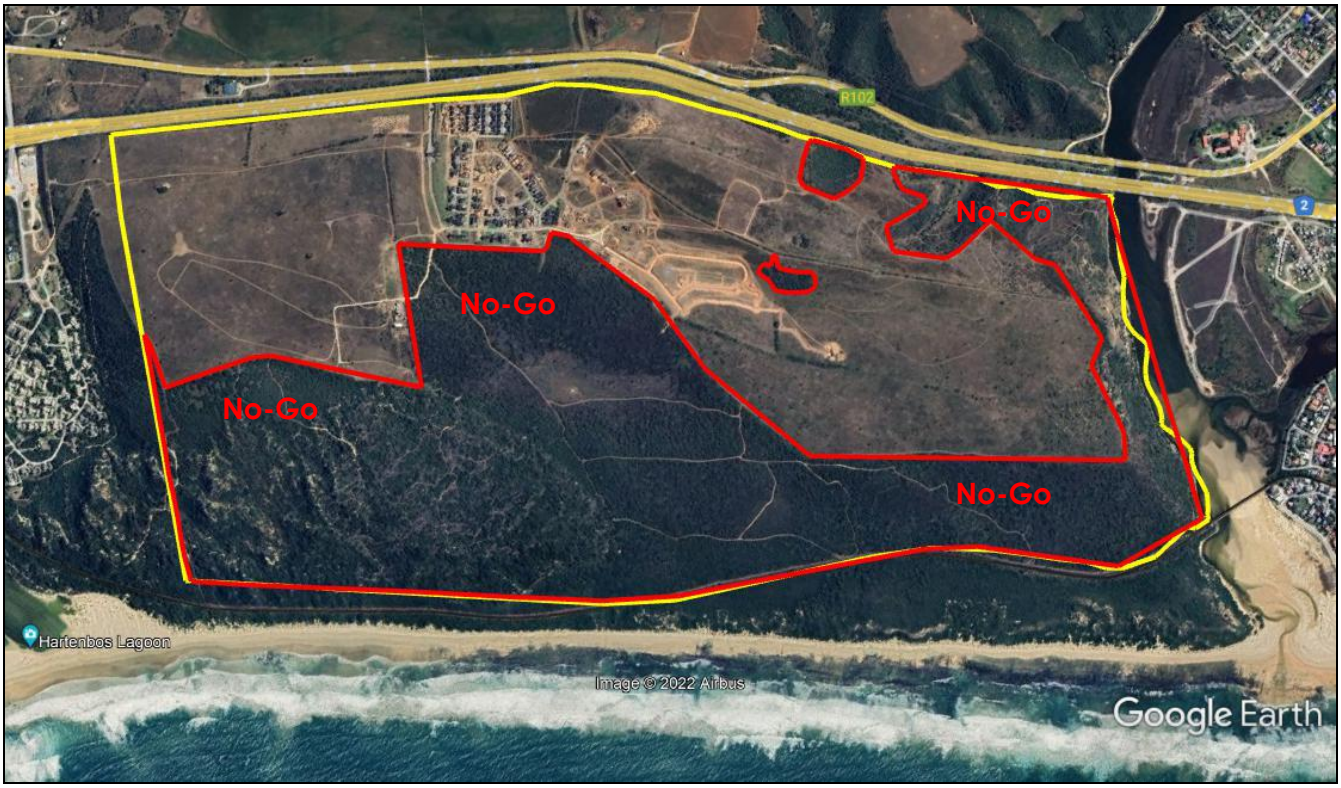

Figure 7: Construction No-Go area

10.2.2. Objective 2: ESTABLISH ENVIRONMENTALLY SENSITIVE SITE CAMP & SITE FACILITIES

Impact Management Objective: ***To set up and equip the site camp and associated site facilities in a manner that will promote good environmental management.***			
Potential impact to avoid	• Inappropriate siting of site camp facilities may result in impacts to sensitive resources and a negative visual impact. • Failure to properly demarcate and set up site facilities may result in disorganised construction activities and unnecessary disturbance to the site. • Failure to provide the necessary site facilities and/or failure to equip these facilities with the necessary equipment/materials may impede good environmental management & compromise ability to respond to emergencies.		
Impact Management Outcome	Site camp facilities do not impact significantly on environment and present little visual disturbance. The equipment required to implement the provisions of the EMPr are provided on site.		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
• The site camp and associated site facilities must be set-up and managed in accordance with the general environmental management measures specified in Chapter 9 of this EMPr. • The site camp must be strategically set up in a manner that will promote good environmental management during construction/ demolition, and to respond to potential emergencies (including fires, spillage of hazardous substances etc.) that may arise. • The No-Go boundary must be demarcated, and no disturbance may occur past this point during any stage. • The site camp, storage facilities, stockpiles, waste bins, and any other temporary structures on site should be located in such a way that they will present as little visual impact to surrounding residents and road users as possible. • Frequent stormwater outlets must be designed to prevent erosion at discharge points. • It is recommended that the stormwater management plan be developed with appropriate ecological input and be developed based on Sustainable Drainage Systems (SUDS). • The contractor shall plan his activities so that materials excavated from borrow pits and cuttings, in so far as possible, can be transported direct to and placed at the point where it is to be used. • Top soil and other top material such as boulders must be stored at a stockpile location agreed to by the ECO. Ensure the stockpile does not exceed the maximum height agreed upon.		Contractor / Developer	Pre-construction phase (prior to start of construction activities)
Performance Indicator	Appropriate, well organised and properly equipped site facilities are available on site prior to commencement of construction activities. The location and set up of the facilities does not impact on the natural resources.		

10.2.3. Objective 3: PRE-CONSTRUCTION ECO INSPECTION

It is essential that the appointed ECO be advised of the intended construction start date before construction activities commence on site, in order for the ECO to conduct an initial site inspection to assess the pre-commencement condition of the site. The ECO can also advise on the appropriate siting and demarcation of the site facilities, and the identification and demarcation of the no-go areas. The ECO may also conduct the first round of environmental awareness training at this stage, if the construction workers are present on site.

***Impact Management Objective:* Environmental Control Officer to conduct an inspection prior to the commencement of construction activities on site.**			
Potential impact to avoid	• Failure to appoint ECO or to notify ECO of commencement prior to commencement may result in non-compliance with the EA. • If a pre-commencement ECO inspection is not performed, the Construction Contractor may be held liable for environmental degradation that took place prior to the Contractor commencing work on site.		
Impact Management Outcome	• Good environmental management is promoted and enforced by the ECO during the full pre-construction and construction phases. • Site facilities are appropriately located on site. • Construction workers receive environmental awareness training before commencing work on site.		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
• The appointed ECO must be advised of the construction start date, before any activities commence on site so that the ECO can perform a pre-commencement inspection and plan for environmental awareness training of construction workers.		Contractor	Start of construction phase
Performance Indicator	A pre-commencement site inspection is conducted by the appointed ECO before construction activities commence on site.		

10.3. Environmental Impact Management: Construction Phase

A number of potential environmental impacts may arise during the construction phase of the development. These impacts have been identified and assessed during the Environmental Impact Assessment process. Environmental Management objectives and actions that will prevent the identified potential impacts from arising – or where avoidance is not possible, that will minimise and mitigate the impacts – are provided in this section.

The environmental management actions and mitigation measures prescribed in this section must be implemented throughout the construction phase and must be implemented in conjunction with the general management measures specified in Chapter 9 of this EMPr, as well as any other conditions which may be stated in the Environmental Authorisation. The Environmental Control Officer must monitor and enforce the implementation of the relevant environmental management measures and may provide guidance on the implementation of these environmental management measures as and when required.

The environmental management objectives (goals) for the Construction phase are:

- Prevent pollution and soil contamination
- Protection of terrestrial ecosystems (fauna and vegetation)
- Alien clearing
- Noise impact management
- Visual impact management

- Traffic and safety impact management
- Dust impact management

The environmental management actions that must be implemented in order to achieve the desired objectives and avoid/minimise potential impacts are discussed in more detail in the sections below.

10.3.1. Objective 1: PREVENT POLLUTION AND SOIL CONTAMINATION

Impact Management Objective: ***To prevent environmental pollution and contamination of soil and subsurface water resources***		
Potential impact to avoid	• Fuel, oil, lubricant or other pollutants may leak from vehicles/ machinery and contaminate soil and/or ground water. • Spills of hazardous substances may contaminate environment. • Chemical toilets may leak. • Contamination of surrounding environment due to irresponsible bitumen usage. • Contaminated run-off from site or site camp facilities may pollute soil. • Waste (solid or liquid) from the construction site may be blown or washed into surrounding environment.	
Impact Management Outcome	The environment (including soil, surface and groundwater) is not contaminated.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• Any Bitumen spills must be excavated and disposed of as hazardous waste. • Erosion control measures including silt fences, low soil berms and/or shutter boards must be put in place around the stockpiles to limit sediment runoff from stockpiles. **General Pollution Management:** • No pollution of ground water resources may occur due to any activity on the site. • No storm water runoff from any premises containing waste, or water containing waste emanating from construction activities may be discharged into the environment. Polluted stormwater must be contained on the site. • Stormwater managed by the development is to be discharged into porous channels / swales ('infiltration channels or basins') running near parallel or parallel to contours within and along the edge of the development • Frequent stormwater outlets must be designed to prevent erosion at discharge points. **General Waste Management:** • Dedicated waste bins or skips must be provided on site and kept in a demarcated area on an impermeable surface. • Separate waste bins/skips must be provided for recyclable waste, general waste and hazardous waste. Recovered builder's rubble & green waste may be stockpiled on the ground within the site camp, or in separate skips until	Contractor	Construction phase

removal. • Waste must be placed in the appropriate waste bins/skips/ stockpiles. • Hazardous waste bins must be kept on an impermeable bunded surface capable of holding at least 110% of the volume of the bins. • Skips/ bins must be provided with secure lids or covering that will prevent scavenging and windblown waste or dust. • Waste bins/skips must be regularly emptied and must not be allowed to overflow. • Construction workers must be instructed not to litter and to place all waste in the appropriate waste bins provided on site. • The Contractor must ensure that all workers on site are familiar with the correct waste disposal procedures to be followed. • Waste generated on site must be classified and managed in accordance with the National Environmental Management: Waste Act – Waste Classification and Management Regulations (GN No. R. 634 of August 2013). • Disposal of waste to landfill must be undertaken in accordance with the National Environmental Management: Waste Act – National Norms and Standard for the Assessment of Waste for Landfill Disposal (GN No. R. 635 of August 2013). • All waste, hazardous as well as general, resulting from the proposed activities must be disposed of appropriately at a licensed Waste Disposal Facility (WDF). **Pollution Management – hydrocarbons (oil, fuel etc.)** • Vehicles and machinery must be in good working order and must be regularly inspected for leaks. • If a vehicle or machinery is leaking pollutants it must, as soon as possible, be taken to an appropriate location for repair. The ECO has the authority to request that any vehicle or piece of equipment that is contaminating the environment be removed from the site until it has been satisfactorily repaired. • Repairs to vehicles/ machinery may take place on site, within a designated maintenance area at the site camp. Drip trays, tarpaulin or other impermeable layer must be laid down prior to undertaking repairs. • Refuelling of vehicles/ machinery may only take place at the site camp or vehicle maintenance yard. Where refuelling must occur, drip trays should be utilised to catch potential spills/ drips. • Drip trays must be utilised during decanting of hazardous substances and when refilling chemical/ fuel storage tanks. • Drip trays must be placed under generators (if used on site) water pumps and any other machinery on site that utilises fuel/ lubricant, or where there is risk of leakage/spillage.		

• Where feasible, fuel tanks should be elevated so that leaks are easily detected. • A spill kit to neutralise/treat spills of fuel/ oil/ lubricants must be available on site, and workers must be educated on how to utilise the spill kit. • Soil contaminated by hazardous substances must be excavated and disposed of as hazardous waste. • Spoil or waste material should not be dumped within 50 m of natural areas, it should be discarded at a licensed dump site. **Pollution Management – Ablution facilities** • Chemical toilets must be kept at the site camp, on a level surface and secured from blowing over. • Toilets must be located well outside of any storm water drainage lines and may not be linked to the storm water drainage system in any way. • Chemical toilets must be regularly emptied, and the waste disposed of at an appropriate waste water disposal/ treatment site. Care must be taken to prevent spillages when moving or servicing chemical toilets. **Pollution Management – Hazardous Substances** • Any hazardous substances (materials, fuels, other chemicals etc.) that may be required on site must be stored according to the manufacturers' product-storage requirements, which may include a covered, waterproof bunded housing structure. • Material Safety Data Sheets (MSDSs) shall be readily available on site for all chemicals and hazardous substances to be used on site. Where possible and available, MSDSs should additionally include information on ecological impacts and measures to minimise negative environmental impacts during accidental releases. • Hazardous chemicals and fuels should be stored on bunded, impermeable surfaces with sufficient capacity to hold at least 110% of the capacity of the storage tanks. **Cement Batching** • Cement batching must take place on an impermeable surface large enough to retain any slurry or cement water run-off. If necessary, plastic/ bidem lined detention ponds (or similar) should be constructed to catch the run-off from batching areas. Once the water content of the cement water/ slurry has evaporated the dried cement should be scraped out of the detention pond and disposed of at an appropriate disposal facility authorised to deal with such waste • Cement batching should take place on already transformed areas within the footprint of the facility. • Unused cement bags must be stored in such a way that they will be protected from rain. Empty cement bags must not be left lying on the ground and must be disposed of in		

the appropriate waste bin. • Washing of excess cement/concrete into the ground is not allowed. All excess concrete/ cement must be removed from site and disposed of at an appropriate location.		
Performance Indicator	The site is free from any spills or evidence of irresponsible waste management practices. No signs of pollution or contamination.	

10.3.2. Objective 2: PROTECTION OF TERRESTRIAL ECOSYSTEM (FAUNA AND VEGETATION)

<u>Impact Management Objective:</u> To ensure that the terrestrial ecosystem is not significantly impacted on.			
Potential impact to avoid	• Potential disturbance to terrestrial fauna during land clearing/construction activities. • The clearing/trimming of vegetation will result in loss/ disturbance of indigenous vegetation and may reduce habitat heterogeneity.		
Impact Management Outcome	The terrestrial ecosystem is not significantly impacted on as a result of the construction activities.		
IMPACT MANAGEMENT ACTIONS			
Mitigation measure		Responsible party	Time period
• An awareness program is to be run by the ECO in order to prevent the labour force from intentionally killing any faunal species • Great care will be taken if cement is to be mixed on site, especially in the proximity of vegetation It will be mixed on thick plastic sheets or in large buckets and not allowed to spill onto bare ground. Any spillage will be cleaned up immediately. Cement water will also be contained in the above manner and allowed to dry out and then removed from site. Cement water, which is highly alkaline, poses a definite threat to the soil and seed banks. • Blanket clearing of vegetation must be limited to the approved development footprint, and the area to be cleared must be demarcated before any clearing and grubbing commences. • No clearing outside of development and infrastructure footprint area to take place. • Rescued plants should be replanted into a nearby disturbed area of similar habitat or for open space rehabilitation, if appropriate. • An Environmental Control Officer will oversee compliance with all the prescribed environmental requirements and mitigation measures listed here and will be on site regularly. • Construction workers must be sensitised to the fact that fauna (including mammals, snakes, birds, tortoises etc.) may be encountered on site, and they must exercise due caution to ensure that their actions/movements do not impact fauna. • Any fauna encountered on site must be allowed to		Contractor	Construction phase

passively vacate the area. Active relocation of fauna like snakes must be a last resort and must only be performed by a person skilled/ experienced enough to do so without endangering him/herself or the animal/bird. • If animals are discovered on site during site preparation, they are to be relocated or allowed to move off the area that is required to be disturbed without harm; • No wild animal may under any circumstance be handled, removed, or be interfered with by construction workers. No wild animal may under any circumstance be hunted, snared, captured, injured, or killed. This includes animals perceived to be vermin; • Construction workers may not feed, hunt, trap, poison or shoot fauna on site or in the immediately surrounding areas. • The site must be cleared of all alien plants and trees during the construction phase, except for the Eucalyptus tree at 34°06'20.87"S 22°07'26.36"E in which the Jackal Buzzard pair has a nest, in the eastern portion of the assessment area adjacent to the natural dune vegetation. Jackal Buzzard use the same nest for up to five years or alternative between nest sites (Allan, 2005).		
Performance Indicator	• Construction team limit disturbance to the terrestrial ecosystem as far as possible for the duration of the construction phase. • There are no significant or long-term impacts to terrestrial vegetation or fauna.	

10.3.3. Objective 3: ALIEN CLEARING

***Impact Management Objective:* To create habitat free of alien vegetation**		
Potential impact to avoid	• The proliferation of alien vegetation once construction has been completed. • Presence of alien vegetation within the provisioned open space.	
Impact Management Outcome	The level of alien infestation decreases over time and there are no alien species inhabiting the open space.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• The ECO must be informed in advance of any vegetation that will be removed, irrespective of whether or not the vegetation is alien or indigenous. • Alien plants must be removed from the site as per NEMBA requirements. • Alien clearing must be done in such a way as not to cause damage to indigenous vegetation. • Regular follow-up clearing of aliens is required in order to achieve rehabilitation successfully. It is assumed that the responsibility of alien clearing will rest with the local authority. If not, an alien clearing contractor must be employed to conduct alien clearing. • After any clearing is completed, an appropriate cover	The Applicant.	Construction phase

crop should be planted where any weeds or exotic species are removed from disturbed areas timeously. • Alien clearing must be undertaken in accordance with the Alien Clearing Management Plan.		
Performance Indicator	No alien invasive species are observed in areas that have been disturbed.	

10.3.4. Objective 4: NOISE IMPACT MANAGEMENT

***Impact Management Objective:* To control avoidable noise impacts to the surrounding areas**		
Potential impact to avoid	Avoidable noise generated during the undertaking of construction activities, which may present a nuisance to surrounding community.	
Impact Management Outcome	Avoidable noise impacts are managed efficiently.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• A noise complaints register should be opened. • Excavations and earth-moving activities must be restricted to normal construction working hours (7:30 – 17:30) as far as possible. • Work on site must be well-planned and should proceed efficiently so as to limit the duration of the disturbance. • Vehicles and equipment must be kept in good working condition. If deemed necessary, machinery and equipment should be fitted with mufflers/ exhaust silencers. No unnecessary disturbances should be allowed to emanate from the construction site. • Workers should be educated on how to control noise-generating activities that have the potential to become disturbances, particularly over an extended period of time. • Noise levels must comply with the relevant health & safety regulations and SANS codes and should be monitored by the Health & Safety Officer as necessary and appropriate. • The noise management and monitoring measures prescribed in the EMPr must be adhered to. • The appointed Environmental Control Officer (ECO) must undertake a site inspection once per week, for the duration of the construction phase, and to produce a short monthly ECO monitoring audit report, auditing on the compliance of the property developer with the conditions of the Environmental Authorisation and the approved EMP.	Contractor	Construction phase
Performance Indicator	Noise levels on site remain within acceptable standards. No valid noise complaints are received.	

10.3.5. Objective 5: VISUAL IMPACT MANAGEMENT

Impact Management Objective: ***To prevent the site from presenting an unnecessary visual impact to the surrounding public.***		
Potential impact to avoid	During construction the site may appear disturbed or disorganised and may present visual impact to observers of the site.	
Impact Management Outcome	The site does not present a significant visual impact and the sense of place is maintained.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• Consult with the ECO when determining the appropriate site for the site camp. • The site camp must be kept neat and tidy and free of litter at all times. • Waste must be managed according to this EMPr, and the mitigation measures listed above in terms of waste management. Good housekeeping practices on site must be maintained to ensure the site is kept neat and tidy. • Work on site must be well-planned and well-managed so that work proceeds quickly and efficiently, thus minimizing the disturbance time. • The site camp, storage facilities, stockpiles, waste bins, elevated tanks and any other temporary structures on site should be located in such a way that they will present as little visual impact to surrounding landowners and road users as possible. • The site camp may require visual screening via shade cloth or other suitable material. • Special attention should be given to the screening of highly reflective material. • Construction vehicles must enter and leave the site during working hours. • Delivery trucks should be appropriately covered to deter the spilling of material along the route to the site. • Working areas, storage facilities, stockpiles, waste bins, elevated tanks and any other temporary structures on site should be located in such a way that they will present as little visual impact to surrounding residents and road users as possible. • No clearing of land to take place outside the demarcated footprint. • Clearing should take place in a phased approach, so that cleared areas are kept small and manageable.	Contractor	Construction phase
Performance Indicator	• Good "housekeeping" is evident on site. • The site does not pose a visual impact to surrounding community.	

10.3.6. Objective 6: TRAFFIC & SAFETY IMPACT

Impact Management Objective: Reduced negative impact caused by increased traffic		
Potential impact to avoid	• Traffic congestion on the existing road networks. • An unsafe and non-user-friendly transport network. • Damaged roads	
Impact Management Outcome	• Ensure the safety of vehicular and pedestrian traffic during the construction phase of the development.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• All construction vehicles need to adhere to traffic laws. The speed of construction vehicles and other heavy vehicles must be strictly controlled to avoid dangerous conditions for other road users. As far as possible care should be taken to ensure that the local traffic flow pattern is not significantly disrupted. • All vehicle operators need to be educated in terms of "best-practice" operations to minimise unnecessary traffic congestion or dangers. Construction vehicles should therefore, not unnecessarily obstruct the access point or traffic lanes used to access the site. Construction vehicles also need to consider the load carrying capacity of road surfaces and adhere to all other prescriptive regulations regarding the use of public roads by construction vehicles. • Adequate signage, that is both informative and cautionary to passing traffic (motorists and pedestrians), warning them of the construction activities must be suitably located in the area where the construction is occurring and must be easily visible by all road users. Signage needs to be clearly visible and needs to include, among others, the following: o Identifying working area as a construction site; o Cautioning against relevant construction activities; o Prohibiting access to construction site; o Clearly specifying possible detour routes and/or delay periods; o Possible indications of time frames attached to the construction activities, and; o Listings of which contractors and engineers are working on the site. • If needed, appropriate traffic management measures and/ or points men (traffic marshals) should be utilized to assist vehicles entering/ exiting the site, particularly where vehicles must cross the path of oncoming traffic. • Speed of construction vehicles and other heavy vehicles must be strictly controlled to avoid dangerous conditions for other road users. • The Contractor must ensure that any large or abnormal loads (including hazardous materials) that must be	Developer	Operational phase

transported to/ from the site are routed appropriately, and that appropriate safety precautions are taken.		
Performance Indicator	• Surrounding road network remains safe, free of excessive congestion and undamaged.	

10.3.7. Objective 7: DUST IMPACT MANAGEMENT

Impact Management Objective: ***To prevent the generation of significant dust.***		
Potential impact to avoid	• Dust and wind-blown sand may arise from site during earth-moving and other construction activities. • Dust may be generated from cement batching activities. • Dust may be generated from stockpiles of earth material. • Dust may smother surrounding vegetation and may pose a nuisance to nearby land occupants or land users.	
Impact Management Outcome	The surrounding environment, land users, residents do not experience significant dust-related impacts.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• Land clearing and earthmoving activities should not be undertaken during strong winds, where possible. • Cleared areas should be provided with a suitable cover as soon as possible, and not left exposed for extended periods of time. • Stockpiles of topsoil, spoil material and other material that may generate dust must be protected from wind erosion (e.g., covered with netting, tarpaulin or other appropriate measures. Note that topsoil should not be covered with tarpaulin as this may kill the seedbank). • The location of stockpiles must take into account the prevailing wind direction and should be situated so as to have the least possible dust impact to surrounding residents, road-users and other land-users. • Speed limits must be enforced in all areas, including public roads and private property to limit the levels of dust pollution. • The speed limit should be set at 20-40km/h. • Dust must be suppressed on access roads and the construction site during dry periods by the regular application of water or a biodegradable soil stabilisation agent. Water used for this purpose must be used in quantities that will not result in the generation of excessive run off. • Dust suppression measures such as the wetting down of sand heaps as well as exposed areas around the site must be implemented especially on windy days. • The use of straw worked into the sandy areas may also help and the ECO must advise when this is necessary. • If dust appears to be a continuous problem the option of using shade cloth to cover open areas may be necessary or the erecting of shade netting above the fenced off area may need to be explored.	Contractor	Construction phase

• All vehicles transporting sand need to have tarpaulins covering their loads which will assist in any windblown sand occurring off the trucks. • Work on site must be well-planned and should proceed efficiently so as to minimise the handling of dust generating material. • Material loads should be properly covered during transportation. • Dust levels specified in the National Dust Control Regulations (GN 827 of November 2013) may not be exceeded. i.e., dust fall in residential areas may not exceed 600mg/m2/day, measured using reference method ASTM D1739; • A Complaints Register must be available at the site office for inspection by the ECO of dust complaints that may have been received.		
Performance Indicator	• Excessive dust does not arise from the site. • No dust complaints are received from any member of the public. • There is no evidence that vegetation surrounding the site is being smothered by dust.	

10.4. Environmental Impact Management: Post Construction Rehabilitation Phase

After all construction activities have ceased, the sites must be cleared of all construction related equipment, materials, facilities and waste. In addition all disturbed surfaces – including disturbed areas around the structures and all areas utilised for site facilities – must be stabilised, rehabilitated and provided with a suitable cover. All temporary access roads constructed must be rehabilitated and access must be restricted from the public.

The environmental management objectives (goals) for this phase are:

- Rehabilitate & stabilise disturbed areas and ensure environmentally sensitive closure of the construction sites.
- No establishment of alien vegetation on the site.

10.4.1. Objective 1: SITE CLOSURE & REHABILITATION

***Impact Management Objective:* To rehabilitate all areas disturbed by construction activities in an environmentally sensitive manner.**		
Potential impact to avoid	• Failure to remove all construction related waste and materials may result in environmental pollution. • Failure to remove all construction related equipment, machinery and site facilities may pose an impact to the natural environment. • Failure to stabilise disturbed surfaces may result in soil erosion and increased storm water run-off, which may limit successful revegetation of the site.	
Impact Management Outcome	• The site is neat and tidy and all exposed surfaces are suitably covered/ stabilised. • There is no construction-related waste or pollution remaining on site. • The open space remains in a natural state,	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• On completion of the construction operations, the site camp area must be cleared of all site camp facilities,	Contractor / The Applicant	Rehabilitation phase

ablution facilities, fencing, signage, waste and surplus material. • Surfaces are to be checked for waste products from activities such as concreting or asphalting and cleared in a manner approved by the ECO. • Any contaminated soil must be collected and disposed of as hazardous waste. • All construction waste, litter and rubble are to be removed from the site and re-used elsewhere or recycled/disposed of at an appropriate facility. • Burying or burning of waste or rubble on site is prohibited. • All areas within the working area and site camp that have become devoid of vegetation or where soils have been compacted due to construction activities should be scarified or ripped. • Topsoil removed during the establishment of the site camp and the working area must be spread evenly over the entire site camp area and all other disturbed/ exposed areas after those areas have been ripped, scarified, shaped and contoured (as required). • Where necessary seeding and planting of vegetation can take place after the replacement of the topsoil. Hardy, drought tolerant, non-invasive plant species must be selected. If needed, a layer of mulch can be applied to the newly shaped/ landscaped and topsoiled areas. The mulch will serve to limit erosion and will promote the re-vegetation of the site by retaining moisture in the soil and providing organic material (compost) for new plant growth. • All exposed soils and recently topsoiled areas are to be re-vegetated or stabilised to the satisfaction of the ECO, to protect these areas from wind and water erosion. No areas are to be left exposed to erosive forces. Erosion protection measures that can be applied include mulching (described above), the placement of geotextile, onion bags filled with wood chips, brush-packing or other similar measures. • Any topsoil, subsoil or other excavated material that cannot be utilised during site rehabilitation must be removed from the site and reused elsewhere on the property or disposed of at an appropriate disposal site. • Disturbed soils must be revegetated with the local indigenous vegetation such as that which occurs at the site or provided with other suitable cover. • It is recommended that follow-up alien clearing be conducted 6 months after construction is complete and thereafter annually for 3 years (or longer is alien recruitment is still evident on site).		
Performance Indicator	• All construction-related materials, equipment, facilities, waste and	

	contaminated soils have been removed from the site. • Compacted soils have been scarified/ ripped and stabilised. • All disturbed/exposed surfaces have been provided with a suitable covering and/or stabilised. • No alien vegetation is evident on site.

10.4.2. Objective 2: MAINTENANCE OF ENVIRONMENTAL INTEGRITY DURING THE OPERATIONAL PHASE

Impact Management Objective: ***Keep the site free of alien vegetation***		
Potential impact to avoid	• Excessive alien vegetation growth. • Negative impacts on the environment.	
Impact Management Outcome	• The integrity of the environment is maintained throughout the operational phase.	
IMPACT MANAGEMENT ACTIONS		
Mitigation measure	Responsible party	Time period
• Cover crop that was planted where any weeds or exotic species were removed is to be maintained. • Regular follow-up clearing of aliens is required. • Ensure that any greenery planted on the parameter of the development is maintained. • Any erosion runnels/ gulleys/ channels that form on site must be infilled with appropriate material, compacted, rehabilitated as needed and appropriate erosion control measures put in place to prevent recurrent erosion at that site. • Alien plants must be removed from the site as per NEMBA requirements. • After any clearing is completed, an appropriate cover crop should be planted where any weeds or exotic species are removed from disturbed areas timeously.	The Applicant.	Operational phase
Performance Indicator	• The integrity and condition of the surrounding environment is maintained at an acceptable level. • All previously disturbed/exposed surfaces have been provided with a suitable covering and/or stabilised. • No alien vegetation is evident on site.	

11. Emergency Preparedness

11.1. Emergency response procedures

The potential environmental risks that may arise as a result of construction activities, or during the maintenance of the structures must be identified, and appropriate emergency response procedures must be compiled for each emergency scenario. Potential environmental emergencies that require an emergency response include, but are not limited to, unplanned fires, sewage spills, spills of hazardous chemicals, snake bites etc.

- The construction contractor is responsible for identifying potential significant environmental risks that may arise as a result of pre-construction, construction and rehabilitation activities, and the contractor must formulate emergency response procedures for these potential incidents.
- The ECO, the contractor and the Holder are responsible for ensuring that all construction workers are aware of the emergency procedures and are properly

trained on how to identify and respond to an emergency incident during construction.

- An emergency procedure must clearly indicate who will take charge during an emergency, and the roles and responsibilities of workers and authorities during an emergency.
- The construction contractor is responsible for ensuring that the requirements of the Occupational Health & Safety Act (OHSA) are adhered to during the construction phase. The Holder is responsible for ensuring compliance with the OHSA during the undertaking of maintenance activities.

11.2. Emergency preparedness

The following measures must be implemented, as appropriate, to ensure effective responses to emergencies:

- All workers on site during the construction and operational phase must be properly educated about possible emergency incidents that may arise, how to avoid such incidents and how to respond in the event of an incident. "Refresher" training sessions on emergency procedures must be held if needed.
- All workers must ideally be given basic fire-awareness training and advised on basic firefighting and safety techniques. Fire-fighting equipment must be available on-site during construction and maintenance activities.
- All workers must be trained on how to respond in the event of a spill of a hazardous substance (fuel, chemicals etc.), if hazardous substances are to be used on site.
- A spill kit for containing and/or neutralising spills of hazardous substances (e.g. hydrocarbons) must be available on site at all times, when hazardous substances are present.
- Any incidents of pollution or spillage of hazardous materials during construction must be reported to the ECO as soon as possible. The ECO must then (depending on the nature of the spill) notify the relevant authorities, if needed. During the operational phase of the development, the Holder is responsible for notifying the relevant authorities of any pollution incidents that arise as a result of maintenance activities.
- A first aid kit must be available on site at all times.
- Emergency contact numbers (including the fire department, police and ambulance) must be prominently displayed on site at all times and regularly updated.
- All emergency incidents must be recorded in a site incident log. The cause of the incident, the measures taken in response to the incident and the efficacy of those measures must also be recorded. This information must be used to inform future emergency preparedness planning, and to avoid prevent similar incidents from arising again.

12. Method Statements

The Competent Authority and/or the ECO may require the Holder or Construction Contractor to submit Method Statements for one or more construction-related activity, or any aspect of the management of the site, before the activity is undertaken or during the performance of the activity, if the activity is causing or may cause significant environmental damage or pose a health and safety risk.

Method Statements need not be complex and lengthy, but must clearly state how, when and where the activity concerned will be undertaken, and must specify who will be responsible for undertaking each component of that activity. Method Statements must be prepared by the Construction Contractor and submitted to the ECO for approval before undertaking the activity concerned.

The ECO and / or Competent Authority have the authority to request method statements for activities, including but not limited to:

- Establishment of site camp and stockpile area.
- Cement/ concrete batching, disposal and emergency contingencies.
- Topsoil and sub-soil storage/ stockpiling.
- Storage of fuels and hazardous chemicals and emergency contingencies.
- Waste management system.
- Storm water management and control.
- Fire Control & Fire Emergency Plan.
- Emergency preparedness plan / emergency response procedure (see Chapter 11).
- Post-construction rehabilitation.

The ECO has the authority to prevent activities from being undertaken until such time as a satisfactory Method Statement has been submitted to the ECO and approved by the ECO.

13. Roles and Responsibilities

This EMPr, once approved by the competent authority, must be seen as binding to the Holder, and any person acting on the Holder's behalf, including but not limited to agents, employees, associates, contractors and service providers.

The Holder and all other persons who may be directly involved in the development are also bound by their general Duty of Care, as stated in Section 28 of the National Environmental Management Act, 1998:

> ***Duty of Care:***
> *"Every person who causes, has caused, or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm cannot reasonably be avoided or stopped, to minimize and rectify such pollution or degradation of the environment"*

13.1. Duties and Responsibilities of the Holder

The Holder is ultimately responsible for ensuring that the environmental management measures specified in this EMPr, as well as any other conditions specified by the competent authority, are implemented, and adhered to during the construction and operational phase (maintenance activities) of the proposed development.

The Holder or delegated party is responsible for monitoring and maintenance during the operational phase. The Holder must ensure that all appointed service providers, contractors and maintenance workers are capable of complying with all statutory requirements of this EMPr and the conditions of the Environmental Authorisation. The Holder is responsible for ensuring that this EMPr and the conditions of the Environmental Authorisation are implemented and adhered to during construction.

The Holder or appointed consultant is responsible for identifying emergency situations that may arise during operational and maintenance activities and must formulate appropriate emergency response procedures for these emergency scenarios.

13.2. Duties and Responsibilities of the Contractor

The "Construction Contractor" is the entity responsible for undertaking the physical construction of the residential development. The construction contractor is responsible for ensuring that all environmental management measures specified in this EMPr and in the EA are implemented during the pre-construction, construction and post-construction rehabilitation phases, unless agreed otherwise with the Holder. The contractor will be responsible for all costs incurred in the rehabilitation of the site and for ensuring effective environmental management during construction. The contractor must therefore make adequate financial provision for the implementation of all prescribed measures.

It is strongly recommended that the Construction Contractor appoint an Environmental Site Officer (ESO), who will act as the Contractor's representative to monitor and enforce compliance with the conditions of this EMPr, throughout all phases of construction.

In addition to the above, the Construction Contractor is responsible for the following:

- Identify emergency situations that may arise as a result of construction activities and formulate appropriate emergency response procedures.
- Ensure that all construction workers, including sub-consultants and service providers, undergo environmental awareness training prior to commencing work on site, or as soon as possible thereafter.
- Compile the required method statements, which must be to the satisfaction of the ECO, before commencing with the activity to be governed by the method statement.
- Respond to concerns or issues identified by the ECO, as relates to environmental management, and implement the appropriate management or remediation measures, at the Contractor's own expense (unless agreed otherwise)
- Should third parties be called to the site to perform clean up and rehabilitation procedures, the Construction Contractor will be responsible for all associated costs.

Note that failure to comply with the requirements and conditions of this EMPr and the Environmental Authorisation may result in fines or other penalties being levied against the Construction Contractor by the Competent Authority.

13.3. Duties and Responsibilities of the ECO

The appointed Environmental Control Officer (ECO) is responsible for undertaking regular site visits to monitor and report on the implementation of the EMPr and adherence to the conditions of the Environmental Authorisation during the pre-construction, construction and post-construction rehabilitation phases. The ECO is not required to monitor the site during the operational phase of the development.

13.4. Competency of the ECO

The ECO must be independent of the Holder, Engineer, Construction Contractor and their service providers. The appointed ECO must be suitably qualified and experienced and must be able to demonstrate that he / she is of sufficient competency to undertake the required task. The ECO must preferably be a resident in close proximity to the development area to ensure quick response if required. The ECO must work in close co-operation with the Construction Contractor, resident engineer or ESO (where applicable) and all contractors in order to identify potential problems before they occur and provide suitable guidance as to how the identified problems (environmental impacts) can be avoided.

13.5. Duties of the ECO

The duties of the ECO include, but are not limited to:

- Conduct a pre-construction site inspection to ascertain the pre-commencement condition of the site (i.e., the status quo);
- Conduct environmental awareness training;
- Undertake weekly site visits to monitor compliance with all mitigation, monitoring and management measures contained in the EMPr and the Environmental Authorisation, during the pre-construction, construction and rehabilitation phases of the development;
- Evaluate the achievement of the performance indicators associated with each impact management objective specified in this EMPr;

- Liaise with site contractors, engineers and other members of the development team with regard to the requirements of the EMPr;
- Provide guidance as and when required regarding the implementation of the environmental management measures contained in the EMPr and EA, so as to assist the Holder and contractor in remaining compliant with these measures;
- Assist in finding environmentally acceptable solutions to construction problems;
- Ensure that the working areas, site camp facilities, access roads and no-go areas are properly demarcated;
- Ensure that proper topsoil management practices are adhered to on site;
- Ensure that proper waste management & pollution prevention strategies are practised on site;
- Examine method statements, where required;
- Recommend additional environmental protection measures, should this be necessary;
- Furnish contractors with verbal warnings in case of contravention of the EMPr;
- Recommend that the competent authority furnish errant contractors with predetermined fines, when verbal and / or written warnings are ignored;
- Ensure satisfactory rehabilitation of disturbed areas on site, after construction is complete;
- Keep detailed records of all site activities that may pertain to the environment, and produce compliance-monitoring reports (ECO Reports) for submission to the Holder, and the Competent Authority at regular intervals during the construction phase;
- Submit a final post-construction inspection report, within 3 months of completion of the construction phase. The audit report must detail the rehabilitation measures undertaken, describe all major incidents or issues of non-compliance and any issues or aspects that require attention or follow-up.
- All ECO Reports and Inspection Reports must be submitted to the Holder and Competent Authority.

13.6. Frequency of ECO visits

The ECO must conduct weekly site visits.

The ECO has the discretion to undertake additional 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.

The ECO must also undertake a final inspection (audit) 3 months of completion of construction activities. The purpose of this final inspection is to ensure that the rehabilitation measures applied at the conclusion of the construction phase have been sufficient to promote the successful rehabilitation of the site, and to identify any further issues that require attention or follow-up.

13.7. Authority of the ECO

The ECO has the authority to recommend to the authorities that they suspend all works (or part thereof) occurring on site, should any action being undertaken on site not comply with the environmental requirements, and where such actions pose a serious threat to any element of the surrounding environment.

The ECO has the authority to issue instructions to the Construction Contractor and/or Holder, regarding measures that must be implemented on site in order to ensure compliance with the EMPr and Environmental Authorisation, and/or to prevent environmental degradation or pollution from occurring.

The ECO has the authority to issue verbal and written warnings to contractors. Should verbal and written instructions and/or warnings be ignored, the ECO has the authority to request the Competent Authority to issue pre-determined fines or other penalties.

The ECO has the authority to report incidents of non-compliance to the Competent Authority at any time.

14. Environmental Awareness Plan

Environmental Awareness Training must be conducted prior to the commencement of construction activities. It is the holder's responsibility to familiarise himself/herself with the content and requirements of this EMPr. The holder is also responsible to ensure that the contractor and all labourers working on site during the construction phase are familiar with the content of this EMPr.

The following actions must be taken to ensure that all relevant parties are aware of their environmental role and duties:

- This EMPr must be kept on site at all times.
- The provisions of this EMPr and the conditions of the Environmental Authorisation must be explained in detail to all staff during Awareness Training.
- Training booklets will be handed out to all labourers and must be explained to them.
- Weekly checks to be done by the Holder's environmental representative who must be on site at all times.
- The ECO to conduct frequent site visits.
- Monthly monitoring reports to be compiled by the ECO. These reports will be circulated to all parties involved (including the holder, contractor and the competent authority).

The Construction Contractor must make allowance for all construction site staff, including all subcontractors that will be working at the site, to attend environmental awareness training sessions (undertaken by the ECO) before commencing any work on site. During this training, the ECO will explain the EMPr and the conditions contained therein. Attention will be given to the construction process and how the EMPr fits into this process. Other items relating to sound environmental management which must be discussed and explained during the environmental awareness training sessions include:

- The demarcated "No-Go" areas;
- General do's and don'ts of the site;
- Making of fires;
- Waste management, use of waste receptacles and littering;
- Use of the toilets provided;
- Use and control of construction materials and equipment etc.;
- Control, maintenance and refuelling of vehicles;
- Methods for cleaning up any spillage;
- Access and road safety;
- Emergency procedures (e.g. in case of fire, spillage etc.)
- General "best practice" principles, with regards to the protection of environmental resources.

Environmental awareness training and education must be ongoing throughout the construction phase and must be undertaken regularly if deemed necessary (especially if it becomes apparent that there are repeat contraventions of the conditions of the EMPr), or as new workers come to site. Translators must be utilised where needed.

15. Monitoring, Record Keeping and Reporting

15.1. Environmental Auditing

In accordance with the requirements of the Environmental Impact Assessment Regulations, 2014 (as amended), the holder of the Environmental Authorisation must, for the period that the Environmental Authorisation is valid, appoint a suitably qualified independent person to conduct an environmental audit to audit compliance with the conditions of the Environmental Authorisation and the EMPr.

The holder is responsible for appointing, managing and remunerating the appointed auditor. The auditor may not be the Environmental Control Officer (ECO) or EAP, but must be an independent party.

The appointed auditor must undertake Environmental Audit within 6 months of completion of construction phase (note that development phases/sales phases is not necessarily a construction phase). Following each audit, the environmental auditor must submit an audit report to the Competent Authority.

- Environmental auditing and environmental audit reports must adhere to the requirements of the amended 2014 Environmental Impact Assessment Regulations, in particular Section 34 (Auditing of Compliance with Environmental Authorisation, Environmental Management Programme) and Appendix 7 (Objective and Content of Environmental Audit Report)
- The audit report must provide verifiable findings on the level of compliance with the provisions/ conditions of the Environmental Authorisation and the EMPr and must also comment on the ability of the measures contained in this EMPr to sufficiently avoid, manage and mitigate environmental impacts.
- Where the findings of the audit report indicate that the impact management measures stated in the EMPr are insufficient to adequately address environmental impacts, recommendations as to how the EMPr must be amended so as to address the identified shortcomings must be made and submitted to the competent authority together with the audit report.

15.2. Construction Phase Monioring, reporting and record keeping

The appointed Environmental Control Officer (ECO) is responsible for monitoring the site weekly during the construction phase, in order to ensure that the provisions of this EMPr and the Environmental Authorisation are adhered to, and that sound environmental management is ensuing on site.

The ECO must compile a monthly ECO report detailing the ECO's observations on site, any instances of non-compliance and any issues or aspects that require attention, follow-up or remedial action. The ECO reports must be submitted to the Holder and to the Competent Authority is so requested by that authority. The ECO inspection reports must include both photographic and written records.

15.2.1. ECO Inspections - Photographic Records

The condition of the surrounding natural environment must be monitored regularly in order to ensure that construction and management activities are not impacting negatively on the condition of the landscape and any sensitive ecosystems. The most effective way to achieve this is by means of a detailed photographic record. In this way, a record of any shift in ecosystem condition can be maintained and potential impacts be detected at an early stage. Where necessary, the entire working area must be well documented and photographed.

15.2.2. ECO Inspections - Written Records

The following record-keeping during the pre-construction, construction and rehabilitation phases of the development is recommended:

- The ECO must complete an ECO Checklist after each ECO site visit.
- The ECO must compile an ECO monitoring report and submit this to the Holder, the Contractor and the Competent Authority (the latter only if required by the Competent Authority). The monthly reports must be a summary of the ECO inspections from the preceding month and must highlight the key concerns/ issues on site, instances of non-compliance with the EA and EMPr, all instructions issued to the contractor, actions taken and aspects that still require attention.
- All ECO reports and ECO instructions must be retained on file at least for the duration of the construction period (retaining reports for a period of at least 5 years is recommended, in the event that the Competent Authority must request information).
- A record (minutes) of construction site meetings, liaison site meetings between the ECO and resident engineer or contractor, monitoring reports, ECO instructions and ECO observations must be clearly documented and filed on a master file off-site for safe keeping.
- It is recommended that a site register (incident register) be kept on site at the site office for the recording of any environmental incidents (e.g., fires, spills etc.), observations which are contrary to the stipulations within the EMPr, and any other contravention deemed necessary

for the attention of the resident engineer. Actions taken to remedy the incidents must also be recorded.
- A complaints register must be kept on site in which complaints by any member of the public must be logged.
- The ECO must compile a final post-construction audit report, within 3 months of completion of each construction phase. The audit report must detail the rehabilitation measures undertaken, describe all major incidents or issues of non-compliance and any issues or aspects that require attention or follow-up.

15.2.3. Construction Phase Record Keeping

A copy of the approved EMPr, the Environmental Authorisation and any relevant construction method statements must be kept on site at all times during pre-construction, construction and rehabilitation activities. The ECO Reports must be retained by the Holder for a period of at least 5 years and must be provided to the Competent Authority upon request.

16. Auditing

The Holder must, for the period during which the environmental authorisation and EMPr remain valid ensure the compliance with the conditions of the environmental authorisation and the EMPr, is audited;

16.1. The frequency of auditing of compliance with the conditions of the environmental authorisation and of compliance with the EMPr, must adhere to the following programme:

16.1.1. During the period which the activities have been commenced with on site until the construction of the bulk internal service infrastructure (i.e. internal roads; water-, sewer-, electricity reticulation and bulk storm water) has been completed on site, the Holder must undertake annual environmental audit(s) and submit the Environmental Audit Report(s) to the Competent Authority.

A final Environmental Audit Report must be submitted to the Competent Authority within three (3) months of completion of the construction of bulk internal services and the post construction rehabilitation and monitoring requirements thereof.

16.1.2. During the period the development of the residential phases (i.e. construction of top structures) is undertaken, the Holder must ensure that environmental audit(s) are performed regularly and submit these Environmental Audit Report(s) to the Competent Authority.

During this phase of the development, the frequency of the auditing of compliance with the conditions of the environmental authorisation and of compliance with the EMPr may not exceed intervals of three (3) years.

A final Environmental Audit Report must be submitted to the Competent Authority within three (3) months of completion of the final phase of the residential development and the post construction rehabilitation and monitoring requirements thereof.

16.2. The Environmental Audit Report(s), must –

- be prepared and submitted to the Competent Authority, by an independent person with the relevant environmental auditing expertise. Such person may not be the ECO or EAP who conducted the EIA process;

16.2.2. provide verifiable findings, in a structured and systematic manner, on–

16.2.2.1. the level of compliance with the conditions of the environmental authorisation and the EMPr and whether this is sufficient or not; and

16.2.2.2. the ability of the measures contained in the EMPr to sufficiently provide for the avoidance, management and mitigation of environmental impacts associated with the undertaking of the activity.

16.2.3. identify and assess any new impacts and risks as a result of undertaking the activity;
16.2.4. evaluate the effectiveness of the EMPr;
16.2.5. identify shortcomings in the EMPr;
16.2.6. identify the need for any changes to the avoidance, management and mitigation measures provided for in the EMPr;
16.2.7. indicate the date on which the construction work was commenced with and completed or in the case where the development is incomplete, the progress of the development and rehabilitation;
16.2.8. indicate the date on which the operational phase was commenced with and the progress of the rehabilitation;
16.2.9. include a photographic record of the site applicable to the audit; and
16.2.10. be informed by the ECO reports.
The Holder must, within 7 calendar days of the submission of the audit report to the Competent Authority, notify all potential and registered I&APs of the submission and make the report available to anyone on request and on a publicly accessible website (if applicable).

17. Penalties, Claims and Damages

The contractor will be responsible for all costs incurred in the rehabilitation of the site and for ensuring that all procedures required to rehabilitate the site are implemented. If third parties are called to the site to perform clean up and rehabilitation procedures, the contractor will be responsible for all costs. The competent authority may impose penalties on the Holder or any of the contractors if conditions contained in this EMPr are contravened. This would be based on an agreement or contract between the Holder and the contractor.

Penalties could be imposed in terms of Chapter 11 of the Western Cape Bill on Planning and Development as published in the Extraordinary Provincial Gazette No 5183, 3 October 1997, and would be applicable for any action which leads to damage to the natural environment. Please note that the payment of any fines in terms of the contract shall not absolve the offender from being liable from prosecution in terms of any law.

In cases where severe environmental damage occurs, the competent authority law enforcement division may take legal action against the responsible parties. The reasons for this could include, among others:

- Not implementing the conditions of the EMPr;
- Spillage that result in environmental damage;
- Incorrect handling and storage of construction materials and chemicals;Sensitive areas that are not clearly demarcated;
- Performing ablutions in areas other than facilities provided for such actions; and
- Occurrence of unattended and out of control fire.

The contractor will be responsible to pay the following penalties should indigenous trees or vegetation which are in no go areas or being protected by barrier or danger tape be damaged by anyone under his/her employ.

The Contractor shall comply with the environmental specifications and requirements on an ongoing basis and any failure on his part to do so will entitle the ECO to issue the contractor with penalty / fine as described in the following section.

The following fine structure shall apply:

Table 2: Offences that may constitute a fine.

Any vehicles, plant, or thing related to the Contractors operations within the designated boundaries of a "no-go" area	**R 1,000.00**
Any vehicle being driven, and items of plant or materials being parked or store outside the demarcated boundaries of the site	**R 1,000.00**
Persons walking outside the demarcated boundaries of the site	**R 100.00**
Persistent and un-repaired oil leaks from machinery. The use of inappropriate methods of refuelling such as the use of a funnel rather than a pump	**R 1,000.00**
Littering of site by individuals	**R 250.00**
No on-site implementation of waste management system.	**R 1000.00**
Waste not collected and contained immediately.	**R 1000.00**
No recycling of waste.	**R 1000.00**
Burning, burying or disposing of waste other than as prescribed.	**R 1000.00**
Waste not disposed of at an approved landfill.	**R 1000.00**
Chemicals and / or waste spilled on ground.	**R 250.00**
Use of other areas for toilet purposes and / or disposal of chemicals / waste.	**R 250.00**
Stockpiling of soil in an unspecified area.	**R 2500.00**
Stockpiles not located and aligned so as to minimise impacts.	**R 2500.00**
Spilling of soil or construction material into water body or stream.	**R 1000.00**
Removal of protected trees without appropriate permit.	**R 2500.00 (per tree)**

The above does not absolve the transgressor from being prosecuted in terms of the ***National Environmental Management Act (Act 107 of 1998)*** which may result in further penalties and other actions by State Departments.

18. Conclusion

The recommendations and mitigation measures prescribed in this EMPr have been formulated with the intention of addressing potential pre-construction and construction phase impacts on the environment. It is likely that if the conditions, requirements and recommendations of the above EMPr are implemented as described and the relevant stakeholders adhere to the various mitigation measures, then the project will be completed without unforeseen negative environmental impacts.

Familiarity with the contents of this EMPr by the contractors and other individuals involved in the development project will assist in achieving "environmental best-practice, which ultimately ensures that the project arrives at a sustainable outcome.