

Proposed rezoning and subdivision for the establishment of a residential development on Erf 3477, Hout Bay

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



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## DEFINITIONS

In this EMPr any word or expression to which a meaning has been assigned in the NEMA or EIA has that meaning, and unless the context requires otherwise –

<b>Alternatives</b>	Different mechanisms for achieving the general purpose and need of the proposed activity or development. Alternatives may be in terms of location, activity, processes, timing, or “do nothing” (i.e. “no-go” option).
<b>Assessment</b>	The evaluation, judgement, organising, rating, interpreting, and communicating information which is relevant.
<b>Biota</b>	The animal and plant life of a particular region, habitat, or ecosystem.
<b>Construction activity</b>	Any action taken by the Contractor, his subcontractors, suppliers, or personnel in undertaking the construction work, otherwise referred to as “Works”
<b>Construction area(s)</b>	All areas used by the Contractor to carry out the required construction activities. This includes all offices, accommodation facilities, testing facilities / laboratories, batching areas, storage & stockpiling areas, workshops, spoiling areas, access roads, traffic accommodation (e.g., bypasses), etc.
<b>Authorisation Holder</b>	The person applying for Environmental Authorisation or carrying out the activity. The person or legal entity that has made application to the competent authority for environmental authorizations and who will have the overall responsibility to adhere to the relevant legislation and comply with the environmental authorization.
<b>Ecosystem</b>	A biological community of interacting organisms (plants and animals) and their physical environment.
<b>Endangered species</b>	A species of plant or animal which has been categorised by the International Union for Conservation of Nature (IUCN) Red Data List as likely to become extinct.
<b>Endemic</b>	A plant or animal species that is native or restricted to a certain area or range.
<b>Environment</b>	The surroundings within which humans exist and that are made up of - <ul style="list-style-type: none"><li>• land, water and atmosphere;</li><li>• micro-organisms, plant and animal life;</li><li>• any part or combination of the above and the interrelationships among and between them;</li><li>• the physical, chemical, aesthetic, and cultural properties and conditions of the foregoing that influence human health and well-being.</li></ul>
<b>Environmental Authorisation</b>	The permission required from the competent authority for an activity as listed according to the NEMA Regulations, 2014 (as amended).



<b>Environmental Impact</b>	Any change to the environment, whether desirable or undesirable, that would result directly or indirectly from any construction activity.
<b>Environmental Management</b>	Ensuring that environmental concerns are included in all stages of development to ensure that the proposed activity or development is done in a sustainable manner and does not exceed the carrying capacity of the surrounding local environment.
<b>Hazardous material / substances</b>	Any waste that contains organic or inorganic elements or compounds, that may, owing to its inherent physical, chemical or toxicological characteristics, have a detrimental impact on health and the environment.
<b>Indigenous</b>	A "native" species of plant or animal that occurs naturally in a particular place or region and was not artificially or intentionally introduced.
<b>Invasive Alien Plants</b>	All undesirable vegetation, defined as but not limited to, all declared category 1 and category 2 plants in terms of the National Environmental Management: Biodiversity Act, 2014 (Act No. 10 of 2004), as amended.
<b>Local Authority</b>	Otherwise referred to as the "Council" – the local municipal authority that operates or is responsible in said area.
<b>Rehabilitation</b>	Returning an area impacted by activities/works to its original or better condition prior to the impacts from the activities/works having occurred.
<b>Significant impact</b>	An impact that may, but its magnitude, duration, intensity, or probability, have a notable effect on one or more aspects of the environment.

## ACRONYMS

<b>BA</b>	Basic Assessment
<b>BAR</b>	Basic Assessment Report
<b>CEC</b>	Cation Exchange Capacity
<b>DEA&amp;DP</b>	Department of Environmental Affairs and Development Planning
<b>DEA</b>	Department of Environmental Affairs
<b>DW&amp;S</b>	Department of Water & Sanitation
<b>EA</b>	Environmental Authorisation
<b>ECO</b>	Environmental Control Officer
<b>EIA</b>	Environmental Impact Assessment
<b>EIR</b>	Environmental Impact Report
<b>EMPr</b>	Environmental Management Programme
<b>EMP</b>	Environmental Management Plan
<b>ER</b>	Employer's Representative
<b>HWC</b>	Heritage Western Cape
<b>I&amp;AP</b>	Interested and Affected Party
<b>IAP</b>	Invasive Alien Plants (please see definition above)
<b>LUPO</b>	Land Use Planning Ordinance
<b>MS</b>	Method Statement
<b>MSDS</b>	Material Safety Data Sheet
<b>NEMA</b>	National Environmental Management Act (Act No. 107 of 1998) as amended
<b>NEM:WA</b>	National Environmental Management Waste Act (Act No. 59 of 2008), as amended
<b>NHRA</b>	National Heritage Resources Act (Act No. 25 of 1998)
<b>NWA</b>	National Water Act (Act 36 of 1998), as amended
<b>PPC&amp;E</b>	Personal Protective Clothing and Equipment
<b>SDF</b>	Spatial Development Framework
<b>SLM</b>	Stellenbosch Local Municipality
<b>RDB</b>	Red Data Book
<b>WUL</b>	Water Use Licence - in terms of the National Water Act 1998 (Act 36 of 1998)

# 1. INTRODUCTION

Doug Jeffery Environmental Consultants was appointed by the Applicant, Elegant Earth Trading Cc, to develop an Environmental Management Programme (EMPr) which will be used to promote and ensure environmental monitoring, control and management associated with the establishment of the proposed development and associated infrastructure as described in Section 3 of this report. This process is undertaken in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) as amended ("NEMA").

The NEMA requires that an EMPr be submitted where a Part 2 substantive amendment assessment process must be undertaken as part of the application for Environmental Authorisation (EA) submitted to the competent authority. The contents of an EMPr must contain the information set out in Appendix 4 of the NEMA EIA Regulations, 2014 (as amended) (page 5 and 6 of this EMPr).

The EMPr contains management requirements and recommendations made by Doug Jeffery Environmental Consultants, appointed specialists, as well as in terms of best practice. Should the future EA contain requirements (conditions) that contradict any points in this EMPr, the requirements (conditions) in the authorisation supersede this EMPr. This EMPr should be reviewed and updated to include any additional recommendations that arise from the BA process, as well as any conditions of authorisation should the project be authorised.

Section 28 of NEMA provides for the Duty of Care principle that "...obliges every person who causes, has caused or may cause significant environmental degradation to take reasonable measures to prevent such degradation from occurring, continuing, or recurring". This clause forms the underpinning philosophy of this EMPr.

Should the Department of Environmental Affairs & Development Planning (DEA&DP) grant the EA for the proposed activities and accepts this EMPr as part of the process; this will confer a legal obligation to comply with the specifications of the EMPr on the Authorisation Holder. This EMPr includes all relevant documentation contained or referred to within it, along with any amendments or appendices to this document. The DEA&DP must approve any changes to the EMPr.

The Authorisation Holder must ensure that this EMPr forms part of any contractual agreements with a Contractor(s) and sub-contractors for the execution of the proposed project. The Contractor must make adequate provision in their budgets for the implementation of the EMPr.

It is then the responsibility of the Authorisation Holder to undertake the following:

- Ensure that all requirements of the EMPr are met for the duration of the construction works and until the EA is transferred to the new property owners, Body Corporate or property Owners Association. The Authorisation Holder or holder of the EA always has the ultimate responsibility to ensure compliance in South African law.
- Appoint an Environmental Control Officer (ECO) to monitor the implementation of the construction phase of the EMPr, where required to do so by DEA&DP. Appoint and ECO to monitor any other aspects covered in this document or its Appendices that expressly calls for an ECO to be involved.
- Bind any and all contractors undertaking work on these sites, to the specifications in this same EMPr, as well as Appendices and any amendments thereto.

## 1.1 PURPOSE OF THIS EMPR

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

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

[Any changes or deviations to this EMPr must be authorised by the competent authority.](#)

## **1.2 STATUS OF THIS EMPr**

This EMPr must be read in conjunction with any legally obtained authorisations such as an EA. This EMPr is viewed as a dynamic document that must be reviewed and updated on a continual basis.

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

## **1.3 AMENDMENT BACKGROUND**

An environmental assessment process was undertaken for development on Erf 3477, Hout Bay in 2009/2010. The competent authority approved a portion of the development and not the entire development as presented in the 2009/2010 environmental assessment report.

In 2017, an Amendment Application was submitted for a non-substantive change to the EA. The amendment was granted, extending the validity of the Appeal EA for five years from 28 November 2017 (DEA&DP Ref: 14/3/1/1/A6/36/0294/17). The validity period of the Appeal EA ending 28 November 2022. The proposed development area has a similar development footprint to the portion approved in the 2012 appeal EA. The proposed development area is approximately 1.22 ha extent.

The proposal is for medium density residential development comprising seven three-storey apartment blocks totalling 98 residential units, a gate house, stormwater management plan, a parking area acting as a firebreak above the development with a separate firefighting access gate, refuse room and open space.

## **1.4 AMENDMENT BEING APPLIED FOR**

This Amendment Application is intended to change the Appeal EA description of the approved area:

### **From: 2012 Appeal EA description**

*"A residential development on a portion of Erf 3477, Hout Bay, restricted to the development of Erven 1 to 9 and 37 (as indicated on Layout Plan No.7 (Rev 4), dated 11 March 2010 compiled by Urban Dynamics Western Cape) that comprises of nine single residential erven on Erven 1-9, one general residential erf on Erf 37 and a stormwater management system*

*The decision excludes the development and commencement of activities on Erven 10 – 12, 13 - 20, 21 – 24, 25 – 31, and 32 – 36 (indicated for residential purposes) and Erf 38 (indicated for road purposes)*

*The storm water management system that is to be constructed on the property will comprise detention (weir-type structures) and soak-away facilities that is required to address existing flooding problems caused by storm water from the site in the downstream residential areas. The storm water system will allow as much storm water to be retained on site as possible by installing retaining structures in the existing watercourse and an open swale outfall running with the contours and allowing maximum seepage into the granular material underlying the site. These structures must accommodate the 1:50 year reoccurrence interval storm event.*

*A firebreak will be established above the authorised erven to provide access for firefighting.*

*Water reticulation infrastructure installed on the property with the gravity sewer outfall connected into the existing system at Bay View Road".*

**To a new description as follows:**

*"A gated residential development comprising of 98 apartment units in blocks of 14 units. Each block is three-storeys in height. A communal open space and children's play area is located near the entrance of the development.*

*A gatehouse is provided on Bay View Road which also accommodates the development's refuse room.*

*Access is off Bay View Road which includes a double lane entrance and single lane exit. Along the eastern boundary, a separate entrance for a fire truck is provided for to allow access to the rear (north) of the development area.*

*A total of 122 parking bays are provided for at the rear (north) of the development area. The parking area will also act as a fire break.*

*Infrastructure includes water reticulation infrastructure, as well as a mini sub-station near the gatehouse.*

*The stormwater management plan comprises of:*

- The construction of berms and weirs within the stream to attenuate surface flow and increase the opportunity for percolation. Gabion spillways on the weirs are proposed as an emergency measure to protect the weir structures from washout, should the side channels become blocked. The spillways ensure that potential over-topping is controlled and largely avoided.*
- The use of permeable stepped channels and swales to allow for dissipation and increasing attenuation and percolation within the drainage course.*
- The construction of a series of open cutoff contour channels as overflows from the weirs of dammed areas. This is to divert surface flow under extreme conditions from the flowing in an uncontrolled manner down the slope.*
- The proposed use of quick growing vegetation to provide early surface stability to newly formed slope or cut faces.*
- The provision of additional fire protection measures and fire breaks to reduce the impact of post fire flooding or erosion*

*The landscape plan which includes the recommendations of the Civil Services Report and Stormwater Management Plan for treatment of the natural drainage channel crossing the eastern edge of the development site to be implemented.*

**See Annexure B1: Proposed Amendment Plan**

**AMENDMENT APPROVAL MUST BE INCLUDED IN THE FINAL EMPR APPROVED AS APPENDIX xx.**

## 2. EMPr PHASING

### 2.1 PLANNING, DESIGN AND PRE-CONSTRUCTION PHASE

The planning, design and pre-construction phase refers to the pre-development phase of the project. This will ensure that any requirements and best practise mechanisms are built into the planning or design phase to be developed in the construction and operational phase.

### 2.2 CONSTRUCTION PHASE

The construction phase refers to the actual construction activities associated with the development on the property and includes all earthworks, building, and installation of bulk services (i.e. water, sewerage, roads, stormwater, electricity etc.).

The construction of the residential development must adhere to the requirements of the Construction Environmental Management Plan (CEMP) of this EMPr. All contractors and sub-contractors must comply with the CEMP, and the Client must oversee compliance with the CEMP.

A copy of the CEMP must be issued to each builder at the tender stage to allow for costs of implementing the conditions of this CEMP to be included in the building costs. This will also ensure that each builder is aware of his responsibilities prior to commencing work.

Copies of the CEMP must be available to each Site Foreman, who will be required to familiarize themselves with the contents of the document and ensure that procedures are followed accordingly.

Each builder will be contractually bound to abide by the specifications of the CEMP, as well as Appendices and any amendments thereto.

### 2.3 OPERATIONAL PHASE

The operational phase refers to the working activities and commences once all the construction activities of the development is completed.

This EMPr includes recommendations regarding the Operational Phase of the development but should not be seen as exhaustive. The Applicant should ensure that the Operational Phase of the area maintains the underpinning principles and ideals of sustainable development.

Various aspects of the proposed development will also require routine maintenance and management to be carried out throughout the operation period. These include servicing of stormwater attenuation facilities, clearing of alien vegetation and maintaining areas of public open space.

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

### 2.4 CLOSURE AND DECOMMISSIONING PHASE

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

Demolishing or removal of some of the existing buildings and structures (i.e. tunnels/green houses, cottages, staff housing, stables, etc.) is required to allow for the proposed development to be implemented.

Decommissioning must be done in accordance with the principles described in this EMPr. Where possible materials should be reused or recycled. Alternatively, if this is not possible, they should be disposed of at an appropriately licensed waste facility. The areas affected by activities should be rehabilitated and re-vegetated with suitable indigenous vegetation.

### 3. DESCRIPTION OF PROPOSED DEVELOPMENT

The proposed development is the subdivision and rezoning of Erf 3477, Hout Bay. The proposed development is situated outside the City of Cape Town urban edge. The subdivision is to allow rezoning of the site from Agriculture and Transport 2 to Single Residential, Open Space, and Transport 2.

The proposed development area has a similar development footprint to the portion already approved in the 2012 appeal EA. The development area is approximately 1.22 ha of the full 23.49 ha of Erf 3477 (5% of the property).

#### 3.1 LOCATION

Erf 3477 is located along Bayview Road in Hout Bay on the lower slopes of Karbonkelberg. The site is 23.49 ha in extent and is vacant at present. The site, GPS co-ordinates: 34° 3'5.91"S and 18°20'16.23"E, is bound by Harbour Heights, a residential area, to the south, Table Mountain National Park to the west and north, and largely vacant private property to the east. **See Annexure C: Locality Map.**

Details of subject property are included in table 1.

**Table 1: Property Details**

<b>Erf number</b>	3477
<b>SG 21-digit code</b>	C01600240000347700000
<b>Zoning</b>	Agricultural
<b>Cadastral extent</b>	234893.1 m <sup>2</sup>

#### 3.2 SCOPE OF DEVELOPMENT

##### 3.2.1 Residential component

The proposed development includes seven (7) three-storey walk-up apartment blocks. Each block includes 14 units. The proposed development provides 98 residential opportunities in total. A range of apartment typologies are proposed which includes studio-type, and one- and two-bedroom units.

The density of the proposed development is 90 units/ha within the development area. In terms of the entire cadastral area of Erf 3477, the density is only 4,8 units/ha.

A contemporary aesthetic is proposed, emphasising the reduction of scale and materials which will complement the natural environment, but also mitigate the visual impact of the proposed development. Figure 3 illustrates the artistic impression of the proposed apartment blocks and gatehouse from Bayview Road.

Clearview fencing is proposed along the boundary of the development, except for the front perimeter along Bayview Road. For the front boundary wall, a 2.1 m high stone cladding Clearview infill panel fence is proposed.

**See Annexure B1: Proposed Development Plan.**

##### 3.2.2 Gatehouse and Access

A gatehouse is proposed at the development entrance which includes:

- a guardhouse and bathroom for security which is 7 m<sup>2</sup> in extent; and
- a refuse room capable of storing 24 refuse bins for the development which is 37 m<sup>2</sup> in extent.

Access to the proposed development is from Bayview Road. A paved walkway is proposed for pedestrians. For vehicular access, a double lane entrance is proposed and a single exit lane. A separate fire truck entrance is located along the eastern boundary.

### **3.2.3 Parking and roads**

The internal road of the proposed development is less than one kilometre in length. This access road leads to the parking area to the rear of the site. Parking bays will be provided on both sides of the access road. The aisles will be seven metres - suitable for two-way traffic and for vehicles reversing from parking bays. The internal roads will be privately owned and maintained by the Homeowner's Association.

Provision is made for a total of 122 parking bays.

### **3.2.4 Open space network and Landscaping**

Open spaces within the proposed development area includes a 56 m<sup>2</sup> children's play area, a 150 m<sup>2</sup> communal open space and lawn area, and a trellis with seating area. These areas are located west of the entrance road, within the proposed development area. Stormwater facilities are part of the open space network within the development area, and the approved stormwater management plan. See **Annexure D: Stormwater Management Plan**.

Open space 'fingers' are proposed between each apartment block which will be landscaped according to the landscape plan.

Areas excluding the apartment blocks, parking area, gatehouse, internal road, and paved areas will all be landscaped. According to the Landscape Plan prepared for the proposed development, existing vegetation will remain along the northern (rear) boundary of the development area. Within the development area, the following is proposed: lawn area (236m<sup>2</sup>), varying groundcover mixes and shrub mixes (4042 m<sup>2</sup>), and aloe beds (5m<sup>2</sup>).

**See Annexure E: Landscape Plan.**

### **3.2.5 Services and Infrastructure**

A Civil Services Report has been compiled by Bay Consulting Engineers informing the service capacity requirements for the proposed development. Below is a summary thereof. It should be noted that service capacity for all services has been confirmed.

#### **3.2.5.1 Water**

The Average Daily Demand is 0.6 kl/day with peak flow rate of 2,7 l/s. The external infrastructure includes a 100-millimetre (mm) bulk water meter at the entrance of the development. The connection is from the existing mains in Bayview Road. Internal water reticulation includes a 100 mm diameter pipe reducing to 75 mm. The mains leading to the apartment blocks are 50 mm in diameter and further reduced for individual metre connections and hose-reels. Fire hydrants will be installed on the main internal pipeline

#### **3.2.5.2 Sewage**

There is an existing 160 mm diameter sewer pipeline in Bayview Road connection to the Harbour Heights reticulation system. The internal sewer reticulation is to be connected via a new manhole on the existing external pipeline in Bayview Road. The pipeline is 160 mm in diameter. Minimum flow velocities are 0,7 m/s full flowing and maximum velocities are 3,0 m/s full flowing. The sewage will be pumped to sea via a submarine pipeline from the marine outfall pumpstation below Sentinel Peak.

#### **3.2.5.3 Solid Waste**

The proposed residential development will result in general waste being generated during the operation phase. A refuse room at the gatehouse will be constructed. The average solid waste generation from each dwelling unit is approximately 100l per week of which 60l are recyclable material. The total volume is approximately 11,2 m<sup>3</sup> per week.

#### **3.2.5.4 Electrical**

Neil Lyners and Associates were appointed to compile an Electrical Engineering Report for the proposed development. Below is summary:

The maximum demand load is estimated at 294kVA based on 3kVA per residential unit. Electrical supply will be from the City of Cape Town. Electricity will be supplied from the existing 11kV ring cable at Bayview Road. The length of the new cable is approximately 170 m.



The required mini substation, 5m X 3.5m, will be placed at the development boundary wall on Bayview Road west of the gatehouse, but within the development area. Supply will be from a low voltage bulk supply metering kiosk at the new miniature substation. The internal low voltage network from the bulk metering point into the development will be a private network.

### 3.2.5.5 Stormwater Management

The stormwater management plan is designed to ensure that post-development flows into the external system do not exceed pre-development flows. The general principles of the SUDS approach to managing the stormwater within the development area has been used and adapted for the steep site conditions on the urban fringe, and the unusual groundwater flow and storage conditions under the site.

The stormwater system is intended to offer protection against flooding and damage, and that the water quality is acceptable. It is also envisioned that the stormwater system be designed for the harvesting of run-off that can be easily stored for the purpose of irrigation via a pump system.

The stormwater system will allow as much stormwater to be retained on site as possible. To divert excess stormwater from the areas susceptible to flooding, the steep slopes and high infiltration rate of the development area supports the use of permeable stormwater systems, with slopes reduced by a series of steps. Gabion structures and sand embankments are proposed within the streambed area and into the contour channels. The vegetation within the areas is a critical element of the stabilization. To mitigate suspended solids in the run-off due to erosion of sand when there are wet events, a series of detention ponds and channels will slow the velocity of the stormwater flow. This will likely limit the number of suspended solids in the run-off. Sand traps in the stepped channels will assist in reducing any sand load and suspended solids within the stormwater.

**See Annexure D: Stormwater Management Plan.**

### 3.3 APPLICABLE LISTED ACTIVITIES

The listed activities of the proposed development are similar to those listed and authorised for the already approved development. The similar listed activities applicable to the proposed development in terms of the 2014 EIA Regulations (as amended) are listed below.

No new listed activities are triggered by the proposed amendment.

<b>Activity No(s):</b>	<b>Provide the relevant Basic Assessment Activity(ies) as set out in <u>Listing Notice 1</u></b>	<b>Describe the portion of the proposed project to which the applicable listed activity relates.</b>
12	<p>The development of –</p> <ul style="list-style-type: none"> <li>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or</li> <li>(ii) infrastructure of structures with a physical footprint of 100 square metres or more;</li> </ul> <p>where such development occurs–</p> <ul style="list-style-type: none"> <li>(a) within a watercourse;</li> <li>(b) in front of a development setback; or</li> <li>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; -</li> </ul> <p>excluding –</p> <ul style="list-style-type: none"> <li>(aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour;</li> <li>(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;</li> </ul>	<p>The proposed residential development exceeds 100 square metres in extent.</p> <p>An Aquatic specialist has identified a small stream within the site which flows from Kapteinspiek flowing less than 800 metres before draining into the sand dunes on the lower boundary of the site. Development will be undertaken within 32 metres of the watercourse. The stormwater infrastructure within the watercourse, and outside thereof is 0.42 ha<sup>2</sup>.</p>

	<p>(cc) activity 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;</p> <p>(dd) where such development occurs within an urban area;</p> <p>(ee) where such development occurs within existing roads, road reserves or railway line reserves; or</p> <p>(ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed in 6 weeks of the commencement of development and where indigenous vegetation will not be cleared.</p>	
19	<p>The infilling or depositing of any material or more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from a watercourse;</p> <p>But excluding where such infilling, depositing, dredging, excavation, removal or moving –</p> <p>(a) will occur behind a development setback;</p> <p>(b) is for maintenance purposes undertaken in accordance with a maintenance management plan;</p> <p>(c) falls within the ambit of activity 21 in this Notice, in which case that activity applies;</p> <p>(d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or</p> <p>(e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies.</p>	<p>To manage stormwater and water from the unnamed stream, a stormwater management plan is to be implemented. The proposed works includes the construction of step gabions, spillways, overflow channels, open channels, weirs and gabion dissipators.</p> <p>The proposed works will result in the moving, excavation and infilling of soil and rocks in excess of ten cubic metres.</p>
<b>Activity No(s):</b>	<b>Provide the relevant Basic Assessment Activity(ies) as set out in <u>Listing Notice 3</u></b>	<b>Describe the portion of the proposed project to which the applicable listed activity relates.</b>
4	<p>The development of a road wider than 4 metres with a reserve less than 13,5 metres.</p> <p>(i) Western Cape</p> <p>i. Areas zoned for use as public open space or equivalent zoning;</p> <p>ii. Areas outside urban areas;</p> <p>(aa) Areas containing indigenous vegetation;</p> <p>(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</p> <p>iii. Inside urban areas:</p> <p>(aa) Areas zoned for conservation use; or</p> <p>(bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority.</p>	<p>The proposed area for development for which an amendment to the authorisation is required is:</p> <ul style="list-style-type: none"> <li>• outside of the City of Cape Town urban edge; and</li> <li>• the site characterised by a mix of invasive and indigenous vegetation.</li> </ul> <p>The internal road network is approximately seven metres wide, sufficient for two-way traffic within the development. Since the roadway is private, there is no road reserve.</p>
12	<p>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.</p> <p>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</p>	<p>The proposed development, approximately 12 205 square metres (1,22 ha), will result in the clearing of more than one hectare of indigenous vegetation which includes areas designated as High, Medium and Low sensitivity areas.</p>

	<p>endangered in the National Spatial Biodiversity Assessment 2004;</p> <p>ii. Within critical biodiversity areas identified in bioregional plans;</p> <p>iii. Within the littoral active zone or 100 metres inland from the high water mark of the sea or an estuarine functional zone, whichever distance is greater, excluding where such removal will occur behind the development setback line on erven in urban areas;</p> <p>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</p> <p>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.</p>	
14	<p>The development of –</p> <p>(i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or</p> <p>(ii) infrastructure of structures with a physical footprint of 100 square metres or more;</p> <p>where such development occurs–</p> <p>(a) within a watercourse;</p> <p>(b) in front of a development setback; or</p> <p>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse; -</p> <p>excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.</p> <p>(i) Outside urban areas:</p> <p>(aa) A protected area identified in terms of NEMPAA, excluding conservancies;</p> <p>(bb) National Protected Area Expansion Strategy Focus areas;</p> <p>(cc) World Heritage Sites;</p> <p>(dd) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</p> <p>(ee) Sites or areas listed in terms of an international convention;</p> <p>(ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</p> <p>(gg) Core areas in biosphere reserves; or</p> <p>(hh) Areas on the estuary side of the development setback line or in an estuarine functional zone where no such setback line been determined.</p>	<p>The proposed development area is outside the City of Cape Town delineated urban edge.</p> <p>The proposed development area is approximately 12 205 square metres in extent. The stormwater management infrastructure is approximately 2414,6 square metres.</p> <p>Within the watercourse, the following works are proposed for construction to manage stormwater and runoff:</p> <ul style="list-style-type: none"> <li>• four step gabions</li> <li>• two weirs and associated spillways; and</li> <li>• two gabion dissipators</li> </ul> <p>Overflow channels and open channels are proposed which will connect to attenuation areas to allow for percolation.</p> <p>Noting the above, the proposed works will result in the moving, excavation and infilling of soil and rocks in excess of ten cubic metres.</p>

## 4. DESCRIPTION OF RECEIVING ENVIRONMENT AND SPECIALIST INPUT

### 4.1 SURFACE WATER

An Aquatic Impact Assessment was undertaken, and subsequent report compiled by Toni Belcher. The following is noted:

- No aquatic Critical Biodiversity Areas or Ecological Support Areas are present on site.
- The stream appears to be groundwater fed, flowing for longer periods than when there is surface water runoff.
- The stream is dominated by woodland riparian vegetation in its higher reaches. Where the gradient flattens with deeper substrates, grasslands are identified. The substrate of the stream is larger stones and gravel / cobbles on the steeper slopes. The dominant alien plants observed on the site comprised mostly of *Acacia saligna*. The alien vegetation tends to dominate at the foot of the hillside.

The potential impacts for the proposed and approved development are:

- Short- and longer-term disturbance and loss of aquatic habitat;
- Modified stormwater surface water runoff from the developed site; and
- Potential for localised impairment of water quality during the construction and operational phases of the development.
- The potential impact of the proposed development is deemed low for the following reasons:
  - the proposed development is located at the interface between surface and sub-surface flow of the stream across the site;
  - the associated aquatic habitat and vegetation is marginal;
  - the stream has no connectivity with the sea;
  - an ecological corridor will still exist between the coast and Kapteinspiek; and
  - the upstream portion of the watercourse where aquatic habitat occurs will not be impacted upon by the proposed development.

**See Annexure F: Biodiversity Map.**

### 4.2 BOTANICAL

The footprint of the already approved development and that of the proposed development are similar and therefore the identified impacts between the approved and proposed developments are expected to be very similar.

A Botanical Impact Assessment was undertaken, and subsequent report compiled by Capensis.

The proposed development footprint, which is similar to the already approved footprint is expected to have a High negative impact before mitigation and a Medium negative impact after mitigation. Most of the botanical impacts will occur during the construction phase since this necessitates clearing of the vegetation.

**See Annexure F: Biodiversity Map.**

### 4.3 HERITAGE RESOURCES

No heritage and cultural, archaeological, or paleontological impacts are anticipated because of the development.

#### **4.4 VISUAL**

A Visual Impact Assessment (VIA) was compiled by SquareOne for the proposed development. The VIA notes that during the construction phase, the impacts can be mitigated to low negative significance. During the operation phase, the impact significance is medium negative.

#### **4.5 TRAFFIC**

The Harbour Road / Atlantic Klipper Road intersection was surveyed in 2019. The results indicate that the morning and afternoon peak times at the aforementioned intersection operates at a Level of Service (LOS) category A which means that there is no congestion. This is the best level of service rating. In terms of the future assessment of road conditions, the roads within the local network and at the intersection noted above have sufficient capacity to take more traffic within the network. Notably, for the 2024 scenario which includes the proposed development, the LOS remains at mostly A level, with only a B LOS for traffic exiting Atlantic Skipper Road in the morning peak time. The assessment notes that from the future analysis, there is no significant impact on traffic as a result of the proposed development.

The proposed development has no significant impact on traffic levels, public transport or non-motorised facilities. Therefore, no further upgrades would be required because of the proposed development.

## 5. APPLICABLE LEGISLATION, GUIDELINES AND POLICIES

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

### 5.1 THE CONSTITUTION OF THE REPUBLIC OF SOUTH AFRICA, 1996 (ACT NO. 108 OF 1996)

The Constitution of the Republic of South Africa, 1996 (Act No. 108 of 1996) states that everyone has a right to a non-threatening environment and that reasonable measures are applied to protect the environment. This includes preventing pollution and promoting conservation and environmentally sustainable development, while promoting justifiable social and economic development. The underpinning principles of NEMA's Duty of Care section reflects these principles of the Constitution.

### 5.2 THE NATIONAL ENVIRONMENTAL MANAGEMENT ACT, 1998 (ACT NO. 107 OF 1998), AS AMENDED ("NEMA")

NEMA makes provision for the identification and assessment of activities that are potentially detrimental to the environment and which require authorisation from the competent authority (in this case, DEA&DP) based on the findings of an EIA.

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

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

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

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

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

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

As outlined in Section 3.3 of this EMPr, environmental authorisation is required for the listed activities identified. An environmental assessment process is undertaken to apply for the environmental authorisation. Should a positive decision be received, this must be included in this EMPr under **Annexure G1 Environmental Authorisation**.

### 5.3 THE NATIONAL ENVIRONMENTAL MANAGEMENT: WASTE ACT, 2008 (ACT NO. 59 OF 2008)

The National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEM:WA) deals with the handling, depositing, treatment, processing, recycling, re-use and/or storage of both 'general and 'hazardous' waste products. Subsequently all waste related activities are omitted from NEMA and must be authorized in terms of NEM:WA.

The proposed development will not produce hazardous waste, only general construction waste. It has been confirmed that waste items that are re-used as a different primary product are considered to be products and not waste. In terms of NEM:WA, a Waste License is thus not required as the general waste is re-used as by-products.

#### **5.4 THE NATIONAL ENVIRONMENTAL MANAGEMENT: BIODIVERSITY ACT, 2004 (ACT NO. 10 OF 2004)**

The National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEM:BA) controls the management and conservation of South African biodiversity within the framework of NEMA. Amongst others, it deals with the protection of species and ecosystems that warrant national protection, as well as the sustainable use of indigenous biological resources. Sections 52 & 53 of this Act specifically make provision for the protection of critically endangered, endangered, vulnerable and protected ecosystems that have undergone, or have a risk of undergoing, significant degradation of ecological structure, function or composition as a result of human intervention through threatening processes.

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

Considering 4.2 of this EMPr, the proposed development will impact biodiversity features present on site.

#### **5.5 THE NATIONAL WASTE MANAGEMENT STRATEGY**

The National Waste Management Strategy presents the South African government's strategy for integrated waste management for South Africa. It deals among others with: Integrated Waste Management Planning, Waste Information Systems, Waste Minimisation, Recycling, Waste Collection and Transportation, Waste Treatment, Waste Disposal and Implementing Instruments.

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

#### **5.6 THE NATIONAL WATER ACT, 1998 (ACT NO. 36 OF 1998)**

The National Water Act, 1998 (Act No. 36 of 1998) ("NWA") gives effect to the constitutional right of access to water. The Act's overall purpose is to ensure that South Africa's water resources are protected, used and managed in ways which take into account a number of factors, including inter-generational equity, equitable access, redressing the results of past racial and gender discrimination, promoting sustainable and beneficial use, facilitating social and economic development, and providing for water quality and environmental protection.

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

All the requirements of the National Water Act, 1998 (Act 36 of 1998) regarding water use and pollution management must be adhered to at all times. With respect to the above, a Water Use Licence Application is required in terms of the National Water Act (36 of 1998) and Government Notice 509 of August 2016 as a result of the proposed works impacting the watercourse.

The proposed works trigger Section 21 (c) and (i) of the NWA which refers to  
(c) impeding or diverting the flow of water in a watercourse; and  
(i) altering the bed, banks, course, or characteristics of a watercourse

**Should a positive decision be received, the Water Use Authorisation must be included in this EMPr under Annexure G2 Environmental Authorisation.**

## 5.7 NATIONAL HERITAGE RESOURCES ACT (ACT 25 OF 1999) ("NHRA")

The proposed amended development triggers Section 38 (1) (c) (i) and (d) of the National Heritage Resources Act (25 of 1999):

### **Heritage resources management**

38. (1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—

(c) any development or other activity which will change the character of a site—

(i) exceeding 5 000 m<sup>2</sup> in extent; or

(d) the re-zoning of a site exceeding 10 000 m<sup>2</sup> in extent;

For the initial environmental process, a Notice of Intent to Develop ("NID") was submitted to Heritage Western Cape (HWC). The proposal submitted to HWC was for a residential development for a larger portion of development of a significantly larger portion of on Erf 3477. The Record of Decision from HWC notes that no further heritage study was required – see **Appendix E: Heritage Western Cape's Record of Decision**. The proposed development has a similar footprint to the existing approved development footprint which is significantly smaller than that approved by HWC.

The proposed development will not impact on any heritage or cultural resources. However, the contractor must at all times observe the NHRA and ensure the protection of any heritage resources, if and when discovered on site.

## 5.8 CITY OF CAPE TOWN MUNICIPAL PLANNING BY-LAW, 2015

The proposed development is subject to the City of Cape Town Municipal Planning By-Law, 2015 since the proposed development is the rezoning and subdivision of Erf 3477 to allow for the development of the residential units, internal roadway and parking, stormwater management infrastructure, retaining the 95% of Erf 3477 as conservation area. An application in this regard has been submitted to the City of Cape Town.

## 5.9 GUIDELINES AND CIRCULARS

The following guidelines and circulars are applicable and have been consulted to guide the environmental assessment process.

- Guidelines for EIA Requirements
- Guidelines for Public Participation, 2011
- Guidelines on Alternatives (March 2013)
- Guideline on Need and Desirability (March 2013)
- Guideline for Involving Biodiversity Specialists in EIA Processes
- Guideline for Environmental Management Plans (June 2005)
- Guideline for the Review of Specialist Input In the EIA process (June 2005)
- Guideline for involving a Visual and Aesthetics Specialist (June 2005)
- DEA&DP's Circular EADP 0028/2014: "One Environmental Management System"

## 5.10 THE OCCUPATIONAL HEALTH AND SAFETY ACT, 1993 (ACT NO. 85 OF 1993)

The Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) provides for the health and safety of persons at work and for the health and safety of persons in connection with the use of plant and machinery; the protection of persons other than persons at work against hazards to health and safety arising out of or in connection with the activities of persons at work.

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



## **5.11 SANS 10400 APPLICATION OF THE NATIONAL BUILDING REGULATIONS**

The application of the National Building Regulations contains performance parameters relating to fire safety, sanitation systems, moisture penetration, structural safety, serviceability and durability. It also takes into account how the above can be established to reflect social expectations in a manner which supports sustainable development objectives.

## **5.12 THE NATIONAL BUILDING REGULATIONS AND BUILDING STANDARDS ACT, 1977 (ACT NO. 103 OF 1977)**

The National Building Regulations and Building Standards Act, 1977 (Act No. 103 of 1977) as amended must be complied with. This act addresses, inter alia:

- Specifications for draftsmen, plans, documents and diagrams;
- Approval by local authorities;
- Appeal procedures;
- Prohibition or conditions with regard to erection of buildings in certain conditions;
- Demolition of buildings;
- Access to building control officers;
- Regulations and directives; and
- Liability.

## 6. ENVIRONMENTAL IMPACTS, MITIGATION AND MANAGEMENT MEASURES

### 6.1 POTENTIAL IMPACTS

Environmental impacts are any change to the environment, whether adverse or beneficial, wholly or partially resulting from an organisation's environmental aspects. All potential impacts and risks as described below, and identified in the BA process, will be mitigated by measures identified in the broader EMP.

#### 6.1.1 Biophysical Aspects

Activities	Description	Aspects	Potential Impacts
<b>Planning, Design and Development Phase</b>			
Construction of stormwater management infrastructure resulting in river modification	Watercourse upgrade with weirs, gabions, reno mattresses	Works within the watercourse - moving/infilling/dredging of materials within the watercourse.	<b>Modification of aquatic habitat associated with the stream.</b>
Site clearing, earthworks, construction activities	Clearing of Endangered vegetation within development footprint	Loss of vegetation + habitat modification	<b>Loss of Endangered vegetation</b>
<b>Operational Phase</b>			
Modified watercourse	Aquatic habitat modification and potential for some flow and water quality modification	Habitat modification	<b>Possible improvement to the longer-term sustainability and condition of the aquatic habitat integrity.</b>

#### 6.1.2 Geographical, Geological and Physical Aspects

Activities	Description	Aspects	Potential Impacts
<b>Planning, Design and Development Phase</b>			
Use of construction vehicles and machinery.	Ad hoc spill during construction could result in the contamination of soil and groundwater.	Accidental spillages.	<b>Potential soil and groundwater contamination.</b>
<b>Operational Phase</b>			
No impact on soil and groundwater is anticipated during the operational phase.			

### 6.1.3 Socio-Economic Aspects

Activities	Description	Aspects	Potential Impacts
<b>Planning, Design and Development Phase + Operational phase</b>			
Construction works and activities.	Job creation and business opportunities during the construction phase.	Employment and business opportunities.	<b>Positive socio-economic impact.</b>

### 6.1.4 Nuisance Factor

Activities	Description	Aspects	Potential Impacts
<b>Planning, Design and Development Phase</b>			
Use of construction vehicles and machinery.	Construction vehicles and other construction machinery will increase the noise levels during working hours. Increased noise levels may be a nuisance factor to neighbouring land occupiers.	Increased noise levels.	<b>Noise nuisance.</b>
Site clearing, earthworks, construction activities, use of construction vehicles and machinery, and building.	Dust generation as a result of earthworks and construction activities during the development phase.	Dust generation	<b>Dust nuisance.</b>
<b>Operational Phase</b>			
No noise impact anticipated during the operational phase.			

### 6.1.5 Traffic

Activities	Description	Aspects	Potential Impacts
<b>Planning, Design and Development Phase</b>			
Movement of construction vehicles.	Additional traffic resulting from the new estate development.	Increased construction vehicle activity.	<b>Traffic impact flow in the area.</b>
<b>Operational Phase</b>			
Insignificant increase in vehicles in the immediate area	The residential development will result in additional road users, specifically during peak morning periods.	Insignificant increased traffic volumes.	<b>Insignificant delay in morning traffic peak when the most 'disturbance' is calculated.</b>

## **6.2 MITIGATION AND MANAGEMENT MEASURES**

### **6.2.1 Management Measures**

An ECO must be appointed to oversee the construction of the proposed access road, including the implementation of this EMP and any applicable conditions of the environmental authorisation. ECO monitoring (site visits) must be undertaken at least once a month, except during construction of the bridge and gabions and embankment work where the ECO must visit the site at least twice a month during the construction phase.

All mitigation measures detailed in this EMP must be adhered to.

### **6.2.2 Mitigation Measures**

The following impact mitigation measures are being recommended:

#### **6.2.2.1 Pre-Development Phase**

- Site demarcation and site establishment: the development footprint must be kept to demarcated site area to avoid any impacts to the surrounding environment.
- Demarcation of No-Go areas: although there are no specific no-go areas on the site, no development is to be allowed beyond the construction area.
- Fencing: ensure safe and controlled access to the site through the erection of fencing and gates where required.
- Site facilities: provision of clean toilet facilities, eating areas and potable water to all staff to minimise the risk of disease and impact to the environment and health impacts.

#### **6.2.2.2 Development Phase**

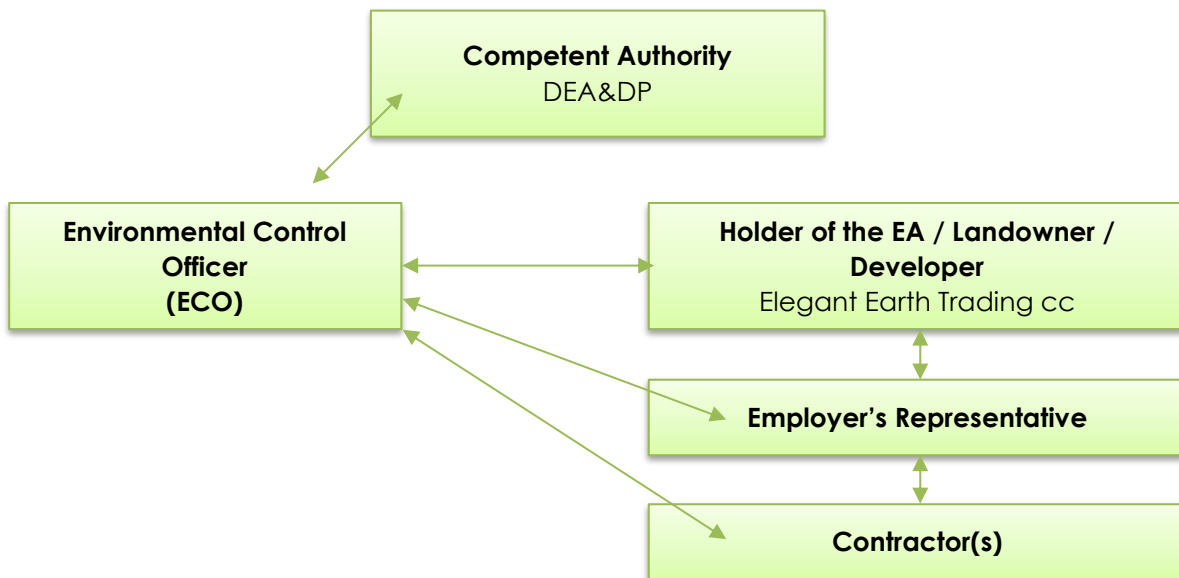
- Workshop, equipment maintenance and storage areas: soil, surface water and groundwater contamination to be minimized.
- Storage, handling, use and disposal of hazardous substances: Safe storage, handling, use and disposal of hazardous substances.
- Cement / Concrete Batching: control of concrete and cement batching activities to reduce risk of spillages and contamination of soil, surface water and groundwater.
- Solid waste management: waste to be appropriately sorted, stored, handled and disposed of at a licensed waste facility.
- Hazardous waste management: hazardous wastes to be appropriately stored, handled and safely disposed of at a licensed waste facility.
- Noise control: prevention of unnecessary noise to the environment by ensuring that noise from construction activity is mitigated, as far as possible.
- Dust control: dust prevention measures to be applied to reduce dust generation.
- Storm- and wastewater management: avoid pollution and erosion as a result of storm- or wastewater runoff.
- Topsoil use: impacts on the environment are minimised when topsoil is removed, and sufficient topsoil is available for rehabilitation/landscaping.
- Stockpiling and stockpile areas: to be agreed between ECO and contractor to reduce erosion and sedimentation as a result of stockpiling.
- Emergency procedures: emergency procedures to be put place to enable quick and effective response to all types of environmental emergencies.
- Site safety and security: All safety and security measures are in place.
- Public safety: all precautions are taken where possible to minimise the risk of injury, harm, or complaints.
- Landscaping and rehabilitation: to negate environmental degradation due to the development.

#### **6.2.2.3 Operation Phase**

- Water saving devices (low-flow showerheads and dual flush systems) to be used.
- Energy efficient appliances to be used.

## 7. ROLES AND RESPONSIBILITIES

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



**Figure 1: Flow diagram illustrating roles and responsibilities**

The implementation of this EMPr requires the involvement of several stakeholders, each fulfilling a different but vital role to ensure sound environmental management during the construction phase.

The following stakeholders will be involved with the EMPr either during the construction phase, operational phase or both.

### 7.1 THE COMPETENT AUTHORITY

In the Western Cape, DEA&DP is the competent authority responsible for issuing EAs in term of NEMA, NEM:WA, NEM:BA. This Directorate has overall responsibility for ensuring that the Authorisation Holder complies with the conditions of its EA as well as this EMPr once approved.

During the construction and operational phases of the EMPr the lead authority will have the following role to play:

- Conduct *ad hoc* compliance inspections.
- Read the ECO's performance reports and take action as deemed necessary.
- Whenever necessary, the authorities are to provide assistance in understanding and meeting the specified requirements.
- Ensure and timeously recommend suitable corrective measures are undertaken by the Authorisation Holder/ER where the Authorisation Holder has reported non-compliance or when an audit report is received indicating any non-compliance.
- Enforcing compliance by the Authorisation Holder.

### 7.2 THE AUTHORISATION HOLDER

Under South African environmental legislation, the Authorisation Holder of the EA is accountable for the potential impacts of the activities that are undertaken and is responsible for managing these impacts, both in the construction and operational phases. The Authorisation Holder therefore has overall and total

environmental responsibility to ensure that the EMPr is implemented and that both the EMPr and the EA are complied with at all times. The Authorisation Holder is also responsible for ensuring that all other environmental related legislation is complied with.

The Authorisation Holder is responsible for the development and implementation of the conditions of the EA in terms of the planning and design of the development and construction thereof.

The Authorisation Holder remains fully responsible for the implementation of this EMPr, and compliance with the EMPr and EA until such time as an application for amendment indicating a change in ownership or transfer of the EA to another party is submitted to DEA&DP. Only once this amendment application has been approved is this responsibility then shifted to the new holder of the EA.

Amongst the general responsibilities above the Authorisation Holder is also completely and solely responsible for:

- Ensuring that any changes to the project or aspects thereof, as approved during the EIA process by the issuance of an EA, are timeously communicated to DEA&DP as these may require amendments to the EA via an amendment application process.
- Appointing an ECO, and where required an environmental auditor.
- To notify DEA&DP within 24 hours of an occurrence of any non-compliance with the EA, EMPr or any other environmental and water related legislation.
- Take the necessary action in terms of non-compliances.
- Ensuring that all the Authorisation Holder's staff, representatives, contractors, consultants and any other agent operating under the employ of the Authorisation Holder comply with the EA, EMPr and any other environmental and water related legislation.
- Ensuring that all the necessary authorisations and permits have been obtained.
- Considering the ECO's observations and recommendations, acting where required.

### **7.3 THE EMPLOYER'S REPRESENTATIVE**

The Employer's Representative (ER) would act as the Authorisation Holder's on-site implementing agent and has the responsibility to ensure that the Authorisation Holder's responsibilities are executed in compliance with relevant legislation and the EA.

Any on-site decisions/inputs regarding environmental management are ultimately the responsibility of the ER.

The on-site ER will have the following responsibilities in terms of the implementation of the Construction phase of this EMPr and assisting the Authorisation Holder to ensure compliance with the EA, EMPr and any other environmental and water related legislation:

- Ensuring, in conjunction with the Authorisation Holder, that the authorisations and permits have been obtained and conditions have been met.
- Ensure where required by the EA that a notice of commencement is submitted to DEA&DP at least two weeks prior to commencement.
- Assist the Authorisation Holder with the appointing of an ECO and, where specifically required by the EA an Environmental Auditor.
- The ER will ensure that the appointed ECO is paid timeously thereby ensuring an ongoing ECO service.
- Should the Authorisation Holder or the ER change or cancel the ECO's services (either verbally, in writing or implied due to non-payment of fees) or should the ECO terminate their services the ER must notify DEA&DP of this in writing within 7 days.
- Take action in regard to any non-compliance that is reported on or noted.
- Ensuring that the Authorisation Holder is aware of any environmental non-compliance on site.
- Considering the ECO's observations and recommendations.

- Ensuring that ECO is made aware of any changes in terms of the project.
- Reviewing and approving the Contractor's method statements.
- Ensuring that all Contractor's and Sub-contractors are implementing the EMPr and meeting the necessary requirements of the EA.
- Ensuring that all works are occurring within the permitted areas.
- Assisting the Contractor in finding environmentally responsible solutions to problems.
- Ordering the removal of person(s) and/or equipment not complying with the EMPr specifications.
- Ensure that the ECO is provided with any documentation required from the project team or contractors.
- Issuing fines for transgressions of site rules and penalties for contravention of the EMPr, with input from the ECO and providing proof in this regard.

#### **7.4 THE CONTRACTOR**

The Contractor is bound by the requirements of this EMPr. The Contractor will be subject to the issuance of penalties by the ER as stipulated herein. Any damage to the environment temporary or otherwise as a result of non-compliance with this EMPr will be made good at the contractor's cost. In addition, the Contractor will have the following responsibilities:

- The Contractor will ensure that all senior and management staff involved with the project are aware and familiar with the requirements of this EMPr.
- The ECO will assist with the environmental induction training of site staff. It is the contractor's responsibility however to ensure that all staff and sub-contractors attended and undergo the necessary environmental site inductions. The Contractor will maintain a register of all staff and sub-contractors that have undergone an environmental site induction.
- The Contractor will adhere to and comply with all of the requirements and specifications of this EMPr. Any non-compliance will be reported to the ECO and ER immediately.
- The Contractor is fully responsible for all sub-contractors and service providers and their compliance with this EMPr on site. The Contractor will ensure that all sub-contractors and services providers are made aware of the requirements of the EMPr and that they have a responsibility to comply with the EMPr.
- The Contractor is responsible for ensuring that all sub-contractors and service providers comply with this EMPr.
- The Contractor will read the ECO performance reports and take action as required.

#### **7.5 THE ENVIRONMENTAL CONTROL OFFICER**

The Environmental Control Officer (ECO) will be an independent environmental consultant appointed by the Authorisation Holder. The role of the ECO is to assist with the monitoring and where possible to provide guidance in terms of environmental matters.

The ECO will regularly monitor and review the on-site environmental management and implementation of the construction phase of this EMPr.

The ECO is not responsible for ensuring or enforcing compliance with the EA, EMPr or any other environmental and water related legislation. This is the responsibility of the Authorisation Holder and authorities. The role of the ECO is that of a monitoring and supportive function and advising the Authorisation Holder of non-compliance with respect to the conditions of the EA.

The ECO's duties consist of the following:

- Where required, provide assistance in terms of the Notice of commencement to DEA&DP.
- Conducting regular site inspections at the frequency as stipulated in Section 8.1 of this EMPr.
- Monitoring and verifying as far as possible adherence to the EMPr and the EA.

- Monitoring and verifying that environmental mitigation measures are in place where necessary to facilitate keeping environmental impacts to a minimum.
- Reporting to the Authorisation Holder and the ER any relevant observations made during site inspections.
- The ECO will report all noted/observed non-compliances with the EMPr and EA to the Authorisation Holder's representative.
- As far as possible advise the ER in regard to environmental matters that may become an issue.
- Reviewing the Contractor's construction method statements together with the ER.
- The ECO will make recommendations to the ER, with regards to the issuing of penalties in accordance with the EMPr.
- Facilitating the maintaining of open and direct lines of communication between the ER, Employer, Contractor and where necessary, the public, with regard to environmental matters.
- Assisting with the appointing of the relevant specialists (botanists, wetland specialists, etc.), as required, to advise the Engineer, Authorisation Holder or ER.
- Assist the contractor with basic awareness training of all construction staff, as to the requirements for working on the site.
- Assisting the Contractor in finding environmentally responsible solutions to problems.
- Monitoring the undertaking by the Contractor of environmental awareness training for all personnel and subcontractors coming onto site and assisting with this where necessary.
- Advising on the removal of person(s) and/or equipment not complying with the specifications (via the ER).
- Recommending the issuing of fines for transgressions of site rules and penalties for contraventions of the EMPr to the ER for action.
- Reporting to the Authorisation Holder on the implementation of the EMPr and compliance with the EA on a regular basis.
- Where necessary, recommending additions and/or changes to the EMPr to the directorate.
- The ECO will draft an environmental performance report on a monthly basis (except during shutdown periods). This report will be submitted to the Contractor, ER and to the DEA&DP. The ECO may submit this via email.

## **7.6 THE ENVIRONMENTAL AUDITOR**

Where required by the EA an environmental auditor will be appointed by the Authorisation Holder. The auditor must be independent and carry out the compliance audit based on the EA and EMPr of all the activities being undertaken.

The auditor will conduct, and report audit findings based on the audit requirements stipulated in the EA. Any audit costs are for the Authorisation Holder's account and are in addition to regular ECO services.

The Environmental Auditor may not be the ECO.

**ALL PARTIES IDENTIFIED IN 7.1 TO 7.5 MUST SIGN AND COMPLETE THE EMPr DECLARATION – APPENDIX xx**



## 8. MONITORING

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

Photographs must be taken during construction at each ECO site visit.

### 8.1 EMPr COMPLIANCE MONITORING AND FREQUENCY

The Authorisation Holder and Contractor(s) are responsible for monitoring all construction activities on a day-to-day basis to ensure compliance with the EMPr, EA and other applicable permits/authorisations, throughout the construction phase of the development.

The appointed ECO will undertake EMPr compliance monitoring to ensure that the EMPr is implemented throughout the development phase of the proposed development. The findings and outcomes of these inspections will be recorded in the Compliance Monitoring Report that will be submitted to the competent authority at intervals as indicated in the EA.

The appointed ECO will undertake the following:

- Be present on site when marking out the development footprint,
- Monitor the site weekly during site clearing activities, and twice a month, thereafter.
- Monitoring is excluded builders shut down periods.

The ECO is **not** responsible for issuing instructions, ensuring, or enforcing compliance. The ECO is not responsible for addressing design requirements. The ECO fulfils a role of monitoring and guidance as well as communication with role players. Should inspections be less than stated in this EMPr, this must first be agreed to by the competent authority.

### 8.2 ENVIRONMENTAL AUDITS

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

The Environmental Audit Report must contain all information set out in Appendix 7 of the 2014 NEMA EIA Regulations, as amended. Any other requirements of the EA or any other authorisations must be incorporated into an Audit where necessary.

Environmental Audit frequency is outlined in table 2 below.

**Table 2: Environmental Audit frequency**

Audit number:	To be undertaken after:	Submission to:	Submission timeframe:
1	Site clearance	Competent authority, relevant Organs of State and registered I&APs	Within three months of the audit inspection
2	Annually during construction phase	Competent authority, relevant Organs of State and registered I&APs	Within two weeks of the audit inspection
3	Completion of the development phase	Competent authority, relevant Organs of State and registered I&APs	Within three months of the audit inspection

### **8.3 COMPLAINTS REGISTER**

The Contractor must keep a current and up-to-date complaints register. The complaints register is to be a record of all complaints received from communities, stakeholders and individuals.

The Complaints Record must:

- Record the name and contact details of the complainant;
- Record the time and date of the complaint;
- Contain a detailed description of the complaint;
- Where relevant and appropriate, contain photographic evidence of the complaint or damage; and
- Contain a copy of the Contractor's written response to each complaint received and keep a record of any further correspondence with the complainant. The Contractor's written response will include a description of any corrective action to be taken and must be signed by the Contractor and affected party. Where a damage claim is issued by the complainant, the Contractor must respond as described below.

The Contractor must:

- Ensure that all queries, complaints and claims are dealt within an agreed timeframe;
- Ensure that any or all agreements are documented, signed by all parties and a record of the agreement kept in the EMPr file;
- Ensure that a complaints telephone numbers are made available to all landowners and affected parties; and
- Ensure that contact with affected parties is courteous at all times.

### 9.1 DOCUMENTATION

The documentation listed below must be kept on site in the form of an Environmental File, in order to record compliance with the EMPr. The Environmental File must include, but is not limited to:

- Copy of the EMPr;
- Copy of the EA;
- Copy of all other licences/permits;
- Copy of Site Plan
- Copy of the Stormwater Management Plan;
- Copy of Landscape Plan;
- Environmental Method statements compiled by the Contractor;
- Environmental register, which must include:
- Complaints register.
- Monitoring results (if necessary).
- Incident register – including copies of notification of Emergencies and Incidents, this must be accompanied by a photographic record.
- Waste Documentation such as Waste- and Sewerage Disposal Certificates;
- Material Safety Data Sheets for all hazardous substances;
- Dust suppression register (if necessary);
- Water Quality Monitoring reports (if necessary);
- Written Corrective Action Instructions; and
- ECO monthly reports.
- Environmental Audit Reports.

## 10. MANAGEMENT AND MONITORING PROCEDURES

This section addresses all issues relating to the physical construction, preparation for construction, monitoring during construction, decommissioning of non-permanent items on the site as well as the landscaping and rehabilitation directly after construction is completed. This section will have most relevance to the appointed contractors.

### 10.1 ENVIRONMENTAL INDUCTION AND AWARENESS TRAINING

The ECO in consultation with the contractor must ensure that adequate environmental awareness training of senior site personnel takes place and that all construction workers receive an induction on the importance and implications of the EMPr. The presentation must be conducted, as far as is possible, in the employees' language of choice.

As a minimum, training should include:

- Explanation of the importance of complying with the EMPr.
- Discussion of the potential environmental impacts of construction activities.
- The benefits of improved personal performance.
- Employees' roles and responsibilities, including emergency preparedness.
- Explanation of the mitigation measures that must be implemented when carrying out their activities.
- Explanation of the specifics of this EMPr and its specification (no-go areas, etc.)
- Explanation of the management structure of individuals responsible for matters pertaining to the EMPr.

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

Notwithstanding the specific provisions of this section, it is mandatory for the Contractor to convey the sentiments of the EMPr to all personnel involved with the works.

**See Annexure H: Environmental Awareness Material.**

### 10.2 PUBLIC LIAISON AND COMMUNICATION

Open, transparent, and good relations with affected landowners, communities and regional staff are an essential aspect to the successful management and mitigation of environmental impacts.

Sufficient signage should be erected around the site (including at the entrance), informing the public of the construction activities taking place. The signboards should include the following information:

- The name of the Contractor.
- The name and contact details of the site representative to be contacted in the event of emergencies or complaint registration.

### 10.3 WORK HOURS

Hours of work on the site must be limited to that accepted by the local authority. Construction will be limited to day-time hours only between 07:00 and 18:00. If construction is required outside of these times, written permission is to be obtained from the local municipality.

### 10.4 TEMPORARY SITE CLOSURE

In the event of a temporary site closure occurring such as the builder's holidays, temporary suspension of works or any period of inactivity longer than seven working days the Contractor is to notify the ECO. The

Contractor must check the site according to the requirements of the ECO and ensure that all items are addressed. The Contractor will provide a brief written report (refer to the **Temporary Shutdown Checklist included under Annexure I**) on compliance to the ER and ECO prior to the temporary shutdown date.

### 10.5 Health And Safety

The Contractor must at all times observe the Occupational Health and Safety Act No. 85 of 1993 (OHSA) and ensure adequate safety precautions on the site.

Telephone numbers of emergency services, including the local firefighting service, must be displayed conspicuously in the Contractor's office near a telephone. No weapons (firearms, airguns, daggers, knives, or any other object that may be used as a weapon causing any kind of injury etc.) are permitted on site. The Contractor must ensure that contact details of the local medical services are available to the relevant construction personnel prior to commencing work.

### 10.6 Method Statements

Method Statements (MS) are written submissions by the Contractor to the ER which includes input from the ECO. This is in response to the requirements of this EMPr or to a request by the ER or ECO. A minimum requirement will consist of the listed MSs below. Further MSs may be requested by the ER or ECO during the construction period, if and when necessary.

The Contractor must be required to prepare MSs for several specific construction activities and/or environmental management aspects as specified. **Annexure J provides an example for a Method Statement Template.** It is the Contractor's responsibility to ensure that the required method statements are drafted and submitted.

The Contractor must not commence the activity for which a MS is required until the ER has approved the relevant MS.

MSs must be submitted at least ten (10) business days prior to the date on which approval is required (start of the activity). Should the MS be rejected this will be done so with comment. The ten-day submission period will commence again on re-submission of the MS. Should the MS be submitted, and no response (acceptance or rejection) provided within ten days from the ER or ECO, the MS will be considered as having been accepted and work can commence in line with the submitted MS.

Failure to submit a MS may result in suspension of the activity concerned until such time as a MS has been submitted and approved.

An approved MS must not absolve the Contractor from any of his obligations or responsibilities in terms of the contract. However, any damage caused to the environment through activities undertaken without an approved MS must be rehabilitated at the Contractor's cost and to the satisfaction the ECO and ER.

The MS must cover relevant details such as:

- Construction procedures and location of the construction site.
- Start date and duration of the procedure.
- A description of how the proposed works will be undertaken.
- Materials, equipment and labour to be used.
- How materials, equipment and labour would be moved to and from the site as well as on site during construction.
- Storage, removal and subsequent handling of all materials, excess materials and waste materials of the procedure.
- Emergency procedures in case of any reasonably potential accident / incident which could occur during the procedure.
- Mitigation measure that will be employed.
- Compliance / non-compliance with the EMPr Specification and motivation if non-compliant.

### **10.6.1 Method Statements Required**

Based on the specifications in this EMPr, the following MSs are required as a minimum, and more method statements may be requested as required.

#### **MS 1 - Site layout and establishment**

A layout plan and the method of establishment of the construction camp, i.e. all offices, cement batching areas, storage and stockpiling areas, workshops and all other areas/facilities required for the undertaking of activities required for completion of the project. The plan must include the location and layout of waste storage, ablution facilities, stockpiling and spoil areas and hazardous material storage areas. The decommissioning and removal of these facilities on completion of construction works must also be detailed.

Importantly, the site layout plan and establishment must demarcate the no-go areas. No activities related to the construction of the development may occur within the demarcated no-go areas.

#### **MS 2 - Site clearing**

The Contractor must submit a site clearing MS for all areas where the Contractor is required to, or intends to, clear vegetation within the development footprint. The MS must clearly indicate what is to be cleared and how this will be done, where and how cleared material would be stored or disposed of, etc. This MS will also detail the setting aside of topsoil for rehabilitation/landscaping.

#### **MS 3 - Cement and concrete batching**

The Contractor must submit a MS detailing cement storage, concrete batching areas and methods, method of transport of cement and concrete, storage, and disposal of used cement bags, etc.

#### **MS 4 - Traffic control and accommodation**

The Contractor must submit a MS for approval, detailing how traffic is to be accommodated within the development during construction. Cognisance must be taken of any no-go areas.

#### **MS 5 - Solid waste management**

The Contractor must submit a MS detailing a solid waste control system (storage, provision of bins, site clean-up schedule, bin clean-out schedule, rubble disposal/reuse, rubble removal frequency etc.) to the ER for approval.

#### **MS 6 - Wastewater control / management**

The Contractor must submit a MS to the ER detailing how wastewater would be collected from all wastewater generating areas, as well as storage and disposal methods. If the Contractor intends to carry out any on-site wastewater treatment, this should also be included.

#### **MS 7 - Dust control**

The Contractor must submit a MS to the ER detailing how potential dust and windblown sand will be monitored and addressed on site. The contractor will consider the recommendations above while bearing in mind that these are not the only available solutions.

#### **MS 8 - Soil erosion prevention + sedimentation control**

The Contractor must submit a MS to the ER detailing how soil erosion and sedimentation control will be implemented, methods to be used and rehabilitation of disturbed areas.

#### **MS 9 - Hazardous substances + Emergency Procedures**

The Contractor must provide a MS detailing the hazardous substances / material that are to be used during construction, as well as the storage, handling, and disposal procedures for each substance as well as materials such as rubble soil and water contaminated with hazardous substances. The details of the disposal service providers (if required), supplier and suitable DEAT approved disposal sites that will be used by the contractor are to be included. In addition, this MS will include an emergency procedure plan that will detail responses relating to the leaking or spillage of fuels oils or other hazardous substances. This MS will in no way override, replace, and void or offer any exemption from neither any relevant legislation nor the requirements of the Occupational Health and Safety Act.

**MS 10 - Landscaping**

Vegetation rehabilitation will highly likely occur which is to be addressed in this MS. Rehabilitation details relating to plant species (all indigenous and suitable to the vegetation type), plant numbers, irrigation and establishment, planting methods etc. must also be detailed.

**MS 11 - Construction of stormwater management infrastructure**

This MS will detail how the proposed works will be undertaken for various activities, such as construction of contour channels, gabions, weirs, reno mattresses, etc. These MSs are important as they outline how the work will be undertaken in the best way possible to ensure low impact on the watercourse.

## 11. IMPACT MANAGEMENT OUTCOMES AND ACTIONS

This section provides a description of activities associated with the proposed development and associated infrastructure. There are numerous activities identified for the proposed development and for each activity a set of prescribed impact management outcomes and associated management actions have been identified. The Authorisation Holder is responsible for ensuring the implementation of these controls for all projects as a minimum requirement for mitigating the impact of construction related activities.

The tables in this section provides a description of the management outcomes associated with the proposed development, and for each activity a set of prescribed impact management outcomes and associated management actions have been identified.

### Tables key/legend:

The table below provides an understanding of the structure of the impact management outcomes and actions tables provided in this section.

<b>Management Outcome:</b>	<i>What impact needs to be avoided?</i>
<b>Management Actions:</b>	
<i>Mitigation and management measures required to reduce the potential impacts.</i>	
<b>Project Specific Management Actions:</b>	
<i>Specific mitigation and management measures recommended in the specialists reports or contained in the EA.</i>	
<b>Implementation:</b>	
Responsible party:	<i>Who needs to implement the management actions?</i>
Method of implementation:	<i>How should the actions be implemented?</i>
Timeframe for implementation:	<i>When do the actions need to be implemented?</i>
<b>Monitoring:</b>	
Responsible person:	<i>Who should monitor compliance?</i>
Frequency:	<i>How often should monitoring occur?</i>
Evidence of compliance:	<i>Proof of compliance (e.g. reporting, photographs, etc.)</i>

### 11.1 PRE-CONSTRUCTION MANAGEMENT PLAN

#### 11.1.1 Appointment of an ECO

The ER / Authorisation Holder must appoint a suitable, experienced, and independent ECO to monitor the implementation and compliance with the EMPr.

The ECO should be appointed a minimum of 3 weeks prior to commencement of site activities to ensure that the necessary notification can be made as required by the EA. Earlier than three weeks would be better since the ECO would also assist in ensuring all EA requirements are met as far as possible before commencement of construction.

The ECO will produce an environmental monitoring report once per month (excluding shut down periods). This report will be submitted to the contractor and the ER. The report will highlight environmental aspects relating to the construction phase of the project during the reporting period.

During shut down periods, an inspection must be undertaken at least one week before the closing period to allow for the Contractor to address any issues on site. Photographic proof of the Contractor implementing the measures required by the ECO are obligatory.



### 11.1.2 Updating Documents

The Authorisation Holder and contractor must ensure that the EMPr, Site Plans and all the relevant documents required are up to date.

### 11.1.3 Site Demarcation

<b>Management Outcome:</b>		<b>The development footprint must be kept to demarcated site area to avoid any impacts to the surrounding environment.</b>
<b>Management Actions:</b>		
<ul style="list-style-type: none"> <li>The "site" refers to all areas required for construction purposes and not necessarily the property boundaries. The site will be limited as far as possible to reduce the development footprint. Suitable specialist input may be sought if necessary, to determine positions of wetlands, buffer areas etc.</li> <li>The boundaries of the site must be demarcated prior to any work commencing on the site. The site demarcations must be removed when the site is decommissioned.</li> <li>All construction activities, materials, equipment, and personnel will be restricted to within the site. The boundaries of the site must be demarcated to restrict construction activities within the site. The use of danger tape for demarcation purposes is discouraged and must be limited as far as possible. Brightly coloured droppers and coloured nylon cord/netting/fencing/wire with markers must be considered as an alternative to danger tape.</li> <li>The demarcations must be maintained and ensure that materials used for construction on the site do not blow on or move outside the site and environs.</li> <li>Construction workers, vehicles and works are forbidden to access any private property unless approval has been granted by the ER in writing after the landowner has given permission.</li> <li>Development and construction footprint to be marked prior to commencement of any activities on site.</li> </ul>		
<b>Project Specific Management Actions:</b>		
<u>Botanical input:</u>		
<ul style="list-style-type: none"> <li>Mark out the development footprint prior to construction. All construction must be completed from within this area and no construction related disturbances could be accepted outside of the development footprint. This means that strict control of site would be required for construction vehicles and personnel.</li> <li>An Environmental Control Officer (ECO) must be present on the site to mark out the development footprint. The ECO must ensure that no disturbance occurs outside of the development footprint.</li> </ul>		
<u>Aquatic input:</u>		
<ul style="list-style-type: none"> <li>Access to the remainder of the site should be limited to reduce the risk of disturbance and other impacts such as dumping in the upstream watercourse.</li> </ul>		
<b>Implementation:</b>		
Responsible party:	ER and the Contractor(s)	
Method of implementation:	<ul style="list-style-type: none"> <li>The boundary of the site will be agreed with and approved by the ER and ECO.</li> <li>The Contractor must ensure that the approved construction area will be adequate to cover the project without further space adjustments being required later. Changes must be approved by the ER.</li> <li>The method of demarcating the boundaries must be determined by the Contractor and agreed to by the ER and ECO prior to any work being undertaken.</li> <li>The Contractor must ensure that all works, labour, and materials remain within the boundaries of the site, unless otherwise agreed in writing with ER. It will be the responsibility of the Contractor to decide on an appropriate system of protective fencing for the site, if required, with the input of the ECO.</li> </ul>	
Timeframe for implementation:	Prior to commencement of the construction phase.	
<b>Monitoring:</b>		
Responsible person:	ECO	

Frequency:	Prior to commencement of the construction phase and whenever there are significant changes to the site layout plan.
Evidence of compliance:	ECO to obtain records from the Contractor and report in environmental reports.

#### 11.1.4 Site Camp Establishment

<b>Management Outcome:</b>	<b>The development footprint must be kept to demarcated site area to avoid any impacts to the surrounding environment.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>• MS 1 is required.</li> <li>• Construction camps and associated facilities must be established in a manner that does not adversely affect the environment.</li> <li>• The construction area must be kept to a minimum necessary for construction activities.</li> <li>• no dumping, stockpiling, storage of equipment or spillage of construction material occurs on the no-go areas.</li> <li>• The site layout plan will indicate the placement and location of, inter alia, following: <ul style="list-style-type: none"> <li>○ Site offices;</li> <li>○ Stores, silos and stockpile areas;</li> <li>○ Large plant and vehicle parking area;</li> <li>○ Toilet facilities;</li> <li>○ Haul routes;</li> <li>○ Site access;</li> <li>○ Temporary waste storage area; and</li> <li>○ Large volume fuel storage (tanks or mobile fuel trailers).</li> <li>○ Refuel areas</li> </ul> </li> <li>• The site layout must take cognisance of access for deliveries and services. These activities should not result in environmental disturbance and avoid such disturbance.</li> <li>• The Contractor must provide water and/or washing facilities at the camp site for personnel.</li> <li>• The Contractor's Camp and Materials Storage Area must be kept neat and tidy and free of litter and complies with the Occupational Health and Safety Act.</li> <li>• Suitable areas for maintenance and refuelling, large volume cement/concrete batching etc. must be identified by the ER in consultation with the ECO.</li> <li>• The site layout plan must also indicate security requirements (including temporary and permanent fencing, and lighting etc.). The construction site should be secured against unauthorised entry.</li> <li>• Only security personnel may be accommodated at the construction site during the development phase. Accommodation means that a temporary structure may be erected to protect the security from harsh sun or rain. This does not permit a living area for the security guard. This must also be within the development area.</li> </ul>	
<b>Project Specific Management Actions:</b>	
None.	
<b>Implementation:</b>	
Responsible party:	ER and the Contractor(s)
Method of implementation:	<ul style="list-style-type: none"> <li>• Prior to the contractor taking handover of the site, the contractor will submit to the ER a site layout plan. This plan must be approved and signed off by the ER with input from the ECO.</li> <li>• The ER will ensure that the ECO is involved in establishment of the site layout prior to commencement of the proposed action.</li> <li>• Before construction can begin, the Contractor must submit to the ER for approval a site establishment <b>method statement</b>.</li> <li>• A copy of the approved site layout plan will be provided to the ECO prior to commencement of construction. Changes to the site layout must be approved by the ER.</li> </ul>
Timeframe for implementation:	Prior to commencement of the construction phase.
<b>Monitoring:</b>	
Responsible person:	ECO
Frequency:	Prior to commencement of the construction phase and whenever there are significant changes to the site layout plan.

Evidence of compliance:	ECO to obtain records from the Contractor and report in environmental monitoring reports
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### 11.1.5 No-Go Areas

<b>Management Outcome:</b>	<b>No development is allowed beyond the site area.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>• Identification of No-Go areas is to be informed by the environmental assessment, site walk through, and any additional areas identified during development;</li> <li>• Once the boundary has been identified and recorded, the contractor must demarcate the boundary accordingly.</li> <li>• Erect, demarcate and maintain a temporary fence around the perimeter of any No-Go area;</li> <li>• Fencing of No-Go areas is to be undertaken in accordance with <b>Section 11.1.7: Fencing</b>; and</li> <li>• Unauthorised access and development related activity inside No-Go areas is prohibited.</li> <li>• No-go areas include: <ul style="list-style-type: none"> <li>○ 32m from the banks of the watercourse. The only works that may occur within this area is the stormwater related construction activities. No equipment or materials may be 'stored ' (kept longer than 30min) within this area.</li> <li>○ Any areas outside of the demarcated development/construction footprint. This requires strict control of the site for construction vehicles and personnel.</li> </ul> </li> </ul>	
<b>Project Specific Management Actions:</b>	
<u>Aquatic input:</u> Access to the remainder of the site should be limited to reduce the risk of disturbance and other impacts such as dumping in the upstream watercourse.	
<b>Implementation:</b>	
Responsible party:	ER and Contractor
Method of implementation:	<ul style="list-style-type: none"> <li>• No-Go area demarcation must be approved by the ER.</li> <li>• The ER may declare additional No-Go areas at any time during the construction phase as deemed necessary and/or at the request of the ECO and/or specialist.</li> </ul>
Timeframe for implementation:	Prior to commencement of the construction phase.
<b>Monitoring:</b>	
Responsible person:	ECO
Frequency:	Prior to commencement of the construction phase and whenever there are significant changes to the site layout plan.
Evidence of compliance:	ECO to obtain records from the Contractor and report in environmental monitoring reports

### 11.1.6 Access Roads

<b>Management Outcome:</b>	<b>Minimise impact to the environment through by only using planned access to the site.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>• Traffic along public roads must be accommodated at all times.</li> <li>• Construction activities and deliveries may not interfere with the public road system.</li> <li>• All the required signage and hazard warnings are to be put in place.</li> <li>• All drivers must be in possession of an appropriate and valid driver's licence.</li> <li>• All relevant construction vehicles must be roadworthy and in an acceptable working condition.</li> <li>• All relevant permits for abnormal loads must be applied for and obtained from the relevant authority as required.</li> <li>• Access points to and from site as well as roadways in front of the site are to be kept clean and free from stone, sand, and grit. These areas must be swept regularly.</li> <li>• All construction vehicles, when on site and on the surrounding property, will not exceed the speed of 20km per hour, to ensure safety of vehicles, personnel, and the environment, and to lessen environmental degradation. Drivers who exceed the speed limit must be fined or dismissed by the Contractor or ER.</li> </ul>	

<ul style="list-style-type: none"> <li>Access to the site must be gained at the designated areas as determined by the ER. As far as is possible use should be made of existing haul routes, tracks and roads. The creation of short-cut paths/routes or temporary vehicular tracks is to be strictly prevented.</li> </ul>	
<b>Project Specific Management Actions:</b>	
<u>Aquatic input:</u> Access to the remainder of the site should be limited to reduce the risk of disturbance and other impacts such as dumping in the upstream watercourse.	
<b>Implementation:</b>	
Responsible party:	The Contractor and ER
Method of implementation:	<ul style="list-style-type: none"> <li>The Contractor must ensure that all the management actions are implemented.</li> <li>The Contractor must ensure that the approved Traffic Accommodation Plan is implemented.</li> <li>Should there be a need to undertake work that will impact on traffic the Contractor must ensure that all the required permissions have been obtained from the traffic authorities in writing.</li> <li>The Contractor is responsible for ensuring that all vehicles are road worthy.</li> </ul>
Timeframe for implementation:	Throughout the construction phase.
<b>Monitoring:</b>	
Responsible person:	ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	ECO to obtain records from the Contractor and report in environmental monitoring reports

#### 11.1.7 Fencing

<b>Management Outcome:</b>	<b>Ensure safe and controlled access to the site through the erection of fencing and gates where required.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>Adequate fencing needs to be provided around the site. Fencing needs to be checked and maintained during the construction phase.</li> <li>If necessary, suitable specialist input may be sought to determine positions of wetlands, buffer areas etc. The use of danger tape for demarcation purposes is discouraged and must be limited as far as possible.</li> <li>It will be the responsibility of the Contractor to decide on an appropriate system of protective fencing for the site, if required.</li> </ul>	
<b>Project Specific Management Actions:</b>	
<u>Visual specialist input:</u> <ul style="list-style-type: none"> <li>Screen the site camp from view using appropriate materials that blend into the surrounding vegetation.</li> <li>Ensure that site construction hoarding is dark in colour and free of excessive branding.</li> </ul>	
<b>Implementation:</b>	
Responsible party:	The Contractor and ER
Method of implementation:	The Contractor must ensure that all the management actions are implemented.
Timeframe for implementation:	Throughout the construction phase.
<b>Monitoring:</b>	
Responsible person:	ECO
Frequency:	Prior to commencement of the construction phase and whenever there are significant changes to the site layout plan.
Evidence of compliance:	ECO to obtain records from the Contractor and report in environmental monitoring reports



## 11.2 CONSTRUCTION MANAGEMENT PLAN

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

### 11.2.1 Workshop, equipment maintenance and storage

<b>Management Outcome:</b>	<b>Soil, surface water and groundwater contamination are minimized.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>All vehicles and equipment must be kept in good working order to maximise efficiency and minimise pollution. Any leaks or similar mechanical problems are to be reported and repaired immediately.</li> <li>No repairs and refuelling of construction vehicles are allowed to take place within close proximity of the watercourse.</li> <li>All emergency maintenance and refuelling of plant on site must take place at designated locations approved by the ER. Drip trays will be used for all refuelling and similar activities. This is to prevent any spillage contaminating the environment.</li> <li>The Contractor must ensure that no contamination of soil, vegetation or stormwater occurs around workshops and plant maintenance facilities. Where practical, all maintenance of plant and equipment on site must be performed in the workshop or off site if no provision has been made for a workshop. If it is necessary to do maintenance outside of the workshop area, the contractor must obtain the approval of the ER prior to commencing these activities.</li> <li>As far as possible servicing of plant etc. will be undertaken off site. Should emergency maintenance be required all precautions will be taken to prevent environmental impact.</li> <li>Drip trays must be used to collect used oil, lubricants, etc. during maintenance. Drip trays must be provided for all stationary plant, generators, pumps and compressors. Drip trays must be inspected and emptied daily and closely monitored during rain events to ensure that they do not overflow. All waste material in bunds and drip trays are to be managed as hazardous waste. All static plant (stationary &gt; 2 months) must be located within a bunded area with an impermeable surface. Bunded areas are to have a volume of 110% of the volume of the holding capacity of the plant / equipment.</li> <li><u>Washing of vehicles and plant must be restricted to urgent maintenance requirements only.</u> Adequate wastewater collection facilities must be provided. The use of detergents for washing must be restricted to low phosphate and nitrate concentration as well as being a low sudsing type detergent.</li> </ul>	
<b>Project Specific Management Actions:</b>	
<u>Visual specialist input</u>	
<ul style="list-style-type: none"> <li>Store and keep excavation machinery and trucks out of sight of surrounding residential areas as far as possible.</li> </ul>	
<b>Implementation:</b>	
Responsible party:	The Contractor
Method of implementation:	<ul style="list-style-type: none"> <li>The contractor will ensure that all of the above management actions are complied with and implemented.</li> <li>The contractor will ensure that drip trays are being used at all times, and that there are enough drip trays available on site.</li> </ul>
Timeframe for implementation:	Throughout the construction phase.
<b>Monitoring:</b>	
Responsible person:	The Contractor and ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	<ul style="list-style-type: none"> <li>The contractor to ensure compliance.</li> <li>The ECO to provide details in environmental monitoring reports</li> </ul>

### 11.2.2 Storage, Handling, Use and Disposal of Hazardous Substances

<b>Management Outcome:</b>	<b>Safe storage, handling, use and disposal of hazardous substances.</b>
<b>Management Actions:</b>	

- The use and storage of hazardous substances to be minimised and non-hazardous and non-toxic alternatives substituted where possible;
- All hazardous substances must be stored in suitable containers as defined in the Method Statement;
- Containers must be clearly marked to indicate contents, quantities and safety requirements;
- All hazardous substances, such as fuel and lubricants, must be stored on-site on an impervious layer and within a secured and demarcated bunded area. The bunded area will be of sufficient capacity to contain a spill / leak from the stored containers;
- An alphabetical Hazardous Chemical Substance (HCS) control sheet will be drawn up and kept up to date on a continuous basis;
- All hazardous chemicals that will be used on site will have Material Safety Data Sheets (MSDS);
- All employees working with HCS will be trained in the safe use of the substance and according to the safety data sheet;
- Employees handling hazardous substances / materials must be aware of the potential impacts and follow appropriate safety measures. Appropriate personal protective
- equipment must be made available;
- The Contractor must ensure that diesel and other liquid fuel, oil and hydraulic fluid is stored in appropriate storage tanks or in bowsers;
- The tanks/ bowsers must be situated on a smooth impermeable surface (concrete) with a permanent bund.
- The impermeable lining must extend to the crest of the bund and the volume inside the bund must be 130% of the total capacity of all the storage tanks/ bowsers (110% statutory
- requirement plus an allowance for rainfall);
- The floor of the bund must be sloped, draining to an oil separator;
- Provision must be made for refuelling at the storage area by protecting the soil with an impermeable groundcover.
- Where dispensing equipment is used, a drip tray must be used to ensure small spills are contained;
- All empty externally dirty drums must be stored on a drip tray or within a bunded area;
- No unauthorised access into the hazardous substances' storage areas must be permitted;
- No smoking must be allowed within the vicinity of the hazardous storage areas;
- Adequate fire-fighting equipment must be made available at all hazardous storage areas;
- Where refuelling away from the dedicated refuelling station is required, a mobile refuelling unit must be used. Appropriate ground protection such as drip trays must be used;
- An appropriately sized spill kit kept onsite relevant to the scale of the activity/s involving the use of hazardous substance must be available at all times;
- The responsible operator must have the required training to make use of the spill kit in emergency situations;
- In the event of a spill, contaminated soil must be collected in containers and stored in a central location and disposed of according to the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008).
- Refer to **Section 11.2.10** for procedures concerning wastewater management and **Section 11.2.6** for solid waste management.

**Project Specific Management Actions:**

None.

**Implementation:**

Responsible party:	The Contractor
Method of implementation:	The contractor will ensure that all of the above management actions are complied with and implemented.
Timeframe for implementation:	Throughout the construction phase.

**Monitoring:**

Responsible person:	The Contractor and ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	<ul style="list-style-type: none"> <li>• The contractor to ensure compliance.</li> <li>• The ECO to provide details in environmental monitoring reports</li> </ul>

### 11.2.3 Cement / Concrete Batching

<b>Management Outcome:</b>	<b>To control concrete and cement batching activities in order to minimise spillages and contamination of soil, surface water and groundwater.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>Concrete mixing must be carried out on an impermeable surface (such as on boards and/or within a bunded area with an impermeable surface) or make a hard surface and remove when done;</li> <li>Concrete mixing areas must be fitted with a containment facility for the collection of cement laden water. This facility must be impervious to prevent soil and groundwater contamination;</li> <li>Bagged cement must be stored in an appropriate facility (weather and scavenger proof) and no less than 32m away from any water courses, gullies and drains;</li> <li>A washout facility must be provided for washing of concrete associated equipment. Water used for washing must be restricted;</li> <li>Hardened concrete from the washout facility or concrete mixer can either be reused or disposed of at an appropriate licenced disposal facility;</li> <li>Empty cement bags must be secured with adequate binding material if these will be temporarily stored on site;</li> <li>Sand and aggregates containing cement must be kept damp to prevent the generation of dust (Refer to <b>Section 11.2.9: Dust Control</b>)</li> <li>Any excess sand, stone and cement must be removed or reused from site on completion of construction period and disposed at a registered disposal facility;</li> <li>Temporary fencing must be erected around batching plants in accordance with <b>Section 11.1.7: Fencing</b>.</li> </ul>	
<b>Project Specific Management Actions:</b>	
None.	
<b>Implementation:</b>	
Responsible party:	The Contractor
Method of implementation:	<ul style="list-style-type: none"> <li>The contractor will ensure that all of the above management actions are complied with and implemented.</li> </ul>
Timeframe for implementation:	Throughout the construction phase.
<b>Monitoring:</b>	
Responsible person:	The Contractor and ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	<ul style="list-style-type: none"> <li>The contractor to ensure compliance.</li> <li>The ECO to provide details in environmental monitoring reports</li> </ul>

### 11.2.4 General Aesthetics

<b>Management Outcome:</b>	<b>Neat and well-maintained site to minimise visual impacts.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>Any natural feature (e.g. rocks, etc.) situated on or around the site for survey or any other purposes must not be defaced, painted, damaged or marked unless agreed beforehand with the ER. Any features affected by the Contractor or his sub-contractors in contravention of this clause must be restored and rehabilitated to the satisfaction of the ER.</li> <li>All construction areas must be kept neat and tidy at all times. Different materials and equipment must be kept in designated areas and storing/stockpiling must be kept orderly.</li> <li>Site camp lighting must be minimal and cause the least visual impact at night. All light sources must be shielded so that only the area that needs to be lit is lit. No neon or backlit signage is to be allowed. No floodlights are permitted. Security lighting must be placed such that it is not a nuisance to residents and visitors to the area. Shields may be required to prevent lights from being visible from other parts of the protected area.</li> </ul>	
<b>Project Specific Management Actions:</b>	
None.	
<b>Implementation:</b>	
Responsible party:	The Contractor



Method of implementation:	<ul style="list-style-type: none"> <li>The contractor will ensure that all of the above management actions are complied with and implemented.</li> <li>The contractor will ensure that the site is neat and well-maintained.</li> </ul>
Timeframe for implementation:	Throughout the construction phase.
<b>Monitoring:</b>	
Responsible person:	The Contractor and ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	<ul style="list-style-type: none"> <li>The contractor to ensure compliance.</li> <li>The ECO to provide details in environmental monitoring reports</li> </ul>

### 11.2.5 Traffic Accommodation

<b>Management Outcome:</b>	<b>Minimize traffic impact.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>The Contractor must be required to ensure that traffic along public roads is accommodated at all times and construction activities and deliveries do not interfere with the public road system. Should there be a need to undertake such work that may impact traffic the Contractor will ensure that all the required permissions have been obtained from the traffic authorities in writing. All the required signage and hazard warnings are to be put in place.</li> <li>The contractor will ensure that all drivers must be in possession of an appropriate and valid driver's licence. The Contractor is responsible for ensuring that all vehicles are road worthy. All relevant permits for abnormal loads must be applied for and obtained from the relevant authority as required.</li> <li>Access points to and from site as well as roadways in front of the site are to be kept clean and free from stone, sand and grit. These areas must be swept regularly.</li> <li>All construction vehicles, when on site and on the surrounding property, will not exceed the speed of 25km per hour. This is to ensure safety of vehicles, personnel, and the environment, and to lessen environmental degradation. Drivers who exceed the speed limit should be fined or dismissed by the Contractor or ER.</li> <li>Access to the site must be gained at the designated areas as determined by the ER. As far as is possible use should be made of existing haul routes, tracks, and roads. The creation of short-cut paths/routes or temporary vehicular tracks is to be strictly prevented.</li> </ul>	
<b>Project Specific Management Actions:</b>	
None.	
<b>Implementation:</b>	
Responsible party:	The Contractor
Method of implementation:	The contractor will ensure that all of the above management actions are complied with and implemented.
Timeframe for implementation:	Throughout the construction phase.
<b>Monitoring:</b>	
Responsible person:	ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	ECO to provide details in environmental monitoring reports

### 11.2.6 Solid Waste Management

<b>Management Outcome:</b>	<b>Wastes are appropriately stored, handled and safely disposed of at a licensed waste facility.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>The ER is responsible for ensuring that the contractor implements and adheres to the waste management requirements and all relevant legislation.</li> <li>The Contractor must ensure that all facilities are maintained in a neat and tidy condition and the site must be kept free of litter. Measures must be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. At all places of work the Contractor must provide litterbins, containers and refuse collection facilities for later disposal.</li> </ul>	

- Solid waste may be temporarily stored on site in a designated area approved by the ER prior to collection and disposal. A containment structure may be created for this purpose, consisting of four ready fence panels covered with shade cloth, one panel to be movable for access and emptying. The structure will have a roof (plastic covered ready fence panel or similar to protect from the rain). The floor is to be lined with DPC plastic to prevent ground or soil contamination from waste residue. If a waste skip is to be used for this purpose it must be kept covered with shade cloth.
- Solid waste must be removed as often as required (when the containment area is full) or as instructed by the ER or ECO to a licensed waste disposal site. Recyclable waste should be separated and recycled if at all possible and opportunities provided on site to facilitate the collection of recyclable waste products. Staff should be trained in waste segregation and storage. Arrangements should be made with the relevant recycling companies for the transportation or collection for various wastes.
- Bins must be covered, tip-proof, weatherproof (wind and water) and scavenger proof.
- **No waste may be burned on the site**, including the cleared vegetation. All wastes must be disposed of at an authorised waste disposal facility, unless it can be further beneficially utilised such as composting of the organic waste. Garden waste may be chipped on site.
- Used (empty) cement bags must be collected and stored in weatherproof containers to prevent windblown cement dust and water contamination. Used cement bags must not be used for any other purpose and must be disposed of on a weekly basis via the solid waste management system.
- The contractor is responsible for ensuring that any sub-contractors on site manage and dispose of their waste in line with this EMP. The contractor will instruct all sub-contractors to follow waste management procedures.
- Domestic Waste - The Contractor must provide refuse bins with lids to the satisfaction of the ER, for all construction areas. Refuse must be collected and removed from all areas at least twice per week or as requested by the ER or ECO. Domestic waste must be transported to the approved refuse disposal site in covered containers or trucks.
- Construction Rubble / Waste
  - Inert construction rubble must be disposed of at a site approved by the ER. The ER will be responsible for ensuring that rubble is disposed of by the contractor at the site approved, and that the rubble can be legally disposed of at said site. Rubble stockpiles will be kept consolidated and at a reasonable size. Rubble will be removed regularly and/or at the request of the ECO.
  - Clean building rubble free from plastic, wood, wire metal, tar, asphalt or similar may be crushed and reused for specific purposes (e.g. road sub-base, concrete etc.) within the parameters set in the National Environmental Management: Waste Act 59 of 2008, (as amended) (NEM:WA). Rubble may not be buried on site for the sake of easy disposal.
  - All other solid waste or contaminated materials must be disposed of offsite at an approved landfill site. The Contractor must supply the ER with certificates of disposal or similar proof to indicate legal disposal. Copies of these will be provided to the ECO.
  - Any crushing and reuse of clean building rubble must fall within the thresholds allowed in terms of the NEM:WA. All local by laws must be adhered to. Should the volumes and area required exceed these parameters a Waste Licence will be required in terms of the Act.
  - Construction and demolition waste (builder's rubble) must be properly managed and reused where possible. Clean rubble should be kept separately and, where not reused on site, can be taken to an appropriate drop-off facility.

**Project Specific Management Actions:**

None.

**Implementation:**

Responsible party:	The Contractor
Method of implementation:	The contractor will ensure that all of the above management actions are complied with and implemented.
Timeframe for implementation:	Throughout the construction phase.

**Monitoring:**

Responsible person:	The Contractor and ECO
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Frequency:	Throughout the construction phase.
Evidence of compliance:	<ul style="list-style-type: none"> <li>• The contractor to ensure compliance.</li> <li>• The ECO to provide details in environmental monitoring reports</li> </ul>

### 11.2.7 Hazardous Waste Management

<b>Management Outcome:</b>	<b>Hazardous wastes are appropriately stored, handled and safely disposed of at a licensed waste facility.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>• <b>All hazardous waste</b> (including bitumen, old oil etc.) <b>must be disposed of at an approved hazardous landfill site</b> (such as Vissershok), or hazardous waste facility, which is licensed to receive such waste. Alternatively, the contractor may appoint a reputable (the contractor must take steps to ensure that the waste contractor is legitimate and reputable) waste management service provider to remove and dispose of hazardous waste.</li> <li>• The Contractor must provide disposal certificates to the ER copies will be provided to the ECO. The ER will ensure that this process is followed by the contractor.</li> <li>• Under no circumstances must the spoiling of tar or bituminous products on the site, over embankments, or any burying, be allowed. Unused or rejected tar or bituminous products must be returned to the supplier's production plant or reputable recycler where practicable as an alternative to disposal.</li> <li>• Used oil, lubricants, cleaning materials, etc. from vehicles, machinery or bund areas must be collected in holding tanks and sent back to the supplier or removed from site by a specialist oil recycling company as an alternative to disposal.</li> <li>• Once a purpose manufactured hydrocarbon spill remediation product has been used or has been used to treat contaminated materials (soil, rubble etc.) the resulting waste must be disposed of at a facility licensed to receive such waste.</li> <li>• Complete and appropriate spill kits (universal type spill kits) are to be always kept on site in the event of any spillages (irrespective of extent and volume).</li> </ul>	
<b>Project Specific Management Actions:</b>	
None.	
<b>Implementation:</b>	
Responsible party:	The Contractor
Method of implementation:	The contractor will ensure that all of the above management actions are complied with and implemented.
Timeframe for implementation:	Throughout the construction phase.
<b>Monitoring:</b>	
Responsible person:	The Contractor and ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	<ul style="list-style-type: none"> <li>• The contractor to ensure compliance.</li> <li>• The ECO to provide details in environmental monitoring reports</li> </ul>

### 11.2.8 Noise Control

<b>Management Outcome:</b>	<b>To prevent unnecessary noise to the environment by ensuring that noise from construction activity is mitigated, as far as possible.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>Operating hours as determined by the EA are to be adhered to during the development phase. Where not defined, development must be limited to daylight hours. The operating hours are: <ul style="list-style-type: none"> <li><b>Weekdays:</b> 07:30 to 17:00</li> <li><b>Saturdays:</b> 08:00 to 13:00</li> <li><b>No work on Public Holidays and Sundays</b>, unless permission is granted by the relevant parties.</li> </ul> </li> <li>The Contractor must be responsible for compliance with the Western Cape Noise Control Regulations, 2013 and all other relevant legislation with respect to noise.</li> <li>All equipment and vehicles must be maintained to minimized noise from engines and ensure adherence to the Noise Regulations (SANS 10103).</li> <li>The Contractor must endeavour to keep noise generating activities to a minimum.</li> <li>The Contractor must endeavour to, as far as possible, warn any local communities and residents that could be disturbed by noise generating activities, such as blasting or piling, well in advance and must keep such activities to a minimum.</li> <li>Construction processes and machinery/vehicles with the lowest noise emission values available must be utilised. A well planned and co-ordinated "fast track" procedure must be implemented to complete the total construction process in the shortest possible time.</li> <li>All plant, equipment and vehicles are to have effective silencers/mufflers fitted that would otherwise cause a noise level exceeding 85dB. Exhaust systems are to be in good repair with no holes in the piping.</li> <li>No sound amplification equipment (hooters, loud music speakers, sirens etc.) is to be used on site except in emergencies.</li> <li>Excessively noisy plant or plant requiring repairs are to be removed from site.</li> </ul>	
<b>Project Specific Management Actions:</b>	
None.	
<b>Implementation:</b>	
Responsible party:	The Contractor
Method of implementation:	<ul style="list-style-type: none"> <li>The contractor will ensure that all the above management actions are complied with and implemented.</li> <li>The Contractor must be responsible for compliance with the Western Cape Noise Control Regulations, 2013 and all other relevant legislation with respect to noise.</li> </ul>
Timeframe for implementation:	Throughout the construction phase.
<b>Monitoring:</b>	
Responsible person:	The Contractor and ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	<ul style="list-style-type: none"> <li>The contractor to ensure compliance.</li> <li>The ECO to provide details in environmental monitoring reports</li> </ul>

### 11.2.9 Dust Management Plan

<b>Management Outcome:</b>	<b>Dust prevention measures are applied to minimise the generation of dust.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>The creating of nuisance/precipitant dust is controlled by the National Dust Control Regulations (R.827, 1 November 2013) promulgated under the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEM:AQA). The contractor will ensure that the specifications of these regulations are always met.</li> <li>Take all reasonable measures to minimise the generation of dust as a result of project development activities to the satisfaction of the ECO;</li> <li>Removal of vegetation must be avoided until such time as soil stripping is required, and similarly exposed surfaces must be re- vegetated or stabilised as soon as is practically possible;</li> </ul>	

- Excavation, handling and transport of erodible materials must be avoided under high wind conditions or when a visible dust plume is present;
- During high wind conditions, the ECO will evaluate the situation and make recommendations as to whether dust damping measures are adequate, or whether working will cease altogether until the wind speed drops to an acceptable level;
- Where possible, soil stockpiles must be located in sheltered areas where they are not exposed to the erosive effects of the wind;
- Where erosion of stockpiles becomes a problem, erosion control measures must be implemented at the discretion of the ECO;
- Vehicle speeds must not exceed 40km/h along dust roads or 20km/h when traversing unconsolidated and non-vegetated areas;
- Appropriate dust suppression measures must be used when dust generation is unavoidable, e.g. dampening with water; particularly during prolonged periods of dry weather in summer. Such measures must also include the use of temporary stabilising measures (e.g. chemical soil binders, straw, brush packs, chipping);
- Straw stabilisation must be applied at a rate of one bale/10m<sup>2</sup> and harrowed into the top 100 mm of top material, for all completed earthworks;
- For significant areas of excavation or exposed ground, spray water or wet areas using trucks to minimise the spread of dust.

**Project Specific Management Actions:**

None.

**Implementation:**

Responsible party:	The Contractor
Method of implementation:	<ul style="list-style-type: none"> <li>• The contractor will ensure that all of the above management actions are complied with and implemented.</li> <li>• The Contractor must ensure that the generation of dust is minimised and must implement a dust control programme.</li> </ul>
Timeframe for implementation:	Throughout the construction phase.

**Monitoring:**

Responsible person:	The Contractor and ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	<ul style="list-style-type: none"> <li>• The contractor to ensure compliance.</li> <li>• The ECO to provide details in environmental monitoring reports</li> </ul>

**11.2.10 Storm- and Wastewater Management**

**Management Outcome:** Storm- and wastewater management: To avoid pollution and erosion as a result of storm- or wastewater runoff.

**Management Actions:**

- Wastewater from activities such as washing tools, batching and similar, will be collected in a drum or conservancy tank. This water may then be re-used for batching or for wetting and compacting sub-base material during road surfacing.
- An impermeable sump lined with thick DPC plastic may be constructed by the Contractor in order to collect wastewater from batching and tool washing. The sump will be open to allow the water to evaporate. Care must be taken to ensure that input does not exceed the evaporation rate and that no overflow from the sump occurs. This is of particular importance during the wet season. Once the sump is dry the remaining material at the bottom of the sump will be disposed of with the general waste and rubble.
- Small volume wastewater collected from washing and other small volume cement work activities will be disposed of on top of the general rubble pile where it will be absorbed. This will be done in such a way as to ensure that there is no run-off from the rubble pile to surrounding areas. The wastewater must not be of such volume that it will saturate the entire body of rubble or will soak through the rubble pile.
- Runoff from fuel depots / bunds / workshops / machinery washing areas and water contaminated with petro-chemicals and hydrocarbons must be addressed as indicated in the hazardous waste section of this document.

- The ER's approval must be obtained by the contractor prior to the discharge of any contaminated water into sewer systems.
- At no point will wastewater from tool washing, batching, grouting, cleaning, showers, kitchens or similar sources be permitted to enter or be disposed of, *inter alia*, in the following manner:
  - Into a storm water system.
  - Directly onto bare soil.
  - Within 32m of a wetland.
  - Into a water course or on the bank of a water course.

**Stormwater:**

- The Contractor must take reasonable measures to control the erosive effects of stormwater runoff during the construction phase. The Contractor must use silt screens to prevent overland flow from causing erosion.
- Point source discharge of storm water must be prevented on slopes as this will lead to erosion of the unstable slope with loss of vegetation and resultant deep donga erosion. Any stormwater outlets must be constructed in such a manner as to ensure no soil or bank erosion takes place.
- The use of straw bales as filters, which are placed across the flow of overland stormwater flows, must be used as an erosion protection measure. The ploughing-in of straw offers limited protection against storm water runoff-induced erosion and must be used as an erosion protection measure. The Contractor must be liable for any damage to downstream property caused by the diversion of overland storm water flows.
- Drip trays must be used for all pumps, generators, etc. in order to prevent water contamination as a result of fuel spills or leaks.

**Project Specific Management Actions:**

- The Stormwater Management Plan

**Implementation:**

Responsible party:	The Contractor
Method of implementation:	The Contractor must ensure that wastewater is correctly managed on site to the satisfaction of the ER. The contractor will ensure that all sub-contractors comply with the requirements to manage wastewater on site.
Timeframe for implementation:	Throughout the construction phase.

**Monitoring:**

Responsible person:	The Contractor and ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	<ul style="list-style-type: none"> <li>• The contractor to ensure compliance.</li> <li>• The ECO to provide details in environmental monitoring reports</li> </ul>

**11.2.11 Topsoil**

<b>Management Outcome:</b>	<b>Topsoil use: Impacts on the environment are minimised when topsoil is removed, and sufficient topsoil is available for rehabilitation.</b>
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**Management Actions:**

- Topsoil is considered to be the natural soil covering, including all the vegetation and organic matter.
- Sufficient topsoil (up to 300 mm) must be stripped and stockpiled separately for the rehabilitation purposes of disturbed areas or landscaping on site after construction.
  - Any topsoil stripped from the site must be stockpiled separately from other materials. If not, enough topsoil is available after stripping, then additional topsoil must be acquired. Any acquired topsoil must be approved by the ER.
  - Stripped topsoil must be stockpiled in areas agreed with the ER for later use in re-vegetation and must be adequately protected.
  - As far as is practicable topsoil should not be stripped or stockpiled when it is wet or raining, in order to prevent unnecessary compaction.
  - Topsoil stockpiles must be convex and no more than 2m high. Stockpiles must be shaped so that no surface water ponding can take place.
  - Topsoil stockpiles must be protected from erosion by wind and rain by providing suitable stormwater and cut off drains and/or by establishing suitable temporary vegetation. Stockpiles

<p>must not be covered with materials such as plastic that may cause it to compost or would kill the seed bank.</p> <ul style="list-style-type: none"> <li>• Topsoil stockpiles must be monitored regularly by the contractor to identify any alien plants, which must be removed when they germinate to prevent contamination of the seed bank.</li> <li>• Any topsoil contaminated by hazardous substances must not be used and must be disposed of as per hazardous waste requirements of this document.</li> </ul>	
<b>Project Specific Management Actions:</b>	
None.	
<b>Implementation:</b>	
Responsible party:	The Contractor
Method of implementation:	The Contractor must be held responsible for the replacement, at his own cost, for any unnecessary loss of topsoil required for rehabilitation purposes due to his failure to work according to the approved method statements and the requirements of this EMPr.
Timeframe for implementation:	Throughout the construction phase.
<b>Monitoring:</b>	
Responsible person:	ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	ECO to provide details in environmental monitoring reports

#### 11.2.12 Stockpiling and Stockpile Areas

<b>Management Outcome:</b>	<b>Stockpiling and stockpile areas: To reduce erosion and sedimentation as a result of stockpiling.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>• The areas for the stockpiling of excavated and imported material must be indicated and demarcated on the site plan submitted in writing to the ER for his approval together with the Contractor's proposed measures for prevention, containment, and rehabilitation against environmental damage;</li> <li>• All material that is excavated during the project development phase (either during piling (if required) or earthworks) must be stored appropriately on site in order to minimise impacts to watercourses, wetlands, and water bodies;</li> <li>• All stockpiled material must be maintained and kept clear of weeds and alien vegetation growth by undertaking regular weeding and control methods;</li> <li>• No stockpiling of materials that could leach out and cause pollution may occur;</li> <li>• Stockpiles must not exceed 2 m in height;</li> <li>• During periods of strong winds and heavy rain, the stockpiles should be covered with appropriate material (e.g. cloth, tarpaulin etc.);</li> <li>• Where possible, sandbags (or similar) should be placed at the bases of the stockpiled material in order to prevent erosion of the material.</li> <li>• Stockpiles must be positioned and sloped to create the least visual impact. The slope of the stockpiles must have a gentle gradient to reduce the risk of erosion.</li> <li>• No foreign material generated/deposited during construction must remain on site on completion. Areas affected by stockpiling must be reinstated to the satisfaction of the ER;</li> <li>• As dealt with under the dust management plan section (<b>Section 11.2.9</b>) of this document stockpiles may need to be covered as a dust control measure;</li> <li>• No stock piling will take place within 20m of any watercourse or from the boundary of any watercourse buffer (i.e. 32 m buffer).</li> </ul>	
<b>Project Specific Management Actions:</b>	
None.	
<b>Implementation:</b>	
Responsible party:	The Contractor
Method of implementation:	The contractor will ensure that all of the above management actions are complied with and implemented.
Timeframe for implementation:	Throughout the construction phase.



<b>Monitoring:</b>	
Responsible person:	The Contractor and ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	<ul style="list-style-type: none"> <li>• The contractor to ensure compliance.</li> <li>• The ECO to provide details in environmental monitoring reports</li> </ul>

### 11.2.13 Vegetation Clearing

<b>Management Outcome:</b>	<b>Vegetation clearing is restricted to the authorised development footprint of the proposed infrastructure.</b>
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<b>Management Actions:</b>
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- No vegetation clearing must take place without approval of the MS by the ER.
- No vegetation clearing must take place until the site boundaries and "No-Go" areas are clearly demarcated or temporarily fenced off.
- All litter and non-organic material must be removed from the area to be cleared before clearing of vegetation commence.
- Vegetation clearing of the site must be limited as far as possible and undertaken within a phased approach.
- Vegetation clearing may not extend beyond the site boundary. If large areas are to be developed consideration should be given to a phased clearing approach to limit potential impacts resulting from large areas standing cleared for extended period of time.
- Indigenous plant material can be removed from cleared areas and may be stockpiled for mulching.
- Alien vegetation may be used for mulching if it is not in seed.
- No waste, including the cleared vegetation may be burned on the site and must be disposed of at an authorised waste disposal facility, unless it can be further beneficially utilised such as composting of the organic waste. Garden waste may be chipped on site.
- Permits may be required in order to remove or translocate protected plants or those of conservation concern and must be obtained prior to this happening.
- Any vegetation that will be cleared should not be sent to landfill, but instead chipped and/or composted, either on-site or at a licensed facility. The diversion of this valuable waste stream would support the Departments ban on organic waste to landfill, requiring 50% diversion by 2022 and 100% diversion by 2027.

<b>Project Specific Management Actions:</b>
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Selective clearing of alien vegetation is recommended.

<b>Implementation:</b>
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Responsible party:	The Contractor
Method of implementation:	<ul style="list-style-type: none"> <li>• The Contractor must ensure that all the management actions above are implemented.</li> <li>• The Contractor must be responsible for informing all employees about the need to prevent any harmful effects on natural vegetation to be retained on the construction site or beyond the site boundaries as a result of their activities.</li> </ul>
Timeframe for implementation:	Throughout the construction phase.

<b>Monitoring:</b>
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Responsible person:	ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	ECO to provide details in environmental monitoring reports

### 11.2.14 Protection of Fauna

<b>Management Outcome:</b>	<b>Minimise disturbance to fauna.</b>
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<b>Management Actions:</b>
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- The Contractor must ensure that no hunting, trapping, shooting, poisoning or otherwise disturbance of any fauna takes place.
- The feeding of any wild animals is prohibited. No food or food products will be stored in such a way that may attract scavengers.



<ul style="list-style-type: none"> <li>No interference with livestock must occur without the landowner's written consent and with the landowner or a person representing the landowner being present.</li> <li>The use of pesticides is prohibited unless approved by the ER.</li> <li>No domestic pets are permitted on site.</li> <li>Drainage structures (e.g. gutters, drains, sumps, ditches) must be designed, as far as possible, so that they do not act as pitfall traps for small creatures. They should either have gently sloping edges or be adequately covered to prevent creatures from falling into them.</li> </ul>	
<b>Project Specific Management Actions:</b>	
None.	
<b>Implementation:</b>	
Responsible party:	The Contractor
Method of implementation:	The Contractor must ensure that all the management actions above are implemented.
Timeframe for implementation:	Throughout the construction phase.
<b>Monitoring:</b>	
Responsible person:	ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	ECO to provide details in environmental monitoring reports

### 11.2.15 Protection of Watercourses

<b>Management Outcome:</b>	<b>Pollution and contamination of the watercourse environment as well as potential erosion are prevented.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>All watercourses must be protected from direct or indirect spills of pollutants such as solid waste, sewage, cement, oils, fuels, chemicals, aggregate tailings, wash and contaminated water or organic material resulting from the Contractor's activities.</li> <li>In the event of a spill, prompt action must be taken to clear the polluted or affected areas.</li> <li>Where possible, no development equipment must traverse any seasonal or permanent wetland.</li> <li>Appropriate rehabilitation and re-vegetation measures for the riverbanks must be implemented timeously. In this regard, the banks should be appropriately and incrementally stabilised as soon as development allows.</li> </ul>	
<b>Project Specific Management Actions:</b>	
<ul style="list-style-type: none"> <li>Construction within and adjacent to the river corridor should preferably take place during the drier months of the year.</li> <li>Downstream sediment management measures should be in place to prevent high sediment loads in the stream from being deposited downstream should rainfall occur during the construction works.</li> <li>The water quality impacts during the construction phase should be addressed through a Construction Environmental Management Plan for the project and implemented by an on-site Environmental Officer.</li> <li>The stormwater management plan for the site should ensure that any impacts of stormwater from the site are mitigated as far as possible within the site (measures such as use of permeable surfaces, re-use of runoff from built areas such as roofs as well as the use of measures such as swales) to minimise the stormwater impacts on the created wetland habitat.</li> <li>The services (excluding stormwater and pathways) that need to be installed for the proposed development should as far as possible avoid being placed within the stream corridor buffer.</li> <li>Suitable local indigenous vegetation should be used within the proposed development and in particular within the proposed stormwater management area. Indigenous grasses such as <i>Cynodon dactylon</i> are recommended to stabilise the reshaped channel and embankments. In addition, indigenous plants as occurs in the watercourse upstream (<i>Euclea racemosa subsp. Racemosa</i>, <i>Halleria lucida</i>, <i>Searsia laevigata</i>, <i>S. lucida</i> and <i>S. glauca</i>, <i>Chasmanthe aetheopica</i> and <i>Zandeschia aetheopica</i>) could be planted along the disturbed banks of the watercourse to provide additional stabilization and prevent invasion of this area with alien plant species;</li> <li>Invasive alien grasses such as <i>Pennisetum clandestinum</i> may not be planted in the stream channel. Any growth of the grass should be removed/controlled. Ongoing monitoring and removal of invasive alien plants is required, particularly to control invasive kikuyu grass;</li> <li>With the creation of the stormwater management areas, consideration should be given to discouraging the nuisance growth of bulrushes that would require ongoing management; and</li> <li>If possible access to the remainder of the site should be limited to reduce the risk of disturbance and other impacts such as dumping in the upstream watercourse.</li> </ul>	
<b>Implementation:</b>	

Responsible party:	The Authorisation Holder and Contractor
Method of implementation:	The Contractor must ensure that all the management actions above are implemented.
Timeframe for implementation:	Throughout the construction phase.
<b>Monitoring:</b>	
Responsible person:	ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	ECO to provide details in environmental monitoring reports

#### 11.2.16 Protection of Heritage Resources

<b>Management Outcome:</b>	<b>Protection of heritage resources (if any): Impact to heritage resources is minimised</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>• If any archaeological remains (including but not limited to fossil bones and fossil shells, coins, indigenous and/or colonial ceramics, any articles of value or antiquity, stone artefacts and bone remains, structures and other built features, rock art and rock engravings) are discovered during construction they must immediately be reported to HWC and must not be disturbed further until the necessary approval has been obtained from HWC.</li> <li>• Should any human remains/burial or archaeological material be disturbed, exposed or uncovered during construction, these should immediately be reported to the South African Heritage Resources Agency (021 462 4502) and Heritage Western Cape (021 483 9685). The ECO and ER are also to be informed. An archaeologist will be required to remove the remains at the expense of the Authorisation Holder.</li> <li>• The Contractor may not, without a permit issued by the relevant heritage resources authority, destroy damage, excavate, alter, deface or otherwise disturb archaeological material.</li> </ul>	
<b>Project Specific Management Actions:</b>	
None.	
<b>Implementation:</b>	
Responsible party:	The Contractor
Method of implementation:	The Contractor must ensure that all the management actions above are implemented.
Timeframe for implementation:	Throughout the construction phase.
<b>Monitoring:</b>	
Responsible person:	ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	ECO to provide details in environmental monitoring reports

#### 11.2.17 Emergency Procedures

<b>Management Outcome:</b>	<b>Emergency procedures: Emergency procedures are in place to enable a rapid and effective response to all types of environmental emergencies.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>• Compile an Emergency Response Action Plan (ERAP) prior to the commencement of the proposed project;</li> <li>• The Emergency Plan must deal with accidents, potential spillages and fires in line with relevant legislation. On-site emergency plans must be reviewed regularly;</li> <li>• All staff must be made aware of emergency procedures as part of environmental awareness training;</li> <li>• The relevant local authority must be made aware of a fire as soon as it starts;</li> <li>• In the event of emergency necessary mitigation measures to contain the spill or leak must be implemented (see <b>Section 11.2.2: Storage, handling, use and disposal of hazardous substances</b>).</li> <li>• The applicant must ensure that "Any emergency incident, originating at the facility, which falls within the definition of section 30(1) of NEMA, must be dealt with by the facility in accordance with</li> </ul>	

Section 30 of NEMA". In the event of any incident the facility must ensure containment by the responsible person and report the incident to the City of Cape Town and DEA&DP.

- Spills and Leaks

- Any significant spills and leaks of oil, petrol or diesel from fuel storage areas must be immediately reported to the operations manager and environmental control officer onsite;
- In the event that a significant spillage/leakage of product and/or hazardous substances is released onto land or into water resources, the following procedures must be followed:
  - The spillage or leakage must immediately be contained, followed by the appropriate clean-up and remediation of the affected area;
  - In the event of a significant spill or leak of hazardous substances (petrol, diesel, cement, etc.) used during the construction or operational phases, such incident must be reported to all relevant authorities, including the D: PCM in accordance to Section 30 (10) of the NEMA, pertaining to the control of emergency incidents.
- The contractor must ensure that his employees are aware of the procedure to be followed for dealing with spills and leaks, which must include notifying the, ER and ECO. The Contractor must ensure that the necessary spill response / hydrocarbon remediation materials (e.g. chemcap, spill-sorb, drizzat pads, enretech, OilCap and peat moss) and equipment for dealing with spills and leaks are available on site at all times. The source of the spillage must be isolated. The Contractor must contain the spillage using sand berms, sandbags, pre-made booms, sawdust or absorbent materials. Treatment and remediation of the spill areas must be undertaken to the reasonable satisfaction of the ER.
- The Contractor must submit his emergency procedure MSprior to bringing on site any such substances.
- All spills or accidents involving such materials are to be recorded by the Contractor. The Contractor is responsible for ensuring that these records are submitted to the ECO. The clean-up of spills and any damage caused by the spill must be for the Contractor's account.

**Project Specific Management Actions:**

None.

**Implementation:**

Responsible party:	The Applicant & Contractor
Method of implementation:	<ul style="list-style-type: none"> <li>• The applicant must ensure that "Any emergency incident, originating at the facility, which falls within the definition of section 30(1) of the National Environmental Management Act (NEMA), Act 107 of 1998, must be dealt with by the facility in accordance with Section 30 of NEMA".</li> <li>• The contractor will ensure that all of the above management actions are complied with and implemented.</li> <li>• The Contractor must take all reasonable steps to avoid increasing the risk of spills and leaks activities on site.</li> </ul>
Timeframe for implementation:	Throughout the construction phase.

**Monitoring:**

Responsible person:	The Contractor and ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	<ul style="list-style-type: none"> <li>• The contractor to ensure compliance.</li> <li>• The ECO to provide details in environmental monitoring reports</li> </ul>

**11.2.18 Fire Prevention**

<b>Management Outcome:</b>	<b>Fire Prevention: Prevention of uncontrollable fires.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>• The Contractor must ensure that basic fire-fighting equipment is available at all construction areas and facilities. The workforce should be appropriately trained in the use of all equipment.</li> <li>• Smoking must not be permitted in those areas where it is a fire hazard. Such areas must include any workshop and fuel storage areas and areas where the vegetation or other material may promote the rapid spread of an initial flame. A fire extinguisher of the appropriate type must be present when welding or other "hot" activities are undertaken.</li> </ul>	

- In terms of the Atmospheric Pollution Prevention Act, 1965 (Act No. 45 of 1965), burning is not permitted as a disposal method.
- The Contractor must appoint a fire officer who must be responsible for ensuring immediate and appropriate action in the event of a fire. The Contractor must ensure that all site personnel are aware of the procedure to be followed in the event of a fire.
- Any work that requires the use of fire or open flame may only take place at a designated area approved by the ER and must be supervised at all times. Serviced fire-fighting equipment must be available.
- It is recommended that, if cooking is to take place on site, purpose made gas cookers be considered before the use of cooking fires. No fires are to be made on site, unless situated in a designated and demarcated area approved by the ER away from high risk areas and in a contained fireplace (not on the bare ground). Fire extinguisher will be in this area at all times. Under no circumstances will there be more than one fire on the site at a time, or for the fire to be left unattended. The contractor will also consider the prevailing weather conditions.
- Wood and branches will not be harvested from site as fuel.

**Project Specific Management Actions:**

None.

**Implementation:**

Responsible party:	The Contractor
Method of implementation:	<ul style="list-style-type: none"> <li>• The contractor will ensure that all of the above management actions are complied with and implemented.</li> <li>• The Contractor must take all reasonable steps to avoid increasing the risk of fire through activities on site.</li> </ul>
Timeframe for implementation:	Throughout the construction phase.

**Monitoring:**

Responsible person:	The Contractor and ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	<ul style="list-style-type: none"> <li>• The contractor to ensure compliance.</li> <li>• The ECO to provide details in environmental monitoring reports</li> </ul>

**11.2.19 Site Safety and Security**

<b>Management Outcome:</b>	<b>Site safety and security: All safety and security measures are in place.</b>
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**Management Actions:**

**Construction site:**

- The construction site should be secured against unauthorised entry.
- All personnel must be adequately trained and informed in the tasks that they are expected to perform. This is required for their own safety as well as the safety of colleagues and other interested and/or affected parties.
- Construction workers will be supervised on site during the development phase.
- No unauthorised personnel must be allowed onto site.
- All personnel must be transported to and from site daily.
- The movement of all personnel on site must be monitored through a rollcall system.
- No personnel, except for security personnel may be allowed to stay overnight on site.
- Adequate fencing needs to be provided around the site. Fencing needs to be checked and maintained during the construction phase.
- The contractor must ensure that his equipment is protected.
- Solid and construction waste should not accumulate on site as this could attract rodents and also poses a safety hazard.
- All excavated areas and/or holes should be clearly demarcated.
- Maintain environmental incidents register in which all environmental incidents (e.g. accidental spillages etc.) are logged.

**Project Specific Management Actions:**

None.

**Implementation:**

Responsible party:	The Contractor
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Method of implementation:	<ul style="list-style-type: none"> <li>The Contractor must at all times observe the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and ensure adequate safety precautions on the site.</li> <li>The contractor will be responsible for the supervision of construction personnel on site during the construction phase.</li> </ul>
Timeframe for implementation:	Throughout the construction phase.
<b>Monitoring:</b>	
Responsible person:	The Contractor and ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	<ul style="list-style-type: none"> <li>The Contractor must keep record of all construction personnel on site.</li> <li>ECO to provide details of any safety or security incidents in environmental monitoring reports</li> </ul>

### 11.2.20 Public Safety

<b>Management Outcome:</b>	<b>Public safety: All precautions are taken where possible to minimise the risk of injury, harm or complaints.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>Identify fire hazards, demarcate and restrict public access to these areas as well as notify the local authority of any potential threats e.g. fuels etc.;</li> <li>All unattended open excavations must be adequately fenced or demarcated;</li> <li>Adequate protective measures must be implemented to prevent unauthorised access to and climbing of partly constructed structures and protective scaffolding;</li> <li>Ensure structures vulnerable to high winds are secured;</li> <li>Maintain an incidents and complaints register in which all incidents or complaints involving the public are logged.</li> </ul>	
<b>Project Specific Management Actions:</b>	
None.	
<b>Implementation:</b>	
Responsible party:	The Contractor
Method of implementation:	<ul style="list-style-type: none"> <li>The Contractor must at all times observe the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993) and ensure adequate safety precautions on the site.</li> <li>The contractor will be responsible for the supervision of construction personnel on site during the construction phase.</li> </ul>
Timeframe for implementation:	Throughout the construction phase.
<b>Monitoring:</b>	
Responsible person:	The Contractor and ECO
Frequency:	Throughout the construction phase.
Evidence of compliance:	<ul style="list-style-type: none"> <li>The Contractor must keep record of all construction personnel on site.</li> <li>ECO to provide details of any safety or security incidents in environmental monitoring reports</li> </ul>

### 11.2.21 Landscaping and Rehabilitation

<b>Management Outcome:</b>	<b>Landscaping and rehabilitation: No environmental degradation occurs as a result of the development.</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>The Contractor must ensure that all temporary structures, equipment, materials, waste and facilities used for construction activities are decommissioned and removed upon completion of the activity. The Contractor must clear and clean the construction site to the satisfaction of the ER upon completion of the construction.</li> <li>The contractor will undertake all rehabilitation of areas disturbed as a result of activities on site to the satisfaction of ER. Expenses incurred in rehabilitating the site must be for the Contractor's</li> </ul>	

account. The estimated cost of rehabilitation will be provided to the Contractor prior to the work commencing.

- The Contractor will be responsible for any costs resulting from rehabilitation required due to non-compliance with this EMPr.
- It may be necessary to obtain specialist (e.g. botanical, horticultural etc.) input prior to undertaking the required rehabilitation.
- No invasive plant species should be introduced to the site. All invasive alien species should be eradicated from the disturbed sites. Non-indigenous and non-endemic species are permitted. Landscaping is to be done in accordance with the landscaping master plan, to be drafted by a registered landscape architect.
- All areas disturbed by construction activities within the demarcated site, storage and stockpiling areas, etc. must be rehabilitated and/or landscaped to the satisfaction of the ER, in accordance with the Landscaping Plan (**Appendix H**).
- The need for vegetation rehabilitation, resulting from the contractor's non-compliance with the EMPr, will be for the contractor's account and will be carried out to the satisfaction of the ER.
- "No-Go" areas or areas outside of the approved demarcated site will be rehabilitated with the intention of restoring the area to the same or better condition that it was before the disturbance occurred. Only locally indigenous plants will be used. Where required the necessary specialist must be appointed to oversee and advise on the rehabilitation process.
- Re-vegetation of site areas must take place in accordance with the Landscaping Plan as soon as possible after completion of construction works. The timing of re-vegetation must take cognisance of maintenance requirements and provision must be made for any irrigation requirements.
- No construction equipment, vehicles or unauthorised personnel must be allowed onto areas that have been re-vegetated.
- Rehabilitate the previously disturbed area at the base of the sandstone slopes, and any other areas that may be disturbed during construction (this should be minimal or none at all). This must be undertaken by a qualified restoration ecologist/botanist.

**Mulch:**

- Mulch must be used in all areas where re-vegetation has to take place. Mulch may be obtained from all areas where vegetation is cleared.
- Mulch must be free of alien seed.
- Where possible indigenous plant material cleared from the site must be reduced by either mechanical means (chipper) or by hand-axing to pieces no longer than 100mm.
- No harvesting of mulch vegetation outside of construction areas must be allowed.
- Every effort must be taken to ensure the retention of as much seed as possible in mulch made from indigenous vegetation and mulches must be collected in such a manner that the loss of seed is restricted.
- Bush-cut mulch must be stored for as short a time-period as possible, and seed released from stockpiles must be collected for use in re-vegetation.
- Compost from an organic source may be used as mulch during re-vegetation but must be approved by the ER. Compost must be well decayed, friable and free from weed seeds.
- Weed free, half-composted material, such as milled-bark, may be used as an additive to extend indigenous mulch. As far as possible, no more than 50% compost must be used under these circumstances.
- Wood chips (including bark), which are half composted and have not been treated with preservatives can also be used as mulch during re-vegetation. Chips must be no longer than 50 mm in length or breadth and the ER must approve the source of the chips.

**Ground surface preparation:**

- The ER will ensure during the planning phase that all rehabilitation required will be done in accordance with the EA and will be indigenous and water wise.
- Prior to re-vegetation, the Contractor must ensure that the area is clear of any building materials, residues and other foreign debris.
- All visible weeds must be removed from the area before replacing topsoil where required.
- Compacted soil must be ripped along the contour and hand-trimmed. Topsoil must then be spread evenly over the surface if required.

- The final prepared ground surface must be furrowed to follow the natural slope contours of the land and not smooth.

**Plant/Trees:**

- All re-vegetation of disturbed areas will be done with locally indigenous plants, in accordance with the Landscaping Plan.
- Where the ER or Contractor is unsure of suitable plants to be used, input should be sought from a suitably experience horticulturist, aquatic ecologist, or botanist for input in this regard.
- The Contractor must ensure that each plant / tree is handled and packed in the approved manner for that species or variety, and that all necessary precautions are taken to ensure that the plants arrive on site in a proper condition for successful growth.
- Plants must be protected from wind during transportation.
- There must be sufficient topsoil around each plant to prevent desiccation of the root system.

**Timing:**

- Re-vegetation of disturbed construction areas must take place as soon as possible after construction work is completed.
- As much as is possible, re-vegetation must take place at the start of the winter rains to maximise water availability and minimise the need for watering.
- If re-vegetation takes place during the dry season, irrigation of planted areas may be necessary.

**Establishment of Vegetation:**

*i. Irrigation*

- The Contractor must be responsible for maintaining the desired level of irrigation necessary to maintain vigorous and healthy growth, as advised by the appointed landscaping contractor or horticulturist.
- Water used for the irrigation of re-vegetated areas must be free of chlorine and other pollutants that will have a detrimental effect on the plants.
- Where an irrigation system is required, the Contractor must be responsible for its installation prior to seeding or planting. The Contractor must supply all required water as well as all equipment as required by the approved method statement.
- Every effort must be made to avoid irrigation overspray into “no-go” areas and other areas with natural vegetation as well as hard surfaced areas where the water is wasted.

*ii. Weed, diseases and pest control*

- The Contractor must be responsible for ensuring that all re-vegetated areas remain free of all invasive alien and indigenous weed species during the contract and establishment period.
- Weeding, removal methods and storage of this material must be undertaken in such a manner that prevents the re-infestation of the cleaned areas.
- All dead plant material must be removed immediately as it may become a fire hazard.
- The Contractor must ensure that all plants are disease and pest free. Any methods used to control any diseases or pests, including the use of herbicides and pesticides, must be approved by the ER.

**Project Specific Management Actions:**

The requirements of the Landscaping Plan (**Appendix H**) must be implemented.

**Implementation:**

Responsible party:	The Contractor
Method of implementation:	<ul style="list-style-type: none"> <li>• The contractor will ensure that all of the above management actions are complied with and implemented.</li> </ul>
Timeframe for implementation:	After the construction works ended.

**Monitoring:**

Responsible person:	The Contractor and ECO
Frequency:	After the construction works ended.
Evidence of compliance:	<ul style="list-style-type: none"> <li>• The contractor to ensure compliance.</li> <li>• The ECO to provide details in environmental monitoring reports</li> </ul>





### 11.3 OPERATIONAL MANAGEMENT PLAN

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

#### 11.3.1 Management of Alien Invasive Species

<b>Management Outcome:</b>	<b>No proliferation of alien invasive species during the operation phase</b>
<b>Management Actions:</b>	
<b><u>The methods for removal are a guideline to the implementation of methods for the removal of alien invasive species.</u></b>	
<p><b>1. Appointment of suitable professional:</b></p> <ul style="list-style-type: none"> <li>• A botanist, horticulturalist, or suitably qualified professional be appointed to plan and/or undertake and/or oversee the invasive species control management on the property.</li> <li>• Prior to commencement of alien clearing activities, the suitably qualified professional appointed must: <ul style="list-style-type: none"> <li>— identify any invasive specie to be removed within the work area</li> <li>— species to be removed must be made easily identifiable to workers / contractors on site</li> <li>— identify suitable stockpile areas for placing of removed vegetation</li> <li>— facilitate / ensure suitable training of workers on site</li> </ul> </li> </ul> <p><b>2. Alien invasive control management</b></p> <p>There are three phases proposed for this alien invasive control management plan:</p> <ol style="list-style-type: none"> <li>1. <u>Initial control</u> – reduction of existing population</li> <li>2. <u>Follow-up control</u> – control of seedlings, coppice growth</li> <li>3. <u>Maintenance control</u> – ensure low alien plant numbers through periodic (usually annual) control</li> </ol> <p><b>3. Invasive control management methodologies</b></p> <ul style="list-style-type: none"> <li>• <u>Herbicides</u></li> </ul> <p>Herbicides are strongly discouraged. The exception is direct stump application in areas outside the 32m area (from banks of watercourse and stormwater infrastructure). This is to reduce the risk of herbicides and related pollutants to be distributed into the watercourse which may result in damage to indigenous vegetation naturally occurring, and those introduced through the landscape plan along the watercourse.</p> <ul style="list-style-type: none"> <li>• <u>Mechanical clearing</u></li> </ul> <p>Mechanical clearing is largely for mature plants and possibly saplings. Where alien species are too large to be felled as it may damage the development area or surrounding vegetation, then kill standing should be undertaken. Felling should be uphill to prevent breakage and danger to workmen. Felled material may not be disposed of in the watercourse.</p> <p>During felling, the trunk / stem should be cut no higher than 15cm using equipment such as chain saws, bow saws, and brush cutters. Where herbicide treatment is required after felling, the cutting should be horizontal to ensure infiltration into the trunk / stem. A diagonal cut will result in less absorption of the herbicide into the trunk / stem as this will runoff.</p> <ul style="list-style-type: none"> <li>• <u>Manual clearing</u></li> </ul> <p>Mechanical clearing techniques may not be used on seedlings. The exception is only permitted where the seeding is too dense or well established. In this instance, the seedling may be cut using a brush cutter or lopper, and the cut stems painted with herbicide. the cuts to be horizontal. If the herbicide runoff, the service provider must cut the stem to ensure a flat horizontal cut to negate runoff.</p> <p>Where seedlings are scant, and less than one metre in height, or where seedlings are within the watercourse or sensitive areas, seedlings are to be removed by hand pulling. Hand pulling is recommended to ensure that roots are removed too. Hand pulled plants should be placed in a pile to reduce the possibility of regrowth where removed. Where seedlings are too</p> <ul style="list-style-type: none"> <li>• <u>Chemical treatment</u></li> </ul>	

This method of alien control is not recommended due to the risk of potential distribution beyond the target plants or area, and therefore result in the killing of other (indigenous) vegetation not permitted within the area (i.e., chemical runoff onto the neighbouring property and killing the vegetation).

(i) *Foliar spray*

- this may only be undertaken if approved by the appointed specialist (botanist, horticulturalist, or suitably qualified professional). Foliar spray is applied to the leaves of the plant.
- Spraying may not be undertaken on windy or wet days as this will affect the sprays ability to adhere to the surface of the leaves. It is recommended that the herbicide is dyed to help with easy identification of plants that have been sprayed.
- Where the same herbicide is used for different herbicide mixes, different coloured dyes are required to identify the mixes and their mix ratios.
- Spraying must be undertaken using a back-pack spray system with a cone nozzle allowing for direct application. A wide nozzle is prohibited as this may result in herbicide being applied on non-target plants or areas resulting in loss of vegetation.

(ii) *Cut-stump*

Cut trunks / stems are to be treated with herbicide by painting herbicide onto the stump. An adhesive agent promoting the adherence of the herbicide onto the stump may be used. The herbicide is to be applied within 15 minutes of felling. Sawdust must be removed from the stump before application of herbicide.

**4. Storage and handling of equipment**

- Herbicides are to be appropriately stored as per the Material Safety Data Sheet
- Each herbicide must be labelled
- Containers holding herbicide must be appropriately disposed of or recycled, if possible. Burning of empty containers is prohibited.
- Containers must be placed on impermeable layers to ensure no spills or leaks into the natural environment. Spilled or leaked liquids must be disposed of appropriately.
- Fire fighting equipment must be in quick reach of the storage of herbicides.
- All equipment must be securely stored to reduce the risk of access by residents or unauthorized staff personnel.
- Equipment must be properly maintained and regularly serviced.
- Washing and cleaning of equipment must be within a pre-approved area that will not result in any herbicides / pollutants entering the natural environment.
- Workers must be suitably trained to work with the herbicides.
- Storage of herbicides may not be within 32m of the watercourse / stormwater infrastructure.
- Appropriate PPE must be worn at all times during alien invasive species clearing activities.

**5. Training**

- Induction of employees to be undertaken to assist with understanding the methodologies, and why the work is being undertaken
- The appointed professional is to facilitate / ensure suitable training of workers on site.
- Refresher courses are required before every alien removal event

**6. Monitoring**

- Regular visual inspection of the cleared areas is required to observe any resprouting, seedlings emerging or new species evident. Photographic evidence to be kept on file and taken during inspections.

**7. Key Performance Indicator**

- The area is consistently cleared of alien vegetation
- Remnants of alien vegetation removed to allow for development and/or rehabilitation of the natural vegetation
- No indication of further degradation of the areas

**Implementation:**

Responsible party:	Homeowners Association
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Timeframe for implementation:	Throughout operation phase / until SANParks formally accept the undeveloped portion of Erf 3477.
<b>Monitoring:</b>	
Responsible person:	Homeowners Association
Evidence of compliance:	Homeowners Association to keep photographic records and to appoint an ecologist regularly (annually) to check for any alien species to be removed from the property.

### 11.3.2 Waste Management

<b>Management Outcome:</b>	<b>Reduce amount of waste to landfill sites</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>Provide on-site recycling within the development by having separate receptacles for different waste types. For example, receptacles for organic waste, paper and cardboard, glass, tins.</li> <li>According to the City of Cape Town Map Viewer, the City of Cape Town 'Think Twice' Recycling programme is operational within Hout Bay. This is a free service which is an initiative that encourages selected households to work with the City of Cape Town by separating their waste into recyclable and non-recyclable components.</li> <li>Regular litter checks in the open spaces within the development and along the boundary of the development within and outside of the development footprint must be undertaken. Any litter found must be collected and disposed of.</li> </ul>	
<b>Implementation:</b>	
Responsible party:	Homeowner's Association
Method of implementation:	Separate receptacles for different waste types in the refuse room
Timeframe for implementation:	Operation phase
<b>Monitoring:</b>	
Evidence of compliance:	<ul style="list-style-type: none"> <li>Use of recycling companies to collect recyclable waste, and organic waste separate to the weekly refuse collection by the local municipality.</li> </ul>

### 11.3.3 Energy efficiency

<b>Management Outcome:</b>	<b>Reduce energy usage</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>The development must include energy saving technologies such as: <ul style="list-style-type: none"> <li>Low-energy lighting in all public open spaces</li> <li>Solar external lighting</li> <li>External lighting on timers to ensure lights are off during the day</li> <li>Geysers to be covered in blankets to improve efficiency</li> <li>Electric geyser thermostats to be set to optimal temperature</li> <li>Solar geyser heaters are recommended to reduce reliance on non-renewable energy</li> </ul> </li> </ul>	
<b>Implementation:</b>	
Responsible party:	Homeowner's Association
Method of implementation:	Separate receptacles for different waste types in the refuse room
Timeframe for implementation:	Operation phase
<b>Monitoring:</b>	
Evidence of compliance:	<ul style="list-style-type: none"> <li>Use of recycling companies to collect recyclable waste, and organic waste separate to the weekly refuse collection by the local municipality.</li> </ul>

### 11.3.4 Water efficiency

<b>Management Outcome:</b>	<b>Reduce water usage/wastage</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>The development must include water-saving technologies such as:</li> </ul>	

<ul style="list-style-type: none"> <li>○ Waterwise landscaping</li> <li>○ Water recycling systems for use for irrigation</li> <li>○ Dual flush toilet</li> <li>○ Low-flow / aerator showerheads</li> <li>● No surface or groundwater may be polluted as a result of any activities on the property.</li> <li>● On-going alien vegetation clearing</li> <li>● Use of suitable plants within the development area for rehabilitation of areas and/or landscaping</li> </ul>	
<b>Implementation:</b>	
Responsible party:	Homeowner's Association
Method of implementation:	Separate receptacles for different waste types in the refuse room
Timeframe for implementation:	Operation phase
<b>Monitoring:</b>	
Evidence of compliance:	<ul style="list-style-type: none"> <li>● Use of recycling companies to collect recyclable waste, and organic waste separate to the weekly refuse collection by the local municipality.</li> </ul>

### 11.3.5 Stormwater Infrastructure Maintenance

<b>Management Outcome:</b>	<b>Ensure effective functioning of the system</b>
<b>Management Actions:</b>	
<ul style="list-style-type: none"> <li>● During the operational phase, stormwater infrastructure must be maintained so that it is effective in rain/storm events. This will also reduce the risk of flooding within the development and downstream in adjacent properties.</li> <li>● The following is noted by the freshwater specialist: <ul style="list-style-type: none"> <li>○ Suitable local indigenous vegetation should be used within the proposed development and in particular within the proposed stormwater management area. Indigenous grasses such as <i>Cynodon dactylon</i> are recommended to stabilise the reshaped channel and embankments. In addition, indigenous plants as occurs in the watercourse upstream (<i>Euclea racemosa</i> subsp. <i>Racemose</i>, <i>Halleria lucida</i>, <i>Searsia laevigata</i>, <i>S. lucida</i> and <i>S glauca</i>, <i>Chasmanthe aetheopica</i> and <i>Zandeschia aetheopica</i>) could be planted along the disturbed banks of the watercourse to provide additional stabilization and prevent invasion of this area with alien plant species;</li> <li>○ Invasive alien grasses such as <i>Pennisetum clandestinum</i> should under no circumstances be planted in the stream channel and any growth of the grass should be removed/controlled;</li> <li>○ Ongoing monitoring and removal of invasive alien plants within the wetland offset area is likely to be required, particularly to control invasive kikuyu grass;</li> <li>○ With the creation of the stormwater management areas, consideration should be given to discouraging the nuisance growth of bulrushes that would require ongoing management; and</li> <li>○ If possible access to the remainder of the site should be limited to reduce the risk of disturbance and other impacts such as dumping in the upstream watercourse.</li> </ul> </li> <li>● Alien invasive species are to be monitored within the watercourse, and removed as per Section 11.3.1 of this Operational Environmental Management Plan.</li> </ul>	
<b>Implementation:</b>	
Responsible party:	Homeowner's Association
Method of implementation:	Separate receptacles for different waste types in the refuse room
Timeframe for implementation:	Operation phase
<b>Monitoring:</b>	
Evidence of compliance:	<ul style="list-style-type: none"> <li>● Use of recycling companies to collect recyclable waste, and organic waste separate to the weekly refuse collection by the local municipality.</li> </ul>

### 11.3.6 Visual Impacts

<b>Management Outcome:</b>	<b>Reduce visual impact of the development</b>
<b>Management Actions:</b>	

The development could potentially impact directly on adjacent residents and Chapman's Peak Drive through the visual intrusion caused by encroachment of development beyond the edge of urban development at the lower slopes of Karbonkelberg, as well as the effects of intrusive lighting at night. The following must be implemented / undertaken:

- High vertical walls, as well as the use of 'terraforce'/'loffelstein' embankments should be avoided.
- Retaining structures should be stepped and designed to be integrated with natural vegetation and planting. Screening using large trees, where appropriate, should be included to ensure that the parking areas are screened from view as far as possible, particularly on the eastern portion of the proposed project to screen it from views at oblique angles from Chapman's Peak Drive.
- Use exterior colours that have low reflectivity value and blend with the surroundings and the contextual character of the site.
- Make use of natural, contextually appropriate materials.
- Avoid the use of white and primary colours.
- Keep reflective surfaces to a minimum.
- Ensure that non-reflective, colour appropriate paving surfaces are used as far as possible.
- Lighting should be minimized and designed appropriately along the following guidelines:
  - Use low level lighting around buildings and along paths and streets.
  - Avoid neon, spot or up-lighting.
  - Screen and filter lights sources as far as possible.
  - Shield external lights on buildings to cast light only upon the area required to be illuminated.
  - Ensure that naked light sources are not visible from beyond the site.
  - Ensure that no light is emitted into the sky.
- Lighting must be low energy and must be shielded down lighting to minimise light impacts and night and light spillage into the surrounding nature areas.
- Ensure that fencing is visually permeable, contextually appropriate and softened with planting to provide visual screening. Use appropriate colours such as dark grey, charcoal and black that are visually recessive.

**Implementation:**

Responsible party:	Homeowner's Association
Method of implementation:	Separate receptacles for different waste types in the refuse room
Timeframe for implementation:	Operation phase

**Monitoring:**

Evidence of compliance:	<ul style="list-style-type: none"> <li>• Use of recycling companies to collect recyclable waste, and organic waste separate to the weekly refuse collection by the local municipality.</li> </ul>
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**11.4 DECOMMISSIONING MANAGEMENT PLAN**

It is not intended that the development will be demolished.

## 12. COMPLIANCE WITH ENVIRONMENTAL REQUIREMENTS

The EMPr forms part of the Contract Documentation and is thus a legally binding document. It is also necessary for the Contractor to make provisions as part of their budgets for the implementation of the EMPr. In terms of NEMA an individual responsible for environmental damage must pay costs both to the environment and human health and the preventative measures to reduce or prevent additional pollution and/or environmental damage from occurring. This is referred to as the Polluter Pays Principle, Section 28 of the NEMA embodies the polluter pays principle.

The Authorisation Holder is responsible for, and required to, directly notify DEA&DP within 24 hours of any non-compliance that has occurred on the site.

### 12.1 PROCEDURES

The Contractor must comply with the environmental specifications and requirements on an on-going basis and any failure on his part to do so will entitle the ER to impose a penalty.

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

- The ER must issue a **notice of non-compliance** to the Contractor, stating the nature and magnitude of the contravention. A copy must be provided to the ECO.
- The Contractor must **act to correct the transgression** within 24 hours of receipt of the notice, or within a period that may be specified within the notice.
- The Contractor must provide the ER with a **written statement** describing the actions to be taken to discontinue the non-conformance, the actions taken to mitigate its effects and the expected results of the actions. A copy must be provided to the ECO.
- In the case of the Holder of the EA failing to remedy the situation within the predetermined time frame, the ER must impose a monetary penalty based on the conditions of contract.
- In the case of non-compliance giving rise to physical environmental damage or destruction, the ER must be entitled to undertake or to cause to be undertaken such **remedial works** as may be required to make good such damage and to recover from the Contractor the full costs incurred in doing so.
- In the event of a dispute, difference of opinion, etc. between any parties in regard to or arising out of interpretation of the conditions of the EMP, disagreement regarding the implementation or method of implementation of conditions of the EMP, etc. any party must be entitled to require that the issue be referred to the **specialists and / or the competent authority** for determination.
- The ER must at all times have the right to **stop work** and/or certain activities on site in the case of non-compliance or failure to implement remediation measures.

### 12.2 OFFENCES AND PENALTIES

Any avoidable non-compliance with the conditions of the EMP must be considered sufficient ground for the imposition of a penalty.

Possible offences, which should result in the issuing of a contractual penalty, include, but are not limited to:

- Unauthorised entrance into no-go areas.
- Catching and killing of wild animals.
- Unauthorised damage to natural vegetation.
- Unauthorised camp establishment, including stockpiling, storage, etc.
- Hydrocarbons or hazardous material: negligent spills or leaks and insufficient storage.
- Ablution facilities: non-use, insufficient facilities, insufficient maintenance.
- Late method statements or failure to submit method statements.
- Insufficient solid waste management, including clean-up of litter, unauthorised dumping etc.
- Erosion due to negligence or non-performance.
- Excessive cement or concrete spillage or contamination.
- Insufficient fire control and unauthorised fires.
- Non-induction of staff.

### 12.3 INDICATIVE LIST OF PENALTIES

Penalties will be issued for the transgressions listed in the table below. Penalties may be issued per incident at the discretion of the ER and to a maximum as indicated below. Such penalties will be issued in addition to any remedial costs incurred as a result of non-compliance with the environmental requirement.

The ER will inform the Contractor of the contravention and the amount of the fine and will deduct the amount from monies due under the Contract. Such fines will be paid by the Contractor to the Authorisation Holder. The monies will be deducted under the contract value. The Authorisation Holder is responsible for the implementation of the EMPr and for compliance monitoring of the EMPr. The EMPr will be made binding on all contractors (including sub-contractors) operating on the site and will be included with the Contract. Non-Compliance with, or any deviation from, the conditions set out in this document constitutes a failure in compliance.

Spot penalties for the activities detailed below, will be imposed by the ER on the Contractor and/or his Sub-contractors.

Possible transgressions		Recommended Penalty
1	Unauthorised entrance into no-go areas.	R7 000 – R15 000
2	Unauthorised persons walking outside the demarcated boundaries of the site	500 – R1 500
3	Activities unauthorised by the ER outside the demarcated boundaries of the site.	R5 000 – R10 000
4	Unauthorised damage (disturbance) to natural vegetation or damage to natural vegetation due to negligence or non-compliance with the requirements of the EMPr (Please note rehabilitation may also be required)	R7 000 – R18 000
5	Failure to suitably demarcate and maintain demarcations of "No-Go" areas or to do so timeously	R1 500 – R5 000
6	Failure to suitably demarcate and maintain demarcations of the site boundaries as agreed with by the ER areas or to do so timeously	R1 000 – R3 000
7	Persons collecting firewood outside the demarcated boundaries of the site	R500 – R1 500
8	Any vehicle being driven, and items of plant or materials being parked or stored outside the demarcated boundaries of the site	R5 000 – R10 000
9	Catching, trapping, intentional killing, disturbing, feeding of wild animals, reptiles or birds.	R1 000 – R3 000
10	Erosion due to negligence or non-performance or failure to control erosion. (Please note rehabilitation may also be required)	R1 500 – R5 000
11	Late method statements or failure to submit method statements.	R1 500 – R3 000
12	Failure to adhere to approved method statements	R2 500 – R7 000
13	Unauthorised camp establishment, including stockpiling, storage, etc.	R2 500 – R5 000
14	Insufficient fire control and unauthorised fires.	R2 500 - R20 000
15	Site environmental file not properly maintained: no copy of EA or EMPr, approved method statements not on file, ECO reports not on file etc.	R1 500 – R3 000
16	Failure to maintain a complaint register on site or failure to address/respond to complaints	R1 000 – R1 500
17	Failure to follow temporary shutdown procedures	R6 000 – R8 000
18	Any vehicle driving in excess of designated speed limits	R500 - R1 000
19	Improper storage/stockpiling of materials on site, or storage/stockpiling in unsuitable areas.	R250 - R1 000
20	Hydrocarbons or hazardous materials: negligent spills or leaks and insufficient storage, no hydrocarbon remediation product on site.	R1 000 - R5 000
21	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, no drip tray etc.	R2 000 - R10 000

22	Litter on site	R500 – R4 000
23	Insufficient solid waste management, unauthorised dumping, poor waste containment etc.	R2000 – R8 000
24	Failure to supply proof (invoices, waybills) of correct waste disposal on request	R2 000 – R7 000
25	Excessive cement or concrete spillage or contamination.	R2000 – R5 000
26	Cement / concrete mixing being done on bare soil and failure to manage water runoff from batching areas	R1 500 – R5 000
27	Wastage of water: leaking pipes and taps, proper taps or valves not fitted to pipes, taps or hoses left running, irrigating outside of permitted hours etc.	R500 – R2 000
28	Poor or improper wastewater management, washing of tools directly onto the ground.	R500 – R3 000
29	Failure to mitigate activities resulting in pollution or sedimentation of water resources (Please note rehabilitation may also be required)	R8 000 – R35 000
30	The eating of meals on site outside the defined eating area.	R200 - R1 000
31	Excess or unnecessary noise on or emanating from site	R500 - R1500
32	Failure to implement sufficient dust control measures.	R4 000 – R6 000
33	Any person, vehicle, item of plant, or anything related to the Contractors operations causing a public nuisance	R1 000 - R9 000
34	Ablution facilities: non-use, insufficient facilities, insufficient maintenance	R500 - R1 000
35	Unauthorised activities outside of permitted working times	R2 000 - R10 000
36	Failure to notify ER / ECO of activities or impacts that may affect the environment	R2 000 - R4 000
37	Any other contravention of an EMPr specification or any condition of an environmental nature or instruction from ER.	Variable Up to R50 000
38	Commencing construction activities without an ECO on site.	Variable up to R10 000 per month

For each subsequent similar offence, the fine may be doubled in value to a maximum value of R100 000. The ER may also stop works.

### 12.3.1 Other penalties

Where the Contractor inflicts non-repairable damage upon the environment or fails to comply with any of the environmental specifications, he/she must be liable to pay a penalty fine over and above any other contractual consequence. In terms of the Conventional Penalties Act, 1962 (Act No. 15 of 1962), a creditor is not entitled to recover both the penalty and damages. Accordingly, where a Contractor causes damage, the Employer can either enforce a penalty or make the Contractor make good the damage, but not both.

The Contractor is deemed NOT to have complied with this Specification if:

- within the boundaries of the site, site extensions and haul/ access roads there is evidence of contravention of the Specification;
- environmental damage ensues due to negligence;
- the Contractor fails to comply with corrective or other instructions issued by the ER within a specific time; and
- the Contractor fails to respond adequately to complaints from the public.

Payment of any fines in terms of the contract must not absolve the offender from being liable from prosecution in terms of any law.

The following penalties are suggested for transgressions:

a. Erosion	A penalty equivalent in value to the cost of rehabilitation plus 20%.
b. Oil spills	A penalty equivalent in value to the cost of clean-up operation plus 20%.



c. Damage to indigenous vegetation	A penalty equivalent in value to the cost of restoration plus 20%.
d. Damage to sensitive environments	A penalty equivalent in value to the cost of restoration plus 20%.
e. Damage to cultural sites	A penalty to a maximum of R 100 000.00 must be paid for any damage to any cultural/ historical sites.
f. Damage to trees	A penalty to a maximum of R100 000.00 must paid for each tree removed without prior permission, or a maximum of R5 000.00 for damage to any tree, which is to be retained on site.
g. Penalties for removing or damaging trees	
<b>Girth of trunk (1m above ground level)</b>	<b>Replacement value per tree</b>
0 – 15 mm	R300.00
16 – 30 mm	R600.00
31 – 50 mm	R1 000.00
51 – 75 mm	R2 000.00
76 – 100 mm	R4 000.00
101 – 150 mm	R10 000.00
150 – 300 mm	R15 000.00
Larger than 300 mm	R20 000.00 to R100 000.00

**IT IS REQUIRED THAT THE ER, CONTRACTOR, APPLICANT, AND SUB-CONTRACTORS SIGN THE DECLARATION OF ADHERENCE TO THE EMPR – APPENDIX I.**