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Version 1

ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPr)

In terms of the National Environmental Management Act, 1998 (Act 107 of 1998, as amended), and the Environmental Impact Assessment Regulations 2014 (as amended)

For The luxury Eco-Resort on Portion 29 of the Farm Mier No. 585, Northern Cape



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The luxury Eco-Resort on Portion 29 of the Farm Mier No. 585, Northern Cape

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National Environmental Management Act

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

REQUIREMENTS	REPORT SECTION
(a) details of- (i) the EAP who prepared the EMPr; and (ii) the expertise of that EAP to prepare an EMPr, including a curriculum vitae;	Annexure H
(b) a detailed description of the aspects of the activity that are covered by the EMPr as identified by the project description;	Section 2
(c) a map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site, indicating any areas that should be avoided, including buffers;	Annexure C
(d) a description of the impact management [objectives] outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development including- (i) planning and design; (ii) pre-construction activities;	Section 5, 6, 7 & 10

(iii) construction activities; (iv) rehabilitation of the environment after construction and where applicable post closure; and (v) where relevant, operation activities;	
(e) a description and identification of impact management outcomes required for the aspects contemplated in paragraph (d);	Section 5, 6, 7 & 10
(f) a description of proposed impact management actions, identifying the manner in which the impact management [objectives and] outcomes contemplated in paragraph (d) [and (e)] will be achieved, and must, where applicable, include actions to – (i) avoid, modify, remedy, control or stop any action, activity or process which causes pollution or environmental degradation; (ii) comply with any prescribed environmental management standards or practices; (iii) comply with any applicable provisions of the Act regarding closure, where applicable; and (iv) comply with any provisions of the Act regarding financial provision for rehabilitation, where applicable;	Section 5, 6, 7 & 10
(g) the method of monitoring the implementation of the impact management actions contemplated in paragraph (f);	Section 3, 5, 6, 7 & 10
(h) the frequency of monitoring the implementation of the impact management actions contemplated in paragraph (f)	Section 3, 7 and 8
(i) an indication of the persons who will be responsible for the implementation of the impact management actions;	Section 3, 5, 6, 7 & 10
(j) the time periods within which the impact management actions contemplated in paragraph (f) must be implemented;	Section 3, 5, 6, 7, 9 & 10
(k) the mechanism for monitoring compliance with the impact management actions contemplated in paragraph (f);	Section 3, 5, 6, 7, 9 & 10
(l) a program for reporting on compliance, taking into account the requirements as prescribed by the Regulations;	Section 3, 5, 6, 7, 9 & 10
(m) an environmental awareness plan describing the manner in which- (i) the applicant intends to inform his or her employees of any environmental risk which may result from their work; and (ii) risks must be dealt with in order to avoid pollution or the degradation of the environment; and	Section 3
(n) any specific information that may be required by the competent authority.	N/A

1 INTRODUCTION

Hilland Environmental (Pty) Ltd, independent Environmental Assessment Practitioners (EAP), have been appointed by the applicant, **Hotel 55 (Pty) Ltd**, represented by **Mr A Thirion**, to ensure compliance with the regulations contained in the National Environmental Management Act (NEMA, No. 107 of 1998, as amended) and the Environmental Impact Assessment Regulations, 2014 (as amended) for the proposed luxury eco-resort on Portion 29 of Farm 585, Northern Cape.

This Environmental Management Programme (EMPr) was developed as part of the requirements of a Basic Assessment in terms of NEMA.

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

The monitoring of compliance with the EMPr is mandatory in terms of the construction phase and compliance reporting is required at the **end** of the construction phase.

This EMPr, in terms of the NEMA "duty of care", also includes the operational and rehabilitation phases that were highlighted as part of the process and it will be the **holder's & management's responsibility** to ensure compliance with the operational phases as they fall outside the scope of the Listed Activities to be authorized in terms of NEMA.

The report is divided to provide a clear distinction between the construction phase(s) and the ongoing operational aspects of the development.

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

The full and approved EMPr will be made available to all contractors working on the project. Certain fundamental aspects are therefore of importance:

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

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

2 DEVELOPMENT PROPOSAL

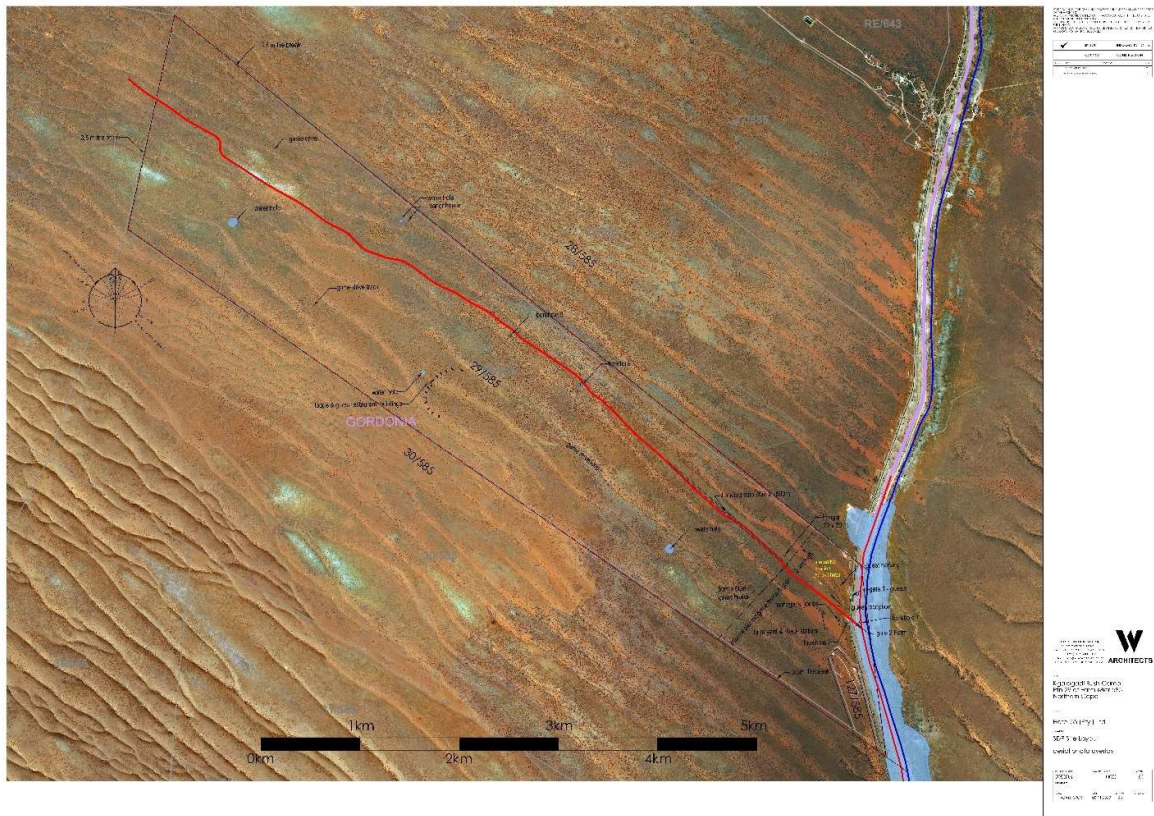
The proposal is for the development of a luxury eco-resort on the property in accordance with the SDP and planning for the area.

The eco-resort will consist of the following:

- South-eastern section of the property: Guest entrance gate area with parking and reception. A small 50-bedroom 3-star hotel catering to normal visitors to the area may be constructed within this reception area.
- Service entrance gate area with service building for staff accommodation, manager house, maintenance, housekeeping, stables etc.
- North-western section of the property: 13 exclusive 6-star guest lodges with a communal restaurant, bar, conference centre, gym & spa.
- A manor house – for the owner
- A 20x20m hanger and an airstrip along one of the existing roads 20mx1 400m airstrip
- Game boma.
- Fencing, gates and game drive tracks.
- Game waterholes.

Associated infrastructure includes:

- Electricity by means of solar power and use of the existing Eskom connection. Back-up generators will be available.
- The property has an existing borehole, and the applicant will sink additional boreholes. The water will be treated through a reverse osmosis treatment plant to acceptable standards. Water storage tanks will be installed at each top structure for stormwater control and for irrigation around the structure.
- A small treatment package plant will be constructed to treat wastewater and sewerage. The treated water will be used for subsurface irrigation and maintenance of roads. This plant will be constructed 500m away from a facility, gravity sewer pipelines will run from the facility to the plant. If gravity feed is not possible, a small sewer pump station will be installed at the lowest point of the lodge to pump the wastewater to a position further than 500m away from the lodge.
- Roads – access to the property will be gained off the R360 road. Existing access and roads will be used where possible and new tracks will be created to provide access to the infrastructure and for game drive purposes. All roads will be low impact tracks to enhance the game drive experience.
- Stormwater – rainwater will be directed to rainwater storage tanks. Additional mitigation measures as specified in the EMPr will be implemented. The reception and entrance area has been specifically located away from the existing gate area to avoid the temporary pans which form after rainfall events. Stormwater will not be concentrated but will be guided to swales for natural infiltration into the sandy soil.
- Solid waste – Waste generated at the resort will be disposed of at the Welkom municipal waste disposal facility as per the agreement with the local municipality. There will be recycling separation at source which will be run by the Eco-lodge resort staff.



Preferred site development plan (larger plan attached to Annexure B)



Image 1: Proposed Rezoning

Proposed rezoning plan showing the two spot zone areas.

Compliance with the EMPr is required for the construction phase for both civil services and buildings.

Any changes to, or deviations from the scope of the alternative described above must be accepted or approved, in writing, by the Competent Authority before such changes or deviations may be implemented.

3 TERMS OF REFERENCE

The main terms of reference of this EMPr are to identify and mitigate any potential negative environmental impacts that may be associated with listed activities approved in terms of NEMA for the construction of the luxury eco-resort.

The contractor will be required to make good any damage caused through their actions or the actions of their sub-contractors (in addition to any penalties for non-compliance issued).

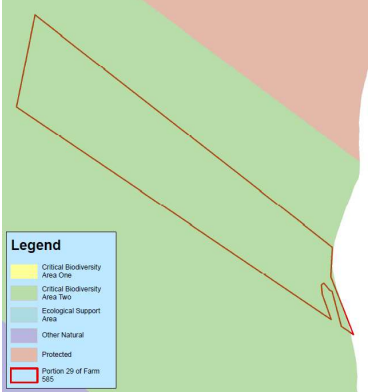
3.1 LISTED ACTIVITIES AUTHORISED IN THE NEMA ENVIRONMENTAL PROCESS

The following listed activities, in terms of the Environmental Impact Assessment Regulations (2014, as amended) (GN NO. R. 324 - 327) will be triggered by the development:

Listed activity as described in GN 327, 325 and 324	Description of project activity
GN R. 324 Item 12 The development of- (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) infrastructure or structures with a physical footprint of 100 square metres or more, where such development occurs- (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse, excluding- (aa) the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour; (bb) where such development activities are related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies; (cc) activities listed in activity 14 in Listing Notice 2 of 2014 or activity 14 in Listing Notice 3 of 2014, in which case that activity applies; (dd) where such development occurs within an urban area; (ee) where such development occurs within existing roads road reserves or railway line reserves; or (ff) the development of temporary infrastructure or structures where such infrastructure or structures will be removed within 6 weeks of the commencement of the development and where indigenous vegetation will not be cleared. [Item (ff) amended by GN 517 of 11 June 2021.]	12 (ii)(c) The gatehouse and associated infrastructure and new borehole will be within 32m from the delineated river area and is likely to be more than 100m ² in size within this 32m zone. The reception structures are located outside of the delineated riparian habitat and river area and buffer area recommended by the specialist.

	
GN R. 324 Item 27. The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for— (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan.	27 The clearance of vegetation associated with the proposal may exceed 1ha, but will be less than 20ha. This clearance will be associated to the cumulative total of all the smaller components and their linkages including the temporary disturbance areas for construction work which has been calculated to be 1-2m around the footprint which will be rehabilitated after construction. Areas calculated as follows: - Main reception – 500m² - Guest parking – 800m² - Mannor house – 750 m² 13x lodges 145m² each – 1885m² - Central lodge area pool etc – 1500m² - Stables, shed, maintenance, staff accommodation and staff parking – 2700m² - Existing labour cottage – 80m² - Water holes x 2 400m² each – 800m² - Sewage package plants 150m² x 4 (manor house, lodge, reception and maintenance areas) = 600m² Total permanent footprint – 9615m Additional working space temporary disturbance to rehabilitate – approximately 10% = 1000m² Linear activity aspects such as the airstrip / roads / tracks / pathways are not included in this calculation as they fall under the exclusion. The intent is to keep clearance to a minimum and to reinstate aspects like roof gardens etc to keep the impact low.
GN R. 324 Item 28. Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game	28 - ii) The proposal is a commercial luxury tourist development on land that was used for agriculture purposes. The cumulative development footprint will exceed 1ha and

farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development: (i) will occur inside an urban area, where the total land to be developed is bigger than 5 hectares; or (ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.	on land outside of the urban area. The property falls within the identified tourism precinct adjacent to the transfrontier reserve. See SDP in annexure B and extract of the schedule below.  The legend includes the following items: - Gate - Sewage Treatment - Indicative Waterholes - Boreholes - Existing - Boreholes - New - Indicative Electrical Cable Route - Existing Farm Tracks - Inner Game Fence - Boundary Fence - Indicative Sewage Pipeline Routes - Indicative Water Pipeline Routes - Indicative Tracks 32m Buffer from delineated Nossob River - Indicative Reception & Parking area - Indicative Lodge & Restaurant area - Indicative - Farm yard, shed and stables - Game boma - Airstrip Hanger - Managers house - Indicative Manor house - Delineated Nossob River - River delineation and 15m Buffer (sensitive no-go area for infrastructure) - Portion 29 of Farm 585
GN R. 327 Item 6 The development of resorts, lodges, hotels, tourism or hospitality facilities that sleeps 15 people or more. (g) Northern Cape (i) In an estuary; (ii) Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) Sensitive areas as identified in an environmental management framework as contemplated in Chapter 5 of the Act and as adopted by the competent authority; (dd) Sites or areas identified in terms of an international convention; (ee) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (ff) Core areas in biosphere reserves; (gg) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve; (hh) Areas seawards of the development setback line or within 1 kilometre from the highwater mark of the sea if no such development setback line is determined; or (ii) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland; or (iii) Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation.	6(g)(ii)(ee) & (gg) The proposal will entail the development of a tourism facility that sleeps 15 people or more. The property is outside of the urban area, within 10km of a national park (Kgalagadi) and within a CBA.
GN R. 327 Item 7 The development of aircraft landing strips and runways 1.4 kilometres and shorter.	7(g)(ii)(ff) & (hh)

(g) Northern Cape (i) In an estuary; (ii) Outside urban areas: (aa) A protected area identified in terms of NEMPAA, excluding conservancies; (bb) National Protected Area Expansion Strategy Focus areas; (cc) World Heritage Sites; (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; (ee) Sites or areas identified in terms of an international convention; (ff) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans; (gg) Core areas in biosphere reserves; (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core of a biosphere reserve; (ii) Areas seawards of the development setback line or within 1 kilometre from the highwater mark of the sea if no such development setback line is determined; or (jj) Areas within a watercourse or wetland; or within 100 metres from the edge of a watercourse or wetland; or (iii) Inside urban areas: (aa) Areas zoned for use as public open space; or (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority or zoned for a conservation purpose.	The proposal will entail the construction of an airstrip of 1.4km x 20m wide along part of an existing road on the farm. The property is outside of the urban area, within 10km of a national park (Kgalagadi) and in a CBA.
GN R. 327 Item 12 The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a Maintenance management plan. (g) Northern Cape (i) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004; (ii) Within critical biodiversity areas identified in bioregional plans; (iii) Within the littoral active zone or 100 metres inland from high water mark of the sea or an estuary, whichever distance is the greater, excluding where such removal will occur behind the development setback line on erven in urban areas; or (iii) On land, where, at the time of the coming into effect of this Notice or thereafter such land was zoned open space, conservation or had an equivalent zoning.	12 (g) (ii) The proposal will require the clearance of 300m² or more of vegetation within a CBA. 
GN R. 327 Item 14	14 (ii) (c) (g) (ii) (ff) & (hh)

The development of-

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

(ii) infrastructure or structures with a physical footprint of 10 square metres or more;

where such development occurs-

- (a) within a watercourse;
- (b) in front of a development setback; or
- (c) if no development setback has been adopted, **within 32 metres of a watercourse**, measured from the edge of a watercourse; excluding the development of infrastructure or structures within existing ports or harbours that will not increase the development footprint of the port or harbour.

(g) Northern Cape

- (i) In an estuary;
 - (ii) Outside urban areas:**
 - (aa) A protected area identified in terms of NEMPAA, excluding conservancies;
 - (bb) National Protected Area Expansion Strategy Focus areas;
 - (cc) World Heritage Sites;
 - (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;
 - (ee) Sites or areas identified in terms of an international convention;
 - (ff) Critical biodiversity areas or ecosystem service areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;**
 - (gg) Core areas in biosphere reserves;
 - (hh) Areas within 10 kilometres from national parks or world heritage sites or 5 kilometres from any other protected area identified in terms of NEMPAA or from the core area of a biosphere reserve;**
 - (ii) Areas seawards of the development setback line or within 1 kilometre from the highwater mark of the sea if no such development setback line is determined; or
- (iii) Inside urban areas:
- (aa) Areas zoned for use as public open space;
 - (bb) Areas designated for conservation use in Spatial Development Frameworks adopted by the competent authority, zoned for a conservation purpose; or
 - (cc) Areas seawards of the development setback line.

The gatehouse and associated infrastructure and new borehole will be within 32m from the delineated river area and is likely to be more than 100m² in size within this 32m zone.

The reception structures are located outside of the delineated riparian habitat and river area and buffer area recommended by the specialist.



The triggering of any other listed activities (other than those described and listed above and included in the EA) will require environmental authorisation first before the activity may commence.

3.2 DEDICATED ENVIRONMENTAL OFFICER (DEO) & ENVIRONMENTAL CONTROL OFFICER (ECO)

It is recommended that the holder appoint a responsible dedicated environmental officer (DEO) that ensures compliance with the Environmental Management Programme (EMPr) and Environmental Authorisation (EA) (appointed for both construction and operational phases). This party is to report directly to the Environmental Control Officer (ECO) on a weekly basis and it is recommended that the DEO is a member of the resort staff with a conservation background. The DEO will need to be trained and inducted by the appointed ECO.

An ECO must be appointed to oversee the installation of services during civil and top structure construction on-site, ensure compliance with the EA and the EMPr and to assist with issues as they may arise on site.

It will be the ECO's responsibility to ensure that the mitigation / rehabilitation measures and recommendations referred to in the EA are implemented and complied with by the holder / management as the case may be.

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

3.2.1 SELECTION OF THE DEO AND ECO

The appointed DEO and ECO must be able to demonstrate that they are of sufficient competency to undertake the required task. This includes:

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

3.2.2 ROLES AND RESPONSIBILITIES OF THE ECO

The ECO will undertake the following tasks:

- Ensure **compliance** with the EMPr at all times during the pre-construction and civil construction phases;
- Ensure compliance with relevant management **conditions of the EA** during the pre-construction and civil construction phases;
- To work in close co-operation with the engineer, contractors and management of the site;
- Meet with the contractors to set out the environmental parameters within which they must work (pre-construction and civil construction phase);
- Provide an **Environmental Induction (Environmental Education)** with all contractors **prior** to the commencement of any work (pre-construction phase (civil building));
- Indicate where all no-go areas are to be demarcated and to ensure adherence to these delimitations at the induction session **BEFORE** any construction commences on-site (pre-construction phase);

- Indicate where **plant rescue** may be necessary, and what species should be rescued on this site (pre-construction phase);
- Indicate where **erosion protection and siltation prevention measures** are required or need to be supplemented and to ensure correct implementation;
- Advise on **rehabilitation requirements** according to the different areas;
- Check up on general environmentally friendly construction practices (e.g. no littering, safe and secure environment, contamination risks, etc.);
- Ensure that the correct earthworks practices are adhered to, e.g., no encroachment into the surrounding vegetation, separation of topsoil and subsoil, correct stockpiling and stripping of topsoil).
- Provide a report back at site meetings (if held) (during the pre-construction and civil construction phase) to report on and assess the success of the environmental control and to determine any further environmental control measures which may be necessary;
- The appointed DEO should report to the appointed ECO weekly.
- ECO should visit the site **every month** during the **construction phase** and rehabilitation thereof. The frequency may be reduced depending on progress.
- The ECO has the discretion to undertake more frequent visits if he/she feels this is justified due to the actions of the contractors and to make ad hoc visits in order to ensure compliance;
- A monthly report needs to be submitted to the holder and contractor. Monthly reports are to be submitted to the competent authority at a frequency indicated by the CA.
- The DEO and ECO are to keep a site diary; a photographic record of activities taking place on site as well as copies of all monthly reports submitted to the Department, a schedule of current site activities including the monitoring of such activities and complaints register of all public complaints and the remedies applied to such complaints;
- The ECO is to submit a **completion report** to the competent authority and **applicant**. The report needs to be submitted **before** the EA lapses;
- It must be noted that the **ECO HAS THE AUTHORITY TO SUSPEND WORK ON SITE FOR ANY ACTION BEING UNDERTAKEN THAT DOES NOT COMPLY WITH THE ENVIRONMENTAL REQUIREMENTS OF THE SITE**. Such a stop order has immediate effect and will be communicated through the resident engineer to the contractor responsible.

4 CONDITIONS OF THE ENVIRONMENTAL AUTHORISATION (EA)

The final EMPr will have the EA as an attachment and included in this section. If this EA section has not been updated and included in the EMPr then the incorrect EMPr is being consulted and the final EMPr should be requested asap.

5 MANAGEMENT OUTCOMES AND OBJECTIVES

The following objectives were identified in the assessment:

Objective: Prevention of loss of natural vegetation and negative impact on the delineated river and buffer zone
Prevention of habitat loss for flagged animal species

Impacts to avoid:

- Unnecessary disturbance of topsoil and remaining vegetation
- Negative impact on the delineated river (including the pans) and buffer zone
- Loss of or damage to protected tree species (*Vachellia erioloba* and *Boscia albitrunca*)
- Unnecessary loss of habitat for flagged animal species

Management actions:

- Selection of disturbed areas for the construction of the structures
- Incorporation of the protected trees into the design so that impacts are avoided
- Plant rescue to be done before the commencement of construction, rescued vegetation to be used in landscaping and/or rehabilitation
- Compiling a landscape plan for management that incorporates indigenous vegetation
- Rehabilitation and ongoing maintenance of the remaining natural vegetation on the property
- Restrict movement of people and vehicles to demarcated pathways and tracks
- Built infrastructure to be excluded from the delineated river and buffer zone
- As recommended by the terrestrial biodiversity specialist:
 - *"If any [protected] trees need to be removed or pruned then a permit is required, according to the National Forests Act.*
 - *If necessary, plant additional trees in the development as part of the final landscaping. These can be planted along with other appropriate Kalahari species, but the proportions and composition should reflect habitat that would have occurred naturally at this site.*
 - *Protect natural vegetation adjacent to the proposed development site, as per the previous impact*
 - *Restrict the construction footprint to as small an area as possible, including for any access roads*
 - *Implement any measures that would reduce specific disturbances on affected species, as determined by on-site knowledge and conservation imperatives*
 - *Rehabilitation of disturbed areas, as well as previously invaded areas, should promote establishment of site-appropriate indigenous species.*
 - *An ongoing alien invasive management programme should take place on site. This will protect habitats from degradation and could potentially be a significant contribution to maintaining and protecting biodiversity on site and in surrounding areas.*
 - *A permit is required for any protected trees that may be affected by proposed development. A survey of all protected trees that could occur within the footprint area is required in order to apply for any necessary permits" (Hoare, 2024)*
- As recommended by the aquatic specialist:

- *The existing small track earmarked for guests be maintained as a single lane track and upgraded with the placement of gravel/G5 material if access before or during rainfall becomes a problem" (Confluent Environmental, 2023)*

Management Outcome:

- Sound conservation management area which meets the ecological corridor requirements and supports the CBA principles

Objective: Prevention of erosion and visual scars

Impacts to avoid:

- Unnecessary disturbance of the organic layer and dunes/sand
- Unnecessary disturbance of vegetation
- Loss of soil on disturbed areas
- Erosion due to construction
- Visual scars on the property (areas unnecessarily disturbed)

Management actions:

- Clear demarcation of the working areas and monitoring of movement into no-go areas
- Implement SUDS principles in storm water management to limit concentration of storm water and encourage infiltration of water
- Areas susceptible to erosion must be covered / protected and erosion mitigation measures must be implemented – silt fencing, swales, sandbags and other means of slowing water down and allowing sediment to be deposited before it is transported away from its origin (bear in mind that this is a dry environment and if and when a rain event occurs flash flooding can occur- that is why the dry watercourse and pan area should be completely avoided)
- Service installation to make use of tracks and pathways. Only disturb the area where installation of services is taking place so as to avoid unnecessary exposed areas where erosion or visual scarring may take place
- Make use of existing pathways and tracks as far as possible and only create new where necessary – this is especially important as rehabilitation and restoration are very costly and difficult to achieve in this dry landscape and the scarring created can take decades to be restored.
- Stabilization and landscaping must be done following construction and to the satisfaction of the ECO to limit exposed areas
- Maintenance of tracks and pathways during the operational phase to ensure that there is no erosion

Management Outcome:

- Erosion will be kept to a minimum during construction and maintenance during the operational phase will ensure that erosion does not become a problem.
- Disturbance limited to tracks that will remain in use and all other areas will remain undisturbed and natural

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

- Potential leaks from vehicles/construction machinery
- Spillages of hazardous substances
- Leakage of chemical ablution facilities
- Blockages in sewer system and overflow (package plant and associated pipelines)
- Contamination run-off from the construction site
- Waste, such as construction materials etc., which may be blown / washed away into the surrounding environment

Management actions:

- Vehicles and machinery must be well-maintained
- Drip-trays must be used for vehicles / machinery while standing in the camp site
- Leaks on construction vehicles to be immediately repaired or the vehicle removed from site until it no longer leaks
- Ablution facilities must be well-maintained and regularly emptied
- Litter control essential throughout construction and operational phases
- Cement / concrete must be mixed on impermeable surfaces, concrete batching areas must have surrounding bunding to prevent the movement out of the area of spillage, no washing of any ready mix trucks on site
- Operational management must include regular inspections of pollution sources and management and maintenance of the sewage package plant
- Monitoring by contractor and ECO

Management Outcome:

- No contamination of the environment and adjacent sensitive areas beyond the working zones
- Good housekeeping

Objective: Prevention of impact of potential heritage / palaeontological resources**Impacts to avoid:**

- Damage to potential heritage resources on the property

Management actions:

- As per the EMPr, in the event of a significant find, the Chance Find Procedure must be followed

Management Outcome:

- Potential heritage and palaeontological impacts are mitigated and avoided

Objective: Management of remaining natural areas**Impacts to avoid:**

- Incorrect or no management of remaining natural areas

Management actions:

- Alien invasive management to be done throughout the lifetime of the development
- All areas where there is disturbance of the organic layer are to be revegetated / landscaped as soon as possible to prevent loss of the organic layer (this can include placement of a geo-blanket while the vegetation restores)
- Rescue and stockpile of the top organic layer of soil from the construction areas (unit footprints) to use for rehabilitation and landscaping
- Maintenance of all pathways and tracks to ensure no erosion is starting to take place. Raised wooden walkways used where erosion is a concern, bark or woodchips (or similar) on pathways to act as a surface and prevent erosion
- Introduce wildlife in accordance with the carrying capacity of the property

Management Outcome:

- Sound management of remaining natural areas.
- Continued use and enjoyment of the property by tourists
- No uncontrolled movement through or disturbance of the natural areas

6 SPECIFICALLY REQUIRED ENVIRONMENTAL MANAGEMENT PRACTICES

6.1 PRE-CONSTRUCTION PHASE

6.1.1 ENVIRONMENTAL INDUCTION (EDUCATION)

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

6.1.2 METHOD STATEMENT

- Where required by the ECO - before the contractor(s) begins each construction activity the Contractor and Site Agent shall, **prior to the commencement** of such activity involving construction, maintenance or rehabilitation, give the ECO a written plan setting out the following:
 - Location of the construction camp (proposed to be in the farm shed and stable area)
 - Storage of construction materials and hazardous substances (if any)

- Location of the stockpile sites for the top 30cm of the organic soil layer (to use in the rehabilitation and landscaping) – recommend storing immediately around the working zone in a shallow berm that can be pulled back for rehabilitation as soon as the construction is complete
- Location of any stockpile sites for subsoil or plan for removal from site
- Solid waste plan
- Wastewater plan
- Erosion and sedimentation control plan
- Fire control – maintain existing boundary firebreaks
- Protection of natural features – limit disturbance to the dunes
- Cement and concrete batching plan

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

6.1.3 VEGETATION CLEARANCE AND PLANT RESCUE PROGRAMME



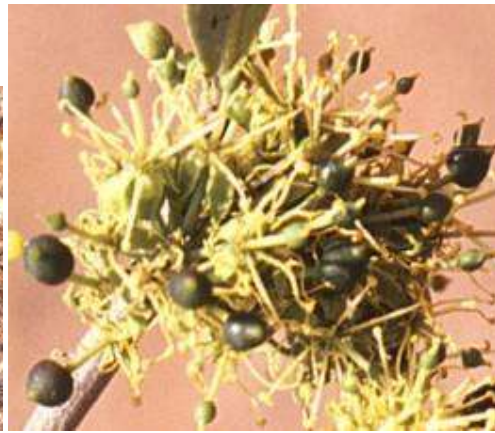
- The clearance of vegetation in the development zones will be required. **Plant rescue must be undertaken prior to the commencement of any clearing activities taking place on-site.** ECO to advise as to what requires transplant in each phase. A record of the rescued plant is to be maintained (please refer to the attached table that should be filled out in Annexure F). Where it is not feasible to undertake plant rescue, the rescue of the top organic layer of soil will contain the naturally occurring seed bank for the rehabilitation phase.
- Rescue plants **must be collected and stored** in the on-site nursery located within the working zone or staff housing area for later use in the landscaping phase or planted directly into areas beyond the working zone.
- For successful transplant a sod including the desired plant with its roots intact should be removed and replanted.
- In certain cases it will be easier to collect seed than to try rescue the mature plant.
- Demarcation of the working zones is important and areas outside of these zones will be regarded as sensitive no-go areas.
- All activities must be restricted to the demarcated working zone.
- Alien clearing must be undertaken throughout the lifetime of the property.

Implement mitigation measures recommended by the terrestrial biodiversity specialist:

- *"If any [protected] trees need to be removed or pruned then a permit is required, according to the National Forests Act.*

- If necessary, plant additional trees in the development as part of the final landscaping. These can be planted along with other appropriate Kalahari species, but the proportions and composition should reflect habitat that would have occurred naturally at this site.
- Protect natural vegetation adjacent to the proposed development site, as per the previous impact.
- Restrict the construction footprint to as small an area as possible, including for any access road.
- Implement any measures that would reduce specific disturbances on affected species, as determined by on-site knowledge and conservation imperatives.
- Rehabilitation of disturbed areas, as well as previously invaded areas, should promote establishment of site-appropriate indigenous species.
- An ongoing alien invasive management programme should take place on site. This will protect habitats from degradation and could potentially be a significant contribution to maintaining and protecting biodiversity on site and in surrounding areas.
- A permit is required for any protected trees that may be affected by proposed development. A survey of all protected trees that could occur within the footprint area is required in order to apply for any necessary permits" (Hoare 2024).
- Plant species recorded nearby to or on site:
 - *Aptosimum albomarginatum*
 - *Aptosimum neglectum*
 - ***Boscia albitrunca* – protected species – any disturbance, removal, transplant and/or pruning will require a licence before it may be**





Source: PlantzAfrica

- *Chloris virgata*
- *Citrullus amarus*
- *Crinum crassicaule*
- *Dicoma capensis*
- *Enneapogon cenchroides*
- *Enneapogon desvauxii*
- *Eragrostis annulata*
- *Eragrostis echinochloidea*
- *Eragrostis lehmanniana*
- *Eragrostis rotifer*
- *Euphorbia inaequilatera*
- *Geigeria ornativa*
- *Grewia flava*
- *Heliotropium lineare*
- *Hermestaedtia fleckii*
- *Hibiscus trionum*
- *Indigofera alternans*
- *Lasiosiphon polycephalus*
- *Lycium cinereum*
- *Nerine laticoma*
- *Pergularia daemia*
- *Pogonospermum incanum*
- *Rhigozum brevispinosum*
- *Rhigozum trichotomum*
- *Schmidtia kalahariensis*
- *Schmidtia pappophoroides*
- *Senegalia mellifera*
- *Senna italica*
- *Sesamum triphyllum*
- *Setaria verticillata*
- *Solanum incanum*
- *Stipagrostis obtusa*
- *Tribulus terrestris*
- *Tribulus zeyheri*
- *Trochomeria macrocarpa*
- *Urochloa panicoides*
- ***Vachelia erioloba* – protected species – any disturbance, removal, transplant and/or pruning will require a licence before it may be undertaken**



Source: PlantzAfrica

- *Vachellia hebeclada*
- *Vachellia luederitzii*

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Pre-construction and Construction phases							
Clearance of vegetation	Working zones	Plant rescue programme must be implemented prior to the commencement of vegetation clearing as per the EMPr Vegetation clearing must be limited to the work area	During the pre-construction of the development	Plant rescue to be conducted in conjunction with the ECO prior to the commencement of vegetation clearance (civil service installation and infrastructure construction)	Weekly inspection of pre-construction activities (vegetation clearing) will be required (by DEO) Monthly inspection by ECO	Applicant. Contractor. ECO. DEO.	To be included in the monthly monitoring report

		and clear demarcation of the no-go areas will be required to ensure no disturbance beyond the development area					
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6.1.4 PROTECTION OF FAUNA (ANIMALS)

- The removal, damage or disturbance of animals must be avoided.
- Should any animal be caught up or trapped in the construction area, the DEO should be requested to assist (e.g., relocate snakes trapped in the construction trench etc.)
- The contractor(s) shall be responsible for ensuring all employees are aware of the need to prevent any harmful effects on wildlife on or around the construction site as a result of their activities.
- The contractor(s) shall ensure that no hunting, trapping, shooting, poisoning or otherwise disturbance of any fauna takes place.

6.1.5 DUNE AND ORGANIC LAYER PROTECTION

- As the organic topsoil layer is a valuable resource, it **must be stripped to stockpile from all construction areas before work commences in that specific area**. ECO / DEO to advise as to where to stockpile. It is recommended that this material is stored as a shallow berm immediately around the working area in order to be able to pull it back over the working area on completion of construction for rehabilitation purposes.
- The organic layer must be stockpiled for use in rehabilitation and landscaping and must **not** be contaminated with other building materials and / or subsoil. It may be necessary to cover the berm with shade cloth for the duration of the construction period to protect the topsoil from contamination or movement through the wind.
- The vegetation roots and any surface organic matter are to be removed together with the dune organic topsoil layer and are to be stockpiled for use during the rehabilitation phase.
- The stockpiles must be protected against erosion including wind (vegetation can be permitted to grow on the stockpile to keep it secure and prevent wind movement. No alien invasive plants may grow on the stockpile).
- The soil removed for construction of **services** (which will all be underground such as the sewage / water network, stormwater outlet structures etc.) must not be removed, but placed to the side of the trench, while the sub-soil is placed to the other side. The soil is returned in the same order with the organic layer closing the trench and stimulating re-growth.
- No organic layer stripping is to take place prior to the completion of the plant rescue programme.
- Any surplus subsoil/dune sand that needs to be stockpiled for cut and fill operations must be stockpiled in an approved stockpile area as agreed to by the ECO.

- Stockpiles must be screened and protected from wind and water erosion
- Silt fencing needs to be installed before construction works commence to ensure that there is limited wind movement of sand on site (to be advised by ECO).

6.1.6 DISCOVERY OF HERITAGE /PALAEONTOLOGICAL RESOURCES

Based on the specialist assessment undertaken, it is unlikely that any fossils will be discovered during vegetation clearing and earthworks. However, the development must follow the Chance Find Procedure if a significant fossil discovery is made.

PROCEDURE FOR CHANCE PALAEONTOLOGICAL FINDS

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

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

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

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

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

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Pre-construction and Construction phases							
Clearance of vegetation and earthworks required during the construction phase (civil and construction on the property)	Development of eco-resort	Should any object or structure of heritage value be discovered, work is to cease , ECO is to be contacted and advise accordingly	Pre-construction and construction phase	ECO to monitor compliance during the pre-construction and construction phase	Continual monitoring of compliance	Contractor to ensure that work ceases should any object or structure of heritage / palaeontological Implement procedure for chance palaeontological finds as described above	To be included in compliance monitoring report

6.2 GENERAL CONSTRUCTION REQUIREMENTS

6.2.1 ACCESS TO THE SITE

Access to the site is via the R360 and two access gates to the property. The proposal is to use the one for management and staff access and the another for guest access.

Construction vehicles are to use the existing access and track (existing and created) to the relevant sites. No additional tracks may be created other than those approved forming part of the development design.

The following will be of importance:

- Movement of construction vehicles must be **restricted** to the designated roads only - no temporary haul roads unless approved by the ECO.
- Access to the area is to be monitored during construction.
- The contractor(s) must ensure that vehicles leaving the site are clean and, wherever possible, do not deposit mud, any other earth material and concrete on the R360 surface. Where this is unavoidable, it must be cleaned on a daily basis.

6.2.2 USE OF LOCAL LABOUR

- It is strongly recommended that local labour is used for the construction phase of this project. "Local" implies people within the Mier area and Upington.
- Records are to be kept of all personnel and subcontractors employed by the contractor. The main contractor is to provide the breakdowns of their various subcontractors. **These records are to be provided to the ECO on request.**

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Socio-economic benefits through the creation of short- and long-term employment	Construction and operation of the development	The use of local labour to maximise positive benefit to the local area	During the construction and operational phase of the development	ECO inspections and contractor and management/ developer to ensure compliance	Monthly monitoring	Management. Contractor. DEO. ECO.	ECO to monitor. Where necessary - to be included in the monthly monitoring report

6.2.3 DEMARCATION OF NO-GO AREAS

Areas outside of the working zones and agreed upon tracks and pathways will be regarded as sensitive no-go areas. The working zones must be demarcated to ensure no encroachment into sensitive no-go areas. **The development is specifically a luxury eco-resort where it is essential that there is no construction related damage evident on completion of the build.**

- All people working on site must be made aware of the boundaries within which work is to be done.
- As there may be multiple contractors on site at any time it is critical that each contractor is aware of the extent of their work area and remain within the work area.
- During civil construction the areas not under construction are regarded as NO-GO areas.

The following applies:

- **Civil contractors and Building contractors** - all areas **outside** that of the defined works (roads and pipeline route or working zones) is deemed a no-go area.
- **Note that it is likely that installation of pipelines and cables will be done by hand to prevent the scarring linked to mechanical excavation.** Installation of a 110mm pipe does NOT require a 4m working zone for a machine – working areas are limited to 1m adjacent to the construction and in the case of pipelines and cable trenches, the working area is to be limited to under 1m in total width.
- Disturbance within the work area is to be kept to the minimum, as **all disturbed areas will require stabilization** (placing back the organic layer and to ensure vegetative cover) on completion of the work **by the contractor.**
- All construction activities must be **restricted** to the demarcated areas to ensure that no further disturbance into the surrounding vegetation.
- No encroachment or activities may take place outside the work areas.
- Storage sites for construction material and access must be approved by the ECO prior to commencing (and areas will require rehabilitation after use).
- No-Go areas will be required to be demarcated by the contractor to ensure that they are visible at all times, to all personnel.
- Methods of demarcation will be agreed with the ECO and may include danger tape, rope, fencing, shade cloth, mulch bags, wire fencing etc. Method of demarcation

will depend on the work that will be undertaken.

- In light of the above, should access be required through a no-go area, permission must be obtained from the ECO in writing prior to the use of such an area.
- The DEO and ECO should monitor adherence to the No-Go area policy.
- Access into the No-Go areas by personnel is strictly forbidden (i.e., Work breaks such as lunch are not permitted outside the defined work area - no entry into the surrounding open space areas). A spot fine will be imposed against the contractor in the event of contravention of the no-go policy up to a maximum of R5 000 per incident).

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Demarcation of no-go areas and protection of sensitive areas	Development on Erf 19001	The contractors are to comply with the requirements of the EMPr Demarcation of working areas is required by means of shade netting (around development area(s)) and danger tape / netting (civil construction and trenches)	During the construction of the development (civil and building construction)	ECO and contractor to continually monitor compliance during construction	ECO to conduct weekly inspections of construction works	Contractor to implement no-go demarcation ECO and contractor to monitor the site	ECO to monitor during the construction phase. To be included in the monthly monitoring report

6.2.4 CONSTRUCTION SITE CAMP

- The area must be indicated and approved by the ECO (through the submission of the **method statement** by the contractor). Anticipated that this will be in the area of the maintenance shed and stables.
- Ablution facilities (chemical toilets) are to be provided for use of the staff (one toilet per 15 people) – **to be in place prior to commencement of activities on site**.
- A dedicated area must be created within the campsite for refuse and waste management. These are to be separated based on recycling and are to be taken to the Welcome Municipal Waste dump on a weekly basis.
- No waste may be burnt on site.
- **No** accommodation with the exception of a night watchman is permitted on site by contractors or their staff during the construction period **without the written permission of the landowner and method statement agreed to by the ECO**.
- **No open fires are to be permitted. The storage of any potential ignition sources on the property must be removed from site at end of day.**
- Storage of all materials required for the contract must occur within this campsite, or

otherwise approved area (by the ECO).

- **Any concrete batching plant areas** are to be approved by the ECO prior to utilisation and must be equipped with suitable settling ponds and trapping mechanisms to ensure that contaminated water does not leave the restricted area. Recommended that no batching plant areas are located within 50m of the top of the steep slope.
- No ready-mix trucks are permitted to rinse their tanks on site or along the access roads to and from the site. **Any spillage is to be immediately cleaned by the responsible contractor / supplier / owner.**
- Adequate signage must be erected at the construction site to ensure that safety regulations are adhered to.

6.2.5 STORAGE OF CONSTRUCTION MATERIAL

The following must be adhered to:

- All stockpile sites to be approved by the ECO and/or landowner, **prior** to the commencement of stockpiling.
- All stockpile sites within the development area are to be demarcated with silt-fences and/or danger tape, where necessary.
- Silt protection measures around stockpile sites may be required.
- All construction material should be stored within the site camp / boundary (if space allows it).
- **No** construction material is to be stored outside of the site camp / development area without written permission from the appropriate landowner and ECO.
- Any material removed from bulk earthworks that is not going to be used as part of the cut and fill, **MUST** be removed from site to an approved disposal site immediately. Temporary storage of cut material for future fill **MUST** be agreed by the ECO and **MAY NOT** be beyond the development footprint.

6.2.6 FIRE PROTECTION

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

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

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

6.2.7 HEALTH AND SAFETY

- The Occupational Health and Safety Act (Act number 85 of 1993) must be complied with.
- The H&S Officer is to copy the ECO in on his/her reports for record purposes.

6.2.8 WASTE MANAGEMENT

- It is recommended that an integrated waste management approach must be used that is based on waste minimisation and must include reduction, recycling, re-use and disposal where appropriate. Only approved waste disposal methods are allowed. The contractor shall ensure that all site personnel are instructed in the proper disposal of all waste. The contractor shall ensure that **sufficient disposal facilities** are available.
- **Recycling** must be encouraged on-site and recycling bins must be provided and clearly marked.
- Disposal of all waste materials must be done weekly at the Welkom Municipal Waste site. **No dumping** of any waste material on or off-site is permitted.
- Documentary evidence of all disposed contaminated products, waste or residues, which have been generated during the construction phase must be kept.
- The contractor shall ensure that the site and remainder of the property are maintained in a **neat and tidy** condition and kept **free of litter**. Measures must be taken to reduce the potential for litter and negligent behaviour with regard to the disposal of all refuse. At all places of work, the contractor shall provide **litter bins, containers** and **refuse collection facilities** for later disposal. Litter to be removed from the site on a **daily** basis (through daily litter picking before the site is closed for the day). Rubbish bins must be provided on-site and regularly cleaned / emptied.
- **Solid waste** may be temporarily stored on-site in a **designated area** approved by the ECO prior to collection and disposal. Solid waste must be removed on a **weekly basis** to the Welkom municipal waste site.
- Waste storage **containers** shall be covered, tip-proof, weatherproof and scavenger proof. The **waste storage area** shall be **fenced off** to prevent wind-blown litter.
- The contract staff must be clearly briefed on the 'no litter policy'. **The site is to be kept clean of litter, even if it is not caused by the contractor staff.**

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Construction of buildings and associated waste	Development of the eco-resort	Waste management should be done in accordance with the EMPr	During the construction of the development (civil and building(s) construction)	ECO and contractor to continually monitor the site during construction	ECO to conduct weekly inspections of construction works	Contractor to implement sound waste management ECO, DEO and contractor to monitor the site	DEO & ECO to monitor during the construction phase. To be included in the monthly monitoring report

6.2.9 ABLUTION FACILITIES

- Ablution facilities must be provided for all contraction staff working on site (this includes during pre-construction activities).
- Contractors must provide chemical ablution facilities for all construction personnel working on the site. The number of chemical toilets required must adhere to the H&S requirements applicable at the time of the contract.
- Toilets shall be of a **neat** construction and shall be provided with doors and locks and shall be secured to prevent them from blowing over.
- Sanitation provision and servicing shall be to the satisfaction of the ECO and DEO.
- The contractor shall ensure that the toilet(s) are emptied **regularly** and also **before** weekends and public holiday periods.
- Failure to use the chemical toilet provided and making use of the vegetation either on or off-site **will result in maximum penalty fine being awarded in addition to requiring the contractor to clean up.**

6.2.10 EROSION AND STORMWATER MANAGEMENT

- Limit clearing of vegetation as far as possible as this prevents the movement of sand;
- Stringent mitigation measures must be imposed during construction to minimise disturbance of vegetation as exposed areas are exposed to both wind and water erosion. In the event of rainfall, movement of water should be monitored to ensure that there is no runoff damage caused.
- Use of silt-fencing or wind fencing, rows of onion bags, mulch, brushwood, geo-fabric blankets, sandbags and deflection berms (the choice depending on the situation) should be made to avoid any disturbance. These mitigation measures are essential in all exposed areas.
- Areas requiring erosion control mechanisms are to be identified by the contractor, DEO and ECO. Instructions by the DEO /ECO are to be given to the contractor as required.
- In the event of erosion damage or silt movement, the contractor will be liable for a fine and is responsible for the clean-up and required to reinstate the conditions to normal as determined by the ECO.
- To decrease the risk of pollution, all construction materials must be secured (e.g., only stockpiling at a pre-determined site, around which there must be a silt protection

boundary) so that there is potential for pollution.

- In the case of contaminated water run-off, silt can be stopped by means of sandbags – follow-up contaminated area must be immediately cleaned.
- It is the responsibility of the contractor working inside any trench at any specific time to ensure that their works are protected from damage which may be caused through runoff of rainwater inside the trench (rain season dependant). The use of sandbags, mulch bags or any other appropriate methods of slowing down the flow of water within a trench is required.
- Natural infiltration to be encouraged and not concentration
- Natural swales to be created where required for promote infiltration
- Rainwater harvesting to be done at the infrastructure to capture roof water so that there is no concentrated runoff when there is a rainfall event.
- Roads will not concentrate runoff but are designed to allow for natural flow of water within and into the surrounding natural areas
- The development area is set back and away from the main Nossob River so will have no impact on the down stream neighbouring properties.

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Potential erosion during the construction of the development.	Development of an eco-resort	The contractor is to comply with the EMP requirements regarding erosion prevention. Emergency erosion protection materials (sandbags, geotextile fabric, shade cloth and/or biddum) are to be kept on-site to treat erosion area as soon as it appears	During the construction of the development (civil and building(s) construction)	ECO and contractor to continually monitor the site during construction for signs of potential erosion	During construction: DEO – daily inspection ECO monthly inspection	DEO, ECO and contractor to monitor the site	DEO and ECO to monitor during the construction phase. To be included in the monthly monitoring report.

6.2.11 CONCRETE AND CEMENT WORKS

- No concrete mixing or batch bund areas in close proximity to the delineated river and buffer area.
- Mixing areas must be defined on-site and **clearly** demarcated.
- Cement powder has a high alkalinity pH rating, which can contaminate and affect both soil and water pH dramatically. A shift in pH can have serious consequences on the functioning of the soil, water organisms and plants.

- **All concrete must be mixed in a batching area that is bunded.**
- Cement mixing must be either readymix, from the batching area or mixed on trays / on thick plastic and not on the soil.
- **Bunding** through the use of sandbag walls around any mixing areas is recommended, together with an impermeable base.
- **Contaminated soil** from such bunds to be disposed of at the waste disposal site (Welkom).
- When using Ready-mix concrete, care must be taken to prevent spills from the trucks while offloading.
- **Cement contaminated water may not enter any the river or buffer area.**
- The contractors and sub-contractors need to ensure that the used cement bags do not create a litter problem.
- Any cement or concrete contaminated soil must be removed and disposed of appropriately.
- Excess or spilt concrete should be disposed of at a suitable registered landfill site.
- **No mixing is to be done in environmentally sensitive areas or areas where there is a high risk of cement contaminated water entering a natural drainage line.**

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

6.2.12 AIRFIELD CONSTRUCTION

Should bitumen be used for the construction of the airfield, the contractor(s) must **prevent** any spillages, run-off of bitumen products from the strip into surrounding vegetated areas or the pooling alongside the road. **Any** spillage of bitumen is to be rectified by the removal of contaminated soil and appropriate disposal thereof (at an authorised hazardous disposal facility).

6.2.13 NOISE, DUST MANAGEMENT AND NUISANCE MEASURES

- During construction, work is limited to normal working hours as dictated by the local authority.

- The building(s) should comply with the normal Municipal building control requirements.
- Dust mitigation measures should be implemented as required. This will include the use of dust nets and spraying a dust suppression compound on roads/tracks or exposed areas within the working zone that generate dust or covering haul roads / exposed areas with wood chip to reduce the generation of dust.
- Dust management includes the management of dust off any stockpile sites;
- Temporary stockpile sites may not be placed in areas that are going to result in a nuisance or eyesore to neighbours.
- **Care and consideration must be given towards the neighbouring resort and their guests in so far as noise, dust and nuisance is concerned.**

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Construction phase							
Construction phase of the resort	Development of an eco-resort	Contractor to comply with SANS 10400 regulations pertaining to noise creation. Dust mitigation measures must be implemented as necessary	During the construction of the development (civil and building construction)	DEO, ECO and contractor to continually monitor the site during construction	DEO to monitor site daily ECO to do monthly inspections.	Contractor to implement mitigation measures as per the EMP DEO, ECO and contractor to monitor the site	DEO and ECO to monitor during the construction phase. To be included in the monthly monitoring report

6.2.14 STABILIZATION REQUIREMENTS (AFTER CONSTRUCTION)

- Stabilization of disturbed area as a result of construction (civil and infrastructure) must be rehabilitated to the satisfaction of the ECO. This will include, but is not limited to the following:
 - use of sandbags, mulch bags as erosion minimisation measures, seeding of bare areas with an indigenous grass seed mixture (ECO to advise) etc.
- The ECO / specialist is to advise on the rehabilitation measure that should be implemented as it will be case specific.
- The stormwater system must be protected through the installation of additional silt-fencing and re-vegetation of exposed areas. All stormwater flow must be protected against erosion and continual maintenance thereof will be required as the surface runoff will change as the construction progresses. As this is a dry environment, any rainfall event has the potential to result in localized flow. Weather forecasts will be required.
- Any silt traps need to be kept clear during the construction phase to ensure that silt traps remain effective.

7 REHABILITATION PHASE

Any damage to open space areas outside of the working zones must be reinstated to the state it was before construction commenced and must be done to the satisfaction of the landowner, DEO and ECO.

Rehabilitation of damaged areas (development zones) will include, but is not limited to the following:

- Any building rubble must be completely removed and disposed of at an approved landfill site;
- Compacted sand must be raked loose;
- Contaminated soil must be disposed of at an approved landfill site;
- Return organic soil layer to the area;
- Reinstall the vegetation (ECO to advise);
- Implementation of additional erosion control methods as required – instructed by the ECO;

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Pre-construction commencement of forest rehabilitation & Rehabilitation phase							
Rehabilitation of damaged areas	Development an eco-estate	Rehabilitation measures should be implemented as per the EMPr All building rubble must be completely removed and disposed of at an approved landfill site; Compacted sand must be raked loose; Contaminated sand must be disposed of at an approved landfill site; Indigenous grass seed can be sowed within required areas	Upon completion of civil service installations and building(s) construction	Contractor to implement mitigation measures DEO, ECO and contractor to monitor rehabilitation phase	DEO to monitor daily ECO to conduct monthly inspections until rehabilitation completed to the satisfaction of the ECO	Contractor to implement mitigation measures ECO and contractor to monitor rehabilitation phase Applicant to ensure implementation of systematic alien clearing and rehabilitation of the property	DEO, ECO to monitor during rehabilitation phase. ECO to submit final compliance monitoring report upon completion of construction and rehabilitation phase to sign-off environmental compliance. To be included within compliance report.

		(as indicated by the ECO); Open space areas are to be planted with indigenous vegetation; Implementation of additional erosion control methods as required.					
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8 MONITORING REQUIREMENTS AND REPORTS

- The appointed DEO must be trained and inducted by the appointed ECO.
- An **induction** meeting with the ECO and the contractor(s) to ensure that they are aware of the requirements of this EMPr and the EA before the commencement of the construction.
- Any new contractor(s) and/or staff must be inducted by the DEO.
- Induction registers to be kept for all contractors on site.
- The DEO /ECO must inspect work areas prior to civil installations and building zones and demarcate no-go areas or indicated areas of sensitivity.
- The DEO is to do daily site inspections and update the ECO weekly.
- The ECO is to do a site inspection **monthly** and submit a **monthly** compliance monitoring report to the applicant, contractor, DEO and department. Inspections may be reduced depending on progress.
- The ECO **monitoring reports** are to advise on any remedial actions or changes that are required to the method statements in order to ensure that the impacts identified and any that may become evident are mitigated and managed. Should it be necessary the EMPr must be updated / amended to take these into account if they cannot be adequately handled in a revised method statement.
- On **completion the construction phase and rehabilitation of working zones**, the ECO is to issue a **completion report** to the applicant, contractor, DEO and department.

9 AUDITING REQUIREMENTS

Note that audits must be undertaken by an independent person (i.e. not the EAP and appointment ECO).

- Auditing during the non-operational phase (construction activities):
 - A final Environmental Audit Report for the construction phase (non-operational component) must be submitted to the Competent Authority within **three (3) months of completion of the construction phase.**
- The audit is to report on the success of the implementation of the EA and the EMPr as the case may be.
- This audit must be **undertaken prior to the completion date of the EA.**

- Auditing requirements are to cover **ONLY the Construction phase for Civil services and Buildings** and does not extend to the operational phase of the resort.

Additional environmental auditing may be required as specified in the EA or as determined by the Environmental Regulations applicable at the time. The audit report must adhere to the requirements of the applicable legislation and / or regulations at the time.

10 OPERATIONAL PHASE

The resort management and Holder is bound by their general Duty of Care, as stated in Section 28 of the National Environmental Management Act, 1998 (as amended). As such it is recommended that the Operational phase monitoring should be conducted by the DEO, management and the Holder.

As construction is a primary source of disturbance and damage to the environment, any contractors working for the management (doing alterations etc.) should comply with the general conditions above in relation to building contractors.

The EA for the development covers the initial construction, installation of services and construction of all the top structures. At that point the final audit is undertaken, and the EA is regarded as having been concluded.

The operational phase of the development is not subject to NEMA unless any specific items that trigger NEMA are undertaken.

10.1 RESORT MANAGEMENT

10.1.1 LANDSCAPING AND OPEN SPACE MANAGEMENT

Management is encouraged to plant water-saving, locally indigenous plants within the landscape area around the buildings. The intent is to retain an environment that does not appear to have been disturbed at all through construction so that resort guest are given the experience of being within the natural vegetation of the Kalahari

Movement of guest must be restricted to the defined pathways. Pathways are to be clearly demarcated to ensure no encroachment into natural areas. A pathway that caters for the anticipated movement of guests will ensure that there is no encroachment into natural areas surrounding the resort.

Operational movement of staff vehicles must be restricted to the tracks (existing and created). All guest vehicles are to remain at the designated parking area at reception.

Listed invasive species management must be an ongoing resort conservation management activity.

The following is essential within open space areas (remainder of property);

- These areas may be used for approved recreational activities (game driving), structures and / or animal water holes;

- These areas should be continually monitored for any signs of erosion; &
- Systematic rehabilitation should be implemented by management;
- Sand traps may be necessary to trap any mobile dune sand disturbed through operational activities so as to reinstate the natural vegetation structure and ecological function on site.

10.2 STORMWATER MANAGEMENT

As with all systems, the storm water management system must be maintained and monitored by management to ensure that there is no erosion or intervention required.

The stormwater control philosophy is one of reducing concentration and encouraging spread and infiltration into the natural vegetation and maintaining the natural systems. As this is an extremely dry environment, inspection of roads after a rain event is necessary to ensure that there has not been any damage which may require attention. As a rule, runoff is not concentrated but is allowed to dissipate naturally into the surrounding natural environment.

Activities	Size and Scale	Mitigation Measures	Timeframe for Implementation	Method of Monitoring Implementation	Frequency of Monitoring	Responsible Persons	Compliance Monitoring
Operational phase							
Operation of stormwater outlets	Stormwater structures	The stormwater outlets will be located close to the development footprint in order to limit disturbance. The incorporation of detention and retention ponds will allow stormwater to dissipate naturally into the environment. Stringent erosion control will be implemented where necessary during the operation of the development. Ongoing maintenance will ensure that any localised erosion will be	During the operational phase of the development	Management / DEO to monitor and implement mitigation measures DEO to monitor during operation of the development	Management / DEO to implement mitigation measures and conduct regular inspections DEO to conduct inspections as required	Management / DEO and appointed contractor to implement and monitor DEO to monitor	DEO to monitor To be included in the yearly monitoring report.

		rehabilitated before it becomes problematic. The stormwater control philosophy is one of reducing concentration and encouraging spread and infiltration into the natural vegetation.					
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10.3 FENCING

Game fencing will be installed around the property. Management/holder will be responsible for ongoing maintenance of the fence lines.

10.4 WASTE MANAGEMENT

The development's refuse will be disposed of at the licenced waste disposal facility in Welkom. Management, staff and tourists must be encouraged to re-use, reduce and recycle, the resort management will ensure that this system works efficiently. A suitable refuse area will be located at the maintenance area for sorting before being delivered to the Welkom municipal waste site.

No waste may be disposed of/dumped in the open space areas, or anywhere else on or off site. No burning of waste is permitted.

10.5 FIRE MANAGEMENT

Firebreaks are a legal requirement in terms of the National Veld and Forest Act, 1998 (NVFA). Internal roads act as firebreaks and the farm has existing firebreaks along the boundaries (along the fence) as required by law. Fire scaping with suitable vegetation can be introduced around the resort structures provided that the species used are locally indigenous.

10.6 INVASIVE ALIEN PLANT CONTROL

In terms of the Alien and Invasive Species Regulations, NEM:BA, 2014 specific alien plant species are prohibited and should be removed (by following approved eradication methods).

Alien invasive species germinating must be continually removed during the life of resort as part of the obligations of the land owner.

11 PENALTIES FOR NON-COMPLIANCE

Penalties in terms of Chapter 9 of the Western Cape Bill on Planning and Development as published in the Extraordinary Provincial Gazette No 5183, 3 October 1997, are applicable for any action which leads to damage to the natural environment.

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

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

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

12 CONCLUSION

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

This EMPr is binding for the full construction phase of Civil Services (all phases) and for the construction of all infrastructure.