

Environmental Impact Report in terms of Section 24 G of NEMA: Development of Lodges and other Tourist Infrastructure in Qwabi Private Game Reserve, Limpopo Province
Reference No. 12/1/9/s24G-W50

Draft Environmental
Impact Report

Compiled by:



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FOREWORD

This report constitutes the Draft Environmental Impact Report, and has been circulated digitally for Stakeholder comment on 21 July 2023.

NuLeaf Planning and Environmental would like to thank all Stakeholders for their participation and input into this process and hereby invite Stakeholders to review this draft report and to provide feedback, input, concerns and comments.

All written comments received, including Nuleaf's response to each, will be captured in a Comments and Responses Register, which will be made available to all I&AP's and included in the Final Basic Assessment Report for submission to the Limpopo Department of Economic Development, Environment, and Tourism (LEDET).

All comments on the Draft BAR must be **in writing** and must reach Nuleaf by no later than close of business on **23 August 2023**.

Please mark all comments for the attention of:

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ACRONYMS AND ABBREVEATIONS

BA:	Basic Assessment
BAR:	Basic Assessment Report
CBA:	Critical Biodiversity Area
CMP:	Construction Management Plan
DWS:	South African National Department of Water and Sanitation
EA:	Environmental Authorisation
ECO:	Environmental Control Officer
EIA:	Environmental Impact Assessment
EIR:	Environmental Impact Report
EMPr:	Environmental Management Programme
EMS:	Environmental Management System
EO:	Environmental Officer
I&AP:	Interested and Affected Party
IDP:	Integrated Development Plan
IEM:	Integrated Environmental Management
LED:	Local Economic Development
NEMA:	National Environmental Management Act, Act No. 107 of 1998
NEMPAA:	National Environmental Management: Protected Areas Act, Act No. 57 of 2003
NPAES:	National Protected Area Expansion strategy
OMP:	Operational Management Plan
SAHRA:	South African Heritage Resources Agency
UNESCO:	United Nations Educational, Scientific and Cultural Organization

GLOSSARY OF TERMS

Alien Vegetation:	Alien vegetation defined as undesirable plant growth which shall include, but not be limited to all declared category 1 and 2 listed invader species as set out in the Conservation of Agricultural Resources Act (CARA) regulations.
Alien Species: indigenous.	A plant or animal species introduced from elsewhere: neither endemic nor indigenous.
Alternatives:	In relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to:

- (a) The property on which or location where it is proposed to undertake the activity;
- (b) The type of activity to be undertaken;
- (c) The design or layout of activity;
- (d) The technology to be used in the activity; and
- (e) The operational aspects of the activity

Applicant:	Any person who applies for an authorization to undertake an activity or to cause such activity to be undertaken as contemplated in the National Environmental Management Act (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2010.
Buffer zone:	Is a collar of land that filters out inappropriate influences from surrounding activities, also known as edge effects, including the effects of invasive plant and animal species, physical damage and soil compaction caused by trampling and harvesting, abiotic habitat alterations and pollution. Buffer zones can also provide more landscape needed for ecological processes, such as fire.
Construction Activity:	Any action taken by the Contractor, his subcontractors, suppliers or personnel during the construction process.
Ecology: environments.	The study of the inter relationships between organisms and their environments.
Environment:	All physical, chemical and biological factors and conditions that influence an object and/or organism.
Environmental Impact:	An Impact or Environmental Impact is the degree of change to the environment, whether desirable or undesirable, that will result from the effect of a defined activity. An Impact may be the direct or indirect consequence of the activity and may be simple or cumulative in nature.
Environmental Impact Assessment:	Assessment of the effects of a development on the environment.
Environmental Management Programme:	A legally binding working document, which stipulates environmental and socio-economic mitigation measures that, must be implemented by several responsible parties throughout the duration of the proposed project.
Indigenous:	Means a species that occurs, or has historically occurred, naturally in a free state within the borders of South Africa. Species that have been introduced to South Africa as a result of human activity are excluded (South Africa (Republic) National Environmental Management: Biodiversity Act, 2004: Chapter 1).
Interested and Affected Party:	Any person, group of persons or organization interested in or affected by an activity contemplated in an application, or any organ of state that may have jurisdiction over any aspect of the activity.

Invasive vegetation:	Plant species that show the potential to occupy in unnatural numbers, any disturbed area, including pioneer species.
Mitigate:	The implementation of practical measures to reduce adverse impacts Public Participation Process: is a process in which potential interested and affected parties are given an opportunity to comment on, or raise issues relevant to, specific matters.
Public Participation:	The legislated process contemplated in terms GN R543, in which all potential interested and affected parties are informed of the proposed project and afforded the opportunity to input, comment and object. Specific requirements are listed in terms of advertising and making draft reports available for comment.
Road Reserve:	The road reserve is a corridor of land, defined by co-ordinates and proclamation, within which the road, including access intersections or interchanges, is situated. A road reserve may, or may not, be bounded by a fence.
Road Width:	The area within the Road Reserve including all areas beyond the Road Reserve that are affected by the continuous presence of the road i.e. the verge.
Red data plant species:	Are fauna and flora species that require environmental protection based on the World Conservation Union (IUCN) categories and criteria.
RoD:	Record of Decision pertaining to the Application for Environmental Authorisation issued by the Competent Authority. The RoD is legally binding on the Applicant and may contain a positive or negative decision on the Application as well as conditions and provisions for each.
Soil Compaction:	Mechanically increasing the density of the soil, vehicle passage or any other type of loading. Wet soils compact easier than moist or dry soils.
Species:	Means a kind of animal, plant or other organism that does not normally interbreed with individuals of another kind. The term "species" include any sub-species, cultivar, variety, geographic race, strain, hybrid or geographically separate population (South Africa [Republic] National Environmental Management: Biodiversity Act, 2004: Chapter 1).
The Contractor:	The contractor, as the developers agent on site, is bound by the ROD and EMP conditions through his/her contract with the developer, and is responsible for ensuring that conditions of the EMP and ROD are strictly adhered to at all times. The contractor must comply with all orders (whether verbal or written) given by the ECO, project manager or site agent in terms of the EMP.
The Developer:	Remains ultimately responsible for ensuring that the development is implemented according to the requirements of the EMP and the conditions of the Environmental Decision throughout all phases of the project.
The Environmental Control Officer (ECO):	The ECO is appointed by the developer as an independent monitor of the implementation of the EMP i.e. independent of the developer and contractor.

The Environmental Officer (EO): The Contractor shall submit to the Site Agent a nominated representative of the Contractor as an EO to assist with day to day monitoring of the construction activities for the contract.

Vegetation: Is a collective word for plants occurring in an area.

Vulnerable: A taxon is 'Vulnerable' when it is not 'Critically Endangered' or 'Endangered' but is facing a high risk of extinction in the wild in the medium term future.

Watercourse: A river or spring; a natural channel in which water flows regularly or intermittently; a wetland, lake or dam into which, or from which, water flows; and any collection of water which the Minister may by notice in the Government Gazette, declare to be a watercourse, and a reference to a watercourse includes, where relevant, its bed and banks" (South Africa [Republic] National Water Act, 1998).

SECTION A: ACTIVITY INFORMATION

1. BACKGROUND

SARPHC Properties purchased the Qwabi Reserve in 2010 from the previous owners. The following infrastructure was already present at the time of the purchase:

Table 1: Infrastructure present pre 2007

Infrastructure	Year of construction	Size (Ha)	Number of staff/guests
Babohi Lodge (original)	Prior to 2007	6.69 Ha	34
Letamo Lodge (original)	Prior to 2007	0.31 Ha	Unknown
Triangle Farmstead	Prior to 2007	0.5 Ha	Unknown
Workshop	Prior to 2007	1.21 Ha	Unknown
GM House	Prior to 2007	0.258 Ha	Unknown
APU	Prior to 2007	0.027 Ha	Unknown
Youth House	Prior to 2007	0.04 Ha	0
Post office house	Prior to 2007	0.04 Ha	0
East Block house	Prior to 2007	0.7 Ha	5
Southern Valley house	Prior to 2007	1.2 Ha	4
Rock house	Prior to 2007	0.07 Ha	0
Lake Panic	Prior to 2007	0.8 Ha	-

From the table above it can be noted that a total of 12 Ha of indigenous vegetation was cleared by the previous owners' pre 2007. To the author's knowledge, no environmental authorization was in place for these developments.

After the purchase of the Qwabi Reserve in 2010, SARPHC Properties looked to upgrade and construct additions to the existing Babohi and Letamo Lodges inclusive of new staff accommodation.

It should be noted that in February of 2009, environmental authorization was granted for the construction of an 18 hole golf course, 513 residential stands, ten 20 bed lodges, a hotel with 20 rooms, clubhouse, equestrian centre, stables, staff housing, workshop and maintenance centre. All development was approved to take place on farms Rookpoort 450 KQ and Rhenosterkloof 483 KQ which formed part of the far western portion of the property. All activities were to commence within a period of three (3) years from the date of issue (i.e. by 25 February 2012).

In 2017 the Thabazimbi Local Municipality granted planning approval for the proposed additions and upgrades on the back of a Record of Decision (RoD) that was issued by LEDET in 2009. Based on these approvals, SARPHC Properties was in good faith under the impression that the improvements were compliant in terms of NEMA and fell within the bounds of the RoD issued in 2009. The upgrades were effected and completed in 2019 as per the approved SDP's.

In 2022, Dr André Uys was appointed as the new General Manager of SARPHC Properties. As part of a good governance processes, an internal compliance audit was undertaken to verify that all authorizations were in place for the Qwabi Reserve if future developments were to take place.

The outcome of the internal compliance audit was that the RoD on which Thabazimbi Municipality approved the development may not have been valid and may have expired by the time the developments were undertaken in 2018/2019. Additionally, the development of the lodges are located in the centre and eastern portions of the Reserve and not in the west as per the EA.

The infrastructure that SARPHC Properties constructed during the period of 2012-2022 are detailed in the table below:

Table 2: Infrastructure constructed between 2012-2022

Infrastructure	Year of construction	Size (Ha)	Number of staff/guests
Mvubu dam	2012	1 ha	-
Gravel pit	2012	0.29 Ha	-
Letamo Helipad	2016	0.62 Ha	-
Junior staff units	2018	1 Ha	120
Contractors camp	2018	1 Ha	50
Letamo lodge expansion	2018	1.98 Ha	140
Admin office	2018	0.11 Ha	7
Babohi lodge expansion	2018	3.3 Ha	168
Senior staff units	2019	0.45 Ha	14
Shooting range	2019	0.3 Ha	-
Family unit 1	2020	0.1 Ha	4
Family unit 2	2020	0.1 Ha	4
New Babohi helipad	2022	0.3	-

It should be noted that the shooting range has been decommissioned and the area has been rehabilitated. Additionally, the Babohi helipad which was originally constructed in 2012 was expanded from approximately 300 m² to approximately 1800 m² in 2016. In February 2023 the helipad was removed and rehabilitated in accordance with the Qwabi Reserve Ecologist's rehabilitation plan.

Just under 1000 Ha of land has been rehabilitated within the Reserve inclusive of the removal of alien invasives, old fence lines, bush encroachment and removal of old cattle farm infrastructure.

Refer to Appendix A for the maps.

2. ACTIVITY DESCRIPTION

2.1. Project Description

NuLeaf Planning and Environmental was appointed by SARPHC Properties to undertake the required environmental impact report (EIR) in terms of Section 24 of the National Environmental Management Act, 1998 (Act No 107 of 1998) as amended in order to obtain environmental authorization.

During the period of 2012-2022, the Applicant, SARPHC Properties, carried out activities listed under the various EIA Regulations. All of these developments were constructed without the necessary environmental authorization and the Applicant is now applying for *ex post facto* approval. It must be noted that the previous land owners carried out activities listed under the EIA regulations as well pre 2007 as detailed in Table 1 above.

SARPHC Properties has expanded both the Letamo and Babohi Lodges, of which the former has now been made a commercial lodge, open to the public since December 2022. Babohi lodge has been open to the public since June 2023. Additionally, staff accommodation, two helipads, river crossings and new roads have also been developed. In order to construct these various developments, approximately 30 Ha of indigenous vegetation was cleared within areas classified as Critical biodiversity areas 1 and 2 and Ecological support areas 1 and 2 [12 Ha by the previous owners and 56 Ha by the current owners (10 Ha for infrastructure and 46 Ha of roads)]. The various properties affected are inclusive of the following: Meletse 706 KQ, Rookpoort 450 KQ, Rhenosterhoekspruit 466 KQ and Weltevreden 478 KQ

The developments consist of the following:

- Letamo Lodge:

- Sleeps 116 guests and 14 staff
- Reception area and curio shop
- lounge, bars and swimming pools
- dining areas
- spa and gym
- vehicle parking (guest and game drive vehicles)
- brick walkways
- sewage treatment facility
- Babohi Lodge
 - Sleeps 98 guests and 51 staff
 - Reception area
 - lounge, bar and swimming pool
 - dining area
 - spa and gym
 - vehicle parking
 - sewage treatment facility
- Staff Village (Senior)
 - Sleeps 14 staff
 - Sewage treatment facility
- Management houses
- Entrance gates
- Admin office block
- Two helipads where a total of 6 helicopters can land
- Gravel pit
- River crossings and dams
- Approximately 230 km of access roads and game drives roads

2.2. Listed Activities triggered

ECA EIA Contraventions: between 08 September 1997 and end of 09 May 2002		
Activities commenced with on or after 08 September 1997 and before end 09 May 2002: EIA regulations promulgated in terms of the ECA, Act 73 of 1989		
Indicate the number and date of the relevant notice: e.g. R. 983, 08 December 2014	Activity No (s) (in terms of the relevant notice) e.g. 1(a)	Describe each listed activity as per project description ¹ : e.g. Construction of a 600 mW generator
Environment Conservation Act, 1989 (Act No. 73 of 1989) GNR 1182 & 1183	1 (d)	The construction or upgrading of roads, railways, airfields and associated structures outside the borders of town planning schemes. Game drive tracks and routes were developed pre 2007 to 2022 (approximately 230 km).
	1 (m)	The construction or upgrading of public and private resorts and associated infrastructure.

¹ Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description

		Babohi and Letamo Lodges were originally constructed pre 2007. Babohi Lodge initial bed numbers were 34.
	1 (i)	The construction or upgrading of canals and channels, including diversions of the normal flow of water in a river bed and water transfer schemes between water catchments and impoundments. 10 low water crossings have been constructed that do not impede the flow and one high water crossing.
	1 (j)	The construction or upgrading of dams, levees and weirs affecting the flow of a river. 4 dams have been constructed.
ECA EIA Contraventions: between 10 May 2002 and end of 02 July 2006		
Activities unlawfully commenced with on or after 10 May 2002 and before end 02 July 2006: EIA regulations promulgated in terms of the ECA, Act 73 of 1989		
Indicate the number and date of the relevant notice: e.g. R. 983, 08 December 2014	Activity No (s) (in terms of the relevant notice) e.g. 1(a)	Describe each listed activity as per project description²: e.g. Construction of a 600 mW generator
Amendment of the ECA EIA Regulations promulgated in terms of the ECA, Act No 73 of 1989. GNR 670 and GNR 672	1 (d)	The construction or upgrading of roads, railways, airfields and associated structures. Game drive tracks and routes were developed pre 2007 to 2022 (approximately 230 km).
	1 (i)	The construction or upgrading of canals and channels, including structures causing disturbances to the flow of water in a river bed, and water transfer schemes between water catchments and impoundments. 10 low water crossings have been constructed that do not impede the flow and one high water crossing.
	1 (m)	The construction or upgrading of public and private resorts and associated infrastructure. Babohi and Letamo Lodges were originally constructed pre 2007. Babohi Lodge initial bed numbers were 34.
NEMA EIA Contraventions: between 03 July 2006 and end of 01 August 2010		
Activities unlawfully commenced with on or after 03 July 2006 and before end 01 August 2010: EIA regulations promulgated in terms of the NEMA		
Indicate the number and date of the relevant notice: e.g. R. 983, 08 December 2014	Activity No (s) (in terms of the relevant notice) e.g. 1(a)	Describe each listed activity as per project description³: e.g. Construction of a 600 mW generator
2006 EIA Regulations promulgated in terms of the	1 (m)	The construction of facilities or infrastructure, including associated structures or infrastructure, for any purpose in the one in ten year flood line of a river or stream, or within 32 metres from the bank of a river or stream where the flood line is

² Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description

³ Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description

NEMA, Act No 107 of 1998. GNR 386		unknown, excluding purposes associated with existing residential use, but including - i. canals; ii. channels; iii. bridges; iv. dams; and v. Weirs. Certain roads are located within 32 m of a watercourse. The 10 river crossings are constructed within the watercourse
	1 (q) (i) (ii)	The construction of facilities or infrastructure, including associated structures or infrastructure, for the landing, parking and maintenance of aircraft including – i. helicopter landing pads, excluding helicopter landing facilities and stops used exclusively by emergency services; The Babohi helipad constructed in 2012 was expanded from approximately 300 m ² to approximately 1800 m ² in 2016. In February 2023 the helipad was removed and rehabilitated in accordance with the Qwabi Reserve Ecologist's rehabilitation plan. The Letamo helipad was expanded in 2016 and a new Babohi helipad was constructed in 2022.
	4	The dredging, excavation, infilling, removal or moving of soil, sand or rock exceeding 5 cubic metres from a river, tidal lagoon, tidal river, lake, in-stream dam, floodplain or wetland. 10 river crossings have been constructed whereby 5 cubic meters or more of sand and soil was removed.
NEMA EIA Contraventions: between 02 August 2010 and end of 07 December 2014		
Activities unlawfully commenced with on or after 02 August 2010 and before end 07 December 2014: EIA regulations promulgated in terms of the NEMA, Act 107 of 1998		
Indicate the number and date of the relevant notice: e.g. R. 983, 08 December 2014	Activity No (s) (in terms of the relevant notice) e.g. 1(a)	Describe each listed activity as per project description⁴: e.g. Construction of a 600 mW generator
2010 EIA Regulations promulgated in terms of the NEMA, Act No 107 of 1998	GNR 544: 11 (iv) (xi)	The construction of: (iv) dams; (xi) infrastructure or structures covering 50 square metres or more Where such construction occurs within a watercourse or within 32 m of a water course. 4 dams and 10 low water crossings have been constructed that do not impede the flow and one high water crossing.
	GNR 544: 18 (i)	The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from: (i) a watercourse; 10 low water crossings have been constructed that do not impede the flow and one high water crossing.

⁴ Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description

GNR 546: 4 (a) (ii) (bb) (ee) (gg)	<p>The construction of a road wider than 4 metres with a reserve less than 13,5 metres in (a) Limpopo (ii) outside urban areas in (bb) National Protected Area Expansion Strategy Focus Areas, (ee) critical biodiversity areas, (gg) within 5 Km from any other protected area identified in terms of NEMPAA</p> <p>Many game drive routes have been constructed over the years, some of which exceed 4 m in width.</p> <p>The northern portion of the Reserve is located within the Limpopo Central Bushveld focus area, majority of the Reserve is located within CBA 1 and 2, the Blesbok Private Nature Reserve is located 3 Km from the Reserve.</p>
GNR 546: 6 (a) (ii) (bb) (ee) (gg) (ii)	<p>The construction of resorts, lodges or other tourism accommodation facilities that sleep 15 people or more (a) Limpopo (ii) outside urban areas in (bb) National Protected Area Expansion Strategy Focus Areas, (ee) critical biodiversity areas, (gg) within 5 Km from any other protected area identified in terms of NEMPAA (ii) areas within 100 meters from the edge of a watercourse.</p> <p>Babohi Lodge sleeps 98 Guests and 51 staff (as expanded in 2018). Letamo Lodge sleeps 116 guests and 14 staff (as expanded in 2018).</p> <p>The northern portion of the Reserve is located within the Limpopo Central Bushveld focus area, majority of the Reserve is located within CBA 1 and 2, the Blesbok Private Nature Reserve is located 3 Km from the Reserve.</p> <p>Letamo Lodge is located 85 m from the edge of a watercourse.</p>
GNR 546: 12 (b)	<p>The clearance of an area of 300 square metres or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation.</p> <p>A total of approximately 66 Ha of indigenous vegetation has been cleared inclusive of roads.</p>
GNR 546: 13 (a) (b), (c) (ii) (bb) (ff)	<p>The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation in (a) critical biodiversity area (b) National protected area expansion strategy focus areas in (c) Limpopo (ii) outside urban areas in (bb) National Protected Area Expansion Strategy Focus Areas, (ff) within 5 Km from any other protected area identified in terms of NEMPAA.</p> <p>A total of approximately 66 Ha of indigenous vegetation has been cleared inclusive of roads.</p> <p>The northern portion of the Reserve is located within the Limpopo Central Bushveld focus area, majority of the Reserve is located within CBA 1 and 2, the Blesbok Private Nature Reserve is located 3 Km from the Reserve.</p>
GNR 546: 14 (a) (i)	<p>The clearance of an area of 5 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous vegetation in (a) Limpopo (i) all areas outside urban areas.</p> <p>A total of approximately 66 Ha of indigenous vegetation has been cleared inclusive of roads.</p>

	GNR 546: 16 (iv)	<p>The construction of: (iv) infrastructure covering 10 square metres or more</p> <p>where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line.</p> <p>The ten river crossings are constructed within the watercourse</p>
	GNR 546: 18 (a) (ii) (bb) (ee) (gg)	<p>The expansion of a resort, lodge, hotel and tourism or hospitality facilities where the development footprint will be expanded more (a) Limpopo (ii) outside urban areas in (bb) National Protected Area Expansion Strategy Focus Areas, (ee) critical biodiversity areas, (gg) within 5 Km from any other protected area identified in terms of NEMPAA</p> <p>Babohi Lodge was originally constructed pre 2007 and consisted of 34 guest beds. In 2018, Babohi was expanded to sleep 98 guests and 51 staff.</p> <p>Letamo lodge was originally constructed pre 2007 and in 2018 expanded to accommodate 116 guest beds and 14 staff.</p> <p>The northern portion of the Reserve is located within the Limpopo Central Bushveld focus area, majority of the Reserve is located within CBA 1 and 2, the Blesbok Private Nature Reserve is located 3 Km from the Reserve.</p>
	GNR 546: 19 (a) (ii) (bb) (ee) (gg)	<p>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre (a) Limpopo (ii) outside urban areas in (bb) National Protected Area Expansion Strategy Focus Areas, (ee) critical biodiversity areas, (gg) within 5 Km from any other protected area identified in terms of NEMPAA</p> <p>Post 2007, many game viewing tracks have been constructed and old roads lengthened by more than 1 Km.</p> <p>The northern portion of the Reserve is located within the Limpopo Central Bushveld focus area, majority of the Reserve is located within CBA 1 and 2, the Blesbok Private Nature Reserve is located 3 Km from the Reserve.</p>

NEMA EIA Contraventions: between 08 December 2014 and 06 April 2017

Activities unlawfully commenced with on or after 08 December 2014 and before end 06 April 2017: EIA regulations promulgated in terms of the NEMA, Act 107 of 1998

Indicate the number and date of the relevant notice: e.g. R. 983, 08 December 2014	Activity No (s) (in terms of the relevant notice) e.g. 1(a)	Describe each listed activity as per project description⁵: e.g. Construction of a 600 mW generator
2014 EIA Regulations promulgated in terms of the NEMA, Act No 107 of 1998	GNR 983: 12 (iii) (iv) (xii); (a) (c)	The development of— (iii) bridges exceeding 100 square metres in size; (iv) dams, where the dam, including infrastructure and water surface area, exceeds 100 square metres in size; (xii) infrastructure or structures with a physical footprint of 100 square metres or more;

⁵ Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description

		<p>where such development occurs— (a) within a watercourse; (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse</p> <p>The ten river crossings are constructed within the watercourse. Lake panic and Mvubu dam are located within a watercourse.</p>
	GNR 983: 19 (i)	<p>The infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 5 cubic metres from (i) a watercourse;</p> <p>10 low water crossings have been constructed that do not impede the flow and one high water crossing. Mvubu dam and lake panic.</p>
	GNR 983: 27	<p>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation</p> <p>A total of approximately 66 Ha of indigenous vegetation have been cleared inclusive of roads.</p>
	GNR 985: 4 (a) (ii) (bb) (ee) (gg)	<p>The development of a road wider than 4 metres with a reserve less than 13,5 metres (a) Limpopo (ii) outside urban areas in (bb) National Protected Area Expansion Strategy Focus Areas, (ee) critical biodiversity areas, (gg) within 5 Km from any other protected area identified in terms of NEMPAA.</p> <p>Many game drive routes have been constructed over the years, some of which exceed 4 meters in width.</p> <p>The northern portion of the Reserve is located within the Limpopo Central Bushveld focus area, majority of the Reserve is located within CBA 1 and 2, the Blesbok Private Nature Reserve is located 3 Km from the Reserve.</p>
	GNR 985: 6 (a) (ii) (bb) (ee) (gg) (ii)	<p>The development of resorts, lodges, hotels and tourism or hospitality facilities that sleeps 15 people or more (a) Limpopo (ii) outside urban areas in (bb) National Protected Area Expansion Strategy Focus Areas, (ee) critical biodiversity areas, (gg) within 5 Km from any other protected area identified in terms of NEMPAA (ii) areas within 100 meters from the edge of a watercourse.</p> <p>Babohi Lodge sleeps 98 Guests and 51 staff (as expanded in 2018). Letamo Lodge sleeps 116 guests and 14 staff (as expanded in 2018). Numerous staff accommodation totalling 278 staff beds.</p> <p>The northern portion of the Reserve is located within the Limpopo Central Bushveld focus area, majority of the Reserve is located within CBA 1 and 2, the Blesbok Private Nature Reserve is located 3 Km from the Reserve.</p> <p>Letamo Lodge is located 85 m from the edge of a watercourse.</p>
	GNR 985: 12 (a) (ii)	<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</p>

	<p>undertaken in accordance with a maintenance management plan in (a) Limpopo (ii) within CBA</p> <p>A total of approximately 66 Ha of indigenous vegetation has been cleared.</p> <p>The northern portion of the Reserve is located within the Limpopo Central Bushveld focus area, majority of the Reserve is located within CBA 1 and 2.</p>
<p>GNR 985: 14 (ii) (iii) (iv) (x) (xi) (xii) (a) (c); (a) (ii) (bb) (ff) (hh)</p>	<p>The development of—</p> <ul style="list-style-type: none"> (iii) bridges exceeding 10 square metres in size; (iv) dams, where the dam, including infrastructure and water surface area exceeds 10 square metres in size; (x) buildings exceeding 10 square metres in size; (xi) boardwalks exceeding 10 square metres in size; or (xii) infrastructure or structures with a physical footprint of 10 square metres or more; <p>where such development occurs—</p> <ul style="list-style-type: none"> (a) within a watercourse; (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; <p>In (a) Limpopo (ii) outside urban areas in (bb) National Protected Area Expansion Strategy Focus Areas, (ff) critical biodiversity areas, (hh) within 5 Km from any other protected area identified in terms of NEMPAA.</p> <p>The ten river crossings are constructed within the watercourse and 4 dams have been constructed.</p> <p>The northern portion of the Reserve is located within the Limpopo Central Bushveld focus area, majority of the Reserve is located within CBA 1 and 2, the Blesbok Private Nature Reserve is located 3 Km from the Reserve.</p>
<p>GNR 985: 17 (a) (ii) (bb) (ee) (gg)</p>	<p>The expansion of a resort, lodge, hotel and tourism or hospitality facilities where the development footprint will be expanded in (a) Limpopo (ii) outside urban areas in (bb) National Protected Area Expansion Strategy Focus Areas, (ee) critical biodiversity areas, (gg) within 5 Km from any other protected area identified in terms of NEMPAA.</p> <p>Babohi Lodge sleeps 98 Guests and 51 staff (as expanded in 2018).</p> <p>Letamo Lodge sleeps 116 guests and 14 staff (as expanded in 2018).</p>
<p>GNR 985: 18 (a) (ii) (bb) (ee) (gg)</p>	<p>The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre (a) Limpopo (ii) outside urban areas in (bb) National Protected Area Expansion Strategy Focus Areas, (ee) critical biodiversity areas, (gg) within 5 Km from any other protected area identified in terms of NEMPAA.</p> <p>Post 2007, many game viewing tracks have been constructed and old roads lengthened by more than 1 Km.</p>
<p>NEMA EIA Contraventions: on or after 07 April 2017</p>	
<p>Activities unlawfully commenced with on or after 07 April 2017: EIA regulations promulgated in terms of the NEMA, Act 107 of 1998</p>	

Indicate the number and date of the relevant notice: e.g. R. 983, 08 December 2014	Activity No (s) (in terms of the relevant notice) e.g. 1(a)	Describe each listed activity as per project description ⁶ : e.g. Construction of a 600 mW generator
Amended 2014 EIA Regulations promulgated in terms of the NEMA, Act No 107 of 1998	GNR 327: 12 (i) (ii) (a) (c)	<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 or 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>(c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse</p> <p>The ten river crossings are constructed within the watercourse and 4 dams have been constructed.</p>
	GNR 327: 19	<p>The infilling or depositing of any material of 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>The ten river crossings are constructed within the watercourse and 4 dams have been constructed.</p>
	GNR 327: 27	<p>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation</p> <p>A total of approximately 66 Ha of indigenous vegetation has been cleared inclusive of roads.</p>
	GNR 325: 16	<p>The development of a dam where the highest part of the dam wall, as measured from the outside of the toe of the wall to the highest part of the wall, is 5 meters or higher.</p> <p>Kloof Dam is situated in the middle of the game reserve near the northern boundary approximately 8.5 km west-northwest of Letamo Lodge. It is a 5.4 m high concrete gravity masonry wall with a storage capacity of 5 900 m³.</p> <p>Hippo Pools is situated 700 m downstream of Kloof Dam. It is a 6.2 m high earth embankment with a storage capacity of 52 800 m³.</p> <p>Lodge Dam is situated immediately to the west of Letamo Lodge. It is a 7.5 m high earth embankment with a storage capacity of 51 500 m³.</p> <p>Mvubu Dam is situated some 500 m downstream of Lodge Dam. It is a 6.5 m high earth embankment with a storage capacity of 31 700 m³.</p>
	GNR 324: 4 (e) (i) (bb) (ee) (gg)	<p>The development of a road wider than 4 metres with a reserve less than 13,5 metres (e) Limpopo (i) outside urban areas in (bb) National Protected Area Expansion Strategy Focus Areas, (ee) critical biodiversity areas, (gg) within 5 Km from any other protected area identified in terms of NEMPAA.</p>

⁶ Please note that this description should not be a verbatim repetition of the listed activity as contained in the relevant Government Notice, but should be a brief description of activities to be undertaken as per the project description

	<p>Many game drive routes have been constructed over the years, some of which exceed 4 meters in width.</p> <p>The northern portion of the Reserve is located within the Limpopo Central Bushveld focus area, majority of the Reserve is located within CBA 1 and 2, the Blesbok Private Nature Reserve is located 3 Km from the Reserve.</p>
GNR 324: 6 (e) (i) (bb) (ee) (gg) (hh)	<p>The development of resorts, lodges, hotels and tourism or hospitality facilities that sleeps 15 people or more (e) Limpopo (i) outside urban areas in (bb) National Protected Area Expansion Strategy Focus Areas, (ee) critical biodiversity areas, (gg) within 5 Km from any other protected area identified in terms of NEMPAA (hh) areas within 100 meters from the edge of a watercourse.</p> <p>Babohi Lodge sleeps 98 Guests and 51 staff (as expanded in 2018). Letamo Lodge sleeps 116 guests and 14 staff (as expanded in 2018). Numerous staff accommodation totalling 278 staff beds. The northern portion of the Reserve is located within the Limpopo Central Bushveld focus area, majority of the Reserve is located within CBA 1 and 2, the Blesbok Private Nature Reserve is located 3 Km from the Reserve.</p> <p>Letamo Lodge is located 85 m from the edge of a watercourse.</p>
GNR 324: 12 (e) (ii) (iii)	<p>The clearance of an area of 300 square metres or more of indigenous vegetation in (e) Limpopo (ii) critical biodiversity areas (iii) on land zoned open space, conservation or had an equivalent zoning.</p> <p>A total of approximately 66 ha of indigenous vegetation have been cleared, inclusive of roads.</p> <p>Qwabi PGR is located within Limpopo Province, where majority of the reserve is classified as CBA 1 and 2.</p>
GNR 324: 14 (ii) (a) (c); (e) (i) (ff) (hh)	<p>The development of (ii) infrastructure or structures with a physical footprint of 10 square meters or more where such development occurs within (a) a watercourse or (c) within 32 m of a watercourse in (e) Limpopo (i) outside urban areas in (ff) critical biodiversity areas and (hh) within 5 Km of any other protected area.</p> <p>The river crossings are constructed within the watercourse.</p> <p>The northern portion of the Reserve is located within the Limpopo Central Bushveld focus area, majority of the Reserve is located within CBA 1 and 2, the Blesbok Private Nature Reserve is located 3 Km from the Reserve</p>
GNR 324: 17 (e) (i) (ee) (gg)	<p>The expansion of a resort, lodge, hotel, tourism or hospitality facilities where the development footprint will be expanded and the expanded facility can accommodate an additional 15 people or more in (e) Limpopo (i) outside urban areas in (ee) critical biodiversity areas within (gg) 5 Km of any protected area</p> <p>Babohi Lodge sleeps 98 Guests and 51 staff (as expanded in 2018). Letamo Lodge sleeps 116 guests and 14 staff (as expanded in 2018).</p>

		<p>Letamo and Babohi helipads were expanded in 2016. Numerous staff accommodation was constructed totalling 278 beds.</p> <p>The northern portion of the Reserve is located within the Limpopo Central Bushveld focus area, majority of the Reserve is located within CBA 1 and 2, the Blesbok Private Nature Reserve is located 3 Km from the Reserve</p>
	GNR 324: 18 (e) (i) (bb) (ee) (gg)	<p>The widening of a road by more than 4 meters, or the lengthening of a road by more than 1 Km (e) Limpopo (i) outside urban areas in (bb) National Protected Area Expansion Strategy Focus Areas, (ee) critical biodiversity areas, (gg) within 5 Km from any other protected area identified in terms of NEMPAA.</p> <p>Post 2007, many game viewing tracks have been constructed and old roads lengthened by more than 1 Km.</p> <p>The northern portion of the Reserve is located within the Limpopo Central Bushveld focus area, majority of the Reserve is located within CBA 1 and 2, the Blesbok Private Nature Reserve is located 3 Km from the Reserve</p>

3. ACTIVITY POSITION

Activity	Latitude	Longitude
Babohi Lodge	-24.603431°	27.811583°
Babohi Helipad	-24.599651°	27.827315°
Letamo Lodge	-24.623355°	27.875830°
Letamo Helipad	-24.625573°	27.875299°
Shooting range (decommissioned and rehabilitated)	-24.590204°	27.831248°
Admin building	-24.624801°	27.877070°
Junior Staff Housing	-24.624936°	27.880716°
Senior staff units	-24.626607°	27.880843°
Contractors Camp	-24.624846°	27.883718°
Workshop, GM Housing and APU	-24.610813°	27.814451°
Post office house	-24.594844°	27.740150°
Family unit 1	-24.625293°	27.879377°
Family unit 2	-24.625710°	27.879369°

Mvubu Dam	-24.627422°	27.874617°
River Crossings	-24.649683°	27.862684°
	-24.655746°	27.853626°
	-24.628515°	27.875746°
	-24.624223°	27.873345°
	-24.618750°	27.872703°
	-24.599001°	27.796911°
	-24.602278°	27.785985°
	-24.638089°	27.732189°
	-24.654624°	27.769305°
	-24.601577°	27.763043°
	-24.649683°	27.862684°

4. PHYSICAL SIZE OF THE ACTIVITY

Activity	Area covered by the activity (m ²)	Area disturbed by the previous owners pre 2007 (m ²)	Area disturbed by new developments by current owners between 2012-2022 (m ²)	Capacity of the facility (if applicable);
Babohi Lodge	99900	66900	33000	98 Guests 51 Staff
Letamo Lodge	22900	3100	19800	116 Guests 14 Staff
Triangle farmstead	5000	5000	-	-
Workshop	14000	12100	1900	-
GM House	2580	2580	-	4 Staff
APU	700	270	430	36 Staff
Youth House	400	400	-	2 Staff
Post office house	400	400	-	2 Staff
East Block house	7000	7000	-	5 Staff
Southern Valley house	12000	12000	-	4 Staff
Rock house	700	700	-	2 Staff
Letamo helipad	6200	-	6200	-

Babohi helipad	3000	-	3000	-
Junior staff units	10000	-	10000	120 Staff
Contractors camp	10000	-	10000	50 Staff
Admin office block	1100	-	1100	-
Senior staff units	4500	-	4500	14 Staff
Family unit 1	1000	-	1000	4 Staff
Family unit 2	1000	-	1000	4 Staff
Lake Panic	8000	8000	-	-
Mvubu Dam	10000	-	10000	-
Gravel pit	2900	-	2900	-
River Crossings	1000	-	1000	-
Roads	460000			
Total area	667 000 m²	120 350m²	105 830 m²	

From the above table it can be seen that a total area of 667 000 m² has been cleared and impacted upon of which 120 350 m² (12.035 Ha) was previously disturbed and impacted upon. These previous impacts and disturbances occurred prior to 2007 and were undertaken by the previous landowners. The current landowners cleared a total of 105 830 m² (10.5 Ha) between 2012- 2022 with the remainder of the cleared vegetation being made up of roads (46 Ha).

Based on the current data available, Babohi Lodge was originally constructed on a greenfields site pre 2007 covering an area of 66990 m² and could accommodate 34 guest beds. In 2018, the existing lodge was upgraded and expanded to the south east to include additional guest units and staff accommodation totalling 98 guest beds and 40 staff, all of which covers an area of approximately 99900 m² in total.

Letamo Lodge originally covered an area of 3100 m². In 2018 the lodge was expanded in the north west and can now accommodate 116 guests and 14 staff. Letamo Lodge covers a total area of 22900 m².

Youth house, Post office house, Rock house, Southern Valley house and East Block house were all previously old farm houses built pre 2007 that were upgraded internally into various staff houses.

5. SITE PHOTOGRAPHS

Please refer to Appendix B and C for site photographs.

6. ACTIVITY MOTIVATION

6.1. Need and desirability of the activity

Need

Thabazimbi Local Municipality (TLM) Integrated Development Plan (IDP) identifies tourism as a key industry along with game ranching and conservation. The Waterberg district municipality is endowed with a range of habitats, tourist attractions and wildlife. Waterberg's tourism competitive advantage is based on its natural, cultural and

heritage resource base. With an abundance of privately owned game reserves and more than ten provincial nature reserves, wildlife and eco-tourism can be regarded as a major strength for the Waterberg region.

Qwabi Private Game Reserve (QPGR) is an eco-tourism lodge which employs 230 people of which most are from the local communities. In this way, QPGR and the associated land use thereof, falls within the municipal IDP.

There are also socio-economic aspects associated with the tourist lodges in terms of development and growth within the area and local communities. Qwabi Reserve is mainly frequented by overseas visitors and tourists looking for the full African Experience. These tourists stimulate the local economy and contribute to the growth of tourism and businesses in the area.

Desirability

The benefits of Qwabi Reserve are positive, contributing to economic growth and diversification of the regions tourism offerings. Additionally, approximately 230 jobs have been created in the operational phase which is ideal in an area such as Thabazimbi where the unemployment rate is high.

The Applicant also wishes to declare Qwabi Reserve as a Protected Area in the near future. In doing so, this would ensure that the critical biodiversity areas are protected and conserved for generations to come.

Benefits

As described below Qwabi Reserve has a proud history as a private sector champion for ecosystems conservation, rehabilitation, job creation and community support in the local area:

- Conservation Value

The majority of the northern portion of QPGR is located within a Critical Biodiversity Area 1 (CBA 1), with the remaining southern portion being located within an Ecological Support Area 1 (ESA 1) as per the Limpopo Conservation Plan (Version 2). By establishing an ecotourism operation, QPGR has been able to safeguard and protect over 10 000 Ha of CBA 1 and CBA 2 vegetation.

SARPHC Properties have recently re-introduced elephant and lion to property which is now home to the Big 5. Qwabi Reserve maintains and manages an important and increasing population of White Rhinoceros on the property and the imminent introduction Black Rhinoceros has recently been approved by LEDET. Conservation efforts and anti-poaching activities have been ongoing for well over a decade and has been the primary focus of SARPHC.

At local level, Qwabi Reserve, under the guidance of their full-time ecologist continues to make significant annual investments in land rehabilitation as well as alien and invasive plant control which enhance the conservation value of the land. Qwabi Reserve is comprised of several properties, most of which were historically livestock farming enterprises. These overgrazed properties have been rehabilitated, redundant infrastructure removed and restored to a point where they can now sustainably support natural ecosystem processes. The owners of Qwabi Reserve see active conservation as a critical component of responsible land ownership in a Critical Biodiversity Area.

- Job Creation

SARPHC Properties currently employs 177 people for Qwabi Reserve and Lodge Operations, most of whom have been recruited from the local source markets, Bela-Bela, Thabazimbi and Rooiberg. This number is set to increase in the short term to approximately 230 people as SARPHC Properties prepare Babohi for launch to the eco-tourism market in May 2023. The project is undoubtedly one of the most important socio-economic injections into the region in the past decade and the ceasing of operations in any form will have a lasting negative impact on the personnel of the project and employment in the region.

- Community Beneficiation

Qwabi Reserve is involved as an instrumental component of the regional area integrity initiatives which actively prevent wildlife and other crime in the region to the benefit of people and wildlife. Qwabi Reserve is an active member of the Rooiberg Bewaria as well as the Waterberg Landscape Alliance and financially supports the APNR crime detection camera network in the area.

- Tourism

The two (2) lodges within QPGR are aimed at the luxury market with the goal to bring in overseas tourists year round. This will contribute to the local economy and boosts tourism within the region.

7. APPLICABLE LEGISLATION, POLICIES AND/OR GUIDELINES

- **National Environmental Management Act (Act 107 of 1998), as amended (NEMA)**

The Environmental Impact Assessment Regulations as specified in the National Environmental Management Act, 107 of 1998, as amended, (NEMA), contains Listing Notices 1, 2 and 3 (GNR 327 and GNR 324). Should any activity listed in these listing notices be triggered, then it is necessary for an applicant to undertake an EIA, which meets the minimum requirements of section 24(7) of NEMA, where an activity requires permission by law. Since development on QPGR commenced during the time period of pre 2007- 2022 the previous EIA Regulations are also applicable: Environment Conservation Act, 1989 (Act No. 73 of 1989) GNR 1182 & 1183; Amendment of the ECA EIA Regulations promulgated in terms of the ECA, Act No 73 of 1989. GNR 670 and GNR 672; 2006 EIA Regulations promulgated in terms of the NEMA, Act No 107 of 1998. GNR 386; 2010 EIA Regulations promulgated in terms of the NEMA, Act No 107 of 1998; 2014 EIA Regulations promulgated in terms of the NEMA, Act No 107 of 1998.

All of the developments on QPGR commenced without obtaining environmental authorization from the relevant competent authority. Developments pre 2007 were undertaken by the previous land owners, while developments/expansions undertaken following the purchase of the Reserve in 2010 were undertaken by the current landowners. In order to rectify the past transgressions of both the previous landowners and themselves, this Section 24G application is being undertaken.

- **The National Water Act (Act No. 36 of 1998)**

Section 22 (1) of NWA states that, a person may only use water-

(a) Without a licence -

- (i) If that water use is permissible under Schedule 1; .
- (ii) If that water use is permissible as a continuation of an existing lawful use;

or

- (iii) If that water use is permissible in terms of a general authorisation issued under section 39;

(b) If the water use is authorised by a licence under this Act; or

(c) If the responsible authority has dispensed with a licence requirement under subsection (3).

QPGR may have commenced with water use activities defined as water uses in terms of Section 21 of the NWA without a water use authorisation as required by Section 22 of the NWA;

a. Section 21(a) taking water from a water resource

b. Section 21(b) storing water

c. Section 21(c): impeding or diverting the flow of water in a watercourse;

f. Section 21(i): altering the bed, banks, course or characteristics of a watercourse.

It should be noted that a water use licence is currently being undertaken by the Reserve internally in order to ensure that all water abstraction, discharge, water crossings and dams are legalized.

TITLE OF LEGISLATION, POLICY OR GUIDELINE	APPLICABILITY TO THE PROJECT	ADMINISTERING AUTHORITY	DATE
LEGAL FRAMEWORK			
Constitution of Republic of South Africa (Act No.108 of 1996):	This is the fundamental law of South Africa, setting out the Bill of Rights as well as the relationship of various government structures to each other.	National Government	1996
Conservation of Agricultural Resources Act (Act No. 43 of 1983):	Provides for control over the utilization of the natural agricultural resources of the Republic. The project will be required in terms of this legislation to ensure that: <ul style="list-style-type: none"> ▫ The soil mantle is protected and conserved, ▫ The natural water sources are protected, ▫ Vegetative cover is conserved and weeds and invader plants are removed from the site. 	Department of Agriculture	1983
National Environmental Management Act (Act No. 107 of 1998)	To provide for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote cooperative governance and procedures for co-ordinating environmental functions exercised by organs of state; to provide for certain aspects of the administration and enforcement of other environmental management laws; and to provide for matters connected therewith.	Department of Environmental Affairs	1998
National Environmental Management: Protected Areas Act (Act No. 57 of 2003):	The Act provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes and seascapes; for the establishment of a national register of all national, provincial and local protected areas; for the management of those areas in accordance with national norms and standards; for intergovernmental co-operation and public consultation in matters concerning protected areas, and for matters in connection therewith. <i>Qwabi Private Game Reserve is not a formally declared protected area.</i>	Department of Environmental Affairs	2003
National Environmental Management: Biodiversity Act (Act No. 10 of 2004):	The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa's biodiversity within the framework set out by NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed (see below). The Act lists species that are threatened or require protection to ensure their survival in the wild, while regulating the activities, which may involve such listed threatened or protected species and activities which may have a potential impact on their long-term survival. The Act has listed flora and fauna species.	Department of Environmental Affairs	2004

National Spatial Biodiversity Assessment, 2011:	The National Spatial Biodiversity Assessment (NSBA) classifies areas as worthy of protection based on its biophysical characteristics, which are ranked according to priority levels.	Department of Environmental Affairs	2011
National Forests Act (Act No. 84 of 1998):	This Act provides for the management, utilisation and protection of forests through the enforcement of permitting requirements associated with the removal of protected tree species, as indicated in a list of protected trees (first promulgated in 1976 and updated since).	Department of Agriculture, Forestry and Fisheries	1998
National Veld and Forest Fire Act (Act No. 101 of 1998)	The purpose of this Act is to prevent and combat veld, forest and mountain fires throughout the Republic. The Act provides for a variety of institutions, methods and practices for achieving this purpose.	Department of Water Affairs	1998
National Heritage Resources Act (Act No. 25 of 1999)	The National Heritage Resources Act legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 hectares (ha) and where linear developments exceed 300 metres in length. Potential impact on cultural heritage, paleontological or archaeological resources through excavation activities or disturbance will need to be monitored. Permits may be required per the National Heritage Resources Act (Act No. 25 of 1999).	South African Heritage Resources Agency (SAHRA)	1999
The National Water Act (Act No. 36 of 1998)	This Act aims to provide management of the national water resources to achieve sustainable use of water for the benefit of all water users. The development will have to ensure that local water resources are protected, used, developed, conserved, managed and controlled in a responsible way.	Department of Water Affairs	1998
The National Water Services Act (Act No. 108 of 1997)	The Act legislates the necessity to provide for the rights of access to basic water supply and basic sanitation; to provide for the setting of national standards and of norms and standards for tariffs; to provide for water services development plans; to provide a regulatory framework for water services institutions and water services intermediaries; to provide for the establishment and disestablishment of water boards and water services committees and their powers and duties; to provide for the monitoring of water services and intervention by the Minister or by the relevant Province; to provide for financial assistance to water services institutions; to provide for certain general powers of the Minister; to provide for the gathering of information in a national information system and the distribution of that information; to repeal certain laws; and to provide for matters connected therewith.	Department of Water Affairs	1997
National Environmental Management Waste Act (Act No. 59 of 2008)	The Waste Act reforms the law regulating waste management in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation. The development will be subject to this Act in terms of the disposal of waste.	Department of Environmental Affairs	2008
Hazardous Substances Act (Act No. 15 of 1973)	To provide for the control of substances which may cause injury or ill-health to or death of human beings by reason of their toxic, corrosive, irritant, strongly sensitizing or flammable nature or the generation of pressure thereby in certain circumstances, and for the control of certain electronic products; to provide for the division of such substances or products into groups in relation to the degree of danger; to provide for the prohibition and control of the importation, manufacture, sale,	Department of Health	1973

	use, operation, application, modification, disposal or dumping of such substances and products; and to provide for matters connected therewith.		
National Environmental management Air Quality Act (Act No. 39 of 2004)	To reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incidental thereto.	Department of Environmental Affairs	2004
Occupational Health and Safety Act, 1993 (Act No. 85 of 1993):	The purpose of this Act is to provide 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.	Department of Labour	1993
Integrated Environmental Management Information Series	IEM is a key instrument of NEMA and provides the overarching framework for the integration of environmental assessment and management principles into environmental decision-making. The aim of the information series is to provide general information on techniques, tools and processes for environmental assessment and Management. ERM have referred to these various documents for information on the most suitable approach to the environmental assessment process for the proposed development.	Department of Environmental Affairs	1992
REGIONAL PLANNING POLICIES			
Waterberg District Municipality Integrated Development Plan	<p>The visions of the Waterberg District is to create a tourism and energy hub that enables a participative, investment friendly and diversified economy. Additionally, tourism is one of the greatest contributors to the Waterberg's Gross Value Add.</p> <p>Waterberg's tourism competitive advantage is based on its unique rich biodiversity, cultural and heritage resource base. With an abundance of game reserves and more than ten provincial nature reserves, wildlife and eco-tourism can be flagged as the strength products of Waterberg. The district holds a critical position in the wildlife industry, with expanded value chain opportunities.</p>	Waterberg District Municipality	2023-24
Waterberg District Municipality Spatial Development Framework	According to the Waterberg Environmental Management Framework, Qwabi Reserve is located within the zone 'Ecologically sensitive zone with agriculture and tourism focus. Compatible activities within this zone include Tourism activities, conservation, protected areas and private nature reserves.	Waterberg District Municipality	2021

8. SERVICES

8.1. Solid waste management

Solid waste generated from both lodges, the staff village and APU and workshop are collected in 240 litre wheeled bins. These bins are located at the back of house in a caged off area. The solid waste is then collected twice per week via a truck or vehicle with a trailer and transported to the Rooiberg landfill site. Currently the solid waste is not separated into recyclables and non-recyclables and no incineration of waste takes place.

However, QPGR are in the process of contracting a waste service provider to separate, sort and transport the solid waste generated on the Reserve. General waste will be collected and taken to the Rooiberg Landfill site, while recyclables will be transported to the Neo-Recycling plant in Thabazimbi twice per week or as and when necessary. No part of the general solid waste can be classified as hazardous in terms of the relevant legislation.

Adjacent to the staff village, is an old quarry/borrow pit which is currently being filled with construction rubble and natural materials such as wood, brush etc. This area is not fenced off and is freely accessible to staff members.

Recommendations and Mitigation

An Integrated Waste Management Plan must be compiled detailing how both solid waste and wastewater should be managed within Qwabi Private Game Reserve. Please refer to Appendix G for the report.

However, the following mitigation measures have been recommended:

- Solid waste to be sorted at source into the various recyclables (paper, plastic, glass, cans) and non-recyclables.
- Only inert construction rubble and natural materials to be used to fill in the old quarry pit.
- The old quarry pit site is to be rehabilitated.

8.2. Wastewater Treatment

The two lodges, staff housing, APU accommodation and Management house currently generates wastewater flows within Qwabi Private Game Reserve. Each of the sites have their own wastewater treatment works (WWTW) which primarily consists of package plants and septic tanks/soakaways. Treated effluent is not irrigated and allowed to dissipate back into the soil. A summary of the WWTW for the various sites are given below:

Letamo Lodge

The waste water treatment work installed at Letamo Lodge is the Aqua Media High speed Moving bed bioreactor system. The sewage treatment process is as follows:

- **Collection tank:** Wastewater flows into the collection sump and then from the collection sump to the bioreactor via pumps.
- **MBBR Tank:** MBBR consists of two chambers. The first chamber where the wastewater enters is the aeration tank no. 1. From the aeration tank 1 the wastewater enters into the aeration tank no. 2 where in CBOD is removed. Air is introduced through a combination of fine and coarse bubble diffusers. In the CBOD removal chambers the organic material is oxidized with the help of aerobic bacteria and is converted into water and carbon dioxide. The oxygen for oxidizing the organic material is provided from the air, which is introduced with the help of air blowers and through the coarse bubble diffusers, installed at the bottom of the aeration tank. In order to have proper functioning of the aeration tank and to produce good settling sludge required MLSS (mixed liquor suspended solids) is maintained in the aeration tank. From the CBOD chambers wastewater flows to the settling tank. Here the suspended matter and the bio mass are allowed to settle. The clear water flows by gravity to drain.

- **Sludge Pump:** The purpose of the sludge pump is to recycle the sludge from the settling tank to the first aeration tank at the start of the plant to build up the MLSS in the aeration tanks. Once the required MLSS is developed in the aeration tanks, the sludge is then wasted on a regular interval to the collection tank.
- **Air blower:** The purpose of the air blower is to provide oxygen (Air) to the aeration tanks through coarse bubble diffusers. The air also keeps the bio media and the biomass in a mixed condition in addition to supply of oxygen to bacteria and oxidation of organic material.

Babohi Lodge and Staff Village (Senior)

Both Babohi Lodge and the Senior staff housing utilize Calamite Bio-Mite waste water treatment plants. The Bio-Mite has been engineered to treat domestic and industrial waste water to a level that conforms to the National Standards as required by DWS. This system consists of a series of tanks that are buried underground.

The Bio-Mite incorporates a Biological process to clean incoming waste water. In this process a Biomass of bacteria breakdown biodegradable waste and convert it into carbon dioxide and water. Any non-biodegradable matter collects at the bottom of the tank and is periodically removed in the same way as the septic tank is pumped out. The Bio-Mite process is broken down into three (3) treatment phases as described below:

- **Primary Treatment** is undertaken in the SABS approved septic tanks/anaerobic reactors. The liquid capacity of the tanks is determined by the number of users connected to the septic tanks. In the anaerobic reactor solids are intercepted and biologically broken down by anaerobic microorganisms that are in contact with the waste water. This process requires at least twenty-four hours but should be retained for at least forty-eight hours. The longer retention time translates into a higher quality effluent with significant Biological Oxygen Demand (BOD) reduction occurring before it flows into the biological reactor for secondary treatment.
- **Secondary Treatment** is done in the Aerobic Biological Reactor. In the process, air (oxygen) is pumped into the reactor to mix and supply air to the waste water. The design for the secondary treatment process allows the waste water to circulate between an aerobic zone and an anoxic zone to facilitate the denitrification process. The microorganisms metabolize the organic material into carbon dioxide and other end products and new biomass. The putrescibility and soluble oxygen demand is reduced to a small amount. The two major advantages of this fixed film technology are that diluted waste water can be treated and the bacterial colony will not be flushed out should the system be hydraulically overloaded.
- **Tertiary treatment** process is a disinfectant/sterilizing process. Treated waste water from the secondary treatment process is subjected to chlorination on the domestic treatment plants and ozonising on the bigger and custom built plants. This is as a precaution against pathogens that may have passed on from the second stage. For this to be effective a contact period of at least thirty minutes should exist for pathogen destruction. This is achieved with a pumping chamber that has a storage capacity of 200 litres before the submersible pump pumps out the contents for reuse in the garden or on the lawn.

Table 3: Size of waste water treatment plant

Site	Bio-Mite Size	Flow rate (Litres per day)
Babohi	100	20 000
Babohi Extension	75	15 000
Staff village (Senior)	75 x 2	15 000

APU and Management houses

The APU accommodation and Management Houses utilize septic tanks with soak aways.

Recommendations and Mitigation

An Integrated Waste Management Plan has been compiled detailing how both solid waste and wastewater should be managed within Qwabi Private Game Reserve. Please refer to Appendix G for the report.

- The existing septic tank and soakaway systems at the Management houses and APU should be replaced with a package plant WWTWs or these septic tanks connected to the existing sewer network that is connected to an existing WWTW. This should be undertaken within 2 years of the of the S24G being approved.
- Quality tests on the treated waste water discharged from the existing WWTWs must be undertaken on a 4 monthly basis to ensure that the output quality of the effluent complies with the minimum standards as prescribed by DWS. These records will be kept up to date and made available upon request. The first test is to be undertaken within 2 months of the S24G being approved.

9. WATER USE

9.1. Water Supply

Water for the respective lodges and staff accommodation in the Qwabi Game Reserve is abstracted from various boreholes. Water is abstracted by means of pumps some of which are solar powered while others use conventional electricity. The water is not treated before being pumped to various small holding tanks at the lodges and staff housing.

The estimated water demand for the lodge is as follows based on 100% occupancy:

	Babohi Lodge	Letamo Camp	Staff Village
Water use at lodge (m ³ /annum)*	21 754	18 980	12 958
Bed capacity	149	130	142
Water use per person (m ³ /p/d)	0.4	0.4	0.25

9.2. Water Use Licence

It should be noted that a water use licence is currently being undertaken by the Reserve internally in order to ensure that all water abstraction and discharge is legalized.

SECTION B: SITE / AREA / PROPERTY DESCRIPTION

1. CULTURAL/HISTORICAL FEATURES

A retro-active cultural heritage impact assessment was conducted by Francois Coetzee.

A total of 7 cultural sites were recorded during the survey, of which four of the sites are graveyards and an individual grave and two are historical structures and one Iron Age livestock enclosure.

No historical or archaeological (both Stone Age and Iron Age) artefacts, assemblages, features, structures or settlements were recorded during the survey at the locations of the various existing developments.

Based on the assessment, from a heritage perspective, no archaeological or historical remains were impacted on during the developmental phase of the existing infrastructure, however, care should be taken not to cause any future impact on cultural heritage remains that might still exist in the region. As such, no re-active mitigation measures are required

Refer to Appendix D.1 for the full Heritage Impact Assessment Report.

2. BIODIVERSITY

A specialist terrestrial ecological assessment was undertaken by Duncan McKenzie of Digital Earth in June 2023.

According to the Limpopo Province Conservation Plan Version 2 (Desmet *et al.*, 2013), five classification-types are present within the Qwabi Reserve, namely **Critical Biodiversity Area (CBA) 1 & 2**, **Ecological Support Area (ESA) 1** and **Other Natural Areas (ONA)**. CBA's are described as Irreplaceable Sites that are required to meet biodiversity pattern and/or ecological processes targets, ESA's are natural, near natural and degraded areas that support CBA's by maintaining ecological processes, while ONA's are areas that contain intact vegetation, but these areas are not required to meet targets, or identified as CBA or ESA.

According to the current National Vegetation Map (SANBI, 2018), there are three vegetation types situated within the Qwabi Reserve, namely Waterberg Mountain Bushveld, Central Sandy Bushveld and Western Sandy Bushveld.

Waterberg Mountain Bushveld occurs on the many hills in the central, northern and western portions of the Qwabi Reserve. This vegetation type is located in the foothills, escarpment and tablelands of the Waterberg Mountains between Lephalale, Marken and Bela-Bela in the north-western region of Limpopo Province, South Africa. Waterberg Mountain Bushveld was assessed by Mucina & Rutherford (2006) as **Least Threatened** because of a low level of transformation (3%) and because 9% of the protection target of 24% is conserved in Marakele National Park and Moepel Nature Reserve.

Central Sandy Bushveld occurs in the eastern portions of the PAOI. Central Sandy Bushveld occurs primarily between the Pilanesberg in the west and Groblersdal / GaMasemola in the east, with scattered and isolated pockets in the Waterberg and adjacent areas. This vegetation type was assessed as **Vulnerable** by Mucina & Rutherford (2006). Less than 3% is statutorily conserved with an additional 2% privately conserved. Approximately 24% is transformed, including c. 19% cultivated and 4% urban and built-up areas.

Western Sandy Bushveld occurs in the western and southern portions of the PAOI. This vegetation type is restricted to the Limpopo and North-West Provinces on flats and undulating plains from Assen northwards past Thabazimbi and remaining west of the Waterberg Mountains towards Steenbokpan in the north. Western Sandy Bushveld was assessed as **Least Threatened**. About 6% is statutorily conserved, just over half of which in the Marakele National Park. Approximately 4% is transformed, mainly by cultivation (Mucina & Rutherford, 2004).

The Qwabi Reserve is not situated within any centres of plant endemism as defined by Van Wyk & Smith (2001) nor are any of the three vegetation types present within the Qwabi Reserve listed in the National List of Threatened Ecosystems (Notice 1002 of Government Gazette 34809, DEAT, 2011).

2.1. Flora

Three broad-based vegetation communities were represented within the PAOI, based on distinctive vegetation structure (grassland, woodland, thicket, etc.), floristic composition (dominant and diagnostic species) and position in the landscape (mid-slopes, terrace, crest, etc.). These are described in detail below. Alien species are indicated by an asterisk.

Vachellia karroo- Searsia lancea Riparian Woodland

This vegetation community occurred along the S and tributaries throughout the Qwabi Reserve, with the largest affected tracts being around Letamo Lodge and adjacent Mvubu and Lodge Dams.

The structure of the community can best be described as Tall Closed Woodland, but embedded within this community is the vegetation associated with the riverbeds where vegetation structure varies from Low Open Woodland to Tall Closed Grassland (Edwards, 1983).

The canopy contained a moderate diversity of trees, dominated by *Vachellia karroo* and *Searsia lancea*. Sub-dominant canopy species included *Olea europaea* subsp. *cuspidata*, *Vachellia tortilis*, *Combretum hereroense*, *Spirostachys africana* and *Ziziphus mucronata*. Rarer canopy species included *Terminalia sericea*, *Syzygium* × *intermedium*, *Senegalia galpinii*, *Sclerocarya birrea* and *Schotia brachypetala*. Understory trees and shrubs included *Euclea crispa*, *E. undulata*, *Grewia bicolor*, *Searsia pyroides* var. *pyroides*, *Gymnosporia tenuispina* and *Dichrostachys cinerea* subsp. *africana*. The dwarf shrub and herbaceous layer was dominated by *Carissa bispinosa*, *Waltheria indica*, *Asparagus suaveolens* and *Nidorella hottentotica*. Graminoids included *Megathyrsus maximus*, *Heteropogon contortus*, *Cyperus sexangularis*, *Cynodon dactylon*, *Phragmites mauritianus*, *Andropogon eucomus*, *Imperata cylindrica* and *Tricholaena monachne*.

Species richness within this community was **moderate**, with a total of 63 species (36% of the total species list) confirmed. Species fidelity, which is closely linked with community uniqueness, was **high**, with 25 species (40%) of all plant species recorded occurring exclusively in this community.

Vachellia tortilis- Senegalia erubescens Plains Woodland

This community occurred throughout the Qwabi Reserve on plains between the Riparian Woodland and Hillslope Woodland communities. Vegetation structure can best be described as Short, Closed Woodland (Edwards, 1983) with historical impacts resulting in significant bush encroachment in places.

The relatively diverse canopy was dominated by *Vachellia tortilis* and *Senegalia erubescens*, with additional common species including *Vachellia karroo*, *V. nilotica*, *Combretum hereroense*, *Pappea capensis*, *Sclerocarya birrea*, *Peltophorum africanum*, *Searsia lancea*, *Vachellia robusta* subsp. *robusta* and *Ziziphus mucronata*. Common understory trees and shrubs included *Dichrostachys cinerea* subsp. *africana*, *Grewia bicolor*, *G. flava*, *G. flavescens*, *G. monticola*, *Gymnosporia maranguensis*, *Euclea crispa*, *E. undulata* and *Gymnosporia tenuispina*. The dwarf shrub and herbaceous layer consisted of *Waltheria indica*, *Ocimum americanum*, * *Zinnia peruviana*, *Sida dregei* and *Kyphocarpa angustifolia*. The grass layer was dominated by *Eragrostis rigidior*, *Heteropogon contortus*, *Aristida congesta* subsp. *barbicollis*, *A. adscensionis*, *Megathyrsus maximus*, *Digitaria eriantha* and *Bothriochloa insculpta*.

There was a relatively **high** species richness present, with a total of 90 species (51% of the total species list) recorded within this community. Twenty-nine out of the 90 species (32% of the species list) occurred only in this unit, indicating **moderate** species fidelity.

Kirkia wilmsii- Combretum apiculatum Hillslope Woodland

Hillslope Woodland occurred primarily around the Babohi Camp and Old Shooting Range in the central portions of the Qwabi Reserve. Vegetation structure can best be described as Short, Closed Woodland (Edwards, 1983).

The community is characterised by a diverse canopy layer consisting mostly of deciduous trees, and a well-developed grass layer. The dominant canopy species were *Kirkia wilmsii* and *Combretum apiculatum*, with additional species including *Combretum zeyheri*, *C. molle*, *Senegalia erubescens*, *Dombeya rotundifolia*, *Phyllogeiton zeyheri*, *Pappea capensis*, *Sclerocarya birrea*, *Peltophorum africanum* and *Ziziphus mucronata*. Common understory trees and shrubs included *Dichrostachys cinerea* subsp. *africana*, *Grewia bicolor*, *G. monticola*, *Senegalia caffra*, *Croton gratissimus*, *Searsia leptodictya* and *Tarchonanthus camphoratus*. Rarer trees included *Albizia tanganyicensis*, *Burkea africana*, *Cussonia transvaalensis* and *Diplorhynchus condylocarpon*. The fairly diverse dwarf shrub and herbaceous layer contained *Psiadia punctulata*, *Kyphocarpa angustifolia*, *Barleria spinulosa*, *Crystallipollen angustifolium*, *Evolvulus alsinoides*, *Waltheria indica* and *Gomphocarpus tomentosus*.

The grass layer was dominated by *Chrysopogon serrulatus*, *Eragrostis rigidior*, *Heteropogon contortus*, *Aristida adscensionis*, *Megathyrsus maximus*, *Themeda triandra* and *Enneapogon scoparius*.

Hillslope Woodland reflected a relatively **high** species richness present, with a total of 104 species (59% of the total species list) recorded within this community. Species fidelity was **high**, with 57 species (55% of the species list) being restricted to this community.

2.1.1. Species of Conservation Concern

The study area is situated within the southern Waterberg, a region that has a high concentration of SCC, with 24 species potentially occurring within the general area. One of these was recorded during fieldwork, namely *Elaeodendron transvaalense* (Burt Davy) R.H Archer Bushveld Saffron. This is a small to medium-sized evergreen tree occurring in northern and eastern South Africa, and further afield through Namibia, Botswana, Zimbabwe, Mozambique and Zambia. The species is heavily harvested in South Africa for traditional medicine and some sub-populations have declined as a result; as such it has been assessed as **NT** (Williams et al., 2008). Low numbers were located in each of the three vegetation communities within the Qwabi Reserve, and it is likely that a few plants were destroyed during construction.

2.1.2. Protected Species

Six species of tree recorded in the study area during fieldwork are protected under the National Forest Act, namely *Combretum imberbe*, *Elaeodendron transvaalense*, *Vachellia erioloba*, *Boscia albitrunca*, *Phyllogeiton zeyheri* and *Sclerocarya birrea*. One species of tree, namely *Spirostachys africana*, is protected under the Limpopo Environmental Management Act. Several of these, such as *Sclerocarya birrea*, *Phyllogeiton zeyheri* and *Vachellia erioloba* occur in moderate numbers and it is likely that at least some protected trees were destroyed during construction activities.

2.1.3. Alien species

Eight alien plant species were recorded from within the study area during fieldwork, two of which are listed as being invasive under the National Environmental Management: Biodiversity Act (Act No. 10 of 2004, NEMBA) Alien and Invasive Species Lists, 2020. These were *Flaveria bidentis*, which was only located in the Letamo staff village, and *Opuntia stricta*, which occurred in a few widely scattered localities.

2.2. Terrestrial Fauna

- Mammals

Qwabi is situated in the savanna biome, which has very high mammal diversity, relatively low numbers of endemics and a high number of Red Data species. Qwabi has a relatively long history of dedicated nature conservation but has recently expanded into tourism. As such, mammal populations are well protected. However, many mammals have been re-introduced into the reserve within the last decade and many SCC were not present during the construction activities of the various application sites.

Twenty mammal species were recorded from the study area during June 2023 fieldwork, although several more were recorded within the reserve itself during transit. Six of these were confirmed from Riparian Woodland, five from Broad-leaved Woodland, 11 from thornveld and only one species from wetland habitat, namely Hippopotamus *Hippopotamus amphibius*.

An estimated 38 conservation-important mammals potentially occur within the reserve. Several cave-roosting bat species of conservation concern are likely to occur overhead, but these species are only likely to feed over the site because of the shortage of suitable roosting sites and have been excluded from this assessment. Of the 38 potentially occurring species, 27 are **SCC** with 17 considered **threatened**. Five SCC were confirmed during fieldwork, namely African Savanna Elephant listed as **Endangered** by IUCN, Hippopotamus (**VU**), Southern African Giraffe (**LC**), Southern Savanna Buffalo (**NT**) and Plains Zebra (**NT**).

Thirty-two potentially occurring species are **protected** under either the LEMA or the NEMBA ToPS. Five of these was confirmed during fieldwork.

- *Avifauna*

Qwabi lies within the savanna biome which supports the highest diversity of bird species within the Southern African sub-region. The study area is situated within the Kalahari-Highveld biome as defined by Fishpool & Evans (2001). This biome is located in the arid northern and western parts of South Africa and adjacent Namibia and Botswana. Six bird species are restricted to this biome, including locally confirmed species such as Kalahari Scrub Robin *Cercotrichas paena* and Burchell's Starling *Lamprotornis australis*.

The Reserve falls within the Waterberg System **Important Bird & Biodiversity Area** (IBA) and qualifies as a Global IBA under criteria A1, A3 and A4ii. This 1.3 million ha IBA supports six globally threatened species, in addition to seven resident regionally threatened birds. A number of migratory and vagrant threatened species also occur.

The study area is not situated within close proximity to any Wetlands of International Importance (Ramsar Sites).

A total of 123 bird species, or 49% of the total of the four pentad lists, were confirmed from within or immediately adjacent to the actual habitats represented within the study area during fieldwork. Four broad assemblages or species-habitat associations were identified namely, Riparian Woodland Assemblage, Broad-leaved Woodland Assemblage, Thornveld Assemblage and Wetland Assemblage.

An estimated 29 bird SCC have been recorded from or potentially occur within the general area surrounding the Reserve. Seventeen of these are **threatened**, while the remaining species are assessed as **NT**. Two **SCC** were recorded during fieldwork: Cape Vulture *Gyps coprotheres* (**Threatened**) and Southern Ground-Hornbill *Bucorvus leadbeateri* (**Endangered**).

- *Herpetofauna*

The Waterberg, including Qwabi, supports a very high diversity of reptile species, with diversity levels ranking in the top 10% of all areas in South Africa. Reptile endemism is moderate, with at least five endemic species present in the Waterberg (Bates et al., 2014). Ninety-four reptile species have been recorded from the degree grid 242743, and 39 species have been recorded from the QDGS's 2427 DA and 2427 DB, as listed on the Reptile Atlas of Southern Africa website (<http://vmus.adu.org.za/>), indicating that reptile diversity in the area is **moderately high**.

The Waterberg area supports a moderately high diversity of frog species, with levels of 11-20 species per QDGS44. However, frog endemism is very low with no potentially occurring endemic species present in the area (Minter et al., 2004). Thirty-one frog species have been recorded from the degree grid 242745 and, on a finer scale, 19 have been recorded from the QDGS's 2427 DA and 2427 DB 46, within which the Reserve is situated.

Three reptile species were recorded during fieldwork. Two of these were confirmed from the Broadleaved Woodland assemblage, namely Common Dwarf Gecko *Lygodactylus capensis* and Variable Skink *Trachylepis varia* and one from the Wetland assemblage, namely Water Monitor *Varanus niloticus*. All three are common and widespread in the Waterberg (pers. obs.).

No frogs were recorded during fieldwork, and very few were expected in the prevailing cold weather. Dedicated herpetofaunal surveys, including trapping, would have produced some species but are unlikely to have produced data that would change the recommendations in this report.

Two nationally **threatened** reptile species occurs in in the general proximity of the Qwabi Reserve. The Nile Crocodile *Crocodylus niloticus*, which is listed as **VU**, may be resident in low density within the aquatic habitat throughout the Reserve, although no evidence of occurrence was obtained during fieldwork. The Lobatse Hinged Tortoise *Kinixys lobatsiana* occurs in the far northern parts of South Africa and adjacent Botswana. Southern African Python *Python natalensis* is **protected** under the NEMBA ToPS and is likely to regularly occur within the Reserve.

Refer to Appendix D.2 for Ecology Report.

3. VISUAL IMPACT ASSESSMENT

A visual screening was undertaken during the operational stage of the project to identify and quantify the visual impacts of the Lodges, Roads and other Tourist Infrastructure in Qwabi Private Game Reserve.

Overall, the Visual Absorption Capacity (VAC) of the site and surrounds is high due to the nature of the vegetation (i.e. thicket and woodland) and the topography.

The visual exposure for Babohi Lodge and the Workshop, APU and Management house is predominately concentrated within the Reserve owing to the screening properties of the mountain/ ridges to the north and south of the developments.

The visual exposure for Letamo Lodge, Staff accommodation and Admin block is confined within the Reserve to the South and outside of the Reserve to the north up to 6 km. Sensitive visual receptors that may be affected outside of the Reserve are farmsteads and other lodges, both local and neighbouring. It should be noted that there is already an existing visual impact in these areas owing to the fact that the construction of these buildings has already taken place and have been in operation for many years.

Since this visual impact has already taken place, it is expected any sensitive visual receptors in the area are expecting or accustomed to the impact. This, together with the inclusion of the High VAC of the surrounding area has resulted in a negligible visual impact considered for areas outside of the Reserve and low for the areas within the Reserve.

Refer to Appendix D.3 for Visual Impact Screening.

SECTION C: PUBLIC PARTICIPATION

A public participation process was undertaken which consisted of the following:

- A list of interested and affected parties (I&APs) was compiled inclusive of local and district municipalities and adjacent land owners.
- A newspaper advertisement was placed in the Platinum Bushvelder, a local publication, on 19 May 2023.
- Notice boards were placed at the main gate and around the site on 15 June 2023.
- Background information documents were circulated to all I&APs on 20 June 2023 notifying them of the project.

Refer to Appendix E for Public Participation report.

SECTION D: IMPACT ASSESSMENT

1. IMPACTS THAT MAY RESULT FROM THE CONSTRUCTION AND OPERATIONAL, PHASES AS WELL AS PROPOSED MANAGEMENT OF IDENTIFIED IMPACTS AND PROPOSED MITIGATION MEASURES

Activity	Impact summary	Significance (No mitigation)	Proposed mitigation and timeframes
Developments			
	<i>Direct impacts:</i>		

Planning, Design and Construction Phase	Ground Water		
	Depletion of ground water due to overuse and waste during construction activities.	27 L	Ground water protection as per the EMPr (section 7.2.1)
	Pollution and contamination of ground water	33 M	
	Surface Water		
	Disturbance and loss of ecological function of the habitat (physical structure) of the Mvubu Dam and drainage lines	60 H	Surface water as per the EMPr (section 7.2.2 and 7.2.3)
	Pollution and contamination of the dams and drainage lines	56 M	
	Soil		
	Erosion, pollution and contamination of soils	52 M	Soil erosion and soil pollution and contamination as per the EMPr (section 7.3.1 and 7.3.2)
	Air		
	Dust liberated by general construction activities and movement of construction vehicles	32 M	Air quality as per the EMPr (section 7.3.3)
	Biodiversity (Flora)		
	Loss of critical biodiversity areas and sensitive habitats, specifically the riparian woodland	70 H	Biodiversity as per the EMPr (section 7.3.5, 7.3.6 and 7.3.7)
	Destruction and damage to Conservation Important Species and protected trees	56 M	
	Increase in exotic vegetation/alien species and bush encroachment into disturbed soils and areas	56 M	
	Biodiversity (Fauna)		
	Habitat fragmentation and loss due to removal and alteration of the habitat and the development of structures and infrastructure.	55 M	Biodiversity as per the EMPr (section 7.3.8 and 7.3.10)
	Poaching and snaring of fauna on site by construction staff.	33 M	
	Heritage		
	Damage to and / or destruction of archaeological, paleontological or historical artefacts unearthed during construction	24 L	Heritage management as per the EMPr (section 7.4.1)
	Visual		
Visual impact of construction, lighting and dust on sensitive visual receptors owing to the presence of construction equipment, camps and workers.	33 M	Visual Impact management as per the EMPr (section 7.5.1)	
Impact on visual quality of the surrounding area and sense of place due to the development of structures and infrastructure at the property within an otherwise natural environment.	40 M		
Socio-economic			
<i>Stimulation of the local economy, especially the local service delivery</i>	24 L	Socio economic management as per the EMPr (section 7.5.2)	

	<i>industry (i.e. accommodation, catering, cleaning, transport and security, etc.) and creation of short term employment.</i>		
	Noise, dust and safety impacts and disturbance to adjacent landowners due to general construction activities and movement of construction vehicles.	24 L	
Cumulative Impacts			
Biodiversity (Flora)			
	Cumulative loss of critical biodiversity areas and sensitive habitats	48 M	Biodiversity as per the EMPr (section 7.3.5, 7.3.6 and 7.3.7)
	Cumulative reduction and damage to Conservation Important Species and protected trees.	50 M	
Biodiversity (Fauna)			
	Cumulative loss of faunal habitat.	42 M	Biodiversity as per the EMPr (section 7.3.8 and 7.3.10)
	Impact summary	Significance (post mitigation)	Proposed mitigation and timeframes
Operational Phase	Direct Impacts:		
	Ground water		
	Depletion of ground water resources (water quality)	18 L	Ground water protection as per the EMPr (section 7.2.1)
	Pollution and contamination of ground water	26 L	
	Surface water		
	Disturbance, alteration and loss of ecological function of the habitat of the various dams and drainage lines	33 M	Surface water as per the EMPr (section 7.2.2 and 7.2.3)
	Pollution and contamination of surface water	10 N	
	Soil		
	Pollution and contamination of the soil	6 N	Soil erosion and soil pollution and contamination as per the EMPr (section 7.3.1 and 7.3.2)
	Soil erosion	18 L	
	Air		
	Air pollution by emissions from increased numbers of game drive vehicles and private vehicles.	30 L	Air quality as per the EMPr (section 7.3.3)
	Biodiversity (Flora)		
	<i>Rehabilitation of old cultivated fields and lands</i>	65 H	Biodiversity as per the EMPr (section 7.3.4, 7.3.5, 7.3.6 and 7.3.7)
	Loss of critical biodiversity areas and sensitive habitats, specifically the riparian woodland,	22 L	
Destruction and damage to Conservation Important Species and protected trees	20 L		
Increase in exotic vegetation/alien species and bush encroachment into disturbed soils and areas	22 L		

Biodiversity (Fauna)		
Loss of faunal habitat and faunal disturbances, displacement of taxa and changes in distribution and abundance	18 L	Biodiversity as per the EMPr (section 7.3.8 and 7.3.10)
Injury and Mortality of fauna	20 L	
Poaching and snaring of fauna by staff.	24 L	
Heritage		
Damage to and / or destruction of archaeological, paleontological or historical artefacts	10 N	Heritage management as per the EMPr (section 7.4.1)
Visual		
Potential visual impact on sensitive visual receptors in close proximity to the proposed developments.	18 L	Visual Impact management as per the EMPr (section 7.5.1)
The potential visual impact of safety and security lighting of the developments at night on sensitive visual receptors in close proximity	20 L	
Socio-economic		
<i>Stimulation of the local economy, especially the local service delivery industry and creation of long term employment (positive impact)</i>	52 M	Socio economic management as per the EMPr (section 7.5.2)
Service and traffic		
Increase in traffic on the surrounding roads	30 L	Socio economic management as per the EMPr (section 7.5.3)
Indirect impacts:		
Visual		
The visual impact of the development on the visual character of the landscape and sense of place of the region.	18 L	Visual Impact management as per the EMPr (section 7.5.1)
Cumulative impacts:		
Biodiversity (Flora)		
Cumulative loss of critical biodiversity areas and sensitive habitats	22 L	Biodiversity as per the EMPr (section 7.3.4, 7.3.5, 7.3.6 and 7.3.7)
Cumulative reduction and damage to Conservation Important Species and protected trees	28 L	
Visual		
Accumulation of built infrastructure in a natural environment.	22 L	Visual Impact management as per the EMPr (section 7.5.1)
Socio-economic		
<i>Creation of permanent employment and skills and development opportunities for members from the local community and creation of additional business and economic opportunities in the area. (positive impact)</i>	33 M	Socio economic management as per the EMPr (section 7.5.2)
<i>Promotion of social and economic development in the local communities (positive impact)</i>	27 L	
Services and traffic		

	Cumulative increase in traffic on the surrounding roads	18 L	Socio economic management as per the EMPr (section 7.5.3)
Decommissioning phase			
None			

Please refer to Appendix G for the complete impact tables.

2. ENVIRONMENTAL IMPACT STATEMENT

Three (3) vegetation types are situated within Qwabi Reserve, namely Waterberg Mountain Bushveld (Least Threatened), Central Sandy Bushveld (Vulnerable) and Western Sandy Bushveld (Least Threatened). Qwabi Private Game Reserve is not situated in any centres of plant endemism and no vegetation types are listed as Threatened Ecosystems.

According to the Limpopo Province Conservation Plan Version 2 (Desmet et al., 2013), five classification-types are present within the Qwabi Reserve, namely **Critical Biodiversity Area (CBA) 1 & 2**, **Ecological Support Area (ESA) 1** and **Other Natural Areas (ONA)**.

An Ecological Importance analysis of each of the vegetation communities represented in the study area was undertaken and the results are as follows:

The Riparian Woodland community has **Very High** Conservation Importance (CI) due to being situated in a CBA, supporting confirmed populations of faunal and floral SCC and potentially supporting several additional SCC. Riparian zones are also regulated under the National Water Act, 1998 (Act No. 36 of 1998), and act as important ecological corridors. The community is mostly intact and contains a low number of alien plant species, which leads to a Functional Integrity (FI) assessment of **High**. The combination of Very High CI and High FI leads to a Biodiversity Importance (BI) of **Very High**. Receptor Resilience (RR) is Low as the study area contains habitat that is unlikely to be able to recover fully after a relatively long period: > 15 years required to restore ~less than 50 % of the original species composition and functionality of the receptor functionality. The integration of Very High BI and Low RR results in a Site Ecological Importance (SEI) of **Very High**.

The Plains Woodland community has **High** CI due to being situated in a CBA, supporting confirmed populations of faunal and floral SCC and potentially supporting several additional SCC. FI is only **medium** due to the presence of alien plant species and historical impacts such as overgrazing. The combination of High CI and Medium FI leads to a BI of **Medium**. RR is Medium as vegetation will recover slowly (>~10 years) to restore > 70% of the original species composition and functionality. The integration of Medium BI and Medium RR results in a SEI of **Medium**.

The Hillslope Woodland community has **High** CI due to being situated in a CBA, supporting confirmed populations of faunal and floral SCC and potentially supporting several additional SCC. FI is **high** due to the very low densities of alien plant species and few historical impacts. The combination of High CI and High FI leads to a BI of **High**. RR is Medium as vegetation will recover slowly (~more than 10 years) to restore > 70% of the original species composition and functionality. The integration of High BI and Medium RR results in a SEI of **High**.

A total of 7 cultural sites were recorded during the survey, of which four of the sites are graveyards and an individual grave and two are historical structures and one Iron Age livestock enclosure. However, no historical or archaeological (both Stone Age and Iron Age) artefacts, assemblages, features, structures or settlements were recorded during the survey at the locations of the various existing developments.

Sewage treatment is via Bio-Mite wastewater treatment works and septic tanks/soak aways.

Statement:

A number of developments have impacted the habitats on QPGR, including two lodges, staff housing, workshop, waste water treatment works and dams and river crossings. The construction and operation of this infrastructure has taken place over many years and has had a limited overall impact on the ecology of the area.

All of infrastructure at Babohi Lodge is located within areas classified as having a **high** sensitivity, with the exception of one WWTW and the Babohi helipad which is located in an area of **moderate** sensitivity. No infrastructure is located within the 32 m buffer of the drainage line that runs to the west of the Lodge.

Majority of the original Letamo Lodge footprint is located within an area classified as **medium** sensitivity with a small portion encroaching into areas of **very high** sensitivity. The Letamo Lodge expansion is located primarily in areas of **very high** sensitivity, along with the WWTW. The Letamo helipad is located within areas of **medium** sensitivity with a portion encroaching into an area of **very high** sensitivity. No infrastructure is located within the 32 m buffer of the watercourses.

The APU, Management house, workshop, staff accommodation, and admin block are located in areas classified as having a **moderate** sensitivity.

It is not known what tree or plant species were destroyed during construction but a one Red Data plant species and seven protected plant species were located around the application sites during fieldwork. Several additional plant SCC and protected plants potentially occurred. However, most of these were present in low densities and many would have been avoided to include in the landscaping of the tourist lodges.

All of the developments and infrastructure within Qwabi Private Game Reserve have already been completed and have been operational for many years, with the lodges only recently becoming commercial and open to guests and tourists.

It must be noted that the construction phase impacts were assessed with the assumption that **no mitigation measures** were in place during construction. As such, proposed mitigation measures are to be implemented during the operational phase. A retrospective assessment was conducted in order to assess potential impacts that might have occurred as a result of the unauthorised activities. The impacts were found to have a **moderate** impact. The loss of ecological function of the watercourses and loss of critical biodiversity areas and disturbance to sensitive habitats was found to have a **high** significance owing to the placement of Letamo Lodge, WWTW and a portion of the helipad in riparian woodland (rated as very high) and the clearing of vegetation (CBA 1 and 2 in most cases).

The operational impacts have been assessed and should all mitigation measures mentioned in this report, the specialist reports and the OEMPr be implemented and adhered to as soon as possible, negative impacts can be mitigated to acceptable levels of **low to moderate**. It should be noted that not all impacts can be mitigated, as the impact occurred many years ago, however, measures can be put in place in order to prevent further impact from occurring on the environment.

The cumulative impact of the 66 ha of unauthorized developments on QPGR should also be taken into context. Biodiversity has significantly increased since acquiring the property in 2010 with the reintroduction of elephants and lion making the reserve now home to the Big 5. Qwabi Reserve also maintains and manages an important and increasing population of White Rhinoceros on the property and the imminent introduction Black Rhinoceros has recently been approved by LEDET. Just under 1000 Ha of land has been rehabilitated within the Reserve inclusive of the removal of alien invasives, old fence lines, bush encroachment and removal of old cattle farm infrastructure.

Additionally, many positive impacts associated with the development of the lodges and tourist infrastructure have been experienced, namely employment opportunities and job creation during both the construction phases and the operational phases, whereby 230 people are currently employed. Other positive impacts are skills development and training, diversifying the tourism offerings within the region, the conservation of almost 10 000 Ha of CBA 1 and 2, as well as the rehabilitation of old lands and fence lines.

With the above in mind it is recommended that environmental authorization is granted for all developments mentioned in this report.

SECTION E: RECOMMENDATION OF PRACTITIONER

The construction and development of the lodges and other infrastructure within QPGR has resulted in the permanent removal of indigenous vegetation within an area classified as a CBA 1 and 2 and ESA 1, as well as, the reduction in faunal habitat. These impacts are, however, considered to be low to moderate owing to the large size of the Qwabi Private Game Reserve. Additionally, some faunal species of conservation concern (SCC) were only recently re-introduced into the reserve and construction activities would therefore not have affected them. Construction activities may also have displaced SCC through noise and human presence, albeit over a relatively short temporal period. All vertebrate fauna present would only occasionally utilise the sites and would not be resident or restricted to them.

As discussed in the preceding section, all negative impacts can be effectively mitigated and managed to acceptable levels (low to moderate residual impact). Mitigation measures mentioned in this report, the OEMP_r and the specialist reports must be adhered to and implemented during the operational phase and during any future construction.

Additionally, the following is recommended:

- No further development takes place on QPGR without ecological studies taking place first to assess the impact of the developments on untransformed habitats.
- Installation of water consumption monitoring meters to be undertaken at each borehole abstraction point. The installation of these meter must be undertaken within 6 months of the S24G being approved.
- Water consumption will be monitored on a monthly basis to ensure that there is no undue waste. Keep up to date records of water monitoring.
- Quality tests on the treated waste water discharged from the existing WWTWs must be undertaken on a 4 monthly basis to ensure that the output quality of the effluent complies with the minimum standards as prescribed by DWS. These records will be kept up to date and made available upon request. The first test is to be undertaken within 2 months of the S24G being approved.
- All declared alien plants within a 50 m radius of each construction area must be eliminated according to the DFFE's published guidelines (DEA, 2015). These are species that have been listed under the National Environmental Management: Biodiversity Act (Act No. 10 OF 2004). It is imperative that the team/s tasked with this action be suitably training in removal methods, including the identification of alien plants and safe use of herbicide.
- Special attention should be paid to removing *Flaveria bidentis* (Speedyweed) and *Opuntia stricta* (prickly pear), which currently pose the greatest alien invasive plant threat to biodiversity at Qwabi.
- QPGR will develop a management and monitoring programme for alien and invasive species 6 months from the date of the S24G being approved. This programme will detail basic ID information, actions to prevent the establishment of invasive plants and methods of removal.
- The existing septic tank and soakaway systems at the Management houses and APU should be replaced with a package plant WWTWs or these septic tanks connected to the existing sewer network that is connected to an existing WWTW. This should be undertaken within 2 years of the of the S24G being approved.
- Only inert construction rubble and natural materials to be used to fill in the old quarry pit. All other waste (i.e. plastic, metal, etc) to be removed and disposed of at a registered landfill site. Proof of such disposal must be kept on record.
- The old quarry pit site is to be rehabilitated within 2 months from the date of filling and closure and fully rehabilitated within 3 months thereof. All waste will be removed and disposed of at a licenced landfill site.
- No new developments/infrastructure should be located within Riparian Woodland vegetation rated as having a very high sensitivity.

- To compensate for the loss of potentially destroyed protected trees, a plant nursery should be constructed on Qwabi in an existing modified area to propagate the following species; *Sclerocarya birrea*, *Boscia albitrunca*, *Elaeodendron transvaalense*, *Combretum imberbe*, *Spirostachys Africana*, *Vachellia erioloba* and *Phyllogeiton zeyheri*. These trees can later be planted within the application sites to prevent elephant damage.
- All disturbed sites to be rehabilitated with indigenous vegetation.
- An Environmental Control Officer should be appointed to oversee all future construction sites.