DIGBY WELLS
ENVIRONMENTAL

Proposed Expansion, Upgrade and Maintenance Projects within Sun City Complex, North-West Province

Final Scoping Report

Project Number:

SUN4642

Prepared for:

Sun International: Sun City Resort

August 2018

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This document has been prepared by Digby Wells Environmental.

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Project Name:	**Proposed Expansion, Upgrade and Maintenance Projects within Sun City Complex, North-West Province**
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Name	Responsibility	Signature	Date
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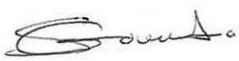
Sanusha Govender	Report Review		August 2018

EXECUTIVE SUMMARY

Introduction

Sun International plans to undertake expansion, upgrade and maintenance projects at the Sun City Resort Complex located within the Moses Kotane Local Municipality, North West Province. The Sun City Resort is located on property that is leased from the National Department of Rural Development and Land Reform. The total lease area comprises 3,400 hectares.

The Resort complex is bordered by the R556 road in the south and the Pilanesberg National Park in the north and east. The community of Ledig is located immediately south-west of the Sun City Property.

K2M Environmental on behalf of Kubu Property Investment (Pty) Ltd and the Bakubung Ba Ratheo Community recently completed an EIA for the development of a 5,220 unit mixed use housing development on Portion 15 of the Farm Ledig No 909, which borders on the Sun City property in the south-west.

The Sun City Resort has been expanded significantly since it was initially established in 1979 and comprises four hotels, entertainment area as well as two international standard 18-hole Golf Courses, various swimming pools and recreational areas. Sun International now intends to roll out numerous projects within the next ten to fifteen years. Three Project Types are identified in this Scoping Report totalling 17 projects:

- Resort Expansion Projects;
- Utilities and Services Expansion Projects; and
- Maintenance Projects.

The Resort Expansion Projects proposed are the facilities from which the Resort generates income and remains a viable business. The need for expansion of existing Services and Utilities Projects stems from the age of the existing infrastructure, and the lack of capacity of existing infrastructure to accommodate the current and planned activities at the resort. Maintenance Projects are required on a continuous basis at the resort. Cleaning of culverts and maintenance of fire-breaks at the resort comprise two such important maintenance activities.

Project Applicant

The details of the Project Applicant are included in the table below.

Project applicant:	Sun International
Responsible position	Sun City Resort Environmental Manager and Acting Health and Safety Manager
Contact person:	Daniel Boshoff

Postal address:	Sun City Resort, North West Province, 0316		
Telephone:	+27 (0) 14 557 3079	E-Mail:	daniel.boshoff@suninternational.com

Environmental Consultants

Digby Wells and Associates (South Africa) (Pty) Ltd. (t/a Digby Wells Environmental) has been appointed by Sun International to facilitate the environmental-legal applications relevant to the proposed projects. The details of the Environmental Assessment Practitioner are contained in the table below.

Name of Practitioner:	Ms Sanusha Govender
Company	Digby Wells and Associates (South Africa) (Pty) Ltd
Telephone:	011 789 9495
Fax:	011 789 9498
Email:	sanusha.govender@digbywells.com

Purpose of this Report

The Environmental Impact Assessment (EIA) process is a tool to identify and manage potential impacts on the environment as a result of a particular project. Environmental risks associated with such a project are also identified and mitigation measures proposed. The completion of an EIA is a regulatory requirement in terms of the provisions of the National Environmental Management Act, 1997 (Act 107 of 1998) (NEMA) and the EIA process which is regulated in accordance with the EIA Regulations, 2014[1] (the EIA 2014 Regulations, as amended). The overarching purpose of the EIA process is to determine, assess and evaluate the environmental and social consequences (positive and negative) of a proposed development, activity or project.

This Scoping Report forms part of the EIA process and aims to identify those biophysical and socio-economic issues or concerns that require investigation as well as determine feasible alternatives. This information is then used to determine the scope of work for the impact assessment phase of the EIA process. During the scoping phase, people interested or affected by the project are informed of the project as well as provided the opportunity to raise issues and concerns they may have.

[1] GN R982 published in Government Gazette 38282 of 4 December 2014 (as amended, 2017)

The objectives of the scoping report are, therefore, to:

- Describe the Project and the associated activities;
- Provide a summary of the Baseline Environment;
- Predict potential positive and negative impacts as a result of the Project and its activities, and identify potential measures to minimise negative impacts and enhance positive impacts;
- Provide a proposed Plan of Study for the EIA Phase; and
- Share the Project information with Interested and Affected Parties (I&APs) and to record the issues and comments raised by all stakeholders.

Summary of the Baseline Environment

The Sun City Resort falls within the Moses Kotane Local Municipality, of the Bojanala Platinum District Municipality and was opened on 7 December 1979. The site comprises of lower-lying areas with gentle slopes, as well as higher-lying areas with steeper slopes on hilltops. The dominance of steep and rocky areas results in generally very shallow soils within the resort limiting agricultural potential.

The whole of the Sun City Resort Complex is located in Zeerust Thornveld according to the National Vegetation Map (2012). This vegetation type is part of the Central Bushveld Bioregion of the Savanna Biome. Zeerust Thornveld is considered to be “least threatened” at a national scale. Locally, the site falls within Nature Reserve Protected Areas in accordance with the South African Protected Areas Database (2017) and falls within a Critical Biodiversity Area 2 in terms of the North West Biodiversity Sector Plan, however, the resort does not fall within a Threaten Ecosystem. The ecological sensitivity categorisations provided for the site are mainly attributed to its proximity to the Pilanesberg National Park, which is a protected area.

A total of seven wetland areas were delineated within the boundary of the resort which were found to range from Largely Natural to Largely Modified in terms of their Present Ecological State. In terms of Ecological Importance and Sensitivity, these wetlands were found to range from moderate and high sensitivity which can be attributed to the proximity to the Pilanesberg National Park and the associated presence of various protected species.

Within the Bojanala Platinum District Municipality, a total of 177 heritage resources have been identified, of which 17 occur within the resort. The heritage resources comprise of expressions from mainly the Late Farming Community period including farming community sites, the historical built environment, burial grounds and graves and recent heritage.

The current land uses include urban development which includes roads, hotels, gardens, golf courses, natural areas (shrubland/thicket/woodland and grassland) associated with the project site and surrounds. Furthermore, at a local and district municipality scale, surrounding land uses include Nature Reserves, mines, residential areas and other urban development as well as agriculture (mainly subsistence farming).

Approach and Methodology for the Public Participation Process

A Public Participation Process has been initiated, which is central to the investigation of environmental and social impacts, as it is important that stakeholders who are affected by the Project are given an opportunity to identify concerns to ensure that local knowledge, needs and values are understood and taken into consideration as part of the EIA process.

The Draft Scoping Report was subject to a 30-day public comment period from 12 July 2018 to 14 August 2018. All comments received during this period were captured and included in this Final Scoping Report.

The following activities were undertaken as part of the Scoping Phase:

- A Background Information Document (BID) was distributed;
- Newspaper advertisement was placed in the 12 July 2018 Newspaper;
- An announcement letter including a registration form was distributed to identified Interested and Affected Parties (I&APs) via email;
- Site notices were placed around the site;
- A public meeting was held at the Cornerstone Academy School, Sun Village on 18 July 2018; and
- Hard copies of the Draft Scoping Reports were made available at the Sun Central and Bakubung Tribal hall for public review and comments. Furthermore, an electronic copy could have been accessed and downloaded from the Digby Wells website - www.digbywells.com (Public Documents).

Project Alternatives

The Project alternatives considered for this project include the following:

- Site layout in terms of the environmental and social sensitivities associated with areas where developments are planned;
- Project schedule in terms feasible roll-out rates for the individual projects;
- Technology alternatives in terms of energy sources; and
- The no-go alternative, resulting in no further development taking place at Sun City at all.

Conclusions and Recommendations

The resort is located in proximity to ecologically sensitive areas and as such all proposed developments need to be executed in a way that minimises disturbance outside of the resort as far as possible. The preliminary potential impact identification considers impacts associated with both the construction of the proposed projects as well as the operation of the facilities once they are developed.

Key adverse impacts identified pertain to the loss of flora and disturbance of fauna, the destruction of wetland habitats as well as increased traffic on the surrounding road network. The proposed projects are also likely to result in positive impacts mainly pertaining to socio-economic improvements through increased job opportunity and increased capacity of the resort which will result in additional business sales and contribution to taxes and the Gross Domestic Product.

Input into requirements and scope of specialist studies and their specific terms of reference is invited through the scoping process laid out in this report. Various specialist studies are being undertaken as part of this EIA process to quantify impacts associated with the proposed developments. Mitigation and management measures will also be proposed to mitigate adverse impacts and enhance positive impacts as far as possible with the aim of ensuring that all developments within the Sun City Resort are constructed and executed in a sustainable manner.

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LIST OF ABBREVIATIONS AND ACRONYMS

Abbreviation / Acronym	Description
BID	Background Information Document
BPDM	Bojanala Platinum District Municipality
CFP	Chance Find Procedure
CMP	Conservation Management Plan
CRR	Comments and Response Report
CS	Cultural Significance
DAFF	Department of Agriculture, Fisheries and Forestry
dB, dBA	Decibel -- a measure of sound level and used as a measure of noise pollution.
DEA	Department of Environmental Affairs
DMR	Department of Mineral Resources
DWS	Department of Water and Sanitation
EA	Environmental Authorisation
EAP	Environmental Assessment Practitioner
EIA	Environmental Impact Assessment
EMF	Environmental Management Framework
EMP	Environmental Management Programme
GPGC	Gary Player Golf Course
GN	Government Notice
ha	Hectares
HIA	Heritage Impact Assessment
km^2	Square Kilometre
I&APs	Interested and Affected Parties
IDP	Integrated Development Plan
IWWMP	Integrated Water and Waste Management Plan
LCGC	Lost City Golf Course
LED	Local Economic Development
m	Metres
m^2	Square Metres

Abbreviation / Acronym	Description
mamsl	Metres Above Mean Sea Level
MKLM	Moses Kotane Local Municipality
MPRDA	Mineral and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002)
MW	Megawatts
N	Nitrogen
NAAQS	National Ambient Air Quality Standards
NEMA	Environmental Management Act, 1998 (Act No 107 of 1998)
NEM: WA	National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008)
NEM: AQA	National Environment Management: Air Quality Act, 2004 (Act No. 39 of 2004)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
PPP	Public Participation Process
READ	Department of Rural, Environment and Agricultural Development
SAHRA	South African Heritage Resources Agency
SABS	South African Bureau of Standards
SANS	South African National Standards
SASS5	South African Scoring System Version 5
SDF	Spatial Development Framework
SMS	Short Message Service
SSC	Species of Special Concern
TDS	Total Dissolved Solids
VC	Vacation Club
VOW	Valley of Waves
WML	Waste Management Licence
WUL	Water Use Licence
WULA	Water Use Licence Application
WWTW	Wastewater Treatment Works

1 Introduction

Digby Wells Environmental (hereafter Digby Wells) has been appointed by Sun City Resort to undertake an Environmental Impact Assessment (EIA) in relation to proposed future expansion, upgrade and maintenance projects within the Sun City Resort Complex, North West Province.

The Sun City Resort complex was developed by the hotel magnate Sol Kerzner as part of his Sun International group of properties. Sun City was opened on 7 December 1979.

The Resort comprises four hotels (the Soho Hotel, Cascades Hotel, Cabanas and The Palace of the Lost City Hotel (referred to as The Place)), including an Entertainment Centre and Casino (Sun Central), and a timeshare scheme (Vacation Club) as well as two international standard 18-hole Golf Courses, various swimming pools and recreational areas including the “Valley of Waves”.

The Sun City Resort is located on property that is leased from the National Department of Rural Development and Land Reform. The total lease area comprises 3,400 hectares (Ha). The areas actively being managed and used by Sun City Resort comprises three Zones, as follows (Also refer to Appendix A, Plan 3):

- Area A: 492 ha – between the Resort and the town of Ledig;
- Area B: 597 ha – the developed area comprising Sun City Resort complex; and
- Area C: 469 ha – area used by Mankwe Gametrackers.

The Resort complex is bordered by the R556 road in the south and the Pilanesberg National Park in the north and east. The community of Ledig is located immediately south-west of the Sun City Property.

K2M Environmental on behalf of Kubu Property Investment (Pty) Ltd and the Bakubung Ba Ratheo Community recently completed an EIA for the development of a 5,220 unit mixed use housing development on Portion 15 of the Farm Ledig No 909, which borders on the Sun City property in the south-west. The Regional and Local Setting are displayed in Plan 1 and Plan 2, Appendix A respectively.

This application for environmental authorisation specifically relates to the applicant proposing an expansion, upgrade and maintenance of Sun City in the following ten to fifteen years as discussed in more detail in Section 4. The location of each individual Project is illustrated in Appendix A, Plan 4. Table 1-1 summarises the proposed developments.

This report constitutes the Final Scoping report submitted to the North West Department of Rural, Environment and Agricultural Development (READ) for appraisal. All comments received on the Draft Scoping Report from Interested and Affected Parties (I&APs) have been duly incorporated into this report.

Table 1-1: Proposed Future Projects at Sun City (Summary of Projects)

Category	No.	Project Name	Project Summary
Resort Expansion Projects (REP)	REP1	Eco-Lodge	Development of a Bush Lodge / Eco-Lodge at Gary Player Golf Course Workshop.
	REP2	Driving Range Road	Construct a Road to connect the Driving Range at Lost City Golf Course (LCGC) to the Gary Player Golf Course (GPGC) via the Palace garden road and Valley of Waves (VOW) road.
	REP3	Kwena Gardens Expansion	Construct 20 additional Rustic Chalets at Kwena Gardens.
	REP4.1	Vacation Club (VC) Phase 3	Construct an additional 150 simplex units, 2-3 bed units and associated infrastructure to expand capacity at the VC. The site identified for the expansion currently houses the Helipad and Nursery.
	REP4.2	VC Phase 4	Construct of an additional 150 simplex units, 2- 3 bed units and associated infrastructure to expand capacity at the VC. The site identified for the expansion is located within an undeveloped area.
	REP5	Recreational Lake Beach Expansion	Expand the existing artificial beach at the Lake and construct an additional shallow swimming pool at Waterworld Beach.
	REP6	Helipad relocation and expansion	Decommission the existing helipad, to make space for VC Phase 3, and construct a new helipad with increased bays closer to the Palace.
	REP7	Additional Parking Garage, Convention Centre and Hotel	Construct an additional parking garage, Convention Centre and Hotel (250 rooms) including a bridge link from Sun Central to the new Hotel.
	REP8	Soccer Fields	Develop 2 soccer fields at the Warehouse.
Utilities and Services Projects (USP)	USP1	Stormwater culverts at Golf Course Roads	Install Stormwater pipes / culverts at Golf Course Roads to allow water to flow under the roads and maintain the road surface for fence inspections by security (prevent floods washing away the road).
	USP2	Additional Reservoirs to Supplement existing water storage capacity	Construct 2 x 10Ml reservoirs or alternatively 1x 20Ml Reservoir on Telkom Hill next to existing Upper Reservoir.

Category	No.	Project Name	Project Summary
	USP3	Effluent transfer line replacement.	Currently there is an effluent transfer line (old asbestos line) through Sunset Drive to the irrigation lake at Hole 2. This line will be decommissioned (shut down) but remain in place. A new line will then be installed against the fence of Letsatsing.
	USP4	Sunset-Skytrain Fresh Water Line	Construct a main water line from the Welcome Centre to Skytrain (pipe will be attached to Skytrain route).
	USP5	Ledig Sewer Line decommissioning, New wastewater treatment works (WWTW) for VC and Palace.	Currently the sewer line running through Ledig (old asbestos line) reaching its end of life and is previously dysfunctional in certain areas. The line will be decommissioned (shut down but remain in place). A new WWTW will be established to manage sewage from VC and The Palace. A new pipeline will be required to the Lost City hole 3 dam to return the treated water for irrigation.
	USP6	South Village Pipeline	Construct an additional pipeline for water supply to South Village.
	USP7	Generator Park	Consolidate the generators throughout the site into one area for effective monitoring and control, or establish a generator park to service the east side business units.
Maintenance Projects (MP)	MP1	Clearance of Fence Roads	Vegetation Clearance at perimeter fences to serve as maintenance roads and fire breaks (25 km).
	MP2	Sun Park Culverts	Clear both sets of culverts under the road at Sun Park from debris and siltation. Construct maintenance road to facilitate future maintenance.

Details of the Applicant are provided in Table 1-2.

Table 1-2: Details of the Applicant

Project applicant:	Sun International		
Responsible position	Sun City Resort Environmental Manager and Acting Health and Safety Manager		
Contact person:	Danie Boshoff		
Postal address:	Sun City Resort, North West Province, 0316		
Telephone:	+27 (0) 14 557 3079	E-Mail:	daniel.boshoff@suninternational.com

Details of the Land Owner are provided in Table 1-3.

Table 1-3: Details of the Land Owner

Land Owner	National Government of the Republic of South Africa Property is leased from the Government of South Africa (Notarial Deed of Lease: K6/1978L, as amended).		
Responsible position			
Contact person:	Richard Keothaile		
Postal address:	Private Bag 74 Mmabatho 2745		
Telephone:	+27 (0) 18 397 7600	Fax:	+27 (0) 18 381 1875

Details of the Competent Authority are provided in Table 1-4.

Table 1-4: Details of the Competent Authority

Competent Authority	Department of Rural, Environment and Agricultural Development (READ), North West Provincial Government		
Contact person:	Ouma Skosana		
Postal address:	Private Bag X2039, Mmabatho 2735		
Telephone:	+27 (18) 389 5156	Fax:	086 507 6333
E-Mail	oskosana@nwpg.gov.za		

The Draft Scoping Report was submitted to Interest and Affected Parties (I&APs) for review at various publicly accessible places for a 30-day commenting period from 12 July 2018 to 14 August 2018. All comments received during the pubic commenting period have been captured in this Final Scoping Report. This report has been made available on the Digby Wells website: www.digbywells.com (under Public Documents).

Table 1-5 identifies the required contents of a Scoping Report according to Appendix 2 of the NEMA EIA Regulations, 2014 (as amended) and cross-references the requirements to the relevant sections in this Report.

Table 1-5: Structure of this Scoping Report

Regulatory Requirement for Scoping Reports	Relevant Section of this report
2. (1) A scoping report must contain the information that is necessary for a proper understanding of the process, informing all preferred alternatives, including location alternatives, the scope of the assessment, and the consultation process to be undertaken through the environmental impact assessment process, and must include—	
(a) details of— (i) the EAP who prepared the report; and (ii) the expertise of the EAP, including a curriculum vitae;	Please refer to Section 2: Details and Experience of the EAP and Appendix C
(b) the location of the activity, including— (i) the 21 digit Surveyor General code of each cadastral land parcel; (ii) where available, the physical address and farm name; (iii) where the required information in items (i) and (ii) is not available, the coordinates of the boundary of the property or properties;	Please refer to Section 3: Description of the location of the proposed activity.
(c) a plan which locates the proposed activity or activities applied for at an appropriate scale;	Please refer to Appendix A
(d) a description of the scope of the proposed activity, including— (i) all listed and specified activities triggered; (ii) a description of the activities to be undertaken, including associated structures and infrastructure;	Please refer to Section 4: Description of the scope of the proposed activity.
(e) a description of the policy and legislative context within which the development is proposed including an identification of all legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that are applicable to this activity and are to be considered in the assessment process;	Please refer to Section 5: Relevant policy and legislative context.
(f) a motivation for the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location;	Please refer to Section 6: Need and desirability of the proposed development.

Regulatory Requirement for Scoping Reports	Relevant Section of this report
(g) a full description of the process followed to reach the proposed preferred activity, site and location of the development footprint within the site, including— (i) details of all the alternatives considered;	Please refer to Section 7: Details of Alternatives considered.
(ii) details of the public participation process undertaken in terms of regulation 41 of the Regulations, including copies of the supporting documents and inputs;	Please refer to Section 8: Details of the public participation process, and Appendix B
(iii) a summary of the issues raised by interested and affected parties, and an indication of the manner in which the issues were incorporated, or the reasons for not including them;	Please refer to Section 8: Details of the public participation process, and Appendix B.
(iv) the environmental attributes associated with the alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Please refer to Section 9: Environmental Attributes associated with the alternatives.
(v) the impacts and risks which have informed the identification of each alternative, including the nature, significance, consequence, extent, duration and probability of such identified impacts, including the degree to which these impacts— (aa) can be reversed; (bb) may cause irreplaceable loss of resources; and (cc) can be avoided, managed or mitigated;	Please refer to Section 11: Preliminary identification of Impacts, risks and mitigation measures.
(vi) the methodology used in identifying and ranking the nature, significance, consequences, extent, duration and probability of potential environmental impacts and risks associated with the alternatives;	Please refer to Section 10: Impact Assessment Methodology
(vii) positive and negative impacts that the proposed activity and alternatives will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects;	Please refer to Section 11: Preliminary identification of Impacts, risks and mitigation measures.
(viii) the possible mitigation measures that could be applied and level of residual risk;	Please refer to Section 11: Preliminary identification of Impacts, risks and mitigation measures.
(ix) the outcome of the site selection matrix;	Please refer to Section 7: Details of Alternatives considered.

Regulatory Requirement for Scoping Reports	Relevant Section of this report
(x) if no alternatives, including alternative locations for the activity were investigated, the motivation for not considering such; and	Please refer to Section 7: Details of Alternatives considered.
(xi) a concluding statement indicating the preferred alternatives, including preferred location of the activity;	Please refer to Section 12: Concluding Statement
(h) a plan of study for undertaking the environmental impact assessment process to be undertaken	Please refer to Section 13: Plan of Study for undertaking the EIA.
(i) an undertaking under oath or affirmation by the EAP in relation to— (i) the correctness of the information provided in the report; (ii) the inclusion of comments and inputs from stakeholders and interested and affected parties; and (iii) any information provided by the EAP to interested and affected parties and any responses by the EAP to comments or inputs made by interested or affected parties;	Please see Section 2.1: Undertaking of the EAP.
(j) an undertaking under oath or affirmation by the EAP in relation to the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment;	Please see Section 2.1: Undertaking of the EAP.
(k) where applicable, any specific information required by the competent authority; and	No specific information was requested and no other matters are known to be required at this stage.
(l) any other matter required in terms of section 24(4)(a) and (b) of the Act.	

2 Details and Experience of the EAP

Sun City has appointed Digby Wells as the independent Environmental Assessment Practitioner (EAP) to undertake the EIA process, Public Participation Process (PPP) and applications on behalf of the Applicant for environmental authorisation for the proposed future developments at the Sun City Complex.

Details and experience of the persons who compiled this report are provided in Table 2-1.

Table 2-1: Details of the EAP

Name of Practitioner:	Ms Sanusha Govender
	Sanusha Govender is a Senior Environmental Consultant. She holds a BSc in Environment & Development together with over 12 years of experience as both an, Environmental Impact Assessment Consultant and as a Sustainability Programme Manager. She has project managed and delivered quality products on a range of environmental assessments and sustainability solutions. Projects have included renewable energy EIA's, managing large teams of interdisciplinary specialists and advisors.
Company	Digby Wells and Associates (South Africa) (Pty) Ltd
Telephone:	011 789 9495
Fax:	011 789 9498
Email:	Sanusha,govender@digbywells.com

2.1 Undertaking of the EAP

I, **Sanusha Govender**, herewith undertake that the information provided in this report is to the best of my knowledge correct, and that the comments and inputs from stakeholders and Interested and Affected parties has been correctly recorded in the report.

I further undertake that the level of agreement with interested and Affected Parties and stakeholders has been correctly recorded and reported herein.

Signature of the EAP: _____

Date: _____

3 Description of the Location of the Proposed Activity

The proposed projects are located within the Sun City Resort Complex in the North West Province. The site falls within the Moses Kotane Local Municipality (MKLM), of the Bojanala Platinum District Municipality (BPDM).

The proposed developments are planned within the existing Sun City Resort Complex which comprises the properties listed in Table 3-1 below. These properties are illustrated in Plan 3, Appendix A.

Table 3-1: Affected Properties – Sun City Resort

Farm Name and Portion	21 digit Surveyor General code	Surface Right Owner	Property Size (Ha)
Remaining Extent (RE) of the farm Styldrift 90	T0JQ00000000009000000	Government of the Republic of South Africa	4439
Portion 7 of the farm Styldrift 90	T0JQ00000000009000007	Government of the Republic of South Africa	19
RE of the farm Ledig 909	T0JQ00000000090900000	Government of the Republic of South Africa	708
Portion 3 of the farm Ledig 909	T0JQ00000000090900003	Government of the Republic of South Africa	0
Portion 4 of the farm Ledig 909	T0JQ00000000090900004	Government of the Republic of South Africa	0
Portion 6 of the farm Ledig 909	T0JQ00000000090900006	Government of the Republic of South Africa	367
Portion 7 of the farm Ledig 909	T0JQ00000000090900007	Government of the Republic of South Africa	431
Portion 15 of the farm Ledig 909	T0JQ00000000090900015	Government of the Republic of South Africa	364
RE of the farm Doornhoek 910	T0JQ00000000091000000	Government of the Republic of South Africa	1804
RE of Portion 1 of the farm Doornhoek 910	T0JQ00000000091000001	Government of the Republic of South Africa	969
Portion 2 of the farm Doornhoek 910	T0JQ00000000091000002	Government of the Republic of South Africa	24
Portion 3 of the farm Doornhoek 910	T0JQ00000000091000003	Government of the Republic of South Africa	250
Portion 4 of the farm Doornhoek 910	T0JQ00000000091000004	Government of the Republic of South Africa	6

Sun City Resort was initially developed in 1979 in Bophutatswana (BOP), which was declared an independent state by the South African Government in 1978. After the first democratic election in 1994, the area was incorporated back into the Republic of South Africa (RSA). The location was chosen specifically because gambling was illegal in the RSA at the time, but BOP had no legislation that placed restrictions on gambling (Boshoff, 2015). Therefore the location lent itself ideally to the development of a resort that could offer leisure activities, including gambling, in relatively close proximity to large towns and cities in RSA. Sun City Resort Complex is located only approximately 200km out of Johannesburg.

Sun City Resort formed part of a greater development plan for the region, which included the establishment of a Big-5 Protected area, namely the Pilanesberg National Park, which borders the Resort to the north, east and west. Pilanesberg National Park was also opened to the public in 1979 (Swart & Horn, 2012).

The Sun City Resort was initially developed to comprise the Sun City Hotel and Casino, as well as the Gary Player Country Club (GPCC). The resort was subsequently expanded with the development of the Cabanas, Cascades Hotel and Entertainment Centre. In 1992, the Palace of the Lost City, Valley of Waves and Lost City Country Club (LCCC) were opened to the public.

Sun City proposes a number of Resort Expansion, Services Upgrades and Maintenance Projects to be undertaken at the Sun City Resort over the next ten to fifteen years.

The location of each of the individual Projects within the Sun City Resort is described in Table 3-2, and illustrated in Appendix A, Plan 4.

Table 3-2: Location details per proposed projects

Project No	Project Name	Description of coordinates provided	Coordinates	
			Latitude	Longitude
REP1	Eco-Lodge	Approximate centre point of Lodge site	25°20'7.23"S	27° 5'58.43"E
REP2	Driving Range Road	Start point of road	25°20'22.26"S	27° 5'30.77"E
		End point of road	25°20'34.65"S	27° 5'57.17"E
REP3	Kwena Gardens Expansion	Approximate centre-point of new Chalets.	25°21'24.68"S	27° 6'30.48"E
REP4.1	VC Phase 3	Approximate centre point of VC Phase 3	25°20'26.37"S	27° 4'54.81"E
REP4.2	VC Phase 4	Approximate centre point of VC Phase 4	25° 20'19.732"S	27° 4'17.09" E
REP5	Recreational Lake Beach Expansion	Approximate centre of Beach Expansion Site	25°20'48.46"S	27° 6'12.94"E

Project No	Project Name	Description of coordinates provided	Coordinates	
			Latitude	Longitude
REP6	Helipad relocation and expansion	Approximate centre point of existing Helipad	25°20'30.37"S	27° 4'55.17"E
		Approximate centre point of new Helipad	25°20'28.65"S	27° 5'28.48"E
REP7	Additional Parking Garage, Convention Centre and Hotel	Approximate centre of Site	25°20'47.21"S	27° 5'55.11"E
REP8	Soccer Fields	Approximate centre of Site	25°21'30.94"S	27° 6'7.96"E
USP1	Stormwater culverts at Golf Course Roads	LCGC river crossing	25°19'43.79"S	27° 5'42.47"E
		GPGC river crossing	25°19'51.07"S	27° 6'22.08"E
USP2	Additional Reservoirs to Supplement existing water storage capacity	Approximate Centre Point of New Reservoir(s)	25°20'51.96"S	27° 5'15.99"E
USP3	Effluent transfer line replacement	Start of new Line	25°21'38.56"S	27° 6'16.92"E
		Middle of new Line	25°20'48.12"S	27° 6'27.63"E
		End of new Line	25°20'18.49"S	27° 6'19.77"E
USP4	Sunset-Skytrain Fresh Water Line	Start of New Line	25°20'58.84"S	27° 06'11.75"E
		Middle of New Line	25°21'10.07"S	27° 06'18.77"E
		End of New Line	25°21'19.51"S	27° 06'22.72"E
USP5	New WWTW for VC and Palace	Approximate centre of new WWTW site	25°20'37.05"S	27° 4'51.55"E
USP6	South Village Pipeline	Start of pipeline (at Reservoir)	25°21'19.04"S	27° 5'52.02"E
		End of pipeline (tie-in point)	25°21'24.074"S	27° 06'05.25"E
USP7	Generator Park	Approximate Centre of Site	25°21'23.35"S	27° 6'19.15"E
		Approximate Centre of Alternative Site	25°20'57.28"S	27° 6'4.77"E
MP1	Clearance of Fence Roads	Sun City Perimeter Fence Line		
MP2	Sun Park Culverts	Culvert Location	25°21'1.54"S	27° 6'17.65"E

4 Description of the Scope of the Proposed Activity

The Sun City Resort has been expanded significantly since it was initially established and comprises four hotels, entertainment area as well as two international standard 18-hole Golf Courses, various swimming pools and recreational areas, as follows:

- Accommodation Facilities including:
  - Four Hotels (the Soho, Cascades, Cabanas and the Palace);
  - Vacation Club timeshare accommodation;
  - Rustic Chalets at Kwena Gardens Crocodile Farm; and
  - Accommodation for staff at South Village.
- Indoor Entertainment facilities including (but not limited to):
  - Sun Central;
  - Conference Facilities; and
  - Casino.
- Outdoor Entertainment Facilities including (but not limited to):
  - The Lost City and Gary Player Golf Courses;
  - Inland Beach (Valley of the Waves);
  - Water-sports at the Sun City Dam;
  - Various swimming pools; and
  - Various gardens, such as the Palace Gardens, and wildlife areas as yet undeveloped but used for Game drives and conservation-based activities by Mankwe Game trackers, who lease the land from Sun City.

The Sun City Resort is located on property that is leased from the National Department of Rural Development and Land Reform. The total lease area comprises 3,400 hectares (ha). The areas actively being managed and used by Sun City Resort comprises three Zones, as follows:

- Area A: 492 ha – between the Resort and the town of Ledig;
- Area B: 597 ha – the developed area comprising Sun City Resort complex; and
- Area C: 469 ha – area used by Mankwe Gametrackers.

Three Project Types are identified in this Scoping Report:

- Resort Expansion Projects;
- Utilities and Services Expansion Projects; and
- Maintenance Projects.

Resort Expansion Projects are proposed as these are the facilities from which the Resort generates income and remains a viable business. The need for expansion of existing services and utilities stems from the age of the existing infrastructure, and the lack of capacity of existing infrastructure to accommodate the current and planned activities at the resort. Maintenance Projects are required on a continuous basis at the resort. Cleaning of culverts and maintenance of fire-breaks at the resort comprise two such important maintenance activities.

Table 1-1 provides a summary of the proposed projects which are the subject of this Scoping Report, and are discussed in more detail in the sub-sections that follow.

4.1 Resort Expansion Projects

4.1.1 Eco-Lodge

Project Description	Development of an Eco-Lodge at Gary Player Country Club Workshop. The Eco-Lodge will include 20 to 25 Lodges of 4 to 5 bedrooms each (i.e. accommodation for between 80 and 125 people). Electricity supply to the Eco-Lodge will be via a new 11MVA line from GPCC Workshop. Water supply to the Bush Lodge will be from GPCC Workshop via a 50mm diameter pipeline. Sewage will be conveyed to a sceptic tank. Domestic Waste Collection areas will be included in the detail design. Domestic waste will be collected from the Eco-Lodges by Sun City Waste Management contractor and conveyed to the new Waste to Energy Plant. Access to the Eco-Lodge Site is via the existing golf course Road.	
Project Location	Latitude 25°20'7.23"S	Longitude 27° 5'58.43"E

4.1.2 Driving Range Road

Project Description	There is currently a driving range associated with the LCGC. Golfers at GPGC are obliged to drive around the hotels on the main resort road to gain access to the driving range. Sun City is proposing the upgrade of existing footpaths and service roads and the construction of minor sections of new road to create a golf-cart route from the GPGC to the driving range. The road will be roughly 2.5 m wide and have a paved surface. The route is approximately 900 metres.		
Project Location		**Latitude**	**Longitude**
	Start point of road	25°20'22.26"S	27° 5'30.77"E
	End point of road	25°20'34.65"S	27° 5'57.17"E

4.1.3 Kwena Gardens Expansion

Project Description	Sun City is proposing to expand the accommodation capacity at the existing Rustic Chalets at Kwena Gardens by constructing an additional 20 chalets. The new chalets will be based on the same design principles as the existing chalets and will also be able to tie into the existing water, electricity and sewer infrastructure. Each chalet will accommodate between 2 and 4 people allowing for a maximum of an additional 80 guests. The access road to the existing chalets will be extended past the current development and a new parking lot (approximately 25 parking bays) will also be constructed to service the additional accommodation facilities. The expansion will also mean that the existing staff facilities (change house and store room) may have to be relocated. These facilities will however remain within the Kwena Gardens Development footprint, closely associated with the Rustic Chalets.		
Project Location		**Latitude**	**Longitude**
	Approximate centre-point of new Chalets.	25°21'24.68"S	27° 6'30.48"E

4.1.4 Vacation Club (VC) Phase 3

Project Description	The existing VC provides self-catering accommodation on a time-share scheme basis to guests of the Sun City Resort. Recently, the VC Phase 1 redevelopment saw the refurbishment and remodelling of 184 two-bedroom and 50 three-bedroom Units. Phase 2 consists of 148 Units in total, which are all 2 bedroom units sleeping six guests each. Phase 3 will comprise a total of 150 units which will include simplex units, two-bedroom and three-bedroom units. Phase 3 will increase the VC capacity by a maximum of an additional 1,000 guests, as follows: 100 x 2 bed units, plus 2 additional people per unit on sleeper couch = 600 people 50 x 3 bed units plus 2 additional people per unit on sleeper couch = 400 people VC Phase 3 will tie in to existing infrastructure (water, power, sewer) but will necessitate the development of additional access roads and parking areas as well as the construction of a new restaurant. The site that has been identified for VC Phase 3 expansion currently houses the helipad, which will have to be relocated (see Project 4.1.7 – REP6).

Project Location		**Latitude**	**Longitude**
	Approximate centre point of VC Phase 3	25°20'26.37"S	27° 4'54.81"E

4.1.5 Vacation Club (VC) Phase 4 as and B -

Project Description	Upon completion of the VC Phase 3 development, Sun International intends to develop VC Phase 4. Similar to the Phase 3, the development will comprise a total of 150 units which will include simplex units, two-bedroom (100 units) and three-bedroom units (50 units) resulting in additional capacity to accommodate up to 1,000 guests. The VC Phase 4 area occupies a total footprint of 82 ha and is located between the decommissioned landfill site and Bakubung Gate. This area falls within the undeveloped area of the resort which is not fenced, therefore fencing of this area will be required as part of its establishment. VC Phase 4 will require infrastructure for municipal services namely water, power, sewer and additional access roads. It is however noted that there is a private water line (Bakubung water line) which the area could possibly tie into.		
Project Location		**Latitude**	**Longitude**
	Approximate centre point of VC Phase 4	25° 20' 19.732" S	27° 4' 17.09" E

4.1.6 Recreational Lake Beach Expansion

Project Description	One of the Water Theme Parks at the Sun City Resort, known as Waterworld, is associated with the Sun City Lake and provides action-oriented facilities such as parasailing, wakeboarding, water-skiing, bumper boats and land-based activities including jungle-gyms and an artificial beach. Sun City proposes to expand the facilities at Waterworld to include an additional swimming pool and enlarge the beach area on the bank of the lake, to accommodate more visitors to this section of the Resort.		
Project Location		**Latitude**	**Longitude**
	Approximate centre of Beach Expansion Site	25°20'48.46"S	27° 6'12.94"E

4.1.7 Helipad relocation and expansion

Project Description	The current Helipad provides one landing area and three parking bays. It is located west of the vacation club and just over one kilometre by road from the Palace Hotel. The Majority of Sun City Guests who arrive by Helicopter are guests at the Palace. Sun City Proposes to move the Helipad to the roof of the Palace Parking Garage and increase its capacity. The existing Helipad footprint is 0.6 hectares. The footprint area cannot increase dramatically due to the size of the Parking Garage Roof restricting the maximum size. The proposed new Helipad will not exceed 1 hectare. Access to the Helipad and parking bays by road will be provided from “Elephant Circle”. Refuelling facilities are not provided at the existing helipad. No new fuel storage or handling facilities are to be constructed.		
Project Location		**Latitude**	**Longitude**
	Approximate centre point of new Helipad	25°20'28.65"S	27° 5'28.48"E

4.1.8 Additional Parking Garage, Convention Centre and Hotel

Project Description	To further expand capacity of the Sun City Resort it is proposed to construct an additional parking garage, Convention Centre and Hotel (250 rooms) at the existing parking lot between The Cascades and Sun City Hotels. The new hotel garage and convention centre is planned to be 0.8 ha in extent.		
Project Location		**Latitude**	**Longitude**
	Approximate centre of Site	25°20'47.21"S	27° 5'55.11"E

4.1.9 Soccer Fields

Project Description	A motocross grand prix track was constructed at Sun City near the Main Entrance and Warehouse, to house the 2005 Motocross World Championships. Today the track still remains but is in disuse due to lack of interest from visitors to the Resort. Sun City now proposes to construct two soccer fields on this site for use by the local soccer clubs.		
Project Location		**Latitude**	**Longitude**
	Approximate centre of Site	25°21'30.94"S	27° 6'7.96"E

4.2 Utilities and Services Projects

4.2.1 Stormwater Channels at Golf Course Roads

Project Description	Existing Service Roads allow fence inspections by security throughout the complex, and especially along the northern boundary with Pilanesberg National Park. These also act as fire breaks. North of the LCGC and north of the GPGC, these service roads cross watercourses by means of “low water bridge” structures. During and after rain events, these roads become completely flooded (impassable) and in significant rainfall events wash away significantly. Sun City proposes to install stormwater pipes or culverts underneath these roads to allow rainwater to pass underneath the roads, thereby protecting the road integrity as well.		
Project Location		**Latitude**	**Longitude**
	LCGC river crossing	25°19'43.79"S	27° 5'42.47"E
	GPGC river crossing	25°19'51.07"S	27° 6'22.08"E

4.2.2 Additional Reservoirs (to supplement existing water storage capacity)

Project Description	To supplement existing water storage capacity at the resort complex, Sun City proposes to construct additional reservoirs. Two options are currently being considered: Construction of two Reservoirs of 10Mℓ capacity each, or the construction of one 20Mℓ Reservoir (total capacity therefore 20,000 cubic metres).		
Project Location		**Latitude**	**Longitude**
	Approximate Centre Point of New Reservoir(s)	25°20'51.96"S	27° 5'15.99"E

4.2.3 Effluent transfer line replacement

Project Description	Currently there is an old asbestos effluent (Greywater) transfer line through Sunset Drive to Hole 2. This line will be decommissioned (shut down) but remain in place. A new line will then be installed against the fence of Letsatsing, east of the Lake. Pipe diameter is planned to be 250mm. The entire Project footprint comprises 11,420m^2. The pipeline length is 3000 metres and the servitude width varies between 2 metres and 5 metres. The maximum throughput will be 25 l/s.		
Project Location		**Latitude**	**Longitude**
	Start of New Line	25°21'40.19"S	27° 06'15.26"E
	Middle of New Line	25°21'08.51"S	27° 06'26.81"E
	End of New Line	25°20'17.51"S	27° 06'20.26"E

4.2.4 Sunset-Skytrain Fresh Water Line

Project Description	A main water line will be constructed from the cabanas to the Skytrain Station (pipe will be attached to the Skytrain route). The pipeline will be a total length of 700 m and have a diameter of 250 mm. There is one water crossing at 25°21'03.39"S and 27° 06'17.42"E.		
Project Location		**Latitude**	**Longitude**
	Start of New Line	25°20'58.84"S	27° 06'11.75"E
	Middle of New Line	25°21'10.07"S	27° 06'18.77"E
	End of New Line	25°21'19.51"S	27° 06'22.72"E

4.2.5 Ledig Sewer Line decommissioning, and new WWTW for VC and Palace

Project Description	There is an old asbestos sewer line from the Sun City complex that runs on the property boundary through the north-east section of Ledig. This line is reaching its end of life. As best practice Sun City is proposing to shut down this line, but leave it in place so as to avoid destruction of informal housing that the removal of the line would necessitate. The existing line conveys sewage from the Vacation Club and Palace to the Sun City Waste Water Treatment Works (WWTW). To manage the sewage from Vacation Club and the Palace, Sun City proposes the construction of a new WWTW on what is known as the "old borrow pit area" west of the current Vacation Club. The use of a sewage package plant instead of a formal WWTW is also being considered. Additionally, a new pipeline will have to be constructed from the new WWTW to the Lost City hole 3 Dam to return the treated water for use as irrigation water. The pipeline will be less than 800m long and have a diameter of 400mm. The site of the WWTW (or package plant) will comprise a footprint of approximately 1.5 hectares, and will have a daily throughput capacity of 1,500 cubic metres.		
Project Location		**Latitude**	**Longitude**
	Approximate centre of new WWTW site	25°20'37.05"S	27° 4'51.55"E

4.2.6 South Village Pipeline

Project Description	Water Supply to Sun City starts at the Doornkop Reservoir in the south of the Resort. South Village is supplied from a reservoir located immediately north of South Village. Water quality from this reservoir has often shown signs of containing too much chlorine. Sun City is proposing the construction of an additional pipeline to provide water to South Village from the Complex reservoirs. This pipeline will be 480 metres long, have a diameter of 110mm and a peak throughput of 10 L/s.		
Project Location		**Latitude**	**Longitude**
	Start of pipeline (at Reservoir)	25°21'19.04"S	27° 5'52.02"E
	End of pipeline (tie-in point)	25°21'24.074"S	27° 06'05.25"E

4.2.7 Generator Park

Project Description	Sun City currently has 13 operational Diesel Generators throughout the Resort, servicing different facilities in the event of a power outage. Sun City is proposing to consolidate these generators into one area, adjacent to the existing primary substation and car park near the Resort Entrance, to ensure the Generators are not visually intrusive and that the noise from the generators can be effectively screened off from receptors. As an alternative solution, Sun City proposes to establish a smaller generator park servicing the east side business units only located at No 1 substation. The substation is located between the Cabanas Bus Stop and the Skytrain on the top road. This alternative would involve re-establishing a diesel storage facility (building existing), trenching and excavation adjacent to the existing sub. This would be an 11 kV step-up generating facility, with a paved access road. The generator park will connect directly to the existing grid.		
Project Location		**Latitude**	**Longitude**
	Approximate Centre of Site: Alternative 1	25°21'23.35"S	27° 6'19.15"E
	Approximate Centre of Site: Alternative 2	25°20'57.20"S	27° 6'4.46"E

4.3 Maintenance Projects

4.3.1 Clearance of Fence Roads

Project Description	The entirety of the Sun City Property is not fenced. The “developed area” comprising the existing resort is fenced and access controlled. The perimeter fence between Sun City and Pilanesberg National Park is also fenced with game fencing. Other areas such as the landfill site and nursery are fenced individually. Service roads are associated with the Sun City fence-lines, to enable access to these areas for fence inspection. In addition to fence inspections, vegetation clearance in these areas is necessary frequently to act as fire breaks. Apart from the ecological repercussions of uncontrolled veld fires, human safety and economic liability also has to be considered in assessing the importance of maintaining effective fire breaks.
Project Location	Sun City Perimeter Fence-line.

4.3.2 Sun Park Culverts

Project Description	The bottom access road to Sun City crosses a watercourse at two points downstream of the Sun City Recreational Lake. There are a number of culverts, allowing water to flow underneath the road. The culverts in question are pairs of culverts at two sites close to the Sun Park. These culverts have not been cleaned out in recent years and have begun to silt up with soil, vegetation and litter. Sun City wishes to establish an access road to the Culverts to enable regular maintenance of the culverts, and periodically clean the culverts as necessary. This is considered an ongoing maintenance project and not a once-off activity.		
Project Location		**Latitude**	**Longitude**
	Culvert Location	25°21'1.54"S	27° 6'17.65"E

4.4 Listed Activities associated with the Proposed Development

Environmental Authorization (EA) under the National Environmental Management Act (Act No. 107 of 1998) (NEMA) has to be obtained prior to commencing with Activities which are Listed in the NEMA EIA Regulations, 2014 (as amended).

Activities identified in Listing Notice 1 (GN R 327) or Listing Notice 3 (GN R 324) requires a Basic Assessment Process be followed when applying for EA. Activities identified in Listing Notice 2 (GN R 325) requires the Scoping EIA Process to be undertaken. The proposed development involves activities which are identified in all three Listing Notices and therefore the Scoping EIA Process, as described in Part 3 of Chapter 4 of the NEMA EIA Regulations, 2014 should be followed to apply for EA.

Table 4-1 identifies the Listed Activities relevant to the proposed future developments at Sun City and provides a motivation for inclusion of each Activity. In addition,

Table 4-2 highlights other Listed Activities which were considered during screening but ultimately were deemed to not be applicable based on specific infrastructure thresholds and capacities to be developed.

Table 4-1: Listed Activities relevant to the Project

Notice No	Listing No	Activity No	Activity Description	Describe each listed activity as per project description
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 2	The development and related operation of facilities or infrastructure for the generation of electricity from a non-renewable resource where— (i) the electricity output is more than 10 megawatts but less than 20 megawatts; or (ii) the output is 10 megawatts or less but the total extent of the facility covers an area in excess of 1 hectare.	USP7 - Neither alternative solution will comprise a footprint exceeding 1 Hectare. Electricity output from all of the generators cumulatively is 12MWA (more than 10 megawatts) and therefore the activity is considered applicable to both alternatives.
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 9	The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water—	The development of VC Phase 4 will require bulk water supply. Although not clearly defined at this stage, it is likely that this activity will be triggered. This will be confirmed after the scoping phase.
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 11	**Activity 11**: The development of facilities or infrastructure for the transmission and distribution of electricity- (i) outside urban areas or industrial complexes with a capacity of more than 33 but less than 275 kilovolts.	**VC Phase 4** will require electricity transmission and distribution. The parameters of which will be defined during the scoping phase. It can be assumed that this activity is likely to be triggered.

Notice No	Listing No	Activity No	Activity Description	Describe each listed activity as per project description
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 12	The development of — (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) **infrastructure or structures with a physical footprint of 100 square metres or more**; where such development occurs— (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, **within 32 metres of a watercourse**, measured from the edge of a watercourse;	REP5 - The proposed Recreational Lake Beach Expansion will be located in close proximity to the existing Sun City Lake and will likely comprise a footprint exceeding 100m^2. REP1 – each of the proposed Eco-Lodges might exceed 100m^2 in footprint, and cumulatively the footprint will definitely exceed 100m^2. Wetlands have been identified in close proximity to the Eco-Lodges site, REP4: VC Phase 3 – the cumulative footprint of the VC Phase 3 will exceed 100m^2 and is located in close proximity to a wetland identified on site.
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 14	The development and related operation of facilities or infrastructure for the storage, or for the storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 80 cubic metres or more but not exceeding 500 cubic metres.	USP7 - The existing Generators at Sun City were established prior to the current regulations requiring licensing of diesel storage facilities. They have flammable liquid certificates issued by the local fire chief but no environmental authorisation. If the combined capacity of diesel storage on site exceeds 80m^3, this activity will be relevant. Consolidation of all 13 Generators is expected to require more than 80 cubic metres diesel storage capacity.

Notice No	Listing No	Activity No	Activity Description	Describe each listed activity as per project description
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 19	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;	USP1 - Construction of the culverts underneath the Golf Course Roads will most likely involve the moving of more than 10m^3 of material from the watercourses. It is also noted that this project will require authorisation under the National Water Act, 1998 (Act No. 36 of 1998) (NWA). MP2 - The physical act of maintenance activities at the Sun Parks Culverts (removal of built-up silt) constitutes this activity. REP 4.2 – has watercourses in the development area, although sensitives area will be avoided after the specialist assessment has been undertaken it is possible that there maybe some infilling or depositing of material of more than 10 cubic metres from a watercourse. To be confirmed in assessment phase.
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 31	The decommissioning of existing facilities, structures or infrastructure for— (v) any activity regardless the time the activity was commenced with, where such activity: (a) is similarly listed to an activity [that is currently a listed activity]; and (b) is still in operation or development is still in progress;	REP6 - The existing Helipad is considered a “similarly Listed” Activity. Decommissioning thereof thus requires authorisation.

Notice No	Listing No	Activity No	Activity Description	Describe each listed activity as per project description
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 46	The expansion and related operation of infrastructure for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes where the existing infrastructure— (i) has an internal diameter of 0,36 metres or more; or (ii) has a peak throughput of 120 litres per second or more; and (a) where the facility or infrastructure is expanded by more than 1 000 metres in length; or (b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more;	USP3 - The Effluent transfer line replacement project can be regarded an expansion of Sun City's existing infrastructure for the bulk transportation of sewage, effluent, and waste water. The proposed new Effluent line is 3,000m in length and this activity is therefore applicable to the proposed projects. REP4.1 may require an expansion of bulk services, diameters to be confirm after the scoping phase.
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 48	The expansion of— (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (ii) dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100 square metres or more; where such expansion occurs— (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse;	REP5 - The existing infrastructure at Waterworld exceeds a 100m^2 footprint and it is anticipated that at least some of this infrastructure may remain, and that the expansion will also exceed 100m^2 in footprint size. The Recreational Lake Beach Expansion development is proposed adjacent to the Sun City Lake.

Notice No	Listing No	Activity No	Activity Description	Describe each listed activity as per project description
GN R 984 (as amended by GN R 324)	Listing Notice 2	Activity 15	Activity 15: The clearance of an area of 20 hectares or more of indigenous vegetation, excluding where such clearance of indigenous vegetation.	Cumulatively, the proposed activities associated with this application will remove more than 20 Ha of indigenous vegetation. Particularly with regard to VC phase 4, which is an undeveloped area.
GN R 985 (as amended by GN R 324)	Listing Notice 3	Activity 2	The Development of reservoirs (excluding dams) with a capacity of more than 250 cubic metres, in North-West in	USP2 - The proposed additional reservoir(s) will have a capacity of 20,000 cubic metres.
GN R 985 (as amended by GN R 324)	Listing Notice 3	Activity 4	The development of a road wider than 4 metres with a reserve less than 13,5 metres, in North-West: i. Areas within 5 kilometres from protected areas identified in terms of NEMPAA or from a biosphere reserve;	REP1 - It is possible that the access road to the Eco-Lodge may require upgrading and the development of new roads to access the individual lodges will also likely be required. The site is adjacent to Pilanesberg National Park.
				REP4 – The access road and internal roads at the VC Phase 3 expansion may also have to be wider than 4 metres.
				REP6 - The access road to the new Helipad may have to cater for one lane of traffic in each direction and thus be wider than 4 metres.

Notice No	Listing No	Activity No	Activity Description	Describe each listed activity as per project description
				MP1 - The “fence roads” which serve as fire breaks will in places be immediately adjacent to Pilanesberg National Park and to be effective will have to be wider than 4 metres.
GN R 985 (as amended by GN R 324)	Listing Notice 3	Activity 10	The development and related operation of facilities or infrastructure for the storage, or for the storage and handling of a dangerous good, where such storage occurs in containers with a combined capacity of 30 cubic metres or more but not exceeding 80 cubic metres, in North-West, in Critical Biodiversity Areas, sensitive areas or within 100m from the edge of a watercourse or wetland.	USP7 - Consolidation of the generators at Sun City to one site will also involve consolidation of Diesel Storage Facilities, which combined capacity therefore is anticipated to exceed 30 cubic metres.
GN R 985 (as amended by GN R 324)	Listing Notice 3	Activity 12	The clearance of an area of 300 square metres or more of indigenous vegetation, in North-West: i. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority; ii. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; or iii. Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.	REP1 - The development of the Eco-Lodge will necessitate clearance of more than 300 m^2 of vegetation within an area deemed ‘sensitive’ due to the natural and undeveloped state of the site and its proximity to Pilanesberg National Park. The proximity to the downstream watercourse will be verified once designs are completed
				REP2 - The development of the Golf Cart road will comprise a minimum footprint of 2,250m^2 (900m in length with an average width of 2.5m). The area is expected to be sensitive due to the natural state of vegetation, stream crossing and proximity to Pilanesberg National Park.

Notice No	Listing No	Activity No	Activity Description	Describe each listed activity as per project description
				USP2 - Construction of the additional reservoir(s) will necessitate the clearance of more than 300m^2 of vegetation.
				Construction of the new Effluent transfer line will require the clearance of vegetation.
				REP3 - Development of an additional 20 Chalets at Kwena Gardens will necessitate the clearance of vegetation. The ecological study will confirm whether this comprises indigenous vegetation. The site is in close proximity to watercourses and wetlands associated with the Kwena Gardens Crocodile Farm facilities.
				MP1 - Fence roads in some cases cross watercourses and cumulatively vegetation clearance for fire breaks will exceed this threshold.
				MP2 - The access road establishment to service the Culverts at SunPark will most likely require the clearance of more than 300m^2 of vegetation in close proximity and within the watercourse.

Notice No	Listing No	Activity No	Activity Description	Describe each listed activity as per project description
GN R 985 (as amended by GN R 324)	Listing Notice 3	Activity 16	The expansion of reservoirs excluding dams, where the capacity will be increased by more than 250 cubic metres, in North-West:	REP7 - The proposed Additional Reservoirs project will increase over-all storage capacity at Sun City by 20,000 cubic metres.
GN R 985 (as amended by GN R 324)	Listing Notice 3	Activity 17	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 North-West: i. World Heritage Sites; core of biosphere reserve; or sites or areas identified in terms of an international convention; ii. A protected area including municipal or provincial nature reserves as contemplated by NEMPAA or other legislation; iii. All Heritage Sites proclaimed in terms of National Heritage Resources Act, 1999 (Act No. 25 of 1999); iv. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority; v. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; or vi. Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.	REP1 - The development of the Eco-Lodge can be considered expansion of Sun City Report as a whole. REP7 - The development of the Parking Garage, Hotel & Convention Centre is considered an expansion of the Sun City Resort. REP3 - Development of an additional 20 Rustic Chalets constitutes expansion of the existing Rustic Chalets at Kwena Gardens. REP4.1 and 4.2 - Development of the VC Phase 3 and VC Phase 4 constitutes expansion of the existing VC Phase 1,2 and 3. The area is regarded as sensitive but this will be confirmed by the specialist studies.

Notice No	Listing No	Activity No	Activity Description	Describe each listed activity as per project description
GN R 985 (as amended by GN R 324)	Listing Notice 3	Activity 18	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre, in North-West: i. Areas within 5 kilometres from protected areas identified in terms of NEMPAA or from a biosphere reserve; ii. Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland	REP2 - In places the path associated with the Driving Range Road may reach a width of 4 metres to allow for golf carts to pass each other. It may be assumed that the construction servitude is likely to exceed 4 metres in places where allowance must be made for laydown areas etc. The Sun City Resort is adjacent to Pilanesberg National Park. The golf course path involves a stream crossing.
GN R 985 (as amended by GN R 324)	Listing Notice 3	Activity 6	The development of resorts, lodges, hotels, tourism or hospitality facilities that sleeps 15 people or more, in North-West: i. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority; ii. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; or iii. Areas within a watercourse or wetland, or within 100 metres from the edge of a watercourse or wetland.	REP1 - The bush lodge will be able to accommodate a total of 80 to 125 additional guests. It is not seen as expansion of existing lodges, hotels etc. as the bush lodge development presents a new accommodation typology within the Sun City Resort. The area is deemed sensitive. The proximity to the downstream watercourse will be verified once designs are completed. It is noted that the VC Phase 3 and Kwena Gardens Expansion are regarded expansion and not development Projects.

Notice No	Listing No	Activity No	Activity Description	Describe each listed activity as per project description
				REP7 - Although the site of the proposed new Parking Garage, Hotel and Convention Centre is not deemed sensitive as it is currently a parking lot, this project is considered expansion of the existing Sun City Resort and development of a new Hotel.

Table 4-2: Additional Listed Activities considered

Notice No	Listing No	Activity No	Activity Description	Describe each listed activity as per project description
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 10	The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes – (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more;	USP3 - This Listed activity is considered Not Applicable to the Effluent Line Replacement Project as neither the internal diameter nor the throughput of the pipeline meets the stipulated thresholds. All other pipelines are below these thresholds.
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 13	The development of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, with a combined capacity of 50 000 cubic metres or more, unless such storage falls within the ambit of activity 16 in Listing Notice 2 of 2014.	USP2 - The proposed new (additional) reservoir capacity will be 20Ml and this activity is therefore not considered applicable.

Notice No	Listing No	Activity No	Activity Description	Describe each listed activity as per project description
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 25	The development and related operation of facilities or infrastructure for the treatment of effluent, wastewater or sewage with a daily throughput capacity of more than 2 000 cubic metres but less than 15 000 cubic metres.	USP5 - This activity is not considered applicable to the proposed project as the throughput of the proposed WWTW is only 1,500 cubic metres per day.
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 27	The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation.	Listing Notice 2 Activity 15 is triggered as cumulatively more than 20 Ha of indigenous vegetation will be removed in various phases of the proposed development. Therefore Listing Notice 1 Activity 27 is not triggered.
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 45	The expansion of infrastructure for the bulk transportation of water or storm water where the existing infrastructure— (i) has an internal diameter of 0,36 metres or more; or (ii) has a peak throughput of 120 litres per second or more; and (a) where the facility or infrastructure is expanded by more than 1 000 metres in length; or (b) where the throughput capacity of the facility or infrastructure will be increased by 10% or more;	USP4 - This activity is not regarded as relevant to the Sunset-Skytrain Fresh Water Line or to the South Village Pipeline Projects as these proposed pipelines are below the stipulated thresholds,

Notice No	Listing No	Activity No	Activity Description	Describe each listed activity as per project description
GN R 983 (as amended by GN R 327)	Listing Notice 1	Activity 50	The expansion of facilities or infrastructure for the off-stream storage of water, including dams and reservoirs, where the combined capacity will be increased by 50 000 cubic metres or more.	USP2 - There are a number of existing Reservoirs at Sun City. Total Reservoir Capacity at the moment is 23.5 Ml. The proposed project will be regarded as an expansion of infrastructure for water storage. The total combined capacity will be 43.5 Ml. This activity is therefore not applicable,
GN R 983 (as amended by GN R 325)	Listing Notice 2	Activity 2	The development and related operation of facilities or infrastructure for the generation of electricity from a non-renewable resource where the electricity output is 20 megawatts or more.	USP7 - The total output of the generator park, if all of the generators at Sun City are considered equals 12MWA.

5 Relevant Policy and Legislative Context

This section provides a description of the policy and legislative context within which the project is being proposed. This section has been divided into national and provincial legal frameworks which describe the key legislation, policies, plans, guidelines and development planning frameworks and tools and their relevance to the proposed projects.

5.1 National Legal Framework

Under Section 24 of the Constitution of the Republic of South Africa, it is stated that:

Everyone has the right to (a) an environment that is not harmful to their health or well-being; and (b) to have the environment protected, for the benefit of present and future generations, through reasonable legislative and other measures that -

- *Prevent pollution and ecological degradation;*
- *Promote conservation; and*
- *Secure ecologically sustainable development and use of natural resources while promoting justifiable economic and social development.*

To give effect to Section 24 of the Constitution, several laws have been promulgated to ensure environmental protection and sustainable development. The most pertinent of these will be discussed in the sections below and include:

- The National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA);
- The National Water Act, 1998 (Act No. 36 of 1998) (NWA);
- National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEMAQA);
- National Environmental Management Protected Areas Act, 2003 (Act No 57 of 2003)(NEMPAA);
- National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA);
- Conservation of Agricultural Resources Act, 1983 (Act No 43 of 1983) (CARA); and
- National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA) and applicable Regulations.

5.1.1 National Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA) and EIA Regulations and Listing Notices (December 2014) (GN R 982, 983, 984 and 985) as amended

The National Environmental Management Act, 1998 (Act No 107 of 1998) (NEMA), as amended was set in place in accordance with Section 24 of the Constitution. Environmental principles set out in NEMA have to be adhered to, to inform decision making for issues affecting the environment. Section 24 (1)(a) and (b) of NEMA state that:

"The potential impact on the environment and socio-economic conditions of activities that require authorisation or permission by law and which may significantly affect the environment, must be considered, investigated and assessed prior to their implementation and reported to the organ of state charged by law with authorizing, permitting, or otherwise allowing the implementation of an activity."

The EIA Regulations, Government Notice (GN) Regulation (R) 982 were published on 04 December 2014 and promulgated on 08 December 2014. Together with the EIA Regulations, the Minister also published GN R 983 (Listing Notice No. 1), GN 984 (Listing Notice No. 2) and GN R 985 (Listing Notice No. 3). The NEMA EIA Regulations, 2014 and Listing Notices have recently been amended by GN R326, (EIA Regulations) GN R 327 (Listing Notice 1); GN R325 (Listing Notice 2) and GN R324 (Listing Notice 3) of 7 April 2017.

Activities associated with the proposed future projects at Sun City are identified as Listed Activities in the abovementioned Listing Notices (as amended) and therefore require environmental authorisation prior to being undertaken.

The EIA process will be undertaken in accordance with the principles of Section 2 of NEMA as well as with the NEMA EIA Regulations, 2014 (as amended).

These Listing Notices have been reviewed against the project activities to determine the likely triggers. The listed activities which are potentially triggered under the Listing Notices are provided in Table 4-1

Based on the activities listed, it has been identified that a full EIA process is required for the project.

An application for the listed activities was submitted to the READ who is the relevant Competent Authority in terms of this application for Environmental Authorisation.

5.1.2 National Water Act, 1998 (Act No. 36 of 1998) (NWA)

The National Water Act (Act No. 36 of 1998) (NWA) provides for the sustainable and equitable use and protection of water resources in South Africa. It is founded on the principle that the National Government has overall responsibility for and authority over water resource management, including the equitable allocation and beneficial use of water in the public interest, and that a person can only be entitled to use water if the use is permissible in terms of Section 22 of the NWA.

Permissible water uses without a water use licence include Schedule 1 uses (generally defined as small quantities of water for typical domestic use), existing lawful water uses (water that was used lawfully prior to the promulgation of the NWA) and water uses authorised in terms of a General Authorisation under Section 39 of the NWA.

Sun City is in possession of a Water Use License (WUL) (License No. 03/A22F/ABCEFGI/2627). The License states the following:

"This License authorises section 21(a), (b), (e), (c) & (i), (f) and (g) water use activities of Sun International at Sun City Family Resorts, including business ventures (i.e. four hotels, crocodile sanctuary, the Valley of the Waves and Sporting and Recreational Facilities). The water uses activities include: five weirs that were probably built prior to commencement of the Sun City Family Resorts, Ponds where crocodiles are bred in captivity for commercial purposes, discharging wastewater into a water resource, as well as disposal of wastewater through irrigation of Shebeen Gardens, Gary Player Golf Course (GPGC), Lost City Golf Course (LCGC) and Vacation Club from Wastewater Treatment Works (WWTW)."

Table 5-1 summarises the authorised water uses at Sun City.

Table 5-1: Authorised Water Uses (License No. 03/A22F/ABCEFGI/2627)

NWA Water Use	Water use description	Purpose	Volume / dimensions	Coordinates	
Section 21(a)	Taking water from a water resource	To irrigate golf course	270.672 m^3/a	25°20'44.5"S	
				27°62'06.0"E	
		To irrigate Shebeen Gardens	730 m^3/a	25°20'44.5"S	
				27°62'06.0"E	
		To regulate the temperature in the ponds to breed crocodiles at Kwena Gardens	28,800 m^3/a	25°20'44.5"S	
				27°02'06.0"E	
Section 21(b)	Storing of Water	Storing of water into the recreational dam to use for irrigation and recreational activities	920,000m^3	25°20'54"S	
				27°58'60"E	
		Storing water from swimming pools backwash and stormwater is directed through 18th lake on GPGC, to settle out all sediments / solids before discharge to the recreational lake.	16,200 m^3	25°20'44.38"S	
				27°6'6.22"E	
Section 21 (c) and (i)	Impeding or diverting the flow of water in a watercourse, and altering the bed, banks, course or characteristics of a watercourse	Construction of Kwena weir 1 to 5 in the Lettholenoga River for aesthetic purposes	H = 1.8m W = 350m L = 3.5m	Weir1	25°21'20.6"S
					27°06'26.8"E
				Weir 2	25°21'23.7"S
					27°06'26.8"E
				Weir 3	25°21'24.8"S
					27°06'27.1"E

NWA Water Use	Water use description	Purpose	Volume / dimensions	Coordinates	
				Weir 4	25°21’27.6”S
					27°06’27.8”E
				Weir 5	25°21’29.6”S
					27°06’28.3”E
		Construction of recreational dam crossing the Lettholenoga River to supplement water for irrigation for golf courses	W=340m L=680m	25°20’55.5”S	
				27°6’23.3”E	
		Construction of the Kwena Gardens pedestrian bridge over the Lettholenoga River for pedestrian access to Kwena Gardens	W=2650m L=30m	25°21’23.48”S	
				27°6’26.48”E	
Section 21 (e)	Engaging in a controlled activity (irrigation of land with waste or water containing waste)	Irrigation of GPGC with wastewater	340,811m^3/a 32 ha	25°20’49.5”S	
				27°06’01.4”E	
		Irrigation of gardens at the Vacation Club with wastewater	78,827 m^3/a 20 ha	25°20’18.3”S	
				27°06’20.1”E	
		Irrigation of LCGC with wastewater	340,362 m^3/a 25 ha	25°20’13.2”S	
				27°05’01.4”E	
Section 21 (f) and (g)	Discharging waste or water containing waste into a water resource, and Disposing of waste in a manner which may detrimentally impact on a water resource	Discharging wastewater from Kwena Gardens into Lettholenoga River	184,574m^3/a	25°21’30.07”S	
				27°06’28.96”E	
		Discharging wastewater from WWTW into Lettholenoga River	28,800m^3/a	25°21’40.13”S	
				27°06’15.16”E	

NWA Water Use	Water use description	Purpose	Volume / dimensions	Coordinates
		Disposing wastewater into retention dam (retain wastewater before taken to irrigation dams)	911,477 m^3/a	25°20’11.4”S
				27°05’11.5”E
		Disposing wastewater into LCGC irrigation dam	234,027 m^3/a	25°20’17.4”S
				27°06’11.0”E
		Disposing wastewater into GPGC2 irrigation dam	440,000 m^3/a	25°20’18.0”S
				27°06’20.2”E
		Disposing of waste sludge into sludge drying beds	300 m^3/a	25°21’37.27”S
				27°06’13.19”E

Further development at Sun City situated within 500 meter (m) from delineated wetlands and within 100 m from water drainage lines will require licensing in terms of the NWA. A Wetland Delineation and Impact Assessment is being undertaken as part of this EIA. It is anticipated that the following Projects will require authorisation in terms of the NWA (application for Water Use Licensing is not included in this Report, and a separate application to the DWS will be made and also subject to its own Public Participation Process, upon confirmation from DWS of their requirements):

- REP1: Development of Eco Lodges within 500m from watercourse (Section 21(c) and (i));
- REP2: Driving Range Road also crosses local drainage lines (Section 21(c) and (i));
- REP5: Recreational beach expansion (Section 21(c) and (i));
- USP1: Stormwater culverts at Golf Course Roads (Section 21(c) and (i));
- USP3: Effluent transfer lines replacement (Section 21(c) and (i));
- USP5: New WWTW for VC and Palace (Section 21(g); (c) and(i); and
- MP2: Sun Park Culverts (Section 21(c) and (i)).

5.1.3 Mineral and Petroleum Resources Development Act 2002 (Act No. 28 of 2002) (MPRDA)

The MPRDA sets out the requirements for mining, prospecting and exploration activities in the country. No person may remove any mineral without authority of a license or permit issued in terms of the MPRDA.

Section 53 of the MPRDA provides that persons who intend to use the surface rights of any land in any way which may result in sterilisation of a mineral resource or impede any objects of the MPRDA, has to obtain consent from the Minister of Mineral Resources prior to undertaking such development.

Should the developers wish to extract material from borrow pits in the construction of the development, authorisation under the MPRDA must be obtained. It is not currently foreseen that such extraction would be required for the planned Projects at Sun City.

As Sun City is a well-established family resort, and the projects that are being proposed fall within the Resort, it is not anticipated that the proposed future Projects to which this report relates will sterilise any mineral resources or impede the objectives of the MPRDA.

5.1.4 National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEMAQA)

According to the National Environmental Management: Air Quality Act, 2004 (Act No. 39 of 2004) (NEM: AQA) the Department of Environmental Affairs (DEA), the provincial environmental departments and local authorities (district and local municipalities) are separately and jointly responsible for the implementation and enforcement of various

aspects of NEM: AQA. A fundamental aspect of the new approach to the air quality regulation, as reflected in the NEM: AQA is the establishment of National Ambient Air Quality Standards (NAAQS) (GN R 1210 of 2009). These standards provide the goals for air quality management plans and also provide the benchmark by which the effectiveness of these management plans is measured.

The proposed future projects at Sun City are not expected to contribute significantly to deterioration of air quality and are not associated with generation of excessive emissions. It is expected that dust could be generated during the construction phases of some projects, however these impacts will be short-lived and are manageable at relatively low cost and effort. The current generator capacity at the resort will remain unchanged through the implementation of USP 7, though emissions will be from a concentrated point. None of the proposed projects require an Atmospheric Emissions Licence (AEL).

Nonetheless, an Air Quality Impact Assessment has been commissioned as part of this EIA process to establish a clear baseline of current air quality in the projects' vicinity, do quantify anticipated impacts from projects and prescribe mitigation and management measures for the impacts that may be deemed significant.

5.1.5 National Environmental Management Protected Areas Act, 2003 (Act No 57 of 2003)(NEMPAA)

The NEMPAA provides for the protection and conservation of ecologically viable areas representative of South Africa's biological diversity, for the establishment of a national register of all national, provincial and local protected areas and for the management of those areas in accordance with national norms and standards.

Portions of the resort are located within the 1 km buffer of a Protected Area and in proximity to other biodiversity nodes. The Sun City Family Resort is located immediately south of the Pilanesberg National Park. As such, every reasonable effort must be taken to ensure that the activities at Sun City do not negatively impact on adjacent natural areas, including and especially Pilanesberg National Park.

5.1.6 National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004) (NEMBA)

The NEMBA provides for the management and conservation of South Africa's biodiversity within the framework of the NEMA. The Act relates to the protection of species and ecosystems that warrant national protection, among others.

Certain Fauna and Flora species of conservation concern are known to occur in the general vicinity of the site and have been recorded on site. The necessary permits for translocation of these species will have to be obtained prior to their disturbance. The locations of these species as well as a comprehensive species list will be confirmed in the Flora and Fauna Specialist study as part of the EIA Phase of this project.

The Sun City Complex does not fall within a Threaten Ecosystem. The nearest Threatened Ecosystem to the site is the Marikana Thornveld located approximately 18 km to the south east of the project site.

5.1.7 Conservation of Agricultural Resources Act, 1983 (Act No 43 of 1983) (CARA)

CARA provides for control over the utilization of the natural agricultural resources of the Republic to promote the conservation of soil, water sources and vegetation and the combating of weeds and invader plants.

There are a number of exotic plants purposely used as part of the landscaping at the Sun City Resort Complex and the spread of these species to adjacent natural areas and specifically the Pilanesberg National Park must be prevented. Furthermore, disturbances to the natural ecosystem (for example by the establishment of fences and roads) have already given rise to the presence of certain alien invasive species which require management in terms of CARA. The Specialist Flora and Fauna Report that will be prepared as part of the EIA Phase will identify problematic species on site and recommend appropriate measures to be taken in that regard.

5.1.8 National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) (NEMWA) and applicable Regulations

The NEMWA provides for national norms and standards for regulating the management of waste, and the licensing and control of waste management activities.

General waste is generated at Sun City which is mainly divided into office waste and food/household waste. The sources of waste include the hotels, entertainment facilities, restaurants, staff villages and from various maintenance activities that are undertaken around the resort which also generates building rubble. Waste is recycled as far as possible at the Sun City onsite recycling yard. Waste that cannot be recycled is temporary stored at the recycling yard removed from site by subcontractor. Medical waste is removed from the site by Compass Medical Waste Services and is incinerated at their facilities either in Roodepoort or Berlin, Johannesburg.

Sun International intends to decommission and cap its existing landfill site at Sun City, for which a separate environmental regulatory process is underway, as a Zero-Waste-to-Landfill initiative which comprises of waste-to-energy, waste-to-brick and waste-to-protein solutions has been initiated for the resort. This initiative is planned to be progressively implemented and achieved by 2020 as illustrated in Figure 5-1.

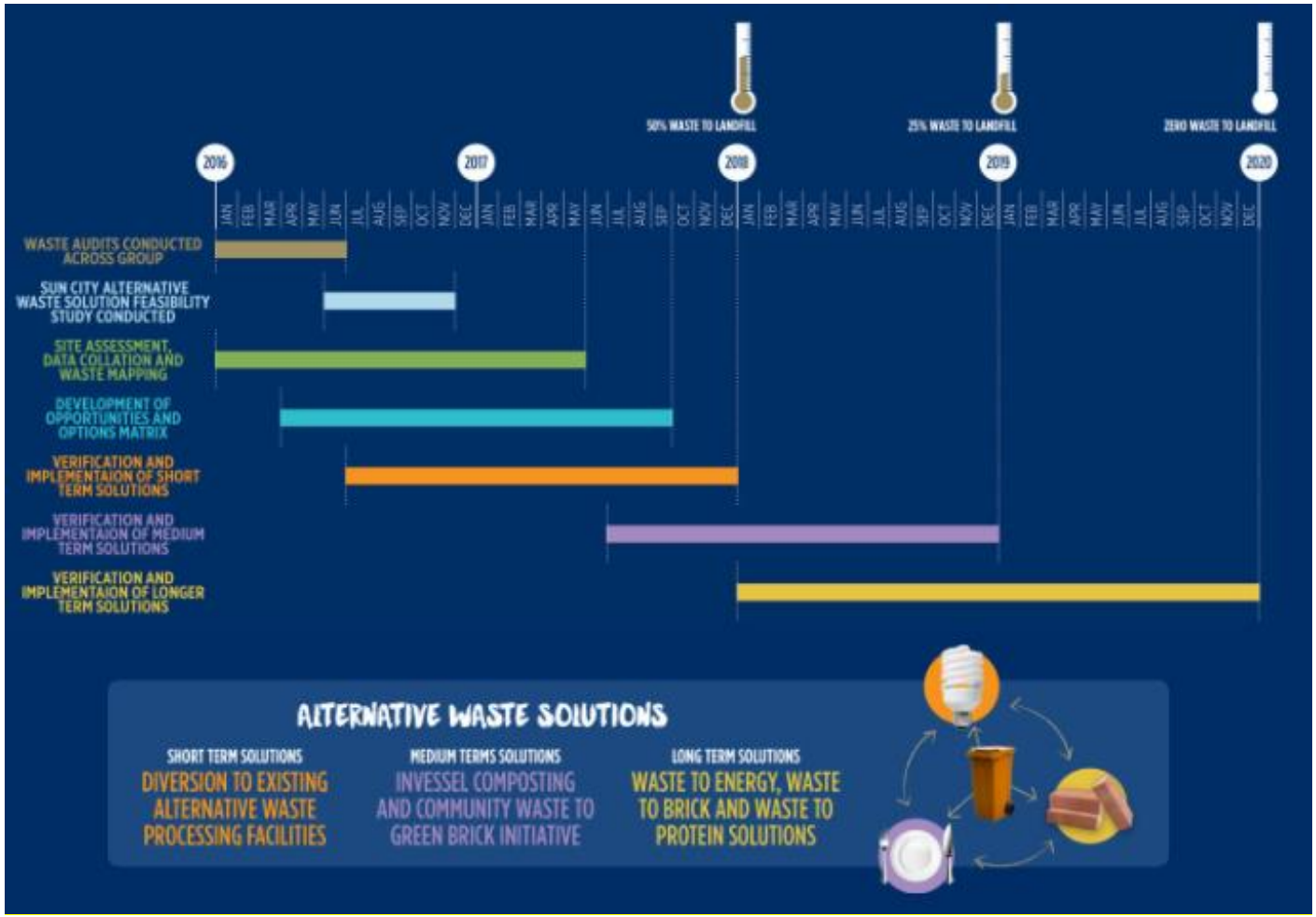

Figure 5-1: Zero Waste Landfill Timeline

Source: (Sun International, 2017)

Give the above mentioned regulatory process, none of the proposed future projects at Sun City to which this Scoping and EIA Process relates requires licensing in terms of the NEMWA. It is noted that these proposed resort expansion projects will increase the number of guests the Resort is able to accommodate at any given time, and consequently also increase the general and household waste generated at these facilities. It is expected that the additional waste will feed into the existing waste streams at Sun City.

5.1.9 National Heritage Resources Act, 1999 (Act No. 25 of 1999) (NHRA)

The NHRA aims to promote good management and preservation of the country's Heritage Resources.

Heritage Resources have been identified on the project site and in the immediate surroundings. The heritage resources on and adjacent to the site must be managed and preserved by the implementation of appropriate buffer zones and access control.

A comprehensive heritage conservation management plan is planned to be compiled following the EIA. Please refer to Section 9.10 for a description of the identified heritage resources, their significance and suggested management.

5.1.10 Restitution of Land Rights Act, 1994, the Land Reform (Labour Tenants) Act, 1996 and the Extension of Security of Tenure Act, 1997

Consultation with the Land Claims Commissioner has confirmed that there are no current Land Claims on the affected properties.

The Sun City Property is leased by Sun International from the National Government of RSA. The lease was initially entered between the Republic of Bophutatswana (now RSA) and Southern Sun Hotels (Pty) Limited (now Sun International) on 23 October 1978 with subsequent amendments made to the agreement executed on 13 March 1979. The lease for the Sun City property is valid until 31 March 2079.

5.2 Provincial and Local Legal Framework

The North-West Province published its latest Provincial Development Plan (PDP) in 2016. The BPDM has published its Integrated Development Plan (IDP) (2012/2017) while the MKLM has also published an IDP on their website dated 2014-2015. Furthermore, Spatial Development Frameworks (SDFs) have been developed at provincial and local level that represents the spatial planning policies that are aimed to be adopted within specific areas. The subsections below provide a comparison of relevant strategic objectives of the abovementioned provincial/local frameworks/plans in relation to the proposed developments at Sun City.

5.2.1 National Development Plan

The National Development Plan (NDP) is a policy document produced by the National Planning Commission and is aimed at interventions in order to eliminate poverty and social inequality by 2030. The NDP provides as a strategic framework for government, with a focus on the need to reflect critically on intergovernmental planning systems if the goals and imperatives set out in the NDP are to be achieved. The NDP therefore acts as a strategic planning framework within which Provincial and Local spheres of government are to prioritise their development planning.

The NDP recognises that the tourism sector has rapidly grown and has contributed to regional economic integration across southern Africa and as such is recognised as a sector that will play a role in transforming the economy and create sustainable job opportunities in line with the objectives of the plan. On an international scale, the NDP acknowledges that South Africa has a disadvantage of being far from the wealthiest consumers, but has various competitive advantages including national parks, heritage sites and cultural diversity which attract consumers from across the world.

In relation to the proposed developments at Sun City, investment in the expansion of the resort and infrastructure improvements will provide additional recreational activities and accommodation capacity that would be of interest to local, regional and international consumers. The Sun City resort offers various types of recreational activities which can be of interest to a wide range of consumers. Developed over a number of years, the resort currently has the capacity to accommodate approximately 6000 guests and 1200 employees each night.

5.2.2 Provincial Development Plan

The North West Provincial Development Plan (PDP) was produced by the North West Planning Commission and serves as an implementation strategy and guideline for local government in line with the NDP. The North West PDP provides various priority areas for the province including but not limited to economy and employment, economic infrastructure as well as environmental sustainability.

The projects proposed will require additional workforce which is in line with the PDP objective to improve economic productivity within the province as well as provide additional capacity to host and accommodate consumers. In terms of environmental sustainability, the EIA process will be undertaken in accordance with the principles of Section 2 of NEMA as well as with the NEMA EIA Regulations, 2014 (as amended) which have the overarching aim of promoting Sustainable Development.

The EMP to be compiled will provide mitigation and management measures to address adverse environmental impacts associated with the proposed developments at Sun City. Notably, the PDP includes actions such as innovation and development of sustainable green products and services, effective waste management and encouragement of recycling and re-use as well as improved energy efficiency. Sun International intends to implement its Zero-

Waste-to-Landfill initiative which includes waste-to-energy solutions which would positively contribute to aspects of the environmental sustainability objectives.

5.2.3 Integrated Development Plans

The BPDM IDP recognises the tourism sector as a key economic contributor to the local economy. The IDP makes specific reference to the development of tourism facilities and bulk infrastructure around the Sun City node to enhance tourism activities. The proposed developments at Sun City will increase accommodation capacity which can be linked to other tourism activities within the region.

Similarly, the MKLM's IDP (2016/17) states that the strategy to address the root causes of unemployment and poor economic development must focus on a number of sectors, one of which is tourism. Sun International's proposal to expand the resort through the development of additional accommodation and recreational areas will contribute to local employment and accommodate a higher number of tourists within the area.

5.2.4 Spatial Development Frameworks

The North West SDF (2016) and MKLM SDF (2010) indicate the Sun City Complex as a main node of economic activity within the municipality and provides that future economic development opportunities should be channelled into activity corridors and nodes. The expansion of the Sun City Complex will align to this objective as the Sun City Resort is a major tourism node.

Furthermore, the resort lies adjacent to a proposed Heritage Park and the Pilanesberg National Park providing a link to the Madikwe Game Reserve further north-west of the resort. This has been identified as the primary tourism node within the province.

The proposed expansion of the Sun City Complex will strengthen the capacity of the primary tourism node for the North West Province in terms of accommodation for consumers and the variety of recreational activities available.

5.2.5 Environmental Management Frameworks

Environmental Management Frameworks (EMFs) delineate environmentally sensitive areas and areas favoured for development within a region. Currently there is a Draft EMF that has recently been published in 2018 specifically for the BPDM.

EMFs for the surrounding municipalities (namely Madibeng and Rustenburg Local Municipalities) have the common goal of balancing economic development, social development and environmental resource management. The EMFs recognises the tourism sector as a key activity with potential for future development within the region and therefore provision for recreational and tourism areas is endorsed.

The Madibeng Local Municipality EMF provides that elements associated with tourism demand are currently met by a variety of economic activities, however, it is necessary to ensure that new tourism developments contribute to the economic growth of the region in a

sustainable manner. The Rustenburg Local Municipality EMF indicates that tourism areas and heritage sites form part of conservation management zones within the region.

A Biodiversity Sector Plan (BSP) was compiled in 2015 by the Department of READ, North West Province which serves as a tool for land use planning and natural resource management within the province. Tourism and accommodation is recognised as a land use zone in the BSP which provides for opportunities for the development of a broad range of tourist and recreational facilities, inclusive of tourism, recreation and accommodation facilities. This zone has been divided into low impact and high impact tourism facilities aligned to conservation management zones.

The low impact facilities comprise of small scale activities such as outdoor recreation and camping sites which can be developed in Protected Areas, Critical Biodiversity Areas and Ecological Support Areas with appropriate biodiversity controls being in place while high impact facilities include developments such as lodges, hotels and large resorts which can only be developed in Other Natural Areas (ONAs). The Sun City Complex falls within an ONA, however it is noted that this is directly adjacent to a Protected Area, namely the Pilanesberg National Park.

6 Need and Desirability for the Proposed Development

The Integrated Environmental Management Guideline Series 9: Guideline on Need and Desirability was promulgated in terms of the EIA Regulations, 2010 in Government Notice 891 of 2014. The Department of Environmental Affairs (DEA) published an updated Integrated Environmental Management Guideline on Need and Desirability in 2017.

According to these guidelines, the consideration of “need and desirability” in EIA decision-making requires the consideration of the strategic context of the proposed projects along with the broader public interest and societal needs. The guidelines further state that the development must not exceed ecological limits and the proposed actions must be measured against the short-term and long-term public interest to promote justifiable social and economic development, essentially ensuring the simultaneous achievement of the triple bottom line (Social, Environmental and Financial sustainability).

6.1 Questions To Be Engaged With When Considering Need and Desirability

The latest Guideline Document on the assessment of Need and Desirability (DEA, 2017) includes a number of questions, the answers to which should be considered in the EIA Process. These questions (as per the Guideline) and answers to each are presented in Table 6-1.

Table 6-1: Need and Desirability

Theme	No	Specific Questions	Answer related to the Proposed future developments at Sun City
"Securing ecological sustainable development and use of natural resources"	1	How will this development (and its separate elements/aspects) impact on the ecological integrity of the area?	The impact of the proposed projects at Sun City will be assessed in detail during the EIA Phase according to recognised rating methodologies, based on specialist investigations to be undertaken. Management measures that will be prescribed as part of the Environmental Management Plan (EMP) will (among other goals) limit the extent of ecological impacts of the proposed developments to the development footprints within the existing Sun City Resort, and prevent impact creep and edge-effects on adjacent undisturbed and naturally functioning ecological areas.
	1.1	How were the following ecological integrity considerations taken into account?	
	1.1.1	Threatened Ecosystems	The whole of the Sun City Resort Complex is located in Zeerust Thornveld according to the National Vegetation Map (2012) (sanbi.bgis.org). This vegetation type is part of the Central Bushveld Bioregion of the Savanna Biome. Zeerust Thornveld is considered to be "least threatened" (Mucina & Rutherford, 2006).
	1.1.2	Sensitive, vulnerable, highly dynamic or stressed ecosystems, such as coastal shores, estuaries, wetlands, and similar systems require specific attention in management and planning procedures, especially where they are subject to significant human resource usage and development pressure	The sun City Resort Complex is not affected by coastal shores or estuaries but wetland and riparian systems do occur on the site. A wetland delineation and impact study has been initiated, the results of which will be presented in the EIA. The layout of the proposed projects at Sun City have been identified with reference to known wetlands on site and adjusted to avoid sensitive wetland areas as far as possible.
	1.1.3	Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs")	The existing Sun City Resort Complex contains areas designated as CBA 1, CBA 2, and ESA 1. The CBA1 area is in the northernmost corner of the resort complex (refer to Plan 16, Appendix A). REP 1 (Eco-Lodges) and USP1 (stormwater culverts at golf course roads) will affect the CBAs. CBA 2 areas will be affected by the following proposed projects: REP4 (VC Phase 3); REP 8 (Soccer Fields); USP2 (Reservoirs); USP5 (new WWTW); and USP3 (new effluent line). The remaining projects are located in ESA1 areas. It is important to note that already built up areas within the Sun City Complex are also located within the CBA and ESA areas. Parts of the site are also identified as aquatic CBAs and ESAs (including areas that are currently built-up.
	1.1.4	Conservation targets	The conservation target for Zeerust Thornveld is 19% and less than 4% is statutorily conserved (Mucina & Rutherford, 2006). The lease area east of the existing Sun City Resort Complex is being used by Game Trackers for game drives and related activities and will remain as natural area – this part of the lease area is not affected by the proposed future projects at Sun City. This part of the lease area also comprises Zeerust Thornveld, making a significant (approximately 470 ha) contribution to conservation of this vegetation type.
	1.1.5	Ecological drivers of the ecosystem	Ecosystem change is driven by biological, climatic, chemical, physical and anthropogenic factors. At Sun City, anthropogenic influence on the pre-existing ecosystem is apparent. However the effects that the existing Sun City Development in its entirety has had on the environment have not been comprehensively assessed. The EIA that will be undertaken in terms of proposed future developments at the Sun City Resort Complex will include a variety of specialist studies (Air Quality, ecology, soils, water etc.) to provide a baseline of the environment in the vicinity of the larger Sun City Complex and specific project footprints, and then assess the potential impacts of the proposed projects on the baseline (existing) environment.
	1.1.6	Environmental Management Framework	There are no EMFs that exist specifically for the MKLM or the broader BPDM, however one is currently being finalised. Surrounding municipalities, namely Madibeng and Rustenburg Local Municipalities, recognise the tourism sector as an area for social and economic development as well as a contributor to environmental conservation strategies and thus holds potential for future development for the area. For the broader province, the North West BSP serves as a tool for spatial planning and includes tourism and accommodation as a land use zone which provide opportunities for the development of a broad range of tourist and recreational facilities, inclusive of tourism, recreation and accommodation facilities. The Sun City Complex falls within an ONA tourism area, which is permitted to include developments such as lodges, hotels and large resorts.

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	1.1.7	Spatial Development Framework	The North West SDF (2016) and MKLM SDFs (2010) indicate the Sun City Complex as a main node of economic activity within the municipality and further future economic development opportunities should be channelled into activity corridors and nodes. The expansion of the Sun City Complex will align to this objective as the Sun City Resort is a major tourism node and will strengthen the capacity of the primary tourism node for the North West Province. Furthermore, the resort lies adjacent to a proposed Heritage Park and the Pilanesberg National Park providing a link to the Madikwe Game Reserve further north-west of the resort. This has been identified as the primary tourism node within the province.
	1.1.8	Global and international responsibilities relating to the environment (e.g. RAMSAR sites, Climate Change, etc.)	Sun City has embarked on several internal projects to reduce energy consumption, water consumption and waste generation at the Resort. There are no RAMSAR Sites in the immediate vicinity of the Sun City Resort. The Closest RAMSAR Site is the Blesbokspruit, approximately 165km south-east of the Resort. The closest World Heritage Site is the Cradle of Humankind approximately 80km south-east from the resort.
	1.2	How will this development disturb or enhance ecosystems and/or result in the loss or protection of biological diversity? What measures were explored to firstly avoid these negative impacts, and where these negative impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	The proposed Projects at Sun City involve expansion projects of resort facilities, expansion of services, and maintenance projects. The proposed projects are the subject of an EIA Process, inclusive of a suite of specialist studies that will determine site-specific sensitivities. Where plausible, the proposed layout will be adjusted to avoid sensitive ecological environments. Furthermore the specialist studies compiled as part of the EIA will include management and mitigation measures for inclusion to the EMP to reduce the severity and/or likelihood of potentially significant impacts to acceptable levels. The EIA Process will also identify positive impacts associated with the proposed project, and provide an assessment of the significance of positive impacts and ways to enhance them. Essentially, the projects are aimed at continued and efficient functioning of the Sun City Resort, which contributes positively to job creation and tourism in the region.
	1.3	How will this development pollute and/or degrade the biophysical environment? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	
	1.4	What waste will be generated by this development? What measures were explored to firstly avoid waste, and where waste could not be avoided altogether, what measures were explored to minimise, reuse and/or recycle the waste? What measures have been explored to safely treat and/or dispose of unavoidable waste?	Construction waste will be generated for all Expansion and Services Projects. In the operational phases, some of the projects will not generate waste (water pipelines, reservoirs etc.) others will generate additional domestic waste, that will feed into the existing waste management system at Sun City and eventually feed into the waste-to-energy plant.
	1.5	How will this development disturb or enhance landscapes and/or sites that constitute the nation's cultural heritage? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including offsetting) the impacts? What measures were explored to enhance positive impacts?	There are known Heritage Resources on the Sun City Property. A Heritage Specialist Study has been initiated as part of the EIA Process. The study will comprise an Integrated Conservation Management Plan (CMP) and a Heritage Impact Assessment (HIA). Furthermore, the location of the proposed projects within the Sun City Resort Complex have been chosen based on Heritage Sensitivities identified on the site by the Heritage Specialist as part of the Heritage Resources Management (HRM) process.
	1.6	How will this development use and/or impact on non-renewable natural resources? What measures were explored to ensure responsible and equitable use of the resources? How have the consequences of the depletion of the non-renewable natural resources been considered? What measures were explored to firstly avoid these impacts, and where impacts could not be avoided altogether, what measures were explored to minimise and remedy (including	Expansion of accommodation facilities at Sun City Resort will necessitate the use of additional water and power, and lead to the generation of additional domestic waste. **Water Resources**: Sun City is located in the Moses Kotane Local Municipality. The water services provider for the Municipality is Magalies Water, next to the Vaalkop Dam. Sun City uses treated water for irrigation and has a water policy in place, which will also apply to the proposed new developments. Treated water from the new WWTW will also be used as irrigation water. New Resort Accommodation Facilities will be fitted with water-saving technologies and landscaping will be indigenous and water-wise plants. **Electricity**: The majority of electricity used at Sun City is supplied by Eskom. The Resort also uses LGP for cooking and coal for heating water at the

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		offsetting) the impacts? What measures were explored to enhance positive impacts?	Crocodile Farm (Kwena Gardens). Hot water supply is delivered through heat pumps or solar geysers in the majority of accommodation facilities. Back-up power is supplied by Diesel Generators (Sun City currently has 13 operational Diesel Generators throughout the Resort, servicing different facilities in the event of a power outage. All new accommodation facilities must be designed to incorporate energy-saving technologies (such as solar heating and ecological-design principles).
	1.7	How will this development use and/or impact on renewable natural resources and the ecosystem of which they are part? Will the use of the resources and/or impact on the ecosystem jeopardise the integrity of the resource and/or system taking into account carrying capacity restrictions, limits of acceptable change, and thresholds? What measures were explored to firstly avoid the use of resources, or if avoidance is not possible, to minimise the use of resources? What measures were taken to ensure responsible and equitable use of the resources? What measures were explored to enhance positive impacts?	
	1.7.1	Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth or does it reduce resource dependency (i.e. de-materialised growth)? (note: sustainability requires that settlements reduce their ecological footprint by using less material and energy demands and reduce the amount of waste they generate, without compromising their quest to improve their quality of life)	
	1.7.2	Does the proposed use of natural resources constitute the best use thereof? Is the use justifiable when considering intra- and intergenerational equity, and are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this the proposed development alternative?)	
	1.7.3	Do the proposed location, type and scale of development promote a reduced dependency on resources?	
	1.8	How were a risk-averse and cautious approach applied in terms of ecological impacts?	Potential ecological impacts will be evaluated in detail as part of the EIA. This scoping report aims to identify on a preliminary basis potential impacts associated with the various projects, so that these potential impacts can be managed pro-actively, or in some cases avoided entirely, by adjusting the project design to avoid sensitive environmental features. At this stage of the study (the scoping phase), specialist studies have not yet been completed and the impacts identified in the scoping report are preliminary impacts only. Further impacts may be identified in the EIA-phase.
	1.8.1	What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	
	1.8.2	What is the level of risk associated with the limits of current knowledge?	
	1.8.3	Based on the limits of knowledge and the level of risk, how and	

Theme	No	Specific Questions	Answer related to the Proposed future developments at Sun City
		to what extent was a risk-averse and cautious approach applied to the development?	
	1.9	How will the ecological impacts resulting from this development impact on people's environmental right in terms following	
	1.9.1	Negative impacts: e.g. access to resources, opportunity costs, loss of amenity (e.g. open space), air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	A detailed impact assessment will be undertaken in the EIA Phase. Specialist assessments that have been commissioned include: Air Quality, Aquatic Ecology, Wetlands and terrestrial Biodiversity, Heritage, Surface- and groundwater, environmental noise, soils, land capability and land use, socio-economic assessment and visual impact assessment. The location of the proposed projects have (where possible) been identified based on sensitivities identified on site by the specialist team, to avoid impacting on sensitive environments within Sun City as far as possible. For impacts that are deemed significant, detailed management and mitigation measures will be identified in the EIA Phase and incorporated into the EMP.
	1.9.2	Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?	
	1.10	Describe the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question and how the development's ecological impacts will result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.)?	The proposed projects are classified as Resort expansion projects, service and utilities projects (to improve service delivery within Sun City Resort) and maintenance projects (to improve maintenance of existing facilities in the Resort). The project therefore does not have any direct impacts outside of Sun City, except arguably in the construction phase where some temporary job opportunities may be created.
	1.11	Based on all of the above, how will this development positively or negatively impact on ecological integrity objectives/targets/considerations of the area?	Projects associated with an increased development footprint will result in loss of vegetation within the Sun City complex. The majority of these projects are planned on land that has already been impacted upon by past activities. Project locations have been specifically chosen in an attempt to avoid sensitive ecological environments and heritage resources.
	1.12	Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?	For each of the identified projects, different alternatives have been considered as appropriate (See Section 7). Location alternatives were based mainly on practical considerations (access to services, access to the site, engineering considerations) and identified site sensitivities. The project layout has been designed and adjusted so as to avoid known ecologically sensitive areas and sensitive heritage resources on the site.
	1.13	Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and existing and other planned developments in the area?	A detailed impact assessment will be undertaken in the EIA Phase. The impact assessment will include a discussion and assessment of cumulative impacts. The projects that are proposed are within the existing Sun City Resort complex and are not considered likely to contribute negatively to regional ecological considerations. The projects will improve an existing world-renowned tourism facility and in that manner contribute positively to tourism.
"promoting justifiable economic and social development"	2.1	What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?	
	2.1.1	The IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks of policies applicable to the area,	The Bojanala Platinum District IDP (2012/17) identifies "Further development of tourism facilities around Sun City node" as a potential priority project, in terms of Tourism development. Though the projects to which this Report relates are related to development within Sun City (and not in the surroundings as the IDP would suggest) it does contribute to the Tourism Sector, and is therefore responsive to the plans outlined in the IDP. The Sun City Projects do not specifically address community development. The Sun City Projects are in keeping with the existing land uses at the Resort, and were designed with particular focus on avoidance of sensitive spatial features including heritage resources and visual impacts. The Municipality recognises tourism as one of the key local economic sectors. As such the proposed Sun City Projects are in line with the Municipal plans.
	2.1.2	Spatial priorities and desired spatial patterns (e.g. need for integrated of segregated communities, need to upgrade informal settlements, need for densification, etc.),	
	2.1.3	Spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.), and	

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	2.1.4	Municipal Economic Development Strategy ("LED Strategy").	
	2.2	Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?	The proposed projects are aimed at improving the services delivered by Sun City Resort and does not specifically address the development of communities outside of Sun City. Tourism development is however identified as a priority in local and district municipal development plans. The socio-economic impacts of the project will be assessed in the EIA Phase. It is anticipated that the Project will contribute at least to some degree to local job creation in the construction phases.
	2.2.1	Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?	
	2.3	How will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?	The projects are not specifically aimed at community development but rather at improvement of facilities at the existing Sun City Resort. It does not therefore directly address the social needs and interest of surrounding communities but rather provides world-class facilities for local and international travellers.
	2.4	Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long-term? Will the impact be socially and economically sustainable in the short- and long-term?	It is considered unlikely that the impacts of the project will extend beyond the borders of the Sun City Resort.
	2.5	In terms of location, describe how the placement of the proposed development will	
	2.5.1	result in the creation of residential and employment opportunities in close proximity to or integrated with each other,	The location of the proposed developments is within the existing Sun City Resort Complex. Sun City Resort is located in relatively close proximity to Rustenburg which is the closest regional economic hub (roughly 50km by road). The Community of Ledig is located immediately south-east of Sun City, with a further extension of this community being proposed on Portion 15 of the Farm Ledig (EIA was undertaken by K2M Environmental in 2017). The extension will be immediately adjacent to Sun City Resort to the South and West of the Resort. It is expected that many of the Sun City Employees currently, as well as those additional employees associated with the proposed projects, will be sourced from Ledig (where possible). The proposed projects are aimed at improving and expanding facilities at the existing Sun City Resort and not specifically at community upliftment, though the socio-economic implications of further development at Sun City will be assessed in the EIA. The proposed projects within Sun City do propose to make maximum use of existing infrastructure by tying in to existing services infrastructure of the Resort. The proposed Projects are aligned with the development priorities of Sun City. The Projects are considered 'infill development' in general terms as they are located within the existing boundaries of the Sun City Resort. These projects do not contribute to the correction of historically distorted spatial patterns. The projects were designed with site sensitivities in mind and therefore can be said to encourage sustainable land development practices. Some of the projects are strategically placed to take advantage of views (E.g. REP1: Eco Lodges) while others were placed mostly due to engineering considerations (e.g. the reservoirs). It is anticipated that some employment opportunities will be generated in the construction phase of the projects over the next ten to fifteen years. Additional employment will also most likely be associated with the operational phase (as presumably more staff will be required for maintenance, cleaning, running of facilities etc.) than the current Resort facilities. The proposed projects will not impact on the sense of place of Sun City as they are in keeping with the existing activities at Sun City Resort. The proposed projects are integrated to the existing facilities and infrastructure at Sun City Resort.
	2.5.2	reduce the need for transport of people and goods	
	2.5.3	result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms public transport),	
	2.5.4	compliment other uses in the area,	
	2.5.5	be in line with the planning for the area,	
	2.5.6	for urban related development, make use of underutilised land available with the urban edge,	
	2.5.7	optimise the use of existing resources and infrastructure,	
	2.5.8	opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement),	
	2.5.9	discourage "urban sprawl" and contribute to compaction/densification,	
	2.5.10	contribute to the correction of the historically distorted spatial patterns of settlements and to the optimum use of existing infrastructure in excess of current needs,	

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	2.5.11	encourage environmentally sustainable land development practices and processes,	
	2.5.12	take into account special locational factors that might favour the specific location (e.g. the location of a strategic mineral resource, access to the port, access to rail, etc.),	
	2.5.13	the investment in the settlement or area in question will generate the highest socio-economic returns (i.e. an area with high economic potential),	
	2.5.14	impact on the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area, and	
	2.5.15	in terms of the nature, scale and location of the development promote or act as a catalyst to create a more integrated settlement?	
	2.6	How were a risk-averse and cautious approach applied in terms of socio-economic impacts?	
	2.6.1	What are the limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?	A Socio-Economic Impact Assessment will be undertaken during the EIA Phase of the Project. The Socio-Economic Impact Assessment will identify impacts and risks associated with the proposed projects and prescribe mitigation and management measures to prevent (where possible) or minimise potential negative impacts, and enhance positive impacts.
	2.6.2	What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?	
	2.6.3	Based on the limits of knowledge and the level of risk, how and to what extent was a risk-averse and cautious approach applied to the development?	
	2.7	How will the socio-economic impacts resulting from this development impact on people's environmental right in terms following:	
	2.7.1	Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc. What measures were taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?	The Socio-Economic Impact Assessment that will be undertaken in the EIA Phase will identify impacts and risks associated with the proposed projects and prescribe mitigation and management measures to prevent (where possible) or minimise potential negative impacts, and enhance positive impacts.
	2.7.2	Positive impacts. What measures were taken to enhance positive impacts?	
	2.8	Considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services, describe the linkages and dependencies applicable to the area in question and how the development's socio-economic impacts will result in ecological impacts (e.g. over utilisation of natural resources, etc.)?	The socio-economic impacts associated with the existing Sun City Resort will also be assessed in the EIA Phase Specialist report. Increased accommodation facilities at Sun City will result in an increased disturbed footprint at the Resort, increased resource use and increased waste generation. It will also lead to increased income for and continued success of the Resort.
	2.9	What measures were taken to pursue the selection of the "best practicable environmental option" in terms of socio-economic	The proposed projects were designed so as to enhance guest experience at the Sun City Resort complex, whilst being responsive to ecological and heritage sensitivities identified on the site.

Theme	No	Specific Questions	Answer related to the Proposed future developments at Sun City
		considerations?	
	2.10	What measures were taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)?Considering the need for social equity and justice, do the alternatives identified, allow the “best practicable environmental option” to be selected, or is there a need for other alternatives to be considered?	The beneficiaries of these projects will in most cases be visitors to the Sun City Resort (Projects like REP8 and USP6 are aimed at improving staff accommodation and facilities at the Resort).
	2.11	What measures were taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing, and what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination?	This project is not aimed at improved access to basic human needs but rather aims to provide world-class entertainment and accommodation facilities at the existing Sun City Resort.
	2.12	What measures were taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development’s life cycle?	A detailed EMP will be compiled in the EIA Phase to ensure that management and/ or mitigation measures are prescribed for each impact that is deemed significant (including responsibility and timeframes for implementation).
	2.13	What measures were taken to:	
	2.13.1	ensure the participation of all interested and affected parties,	The Public Participation Process is discussed in detail in Section 8 of this report and is undertaken in accordance with the EIA Regulations of 2014, as amended.
	2.13.2	provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation,	
	2.13.3	ensure participation by vulnerable and disadvantaged persons,	
	2.13.4	promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means,	
	2.13.5	ensure openness and transparency, and access to information in terms of the process,	
	2.13.6	ensure that the interests, needs and values of all interested and affected parties were taken into account, and that adequate recognition were given to all forms of knowledge, including traditional and ordinary knowledge, and	
	2.13.7	ensure that the vital role of women and youth in environmental management and development were recognised and their full participation therein were be promoted?	

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	2.14	Considering the interests, needs and values of all the interested and affected parties, describe how the development will allow for opportunities for all the segments of the community (e.g.. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?	Tourism is key component for socio economic development, and a focus area for the local municipality. . Sun City supports the local tourism growth, through the influx for tourists to the municipal area. Growth in infrastructure and tourists beds grows the spending capacity thereby increasing support for local business. Furthermore Sun City hosts a limited amount of school groups through their CSI initiatives. Additional employment will be associated with the construction and operational phases of the development. These figures will be quantified in the EIA Phase.
	2.15	What measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?	An environmental awareness plan forms part of the EMP that will be compiled in the EIA Phase.
	2.16	Describe how the development will impact on job creation in terms of, amongst other aspects:	
	2.16.1	the number of temporary versus permanent jobs that will be created,	The exact employment figures will be calculated during the EIA and refined during the detailed design phases of each of the individual projects. Temporary jobs will be created for each of the 15 REP and USP Projects over the 15 year implementation period. Permanent jobs will also be created during the projects' operational phases. It is anticipated that much of the labour force will be sourced from Ledig, which is adjacent to the Sun City Resort Complex. The proposed projects will create additional jobs at Sun City, and will not result in any job losses at Sun City.
	2.16.2	whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area),	
	2.16.3	the distance from where labourers will have to travel,	
	2.16.4	the location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits), and	
	2.16.5	the opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but impact on 1000 agricultural jobs, etc.).	
	2.17	What measures were taken to ensure:	
	2.17.1	that there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment, and	Section 5 of this report discusses the national and local legal and policy frameworks and how the proposed projects and the existing Sun City Resort respond to those documents. It is not anticipated that there would be any conflict of interest as the projects are within the existing Resort.
	2.17.2	that actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?	
	2.18	What measures were taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?	The EIA Process being undertaken in terms of the EIA Regulations of 2014 (as amended) will ensure that the proposed developments are assessed in terms of their potential impacts on the environment, will ensure that management measures are prescribed to minimise environmental damage, and will ensure adequate opportunity for public participation.
	2.19	Are the mitigation measures proposed realistic and what long-term environmental legacy and managed burden will be left?	This will be discussed in the EIA Phase once the detailed mitigation measures have been identified.
	2.20	What measures were taken to ensure that he costs of remedying pollution, environmental degradation and	Sun City is leasing the land where the Resort is located from the South African Government. It is extremely unlikely that a Resort of such international acclaim and popularity will be decommissioned in the near future. Sun City Resort will therefore remain responsible for the sound environmental

Theme	No	Specific Questions	Answer related to the Proposed future developments at Sun City
		consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?	management at the Resort.
	2.21	Considering the need to secure ecological integrity and a healthy bio-physical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the best practicable environmental option in terms of socio-economic considerations?	Alternatives are discussed in detail in Section 7 of this Report
	2.22	Describe the positive and negative cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project in relation to its location and other planned developments in the area?	The Impact Assessment (including cumulative impacts) will be completed in the EIA Phase with the input from relevant specialists, including a Socio-Economic Impact Assessment.

7 Details of Alternatives Considered

The identification of alternatives provides a basis for choice among the options available. The exploration of such alternatives allows for the incorporation of practically, and technologically, the least environmentally impacting options available, whilst still meeting the need and purpose of the proposed projects. An alternative should thus be practicable, feasible, relevant, reasonable and viable.

7.1 Process to assess Alternatives

The role of alternatives is to find the most effective way of meeting the need and purpose of a proposed projects, either through enhancing the environmental benefits of the proposed activity, and / or through reducing or avoiding potentially significant negative impacts. According to the Department of Environmental Affairs (DEA) Criteria for Determining Alternatives in EIA Guideline (2004), there are various types or categories of alternatives, including:

- Location alternative – alternative project sites in the same geographic area;
- Process/design alternative – alternative process/design/equipment;
- Activity alternative – consideration of different means to achieve the same project objective;
- Routing alternative – consideration of different routes for linear infrastructure;
- Site layout alternative – consideration of the different options to place project infrastructure;
- No-go alternative – the proposed project/activity does not proceed, implying that the current situation or status quo remains.

7.2 Details of all the alternatives considered

Although various project alternatives are identified in the Scoping Report, these will be refined during the EIA phase and a final infrastructure layout will be identified based on the updated and additional specialist studies to be undertaken. The following was considered in terms of alternatives and are discussed separately below:

- Site Location and Layout;
- Project Schedule;
- Technology Alternatives; and
- No-go Alternative.

7.2.1 Site Location and Layout

The Sun City Resort was officially opened on 7 December 1979. The location of the Sun City Resort therefore remains fixed, however, alternative locations of the proposed projects within the Sun City Property, can be considered, and are discussed below:

7.2.1.1 REP1: Development of a Bush Lodge / Eco-Lodge

This proposed projects involves the development of a Bush Lodge comprising 20 to 25 new Lodges of 4 to 5 bedrooms each (i.e. accommodation for between 80 and 125 people).

The proposed location of this project is adjacent to the east of the GPCC Workshop, facilitating easy access to services for the lodges. The area is currently undeveloped but borders on an existing road, facilitating access to the site. An area of approximately 10 hectares is considered necessary for the proposed development, to ensure that the individual Lodges retain a sense of privacy (the entire 10 hectares will not be cleared and existing vegetation will be used to screen the lodges from each other). This site faces the Pilanesberg National Park, adding to the bush/eco-lodge experience.

Alternative sites exist immediately adjacent to the proposed site, however these location will face east or west onto the GPGC or LCGC respectively, or south towards the VoW and Palace. These views from the proposed bush/eco-lodges will not be conducive to the type of accommodation the developer is trying to provide.

Further up the slope of the same hill, significant heritage and ecological sensitivities exist which preclude development on this site.

Locating the bush-lodge development closer to the west gate of the Sun City Resort was also considered. This area is not considered suitable as entirely new services infrastructure (water, electricity, sewer, roads) will have to be constructed to this currently undeveloped location, whereas easy access to existing services infrastructure exists at the proposed site.

7.2.1.2 REP6: Helipad decommissioning and relocation

Decommissioning of the current Helipad is required to accommodate the VC Phase 3 Expansion. Additionally, Sun City Management have indicated that the current Helipad is not of sufficient capacity to provide parking pays for the number of helicopters that often need to be accommodated on the Resort. Furthermore, Resort Management have indicated that the vast majority of guests that use the helipad, reside in the Palace for the duration of their stay at Sun City, and a location in closer proximity to the Palace would therefore be preferable, as VIP guests have complained of the distance between the Helipad and Palace.

The preferred location has been identified on top of the existing underground parking garage at the Palace. The location is ideal in terms of proximity to the Palace, and the existing parking garage providing a foundation for the helipad facility.

Alternative locations will most likely provide more scope for potential future expansion of the helipad, but would necessitate the removal of established and healthy vegetation. It is also preferable to locate the Helipad west of the Palace, to be close to the entrance to the Palace, rather than east of the palace where the parked helicopters could impact on the views experienced from the Palace.

7.2.1.3 REP7: Additional parking garage, Convention Centre and Hotel (250 rooms)

The proposed location of the new parking garage, hotel and convention centre is in the current parking lot between the existing Cascades Hotel and Sun City Hotel and Casino.

Parking is a challenge at Sun City, especially considering the numbers of day visitors and guests at the Resort. The construction of a multi-storey parking garage is regarded preferable over constructing new parking areas, to reduce the footprint of new impacted areas within the resort complex, and to ensure that parking facilities are provided for in conveniently accessible locations, close to people's destinations within the Resort.

The addition of another hotel and of a convention centre forms part of the strategic expansion objectives of Sun City and to couple these facilities with parking is considered the only feasible option.

The proposed location in between the two existing hotels is a logical choice. Any alternative location would necessitate further environmental degradation and not be as effective in reaching the project objectives.

7.2.1.4 USP3: Effluent Transfer Line Replacement

Currently there is an effluent transfer line (old asbestos line) through Sunset Drive to the irrigation lake at Hole 2. This line will be decommissioned (shut down) but remain in place. A new line will then be installed against the fence of Letsatsing.

The start and end point of the effluent transfer line are fixed points at the WWTW and the irrigation lake at Hole 2. The Sun City Lake is located between these points, meaning that the effluent transfer line has to pass either east or west of the lake.

Removal of the existing asbestos line, and replacement thereof on the same footprint, will be associated with numerous legal obligations and increased environmental risk. Maintenance of this line in its current location is also disruptive to Sun City Resort activities, due to its location and proximity to the GPGC.

Relocating this line to the east of the lake and installing it against the fence of Letsatsing (the adjacent natural area) is not associated with any disruptions to activities at the resort and will be associated with construction on already impacted areas of the Sun City Resort Complex. Furthermore, the HDPE line will be above ground and therefore no excavation will be required for maintenance and leak detection.

7.2.1.5 USP5: New WWTW for VC & Palace (and proposed Eco-Lodges)

Currently the sewer line running through Ledig (old asbestos line) is reaching its end of life. The line will be decommissioned (shut down but remain in place). A new wastewater treatment works (WWTW) will be established to manage sewage from VC and The Palace (and proposed Eco-Lodge Development).

A new pipeline will be required to the Lost City hole 3 dam to return the treated water for use in irrigation.

The preferred location for the WWTW is on the “old borrow pit” west of the current Vacation Club. This area is already disturbed, and is located in relative proximity to the VC, Palace and Eco-Lodges.

Alternative Locations were considered in proximity to the preferred location, but disregarded as they will either be closer to the drainage line running south and west of the preferred site, or closer to the VC Phase 1 and proposed VC Phase 3, potentially impacting on guest experience.

7.2.1.6 USP7: Generator Park

The aim of this project is to improve management, monitoring and control of generators throughout the resort (which extends to the minimising of visual impacts and noise impacts, and the improved management of diesel).

Two location alternatives were assessed:

- Consolidate all 13 generators into one area, adjacent to the existing primary substation and car park near the Resort Entrance; or
- Establish a smaller generator park servicing the east side business units only located at No 1 substation, between the Cabanas Bus Stop and the Skytrain on the top road.

Both these location alternatives will be assessed in more detail in the EIA Phase, as Sun City will also first have to undertake a cost-benefit analysis of the two options.

7.2.1.7 Projects for which Location Alternatives within the Resort were not assessed

Table 7-1 summarises those projects for which location alternatives were not assessed and provides motivation for not including location alternatives in terms of these projects.

Table 7-1: Projects where Location Alternatives were not assessed

No.	Project Summary	Preferred Location	Reason for not assessing alternatives
REP2	Construct a Road to connect the Driving Range at LCGC to the GPGC	Via the Palace garden road and Valley of Waves (VOW) road.	There is an existing service road extending towards the LCGC from the GPGC for some distance, and an existing golf cart path from LCGC in the direction of GPGC. It is proposed to use these existing disturbed areas, connect them and upgrade the path to a formal golf-cart path to meet the needs of the Project.
REP3	Construct 20 additional Rustic Chalets	At Kwena Gardens	This project is considered an expansion of the existing Rustic Chalet accommodation facilities at Kwena Gardens. Location alternatives are therefore not feasible due to land availability in proximity to the existing chalets.
REP4	Construct an additional 150 simplex units, 2- 3 bed units and associated infrastructure to expand capacity	At the VC. The site identified for the expansion currently houses the Helipad and Nursery.	This project is considered an expansion of the existing Vacation Club and is located on land that has already been impacted. Location alternatives are therefore not feasible due to land availability in proximity to the existing VC Phase 1 and 2.
REP5	Expand the existing artificial beach and construct an additional shallow swimming pool	At the Lake and at Waterworld Beach	This project is regarded expansion of existing facilities and location alternatives are therefore not feasible. The entire site and surroundings have been completely transformed.
REP8	Develop 2 soccer fields	At the Warehouse (old motocross track)	The existing motocross track has become disused due to lack of interest. The Soccer Fields are proposed to host (primarily) the staff and surrounding businesses partnering with Sun City. No Location alternatives were considered, as the proposed location is deemed optimal.

No.	Project Summary	Preferred Location	Reason for not assessing alternatives
USP1	Install Stormwater pipes / culverts to allow water to flow under the roads and maintain the road surface for fence inspections.	At Golf Course Roads	The Project is aimed at addressing the existing problem of the roads becoming inaccessible and washing away in storm events. Location alternatives are therefore not relevant.
USP4	Construct a main water line	From the Welcome Centre to Skytrain (pipe will be attached to Skytrain route)	Alternative Locations were not considered as attaching the pipe to the existing Skytrain route is feasible and preferable from an engineering and environmental perspective.
USP6	Construct an additional pipeline for water supply to South Village	From the Complex Reservoirs to South Village	The pipeline will follow the most direct route possible to minimise project footprint (and associated costs and ecological disturbance). No further location alternatives were considered.
MP1	Vegetation Clearance to serve as maintenance roads and Fire Breaks	At perimeter fences (25 km)	This project is considered maintenance of existing infrastructure. Location alternatives are therefore not deemed relevant.
MP2	Clear the Culverts under the road from debris and siltation.	At Sun Park Culverts	This project is considered maintenance of existing infrastructure. Location alternatives are therefore not deemed relevant.

7.2.2 Project Schedule

The projects that are the subject of this Scoping Report are planned for implementation at Sun City of the next ten to fifteen years. Table 7-2provides a description of the anticipated duration of each Project's construction phase (where relevant). Operational phases of the proposed projects are indefinite.

Table 7-2: Duration and Scheduling of Projects

No.	Project Name	Duration
REP1	Eco-Lodge	Construction of the Eco Lodges will take approximately 12 months. This is not considered a priority project for the resort and is anticipated to be implemented towards the end of the 15-year Project development schedule.

No.	Project Name	Duration
REP2	Driving Range Road	Construction of the golf-cart path is not anticipated to exceed three month. This is a priority project for Sun City and is anticipated to be scheduled in the first five years of the Project development schedule.
REP3	Kwena Gardens Expansion	Construction of the additional chalets is not anticipated to exceed 18 months. This is considered a priority project, currently planned for implementation in mid-2020.
REP4.1	Vacation Club (VC) Phase 3	Construction of VC Phase 3 is anticipated to be complete within 24 months. This is a priority project earmarked for 2020.
REP4.2	Vacation Club (VC) Phase 4	Construction of VC Phase 4 is anticipated to be complete within 24 months.
REP5	Recreational Lake Beach Expansion	Expansion of these facilities can be completed within six months. This is not considered a high-priority Project and is likely to be implemented in year 5 of the Project development schedule.
REP6	Helipad relocation and expansion	This will coincide with the VC Phase 3, as the existing Helipad has to be relocated before VC Phase 3 can be constructed.
REP7	Additional Parking Garage, Convention Centre and Hotel	Construction of this project should not exceed two years period. The Project is earmarked to commence in 2022.
REP8	Soccer Fields	Establishment of the soccer fields will not exceed 6 months. This project is anticipated to be implemented in 2020 .
USP1	Stormwater culverts at Golf Course Roads	Construction of the culverts should not exceed 1 month. This is considered a priority project and is anticipated in 2019. It is imperative that this project is scheduled for construction during the dry season.
USP2	Additional Reservoirs to Supplement existing water storage capacity	Reservoir and associated pipeline construction is not anticipated to exceed 12 months. The project is a priority for Sun City and is currently scheduled for 2020.
USP3	Effluent transfer line replacement	It is anticipated that construction of the new line will take approximately 6 months. The Project is earmarked for implementation in 2019

No.	Project Name	Duration
USP4	Sunset-Skytrain Fresh Water Line	The project is not anticipated to exceed 6 months and is considered a priority project, scheduled for implementation in 2019.
USP5	Ledig Sewer Line decommissioning, New WWTW for VC and Palace	Establishment of the new WWTW will take approximately 12 months. This project is earmarked for implementation in 2020.
USP6	South Village Pipeline	Establishment of the pipeline will not exceed three months, this is considered a priority project and will be implemented in 2019.
USP7	Generator Park	Establishment of the generator park (for all generators, or for the east-side generators) will not exceed 2 months. This project is not considered a high priority and is currently scheduled for 2023.
MP1	Clearance of Fence Roads	This project will recur at least annually as it is a maintenance project aimed at fire safety (among other considerations). Clearance of the 25km fence road will most likely not exceed 1 month and be undertaken annually.
MP2	Sun Park Culverts	This project will recur as necessary when the culverts silt up. Clearance of the culverts will most likely not exceed a 2 week duration.

A preliminary schedule is presented in Figure 7-1.

	REP1	REP2	REP3	REP 4.1	REP 4.2	REP5	REP6	REP7	REP8	USP1	USP2	USP3	USP4	USP5	USP6	USP7	MP1	MP2
2019																		
2020																		
2021																		
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2032																		
2023																		

Figure 7-1: Implementation Schedule

7.2.3 Technology Alternatives

Technology Alternatives are relevant to the development of new accommodation facilities (REP1 and REP7) and expansion of existing accommodation facilities (REP3 and REP4).

These technology alternatives include measures such as water-saving technologies (installation of effective water supply infrastructure to prevent leakages of water, dripping taps etc.) and energy-saving technologies (eco-responsive design, use of energy-efficient lighting, solar electricity and solar geysers etc.).

Most of these technologies are already incorporated into the majority of existing accommodation facilities at Sun City, and the proposed new developments should be no exception.

Alternative materials can be considered for those projects that are associated with paving (REP2 primarily, and all other projects where paving is incorporated). Permeable materials are preferred as this does not lead to reduction in water ingress to subsoil and groundwater, and does not increase the velocity and amount of stormwater runoff, which often leads to erosion. It must also be ensured that the paving materials chosen are manufactured by a sustainable (economically, environmentally and socially responsible) source.

For the projects that include water, wastewater and sewer pipes, technology alternatives are limited as it is preferred that South African Bureau of Standards (SABS) approved materials be used and best practices implemented.

There are various alternative technologies available for the treatment of water. The exact technology associated with USP5 (WWTW) has not been confirmed, and a sewage package plant can also be a viable solution.

7.2.4 No-go Alternative

The no-development alternative implies that the proposed future projects are not implemented. This would have different implications for different project types.

If Sun City does not proceed with REP1, REP3, REP4 or REP7 (Eco-Lodge, Kwena Gardens Expansion, VC Phase 3 or Parking Garage, Hotel and Convention Centre) capacity for accommodation at the Resort will not be increased. This could have negative economic implications for Sun City as they will not be able to meet increased demand at the Resort for different types of accommodation. It will also have negative implications for guests and potential guests as the accommodation capacity and different accommodation typologies will not be available to enhance or accommodate guest experiences. On the other hand, construction of these facilities could have a negative impact on guest experiences. Additionally, development of these additional accommodation facilities is associated with some degree of ecological disturbance, as will be further assessed in the EIA Phase. Vegetation clearance, soil disturbance and pollution risk associated with development of these projects will not occur if the no-go option is implemented.

If REP2 (Driving range road) is not implemented, the status quo will remain and users of GPGC will likely continue to use the existing roads at the Resort if they want to access the driving range at LCGC. The project is associated with minimal vegetation and soil disturbance and will result in optimised guest experience while alleviating golf-cart traffic on the existing roads around the resort to some extent.

REP5 (Recreational Lake Beach Expansion) involves expansion of existing recreational facilities at Sun City, to allow more visitors to interact comfortably at this facility at the same time. Not proceeding with the project will not have any significant ecological effects as the entire area comprises landscaped vegetation and man-made infrastructure. It would also mean the capacity of the recreational lake beach will remain as is.

Not proceeding with the development of REP8 (Soccer Fields) will not have any significant ecological impacts as the site has been completely transformed by the development of the Motocross Track. The Motocross Track is disused due to lack of interest from visitors to Sun City. Not developing the Soccer Fields in this area will mean that the status quo of the Motocross Track will remain, and that Sun City employees and surrounding community will not experience the benefit of this recreational facility.

The USP Projects are aimed at increasing capacity or improving efficiency of services (water provision, sewage management, power) at the Resort. Not proceeding with these projects will lead to insufficient capacity and/or poor management of resources at Sun City, especially if the REPs are implemented. Most of the USP's will be associated with some degree of environmental impact (especially during the construction phase), the significance of which will be assessed in the EIA. If the Projects are not implemented, the environmental impacts will be negated.

The Maintenance Projects that are proposed are essential for the continued safe functioning of existing infrastructure at the Resort and the No-Go Option is not considered feasible.

Development of all 17 proposed projects is associated with a degree of job creation during the construction phases, which is expected to have a short-term positive impact.

8 Details of the Public Participation Process

Prior to and during the Scoping Phase, the following core stakeholder engagement activities were undertaken:

- Stakeholders (including Government Departments, landowners, land occupiers, communities, Non-Governmental Organisations, agricultural organisations, Parastatals and businesses) have and will continue to be identified and captured in a stakeholder database;
- A Background Information Document (BID) and letter was distributed to the identified I&APs
- Newspaper advertisements were placed in the Rustenburg Herald;
- Site notices were displayed around the Project area;

- The environmental Scoping Report and associated documentation is available for public comment for a period of 30 days;
- Consultation with I&APs will be undertaken; and
- Suggestions and concerns will be obtained from I&APs.

Table 8-1 provides more detail regarding the Stakeholder Engagement activities undertaken thus far. The Stakeholder Engagement Report is appended to this report as Appendix B.

Table 8-1 Public Participation Scoping Phase Activities

Activity	Details
Identification of stakeholders	The existing stakeholder database which includes I&APs from various sectors of society, including directly affected and adjacent landowners, in and around the project area was utilised. Additional I&APs were identified through the Project announcement. Stakeholders will continue to be identified and captured in a stakeholder database throughout the process.
Distribution of announcement letter and BID	A BID, announcement letter with Registration and Comment Form was emailed and posted to stakeholders. (12 July 2018)
Placing of newspaper advertisement	An English advert was published on 12 July 2018 2018 in the Rustenburg Herald Newspaper to announce the project.
Putting up of site notices	English site notices were put up at the proposed project site and other public places around the proposed site on 12 July 2018 2018. *A site notice placement map and report was also developed to indicate the various site notice locations.*
Announcement of Scoping Report	Announcement of availability of the Draft Scoping Report was emailed and posted to stakeholders together with the formal project announcement. Copies of the Scoping Report were made available at: ▪ Sun Central; and ▪ Bakubung Tribal Hall. A SMS was also sent to stakeholders announcing availability of the Scoping Report. The Scoping Report was also available on www.digbywells.com (Public Documents) and at the Public Meeting. (30-day comment period for the Scoping Report: 12 July 2018 2018 until 14 August 2018)
Stakeholder Meeting	A public meeting was held at Cornerstone Academy Primary School (South Village, Sun City, 0316) on 18th July 2018 from 11:00 am – 13:00 pm.
Obtained comments from stakeholders	Comments, issues of concern and suggestions received from stakeholders were captured in the CRR.

Refer to Appendix B for proof of documentation sent to I&APs.

8.1 Summary of issues raised by I&APs

All comments and responses received during the announcement and scoping public review period have been captured in the CRR (Appendix B).

The key categories of comments raised during the Scoping Phase pertain to the following:

- Employment / contract opportunities associated with the construction of the proposed projects (particularly for Small, Medium and Micro Enterprises (SMMEs));
- Projected timeframe for the proposed projects; and
- Potential environmental impacts associated with the proposed Recreational Lake Beach Expansion which may negatively impact surrounding businesses.

9 Environmental Attributes associated with the Alternatives

This section of the Scoping Report provides a description of the status quo environmental aspects (baseline) associated with the project site (Sun City Complex area) and region (where relevant).

The purpose of understanding the environmental baseline conditions or context of a proposed development project, relates to the potential of the Project to impact on the existing environment, and the potential for existing environmental aspects to influence a proposed development in terms of design, location, technology and layout.

The information presented in this section was obtained from preliminary specialist investigations undertaken for various environmental aspects associated with the proposed development. During the EIA phase, the specialist reports will be completed and appended to the Draft EIA report. These reports will be made available for public review accordingly.

9.1 Climate

The study area falls within the semi-arid climate region of Southern Africa, where rainfall is sparse with seasonal variations during wet and dry seasons. Wet (or rainy) seasons occur during summer months, October to March and is characterised by short, intense convective storms. Dry seasons occur during winter time (April – September) and are characterised by dry cold weather conditions. The latitudinal movement of the Inter Tropical Convergence Zone (ITCZ) governs the seasonal variations in rainfall.

The average temperature, rainfall, relative humidity and wind for the project site are discussed in the subsection below. The data reviewed was for the period 2014 to 2016.

9.1.1 Temperature

The monthly maximum and average temperature for the project area is presented graphically in Figure 9-1. The maximum temperatures were observed from December to

January recording the highest temperature of 35 °C, followed by October to November and February (33°C). The monthly averages ranged from 11°C between June and July to 25°C from December - February. The annual average temperature for the project site is 19°C.

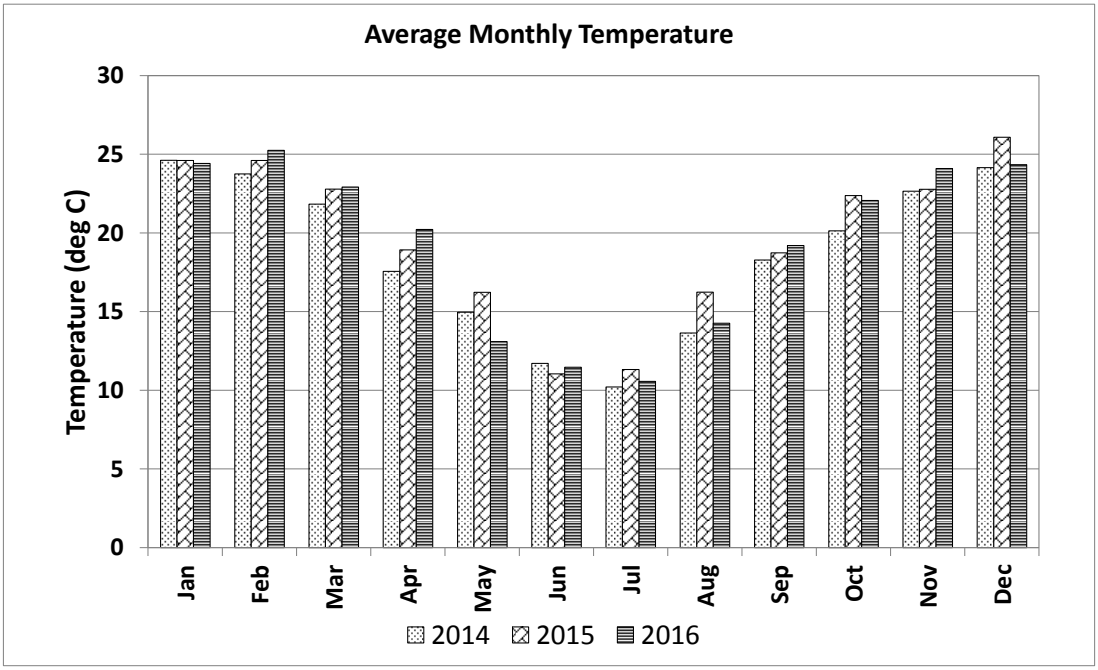

Figure 9-1: Average Monthly Temperature

9.1.2 Rainfall

The total monthly rainfall are presented graphically in Figure 9-2. The highest rainfall of 281 mm was observed in December. The lowest recorded rainfalls (5 mm) were observed during May and August. The annual total and average rainfall reached 1068 mm and 682 mm respectively.

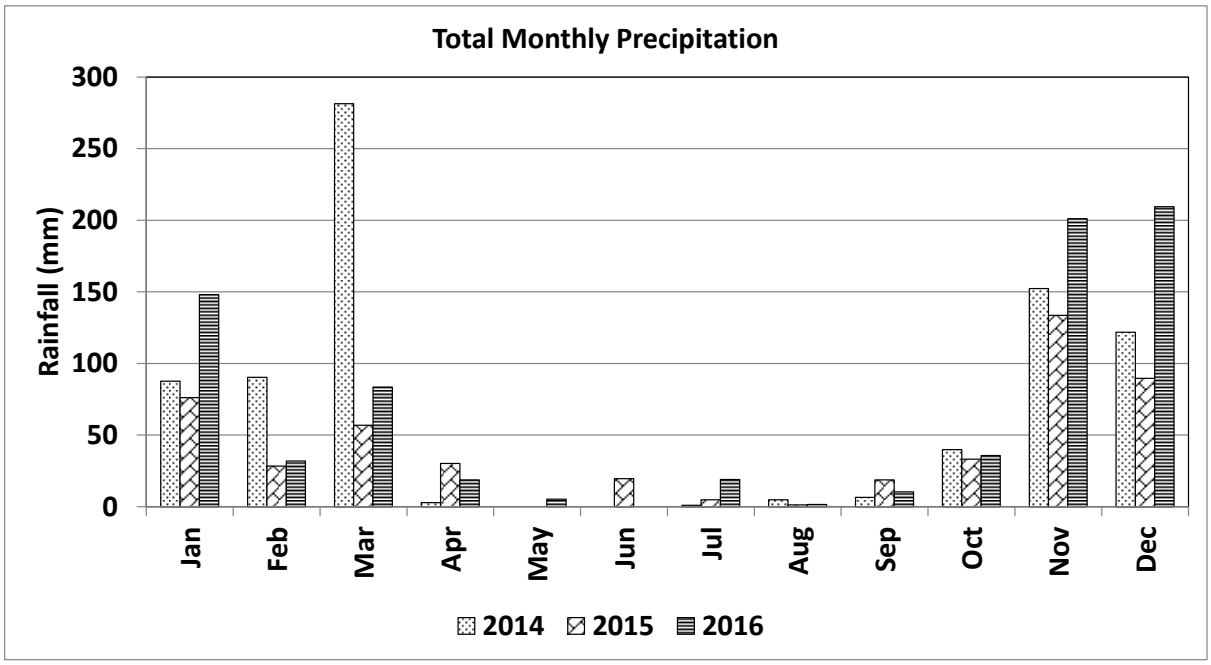

Figure 9-2: Total Monthly Precipitation

9.1.3 Relative Humidity

The relative humidity for the project area is presented in Figure 9-3. The monthly average ranged between 53% and 72%. The annual average estimated was 62%.

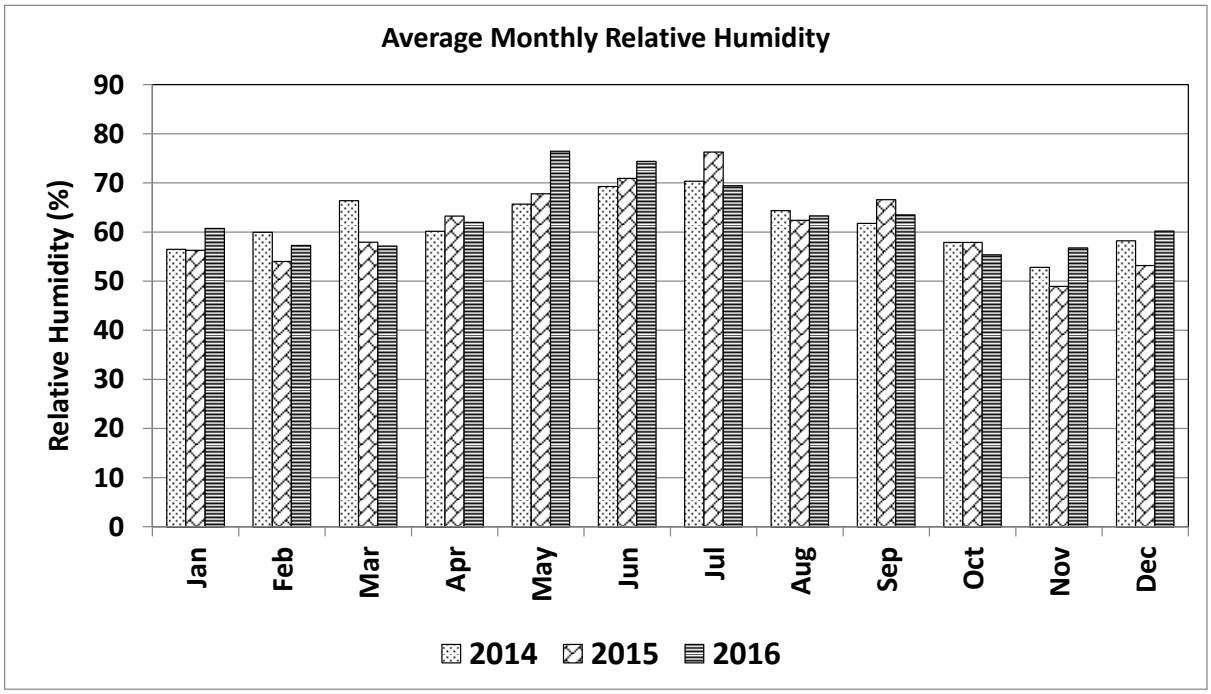

Figure 9-3: Average Monthly Relative Humidity

9.1.4 Wind

The dominant winds recorded are blowing from east (17.3%) and east northeast (12.1%) respectively. Secondary wind comes from east south east (9.7%), north east (6.7%), north (6.3%) and north northeast (6.2%) Calm conditions (wind speeds <0.5 m/s) occurred 4.60% of the time. The predominant wind direction is east and east southeast with 20.24% and 13.30% respectively in the night, east (24.96%) and east southeast (13.29%) in the morning, east and east northeast in the afternoon (12.63% and 10.75%); and east (11.38%) and east northeast (11%) in the evening.

9.1.4.1 Wind Speed

One of the factors that favour the suspension and resuspension of loose particulates in the atmosphere is the intensity of the wind speed regime. Wind speed greater than 5.4 m/s leads to erosion of loose dust PM and the degree of dispersion across the landscape. Figure 9-4 shows that wind speed greater than 5.4 m/s occur every month with increases observed from the months of January, August and October (10m/s). Although average wind speed is generally below 5.4 m/s.

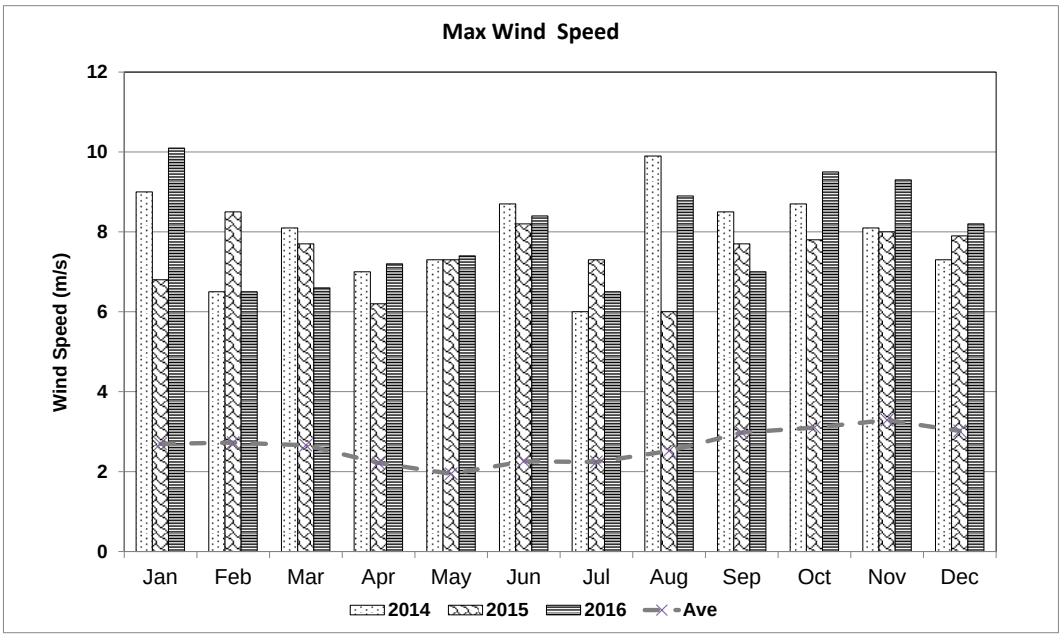

Figure 9-4: Monthly Maximum Wind Speed

9.2 Geology

9.2.1 Regional Geology

The project area is located in the Pilanesberg Ring Complex which is one of the world`s largest and best preserved alkaline ring dykes known as the Pilanesberg Alkaline Complex (PAC). The PAC is located within the western limb of the Bushveld Complex and on the

Kaapvaal Craton with the gabbro-norite of the Rusternburg Layered Suite. The regional geology associated with the project area is displayed in Plan 5, Appendix A.

The Pilanesberg Complex is characterised by alkaline igneous rocks (Abiye, et al., 2018), constructed on a base of intrusive rocks and a cover of volcanic rocks (Pantshi, 2006).

9.2.2 Local Geology

Locally, the study area is virtually covered by slightly moist, orange-brown, silty medium and fine sand with abundant, black, ferruginised gravels (also known as reworked residual foyaite/hillwash (0m – 3m)) overlying the residual foyaite. Foyaite is a nepheline syenite with a trachytic texture caused by the platy alkali feldspar (orthoclase) crystals. Syenite is a coarse-grained intrusive igneous rock with a general composition similar to that of granite, but deficient in quartz. Underlying the residual foyaite is slightly moist, light grey, coarse and medium sand with abundant moderately weathered angular fragments (2-5mm) of foyaite. The moderate to slightly weathered hard rock foyaite represents a transitional zone between the overlying residual material and the bedrock.

Further, underlying the moderate to slightly weathered hard rock is slightly moist, light grey to grey, coarse and medium sand with abundant angular fragments (5-10mm) of foyaite. This is considered to be slightly weathered to unweathered, fractured, hard rock foyaite representing a fractured rock aquifer. The interval varies from about 7m – 50m. Between the interval 23-25m, slight discolouration of pale brown and material which is moderately weathered is encountered, possibly indicating a water bearing fracture zone.

9.3 Topography and Visual Characteristics

This section describes the results obtained from the analysis of the topographical, slope and aspect models created in ArcGIS.

The topographical model indicates that the elevation of the project area increases from 1,056 metres above mean sea level (mamsl) in the Leitholenoga River valley below the dam to 1,352 mamsl on the hilltops. Plan 6, Appendix A, illustrates the topographical model and features of the project area and surrounds.

The lower-lying areas of the project area have gentle slopes of between 0° and 8.2° while the higher-lying areas have steeper slopes of between 8.3° and 43.6°. The steepest slopes occur on the hilltops. Most of the existing developments are located on the flatter low-lying areas of the project area. Due to the undulating topography, the slope aspect/direction of the project area is not in any specific direction.

The undulating topography of the Pilanesberg is expected to provide moderate screening of the existing and proposed developments; however, if the developments are located on a hill they will be more visible than if they are located on a lower-lying area.

Road users in the project area and surrounds are one group of potential visual receptors of the projects.

Figure 9-5: Street View from R556 at the Sun City Entrance

Source: Google Maps, 2010

The R565 regional road is located 3 km south-west of the project area. Furthermore, the project area and surrounds have numerous heritage sites including archaeological sites, burial grounds and graves, historical built environment and recent heritage sites. Visitors to these heritage sites are also potential visual receptors of the projects.

People visiting the area for birdwatching and game viewing are also potential visual receptors of the projects. The entire project area is located adjacent to the Pilanesberg National Park. The affected visual receptors and the significance of the visual impacts on receptors will be determined during the impact assessment phase.

It is noted that visitors and staff to the resort are the most likely visual receptors of the planned projects.

9.4 Soils, Land Use and Agricultural Potential

9.4.1 Land Type

The dominant land type is displayed in Plan 7, Appendix A. The land type found on site was Ae64 and Ib115. Ae64 represents freely drained, red and yellow-brown and fine sandy soils, these soils are deep and shallow. Figure 9-6 provides pictures taken from the project site of the soil types present. Soils under land type Ib115 are found on steep and rocky areas, and these soils are very shallow in complex association with surface rockiness. The project site is dominated by the presence of soils which are of low agricultural potential. The aspect will be studied and assessed further in the EIA phase.

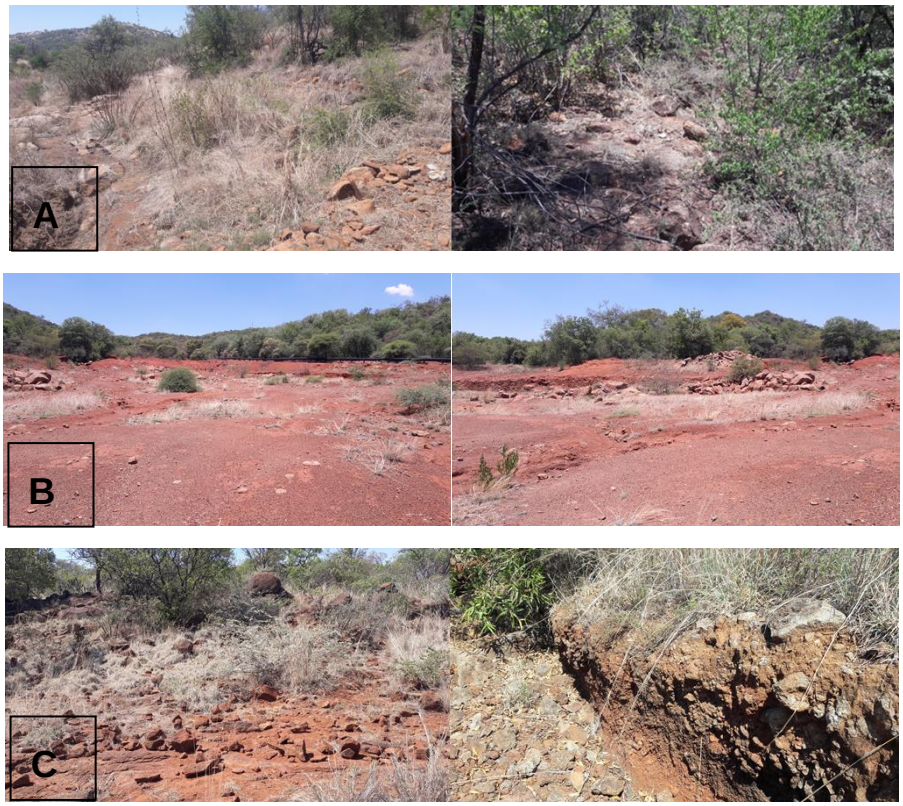

Figure 9-6: Rocky Outcrops

(A and B and red apedal soils (C) on the proposed development site)

9.4.2 Land Capability

The land capability is determined by assessing a combination of soil, terrain and climate features. Plan 8, Appendix A, displays the land capability of the project site. The dominant land capability classes in the project site were found to be Class VI (Light cultivation/Intensive grazing) and Class VIII (Wildlife). A breakdown of the limitations for each class is provided in Table 9-1 below.

Table 9-1: Land Capability Classification of the Study Area

Land Type	Land Capability Class	Dominant limitation influencing the physical suitability for agricultural use
Ae64	VI	Limiting soil depth, steepness, climate
Ib115	VIII	Rockiness, steepness

Land in Class VI has severe limitations that make it generally unsuited for cultivation and limits its use largely to pasture, range, woodland or wildlife food and cover. Land in Class VI has continuing limitations that cannot be corrected. While land in Class VIII has limitations that prevent its use for commercial plant production and restrict its use to wildlife, aesthetic purposes or water supply. Similarly, land in Class VIII has continuing limitations that cannot be corrected and is characterised as an erosion hazard.

Based on the land capability classification of the project site, the land consists of factors that can be considered as low potential agriculture, for the following main reasons:

- The proposed site of development is composed of rock outcrops, shallow Mispah resulting in poor effective root depth. Soil is not considered as high potential for agriculture productivity and will not support effective crop production due to potential root zone moisture and stoniness limitation; and
- Available grazing land will not support viable economic crop and livestock production.

9.4.3 Land Use

The land use for the project site is dominated by urban development which includes roads, hotels, gardens, golf courses, natural areas (shrubland/thicket/woodland and grassland) associated with the project site and surrounds. Furthermore, at a local and regional scale, surrounding land uses include Nature Reserves, mines, residential areas and other urban development as well as agriculture (mainly subsistence farming). The land use is depicted in Plan 9, Appendix A.

9.5 Air Quality and Noise

9.5.1 Air Quality

The baseline air quality status quo based on levels of pollutants within the study area will be assessed using AQ-Mesh® pod from Air Monitors. A one-day site visit was conducted mid-January 2018 to set up the Real-Time Particulate Monitor at an optimum site in the vicinity of the proposed projects. The results are still to be obtained from the AQ-Mesh® pod from Air Monitors and will be included in the Draft EIA Report accordingly.

9.5.2 Noise

Noise monitoring equipment, Cirrus sound level meter, was set up at ten locations around the Sun City Complex to assess the current ambient soundscape at Sun City. The noise monitoring locations selected are displayed in Plan 10, Appendix A.

The “ambient sound level” was assessed against the National Noise Control regulations and South African National Standards (SANS) 10103:2008 guidelines, to determine if the existing noise levels are within acceptable limits. The results from the noise meter recordings for all the monitored locations as well as the rating limits according to the SANS 10103:2008 guidelines and a description of the noise sources are presented in Table 9-2. The results

indicate that the noise levels in Sun City vary between 48dBA and 63dBA, with the lowest measurement of 45dBA measured at the Township of Ledig (N7). The aspect will be studied and assessed further in the EIA phase.

Table 9-2: Results of Baseline Noise Measurements

Measurement location	Measurement results (L_{Aeql})	Noise Sources
N1	53	N1 was taken at the South Village and the main sound sources at this location being: ▪ Birdsong; ▪ Vehicle movement; and ▪ Occasional aircraft.
N2	57	N2 was taken at the Kwena Chalets with the main sound sources at this location being: ▪ Birdsong; and ▪ Game viewing vehicles belonging to Mankwe Game Trackers passing to and fro.
N3	60	N3 was taken at the Cabanas with the main sound sources at this location being: ▪ The breaking down of one of the stands that was used for the Nedbank Challenge ▪ Birdsong; and ▪ People socialising at the cabanas swimming pool and near the dam. With only isolating the common sounds such as the birdsong and people socialising, the level dropped to 55dBA.
N4	60	N4 was taken at the Old Village with the main sound sources at this location being: ▪ High pitched sound from the ventilation system; ▪ Dumping of refuse at the refuse storage area; and ▪ Vehicle movement, especially the coach busses transporting people.
N5	57	N5 was taken at Vacation Club the main sound sources of noise at this location is vehicle movement on the interconnecting roads.
N6	63	N6 was taken at the Palace of the Lost City with the sound sources at this location being: ▪ The water feature at the entrance being the main continuous sound source; ▪ Birdsong; and ▪ Vehicle movement.

Measurement location	Measurement results (L_{Aeql})	Noise Sources
N7	45	N7 was taken at the Township of Ledig with the main sound sources at this location being: ▪ Birdsong; and ▪ Vehicle movement.
N8	48	N8 was taken at the Boma with the sound sources at this location being: ▪ Birdsong; and ▪ Vehicle movement.
N9	49	N9 was taken at a location on the northern perimeter fence with the sound sources at this location being: ▪ Birdsong; and ▪ Cicadas.
N10	58	N10 was taken at a location between the Cascades and the Gary Player Golf Club with the sound sources at this location being: ▪ Ventilation systems ▪ Vehicle movement, especially the coach busses transporting people; and ▪ Birdsong.

The baseline ambient noise levels are typical of urban residential zones with vehicle movement (cars and busses) and birdsong being the main sound sources. The central areas of Sun City (Entertainment Centre, Cascades and Soho) are also characterized by sounds from the ventilation systems.

9.6 Hydrology (Surface Water)

The Pilanesberg area is located within the Limpopo River Basin (Primary Catchment A) within the Crocodile West and Marico Water Management Area (WMA). The project site falls within quaternary catchment A22F. The hydrological setting of the project area is displayed in Plan 11, Appendix A.

The A22F catchment surface area covers approximately 151 423 ha with mean annual run-off 16.3 mm and mean annual recharge of 2.7 % of mean annual precipitation (Pachnoda Consulting, 2013). The catchment is characterised by a series of non-perennial and ephemeral rivers with limited surface water resources such as small dams and wetlands. These small dams and wetlands play a significant role to attenuate floods as well as improve water quality and maintain stream flow within the catchment (Department of Water Affairs (DWAF), 2010). All surface flows (including effluent discharge) originate within the region

and follow in a radial pattern outward. According to the 1:50 000 topographical maps, the following non-perennial streams drain the development area:

- An unnamed stream to the west that drains the landfill site, LCGC and Vacation Club;
- The Leitholenoga that drains the central areas such as the Lost City, Cascades, Valley of the Waves, Cabanas, GPGC and Kwena Gardens; and
- The Ga-Mamosadie to the east that mostly drains a natural undeveloped area.

The above streams drain into the Elands River located 5 km south of the Sun City Complex. During November 2017, a site visit was conducted and the Elands River was found to be dry. The Elands River is a tributary of the Crocodile River, which subsequently flows into the Limpopo River.

9.7 Hydrogeology (Groundwater)

The project area is characterised by two types of aquifers, namely a shallow near surface weathered zone and a deep unconfined fractured rock aquifer. The shallow weathered zone aquifer is directly recharged by rainfall and as a result is only saturated during rainy seasons. On the other hand, the deep fractured rock aquifer is predominantly associated with secondary porosity such as fractures and joints resulting in low borehole yields of 0.1 to 0.5 ℓ/s (Jones and Wagener, 2017).

According to (Vegter, 1995), these two aquifers are classified as both fractured and intergranular and fractured rock aquifer. Therefore, the groundwater table is characterised by steep water gradients due to very low transmissivity of the rock mass. The groundwater flow mimics the topographic relief due to underlying geological structure, thus, it is understood to flow radially or outward from the centre of the PAC.

9.7.1.1 Aquatic Ecology

To best understand the variable conditions of aquatic ecology associated with the border project area, surveys were selected and conducted during low flow and high flow rainfall periods. These selections were based on average rainfall data gathered from the provincial rainfall trend data provided by the Department of Water and Sanitation (2018). Based on the average rainfall data, the low flow survey was conducted in November 2017, in order to characterise conditions after the dry season (May-September), with the high flow survey falling in the month of January aligning with the highest average monthly rainfall.

The timing of both surveys coincided with a below normal rainfall event experienced during the 2017/2018 period in the North West Province (Figure 9-7). Consequently, the water levels observed during, what was classified as, the high flow survey (January 2018) was lower than the observed water levels during the low flow survey. Therefore, the overall findings and ecological categorisations presented in this report should be interpreted with caution as they may not be true representations of the aquatic ecology for the assessed area

but rather skewed results due to the drought conditions experienced throughout the study. The sampled sites are shown in Plan 14, Appendix A.

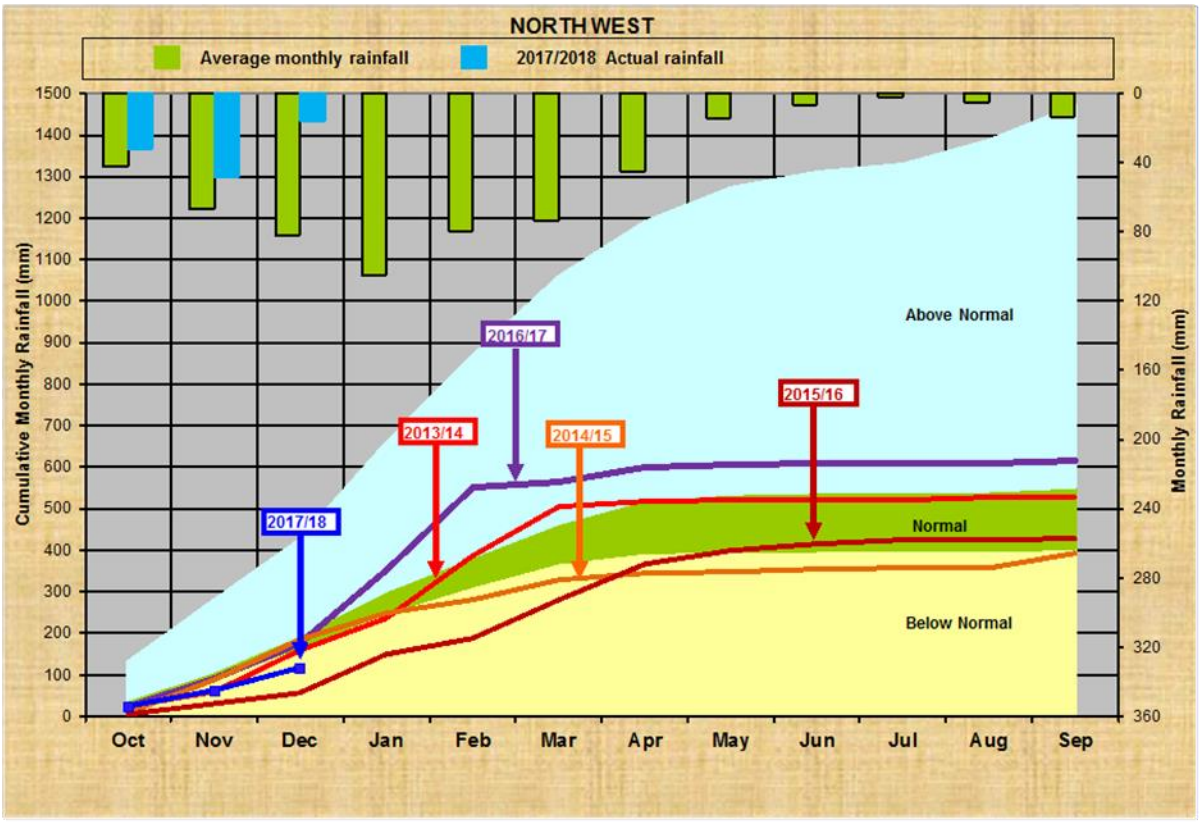

Figure 9-7: Annual Rainfall Trend for the North West Province

(Source: DWS, 2018)

9.7.2 Intermediate Habitat Integrity Assessment

The Intermediate Habitat Integrity Assessment (IHIA) assesses the integrity of the habitats from a riparian and instream perspective. Scores are calculated based on ratings received from the assessment. The estimated impacts of the criteria are summed and expressed as a percentage to arrive at a provisional habitat integrity assessment. The scores are placed into the IHIA categories ranging from A (unmodified, natural: 90-100) to F (modifications which have reached critical level with an almost complete loss of natural habitat and biota: 0-19).

The IHIA was completed on the three Sub Quaternary Reaches (SQR's), namely the Western, Central and Eastern Tributary (refer to Plan 14, Appendix A), of concern and populated with observations recorded during the various surveys.

According to the IHIA results for the Western Tributary and Central Tributary, the riparian habitat for the assessed reach was classified as moderately modified (Category C), while the IHIA scores for the Eastern Tributary indicate that the that the riparian habitat is in a largely modified state (Category D).

Instream habitat IHIA were calculated for the Central and Eastern Tributaries which were classified as moderately modified (Category C) and largely modified state (Category D) respectively. No instream habitat assessment was undertaken for the Western Tributary as it was found dry.

9.7.3 Macroinvertebrates Assessment

The subsections below summarise the findings of the various macroinvertebrate assessments utilised in the study. It is important to note that Sites WT1, WT2, CT2, ET1A and ET1B were observed as dry throughout the study. As a result these sites were excluded from the macroinvertebrate assessment.

9.7.3.1 South African Scoring System Version 5 (SASS5)

The South African Scoring System Version 5 (SASS5) is the current index being used to assess the status of riverine macroinvertebrates in South Africa. The index is based on the presence of aquatic invertebrate families and the perceived sensitivity to water quality changes of these families. Only three of the monitoring sites with sufficient water levels, namely Sites CT1, ET2 and ET3, fell within the defined parameters for a SASS5 assessment.

The average sensitivity score of the sampled macroinvertebrates was 3.7. This represents a macroinvertebrate assemblage with low sensitivity, fairly tolerant to modifications.

9.7.3.2 Integrated Habitat Assessment System

An Invertebrate Habitat Assessment System (IHAS) is utilised in conjunction with the SASS to measure the variability of aquatic macroinvertebrate biotopes available at the time of the survey. The scoring system was traditionally split into two sections, namely the sampling habitat (comprising 55% of the total score) and the general stream characteristics (comprising 45% of the total score), which were summed together to provide a percentage and then categorised according to set values ranging from <55% representing poor to >75% representing excellent.

The available macroinvertebrate habitat at all of the sites applicable for the SASS5 assessment was classified as Poor. This is due to the lack of vegetation observed at Site CT1 possibly as a result from the low rainfall experienced in the North West Province leading up to the study. The monitoring sites along the Eastern Tributary are characterised by slow flowing impounded sections which appear to be severely sedimented, especially noted at Site ET3. This sedimentation appears to result from the potential loss of flow due to the number of weirs built along the tributary. This has resulted in a loss of the stones biotope which acts as a large portion of important macroinvertebrate habitat thus, contributing significantly to the poor classification as presented by the above scores.

9.7.3.3 Macroinvertebrate Response Assessment Index

The Macroinvertebrate Response Assessment Index (MIRAI) was used to provide a habitat-based cause-and-effect foundation to interpret the deviation of the aquatic invertebrate community from the calculated reference conditions for the basin. This does not preclude the calculation of SASS5 scores if required (Thirion, 2007). The four major components of a stream system that determine productivity for aquatic macroinvertebrates are: flow regime, physical habitat structure, water quality and energy inputs from the watershed riparian vegetation assessment. The results of the MIRAI provide an indication of the current ecological category and therefore assist in the determination of the Present Ecological State (PES).

The MIRAI results indicate that the macroinvertebrate assemblage for the reach (Central Tributary) is largely modified (Ecological Category D). It appears that poor water quality, evident by the high conductivity recorded at Site CT1, is the major driver behind this categorisation. Modifications to flow in the tributary appear to be the second largest driver. However, this factor can be attributed to the low rainfall experienced in the area which also possibly contributed to the dry observation of the monitoring site during the high flow survey. Similarly the macroinvertebrate assemblage for the reach (Eastern Tributary) is largely modified (Ecological Category D) where the major driver is the modification to flow which can be attributed to the construction of the resort's recreation dam and to a lesser extent the low rainfall experienced in the area.

9.7.4 Ichthyofauna Assessment

Fish sampling was conducted by means of various techniques including electroshocking with a Smith and Root LR-24 unit as well as the use of cast nets and conventional angling techniques at applicable sites with sufficient water depth. All fish were captured, identified and counted in the field and released alive at the point of capture. Fish species were identified using the "Complete Guide to the Freshwater Fishes of Southern Africa" (Skelton, 2001). Table 9-3 presents the fish species collected/observed during the study.

Table 9-3: Sampled and Observed Fish Species during the Study

Scientific Name	Common Name	Conservation Status	Total Low Flow	Total High Flow
Enteromius mattozi	Papermouth	Least Concern	0	0
Enteromius paludinosus	Straightfin Barb	Least Concern	47	40
Enteromius trimaculatus	Three spot Barb	Least Concern	0	0
Enteromius unitaeniatus	Longbeard Barb	Least Concern	0	0
Clarias gariepinus	Sharptooth Catfish	Least Concern	40+	30+
Labeo cylindricus	Red Eyed Labeo	Least Concern	0	0

Scientific Name	Common Name	Conservation Status	Total Low Flow	Total High Flow
Labeo molybdinus	Leaden Labeo	Least Concern	0	0
LabeoEnteromius marequensis	Largescale Yellowfish	Least Concern	0	0
Mesobola brevianalis	River Sardine	Least Concern	0	0
Oreochromis mossambicus	Mozambique Tilapia	Near Threatened	13	17
Pseudocrenilabrus philander	Southern Mouth Brooder	Least Concern	30+	24
Tilapia sparmanni	Banded Tilapia	Least Concern	4	19
*Cyprinus carpio**	Common Carp	Least Concern	3	5
*Gambusia affinis**	Mosquito Fish	Least Concern	0	7
Exotic fish species represented with *				

A total of five of the 12 expected indigenous fish species with a total of two exotic species were recorded during the study. All sampled fish species were observed from Site ET3 with the exception of *Cyprinus carpio*. This exotic fish species was only observed in the Resort's recreational dam and as a result is expected in the downstream reach and was included in the Eastern Tributary FRAI assessment below (Table 9-4). It is important to note that the sampled fish species from Site CT3 were included in the Central Tributary FRAI assessment (Table 9-4) despite the impounded nature of the site. The fish species present at this site indicates that the specific species are clearly present in the reach. However, due to the low rainfall experienced in the area, the fish in the reach have been confined to impoundment and are expected to migrate in the reach once rainfall returns to normal levels.

9.7.4.1 FRAI Assessment

The purpose of the Fish Response Assessment Index (FRAI) is to provide a habitat-based cause-and-effect underpinning to interpret the deviation of the fish assemblages from the identified reference conditions. The information gained using the FRAI provides an indication of the PES of the river based on the fish assemblage structures observed.

The results from the Central Tributary FRAI Assessment are presented in Table 9-4 with the Eastern Tributary findings presented in Table 9-5.

Table 9-4: Central Tributary FRAI Results

Fish Species	Reference Frequency of Occurrence	Observed Frequency of Occurrence
Clarias gariepinus	4	3
Enteromius mattozi	1	0
Enteromius paludinosus	4	4
Enteromius trimaculatus	3	0
Enteromius unitaeniatus	3	0
Labeo cylindricus	1	0
Labeo molybdinus	1	0
Labeobarbus marequensis	1	0
Mesobola brevianalis	1	0
Oreochromis mossambicus	4	3
Pseudocrenilabrus philander	5	5
Tilapia sparmanni	4	4
FRAI (Adjusted) %		**47.8**
Ecological Category		**D**

According to the FRAI assessment the fish ecological category for the Central Tributary is largely modified (Ecological Category D). This modified classification can be attributed to the lack of fish species sampled during the study due to low water levels observed at the monitoring sites. Impoundments, especially noted at Site CT3, appear to have also contributed to this modified score by contributing to flow modification and the subsequent loss of flow dependent species (i.e. *Labeo molybdinus* and *Labeobarbus marequensis*).

Table 9-5: Eastern Tributary FRAI Results

Fish Species	Reference Frequency of Occurrence	Observed Frequency of Occurrence
Clarias gariepinus	5	5
Enteromius mattozi	1	0
Enteromius paludinosus	4	4
Enteromius trimaculatus	3	0
Enteromius unitaeniatus	3	0
Labeo cylindricus	1	0

Fish Species	Reference Frequency of Occurrence	Observed Frequency of Occurrence
Labeo molybdinus	2	0
Labeobarbus marequensis	1	0
Mesobola brevianalis	1	0
Oreochromis mossambicus	4	4
Pseudocrenilabrus philander	5	4
Tilapia sparmanni	4	4
FRAI (Adjusted) %		**44.9**
Ecological Category		**D**

The results from the FRAI assessment for the Eastern Tributary indicate that the fish assemblage for the reach is in a largely modified state (Ecological Category D). It appears that the major driver behind this categorisation can be attributed to flow modifications along the reach in the form of constructed weirs and the recreational dam. The weirs along the reach downstream from Site ET3 are most likely severely impacting on fish migration within the reach and possibly resulting in the loss of species from the study. The presence of two alien invasive fish species, namely *Cyprinus carpio* and *Gambusia affinis* are also impacting significantly on the modified ecological category. These species compete with indigenous species and are most likely also contributing to the loss of some of the indigenous species.

9.7.5 Present Ecological Status

The water quality, IHIA, macroinvertebrates assessments and ichthyofaunal assessments discussed above are utilised to determine the overall PES of the assessed SQR's. The results of the ecological classification and PES for the three assessed tributaries are presented in Table 9-6, Table 9-7 and Table 9-8. It is important to note that the riparian ecological category for the Western Tributary was the only ecological component used for the PES determination of the assessed reach. Therefore, interpretation of the PES for the reach should be considered with caution

Table 9-6 below presents the PES findings for the Western Tributary.

Table 9-6: The Present Ecological Status of the Western Tributary

Category	Score	Ecological category
Riparian Habitat Ecological Category	58.0	D
Macroinvertebrate Ecological Category	DRY	-
Fish Ecological Category	DRY	-
Ecostatus	**58.0**	**D (Largely modified)**

The results of the PES determination indicate that the Western Tributary is in a largely modified state (Ecological Category D). This can be attributed to impacts associated with the settlements in the lower section of the assesse reach. Their influence has resulted in vegetation removal and partial encroachment of exotic vegetation in the form of subsistence crops.

Table 9-7 below presents the PES findings for the Central Tributary.

Table 9-7: The Present Ecological Status of the Central Tributary

Category	Score	Ecological category
Riparian Habitat Ecological Category	66.0	C
Macroinvertebrate Ecological Category	54.6	D
Fish Ecological Category	47.8	D
Ecostatus	**58.6**	**C/D (Moderately to largely modified)**

The results of the PES determination indicate that the Central Tributary is in a moderately to largely modified state (Ecological Category C/D). It is however expected that the Ecological Category for the Central Tributary will improve to solely category C if the annual rainfall returns to normal levels. This overall Ecological Category for the reach can be attributed mainly to the poor instream ecological components (i.e. macroinvertebrates and fish as a result of the low rainfall experienced compounded by poor water quality impacts associated mainly with the low water levels and partially due to the observed discharge from the Resort's nursery.

Table 9-8 below presents the PES findings for the Eastern Tributary.

Table 9-8: The Present Ecological Status of the Eastern Tributary

Category	Score	Ecological category
Riparian Habitat Ecological Category	54.0	D
Macroinvertebrate Ecological Category	55.4	D
Fish Ecological Category	44.9	D
Ecostatus	**52.1**	**D (Largely modified)**

The results of the PES determination indicate that the Eastern Tributary is in a largely modified state (Ecological Category D). The major driver behind this modified categorisation appears to be due to equal contributions of both modified riparian habitat and instream biological responses (i.e. macroinvertebrates and fish). Modifications to the reach from reference conditions, in the form of impoundment and weir construction, habitat removal and the presence of exotic plants and fish, have resulted in the subsequent largely modified categorisation of the tributary.

9.8 Fauna & Flora

9.8.1 Regional Vegetation

The Sun City study area is located in the Sun International's Sun City Holiday Resort, within the Pilanesberg National Park Alkaline Ring Complex. According to the vegetation map of South Africa, Lesotho and Swaziland (Mucina & Rutherford, 2006), the study area falls within the Zeerust Thornveld vegetation type and is an Endemic Vegetation Type. The distribution of this Vegetation Type is displayed in Plan 15, Appendix A.

The Zeerust Thornveld is characterised by deciduous, open to dense short thorny woodland, dominated by *Senegalia* and *Vachellia* species (previously known as *Acacia*). The herbaceous layer predominantly consists of grasses, trees, shrubs graminoids and herbs.

The site specific habitat varies between Mountain Bushveld on steep slopes and Mountain Bushveld on the moderate slopes.

9.8.1.1 Species of Special Concern

According to the South African National Biodiversity Institute (SANBI) Plants of Southern Africa (POSA) (2016) no Red Data listed species have been recorded previously in the site specific quarter degree square (QDS) in which the project is located, namely QDS 2527AC. However according to existing information the following species can be expected to occur on site, *Boophane disticha* (Poison bulb), declining under the South African Red Data List and *Sclerocarya birrea* (Maroela) protected according to the list of Protected Tree Species under

the National Forest Act, 1998 (Act No. 84 of 1998) and *Spirostachys africana* (Tambotie) protected under Schedule 11 of the Nature Conservation Ordinance of Transvaal, 1983 (Act No. 12 of 1983).

9.8.2 Fauna

9.8.2.1 Mammals

A total of 59 mammal species could occur on the site specific area. The study area is not particularly rich in mammal taxa, even though it is spatially located in close proximity to the Pilanesberg National Park. The significantly low species richness can be attributed to the human activity that dominates the study area. In the more natural areas, it is possible that many of these species could be displaced from the study site as a result of persecution, hunting and free-roaming feral dogs and cats.

9.8.2.2 Bats

One bat species (*Miniopterus natalensis,* "Near-threatened") could utilise the study area during nocturnal foraging bouts. However, this species roost and breed in caves or mine adits which are not expected to be present within the Sun City Complex.

9.8.2.3 Data Deficient' Species"

Data Deficient species are defined under the IUCN Red List of Threatened Species as species that cannot be evaluated because of insufficient information that are either close to meeting the threatened thresholds or that would be threatened were it not for an on-going taxon-specific conservation programme. In the study area, shrew species (genera *Crocidura* and *Suncus*), the Single-striped Mouse (*Lemniscomys rosalia*), the Bushveld Gerbil (*Tatera leucogaster*) and the Short-snouted Elephant-shrew (*Elephantulus brachyrhynchus*) are "Data Deficient" which are likely to occur.

9.8.2.4 Avifauna

Birds have been viewed as good ecological indicators, since their presence or absence tends to represent conditions pertaining to the proper functioning of an ecosystem. As the land cover of an area changes, so do the types of birds in that area. The diversity of these habitats should give rise to many different species. A total of 12 bird species were observed during the transect counts undertaken, two of which are Provincially Protected (*Streptopelia capicola* (Turtle Dove) and *Spilopelia senegalensis* (Laughing Dove)).

Generally avifauna diversity was found to be very low, primarily due to the limited amount and diversity of habitat types available in the study area, specifically Mountain Bushveld. Based on historic records, a further 21 Red Data Protected Bird Species could occur in the study area with conservation status' ranging from Critically Endangered (1), Endangered (6), Near-threated (8), Vulnerable, (5), and Least Concern (1) according to the South African National Conservation Status (2016). These species are common in the nearby Pilanesberg National Park and could frequent the proposed project areas in the Sun City Complex.

9.8.2.5 Amphibians

A total of 18 taxa are known to occur in the study area (QDS 2527AC) (Minter, et al., 2004), of which 12 could occur on the study site based on the presence of suitable habitat. In addition, five of these are believed to be irregular visitors on passage during exceptionally high precipitation events. Those species with a high probability of occurrence include dispersing individuals of *Amietophrynus gutturalis* (Gutteral Toad), *Schismaderma carens* (Red Toad), *Kassina senegalensis* (Bubbling Kassina), *Tomopterna cryptotis* (Tremolo Sand Frog) and *Cacosternum boettgeri* (Boettger‟s Caco). None of the frog species likely to occur are of any conservation significance (Maesey, 2010).

9.8.2.6 Reptiles

Forty-nine (49) reptile taxa (comprising of two chelonians, 28 snakes, 15 lizards, three gecko species and one chameleon) could occur on the study area. Twenty six (26) species have been recorded from QDG 2527AC that overlaps with the study site (information obtained from the South African Reptile Conservation Assessment (SARCA). The outcrops associated with the Mountain Bushveld provide the highest reptile richness when compared to the other floristic units. None of the species likely to occur are threatened or near-threatened.

9.8.3 Sensitivity of the Site

In terms of ecological sensitivity, the following features are assessed to determine how sensitive the habitat identified within the site is:

- Presence or absence of Red Data Listed or protected plant and animal species;
- Presence or absence of exceptional species diversity;
- Extent of intact habitat in good ecological condition in the absence of disturbance; and
- Presence or absence of important ecosystems such as Important Bird Areas (IBA’s), Protected Areas, areas demarcated for future protected area status (NPAES) and wetlands.

The assessed site sensitivity is discussed in more detail in subsequent subsections. Plan 16, Appendix A, displays the project site’s biodiversity sensitivity.

9.8.3.1 Protected Areas

Officially protected areas, either provincially or nationally, that occur within proximity to the project site could have consequences as far as impact on these areas are concerned. The project site falls within and is Nature Reserve Protected Areas in accordance with the South African Protected Areas Database (2017). The Pilanesberg National Park surrounds the project boundary from the north east and west.

9.8.3.2 North West Biodiversity Sector Plan

The areas with the Sun City Complex which are proposed for developments have undergone a small degree of disturbance due to infrastructure construction and livestock grazing, resulting in the establishment of bush encroachment. The project site falls within a Critical Biodiversity Area 2 (CBA 2) as far as regional ecological importance is concerned according to the North West BSP (2014).

Land management objectives of areas classified as CBA 2 are:

- Maintain in a natural or near-natural state that maximizes the retention of biodiversity pattern and ecological process:
- Ecosystems and species fully or largely intact and undisturbed; and
- Areas with intermediate irreplaceability or some flexibility in terms of meeting biodiversity targets. There are options for loss of some components of biodiversity in these landscapes without compromising the ability to achieve biodiversity targets, although loss of these sites would require alternative sites to be added to the portfolio of CBAs.

These are biodiversity features that are approaching but have not passed their limits of acceptable change.

9.8.3.3 Important Bird Areas

An Important Birds Area (IBA) is an area recognised as being globally important habitat for the conservation of bird populations. South Africa has 124 IBAs, covering over 14 million hectares of habitat for our threatened, endemic and congregatory birds. The Pilanesberg National Park IBA borders the project site to the north. More than 300 species occur in the park due to its extensive range of habitats and the fact that it lies in the overlap between the dry western and wet eastern parts of the country.

9.8.3.4 Nationally Threatened Ecosystems

The list of nationally threatened ecosystems has been gazetted by the NEM:BA: National List of Ecosystems that are threatened and in need of protection and results in several implications in terms of development within these areas. The Sun City Complex does not fall within a Threaten Ecosystem. The nearest Threatened Ecosystem to the site is the Marikana Thornveld located approximately 18 km to the south east of the project site.

9.8.3.5 Nationally Protected Areas Expansion Strategy

The National Protected Areas Expansion Strategy (NPAES) shows areas designated for future incorporation into existing protected areas (both national and informal protected areas). These areas are large, mostly intact areas required to meet biodiversity targets, and suitable for protection. There are no areas earmarked for conservation within 15 km of the

proposed development apart from the Pilanesberg National Park. Notably, the North West/Gauteng Bushveld is located approximately 20 km south east of the Sun City Complex.

9.9 Wetlands

A wetland assessment was undertaken to delineate and classify wetlands within the Sun City Complex. The Hydro-geomorphic (HGM) Unit system of classification was utilised to classify the identified wetlands. The HGM Unit system focuses on the hydro-geomorphic setting of wetlands which incorporates geomorphology; water movement into, through and out of the wetland; and landscape / topographic setting. Once wetlands have been identified, they are categorised into HGM Units as shown in Table 9-9 below.

Table 9-9: Description of the various HGM Units for Wetland Classification

Hydromorphic wetland type	Diagram	Description
Floodplain		Valley bottom areas with a well-defined stream channel stream channel, gently sloped and characterised by floodplain features such as oxbow depression and natural levees and the alluvial (by water) transport and deposition of sediment , usually leading to a net accumulation of sediment. Water inputs from main channel (when channel banks overspill) and from adjacent slopes.
Valley bottom with a channel		Valley bottom areas with a well-defined stream channel but lacking characteristic floodplain features. May be gently sloped and characterized by the net accumulation of alluvial deposits or may have steeper slopes and be characterised by the net loss of sediment. Water inputs from the main channel (when channel banks overspill) and from adjacent slopes.
Valley bottom without a channel		Valley bottom areas with no clearly defined stream channel, usually gently sloped and characterised by alluvial sediment deposition, generally leading to a net accumulation of sediment. Water inputs mainly from the channel entering the wetland and also from adjacent slopes.
Hillslope seepage linked to a stream channel		Slopes on hillsides, which are characterised by colluvial (transported by gravity) movement of materials. Water inputs are mainly from sub-surface flow and outflow is usually via a well-defined stream channel connecting the area directly to a stream channel.
Isolated hillslope seepage		Slopes on hillsides that are characterised by colluvial transport (transported by gravity) movement of materials. Water inputs are from sub-surface flow and outflow either very limited or through diffuse sub-surface flow but with no direct link to a surface water channel.

Hydromorphic wetland type	Diagram	Description
Pan/Depression		A basin-shaped area with a closed elevation contour that allows for the accumulation of surface water (i.e. It is inward draining). It may also receive subsurface water. An outlet is usually absent and so this type of wetland is usually isolated from the stream network.

Multiple wetland systems which total 136.5 ha of wetlands fall within Sun City Complex area. This comprises of seven freshwater features which are described in Table 9-10. Plan 17, Appendix A, displays the delineated wetlands as well as their related buffer zones in accordance with the Zones of Regulation of 32m around each wetland in terms of NEMA.

Table 9-10: Wetland HGM Units

HGM Unit	HGM Unit Type	Area (ha)
1	Un-channelled valley bottom	21.6
2	Un-channelled valley bottom	23.4
3	Channelled and unchannelled valley bottom	71.1
4	Seep	4.8
5	Artificial	0.7
6	Artificial	0.2
7	Channelled valley bottom	14.7

The subsections below provide a description of the HGM Units identified and delineated for the Sun City Resort.

9.9.1 Description of Identified Wetlands

9.9.1.1 HGM Unit 1

HGM Unit 1 is predominantly an un-channelled valley bottom system which covers approximately 21.6 ha. This wetland is characterised by a dominance of *Setaria* grass sp. and *Searsia lancea* trees. The water has been channelized towards the bottom of the wetland, where *Typha capensis* and *Cyperus sexangularis* are the dominant wetland species. Protected species, *Sclerocarya birrea* (Marula), were noted within the wetland as shown in Figure 9-8.

The wetland is intersected by a road which is has impacted the wetland functioning, however, culverts are present which allow for the free flow of water to take place. Furthermore, slight disturbances occur within the wetland such as excavation in the form of

borrow pits and invasive alien species are present in small patches, including *Verbena bonariensis.*

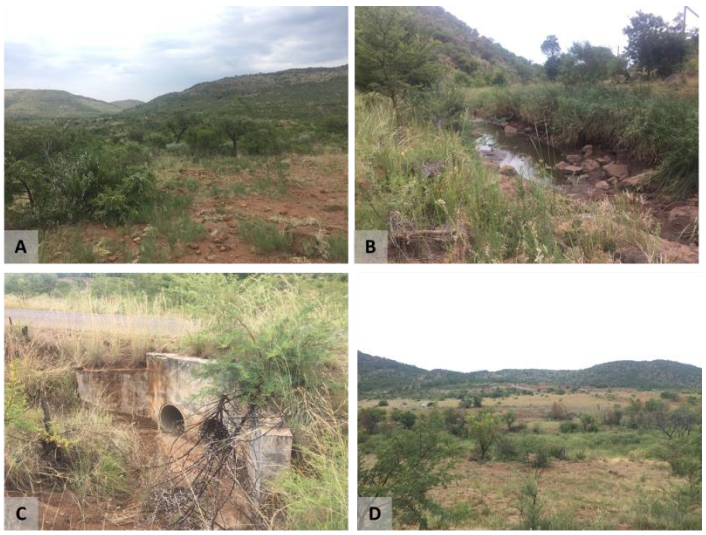

Figure 9-8: HGM unit 1

9.9.1.2 HGM Unit 2

HGM Unit 2 is a largely un-channelled valley bottom wetland which covers 23.4 ha. Dominant species include *Sporobolus africana*, *Bothriochloa bladhii*, *Cyperus sexangularis, Paspalum sp*, with trees like *Olea europeana* and *Searsia lancea* (Figure 9-9).

Dumping was noted as an existing impact to the wetland, which is particularly prevalent in the southernmost portion. Furthermore, as a result of the golf course, hydrological impacts are evident particularly in the eastern arm of this wetland. Various road crossings resulting in loss of flow and stream connectivity and fragmentation of the system also occur.

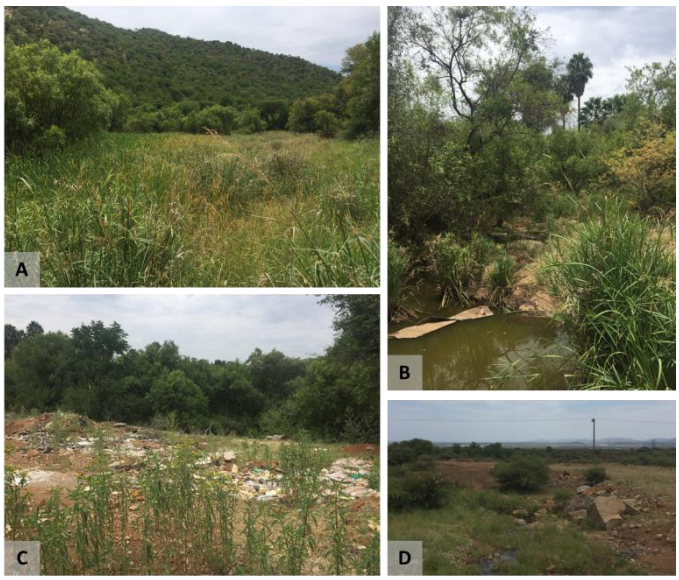

Figure 9-9: HGM unit 2

9.9.1.3 HGM Unit 3

HGM Unit 3 is a channelled and un-channelled valley bottom wetland which covers 71.1 ha. The wetland is transformed as it flows through the golf course, into a dam and then past the crocodile centre, which discharges dirty water into the wetland. The vegetation is characterised by closed canopy riparian woodland (Figure 9-10).

The dam has impacted on the wetland ecological health and its integrity. Discharges of dirty water from the crocodile sanctuary may negatively affect water quality in the southern portion of the wetland, this will be investigated in the EIA phase. Furthermore, concrete walkways constructed in the riparian and wetland areas have resulted in fragmentation of the systems in some areas as well as the golf course, its greens and associated infrastructure including concrete drains, channels, canals and pump stations. The disturbance has resulted in high infestation of alien invasive plants including *Solanum mauritiuanum*, *Lantana camara*, *Arundo donax*, *Ricinus communis* and *Melia azedarach.*

Figure 9-10: HGM unit 3

9.9.1.4 HGM Unit 4

HGM Unit 4 is a seep wetland which covers 4.8 ha. A large portion of this area has been converted to a quad bike track, this area is transformed with alien and invasive vegetation species and disturb soils. Dominant species include *Vachellia karroo*, *Ziziphus mucronata*, *Searsia lancea*, *Dichrostachys cinerea* and *Typha* capensis (Figure 9-11).

The quad bike track has resulted in alterations to the topography, with depressions and slopes created. This has altered the geomorphology and hydrology of the wetland. The extensive disturbance has resulted in invasion by various alien invasive plants such as *Verbena bonariensis* and *Lantana camara*, both categorised as Category 1b species according to NEM:BA and compromised water quality as a result of the activities of adjacent sewage works.

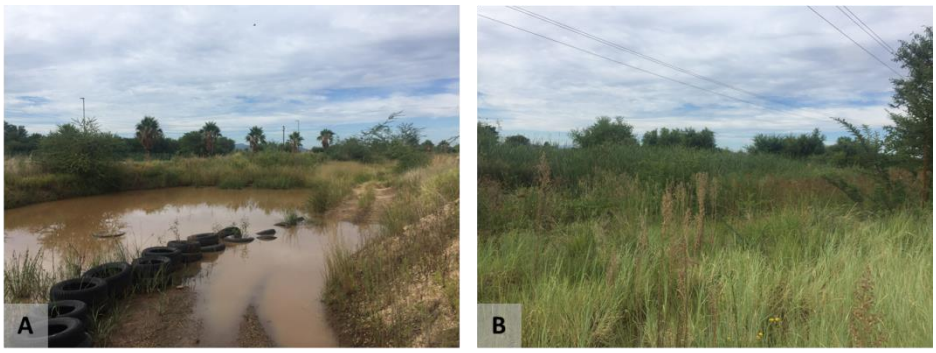

Figure 9-11: HGM unit 4

9.9.1.5 HGM Unit 5

HGM Unit 5 is an artificial wetland which covers 0.7 ha. This feature has been excavated to serve as a watering hole. A drainage pipe was observed at this point. Banks are bare, increasing the potential for erosion at this point. Some portions are dominated by *Typha capensis* and the invasive species *Arundo donax* (Figure 9-12).

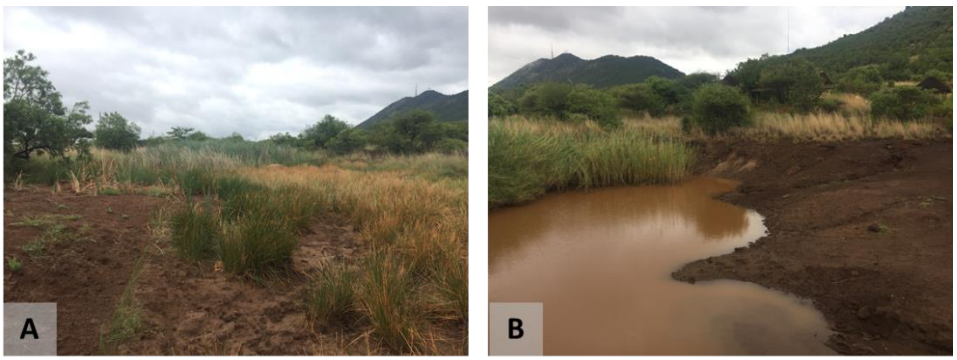

Figure 9-12: HGM unit 5

9.9.1.6 HGM Unit 6

HGM Unit 6 is an artificial wetland which covers 0.2 ha. Vegetation cover and abundance at this point is good, albeit low species diversity observed. It is dominated by *Typha capensis, Cymbopogon sp, Cyperus sp.* and *Eliocharis sp.* the road is the largest impact on this artificial wetland (Figure 9-13).

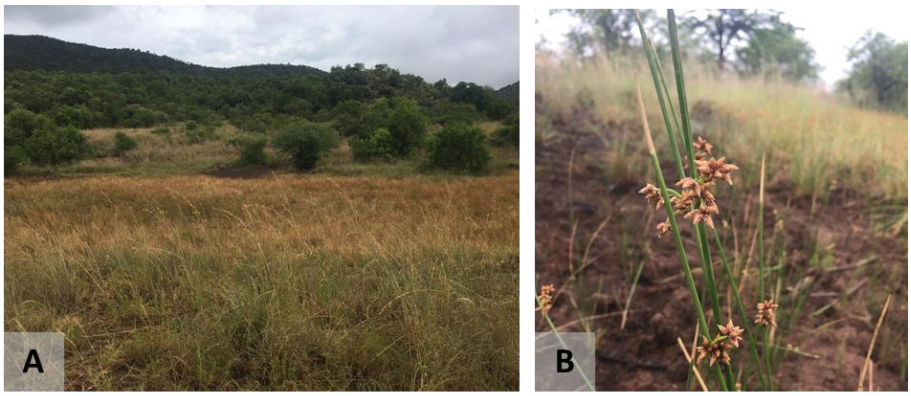

Figure 9-13: HGM unit 6

9.9.1.7 HGM Unit 7

HGM Unit 7, a channelled valley bottom wetland and is 14.7 ha in size. The wetland is characterised by riparian woodland, dominated by *Olea europea, Searsia lancea, Ziziphus mucronata, Setaria megaphylla and Panicum coloratum* (Figure 9-14). *Typha capensis* and *Cyperus* species occurred where there was inundation.

The wetland has been dammed for recreational purposes, which has impacted on the wetland integrity. Furthermore, road crossings are present, resulting in the compaction of soils and increasing the potential for inundation and sedimentation, as well as loss of flow connectivity and fragmentation of the system. Trampling and grazing by game stock have resulted in some loss of vegetation integrity of the northern portion of this system.

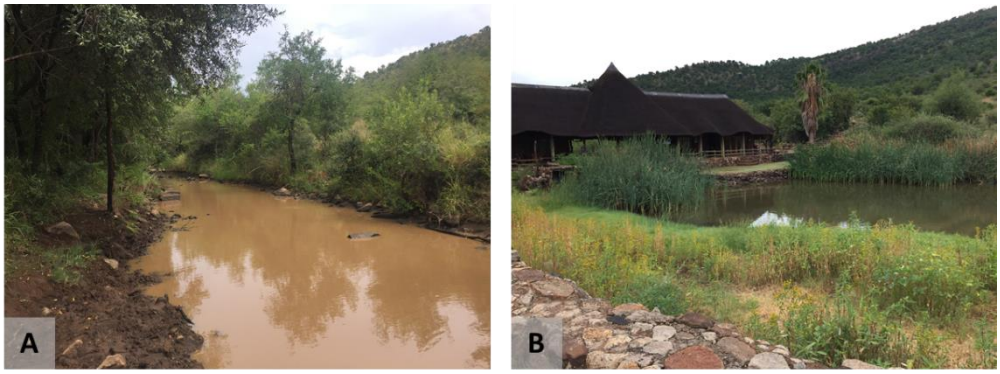

Figure 9-14: HGM unit 7

9.9.2 Sensitivity of the Site

The subsections below discuss the Present Ecological State (PES) and Ecological Importance and Sensitivity (EIS) associated with the delineated wetlands. The PES and EIS are also illustrated in Plan 18, Appendix A.

9.9.2.1 Present Ecological State

The wetlands within the project site exhibit a variety of PES values, ranging from *Largely Natural* (Category B) to *Largely Modified* (Category D) as presented in Table 9-11. HGM Unit 5 may be regarded as *Largely Natural* (Category B), with only minor impacts as a result of the recreational dam and the presence of some alien invasive plant species.

HGM Units 1 and 4 may be regarded as *Moderately Modified* (Category C), with moderate impacts at HGM Unit 1 affecting vegetation and hydrological integrity as a result of the road crossing. Loss of natural vegetation and soil disturbance as well as compromised water quality contributed to the modified state at HGM Unit 4.

Two *Largely Modified (*Category D*)* wetlands are present in the project site (HGM Unit 2 and HGM Unit 3). The *Largely Modified* category is mainly attributed to habitat transformation and hydrological alterations due to the golf course as well as the dam and crocodile sanctuary as in the case of HGM Unit 3.

Table 9-11: Present Ecological Health Scores

HGM Unit	Hydrological Health Score	Geomorphological Health Score	Vegetation Health Score	Final Ecological Health Score	PES Score
1	2.0	0.2	5.2	2.4	C
2	6.5	1.6	6.3	5.0	D
3	7.5	0.3	8.8	5.8	D
4	3.5	0.6	8.1	3.9	C
5	N/A for artificial wetlands				
6	N/A for artificial wetlands				
7	1	0.2	4.6	1.8	B

9.9.2.2 Ecological Importance and Sensitivity

Although the wetlands were found to be modified, they still provide predominantly *Moderate* to *Low* hydrological importance services (ranging between 0.5 and 1.9), such as erosion control and sediment trapping and assimilation of toxicants and nitrates.

The Ecological Importance and Sensitivity category ranges from *Moderate* (1) to *High* (2.4). This is largely due to proximity to the Pilanesberg National Park and the presence of various protected species observed at the time of the assessment (*Sclerocarya birrea, Spirostachys africana)*. In general, the values are *Low* (0.7) to *High* (2.5) for 'Direct Human Benefits'. The wetlands provide tourism services specifically and some provide water and cultural services further downstream. Table 9-12 indicates the EIS scores for the HGM Units with the final EIS scores ranging from *Moderate* (1) to *High* (2.5).

Table 9-12: EIS Scores

HGM Unit	Ecological Importance & Sensitivity	Hydrological/Functional Importance	Direct Human Benefits	Final EIS Score	Final EIS Category
1	2.4	1.9	1.7	2.4	B
2	2.3	1.4	2.5	2.5	B
3	2.4	1.1	1.8	2.4	B
4	1.8	1.1	0.8	1.8	C
5*	1	0.8	1.7	1.7	C
6*	1	0.5	0.7	1	C
7	3	1.1	1.3	3	B

*method is not intended for artificial wetlands, however it was applied as an indicator of functionality

9.10 Heritage resources and Palaeontology

9.10.1 Geology and Palaeontological Sensitivities

The *Pilanesberg Alkaline Province* is interlinked with the Quaternary Aged Sands. These layers are associated with the interglacial and glacial cycles which occurred from ~2.6 million years ago (mya). The Quaternary Age Sands have the potential to include fossil remains, but these are rare (Groenewald, 2016). Known fossil remains from these layers include: mammalian bones, tortoise remains, non-marine mollusc shells, ostracods, microfossils, trace fossils and plant material.

9.10.2 Regional Cultural Heritage Baseline

A total of 177 heritage resources were recorded within the district municipality, of which 17 occur within the project site, as illustrated in Figure 9-15. These comprised expressions of the Stone Age (identified as accumulations of Middle Stone Age (MSA) lithics), farming community sites, the historical built environment, burial grounds and graves and recent heritage. The Late Farming Community (LFC) represents the predominant category of tangible resources recorded in the regional study area (47% of the recorded heritage resources).

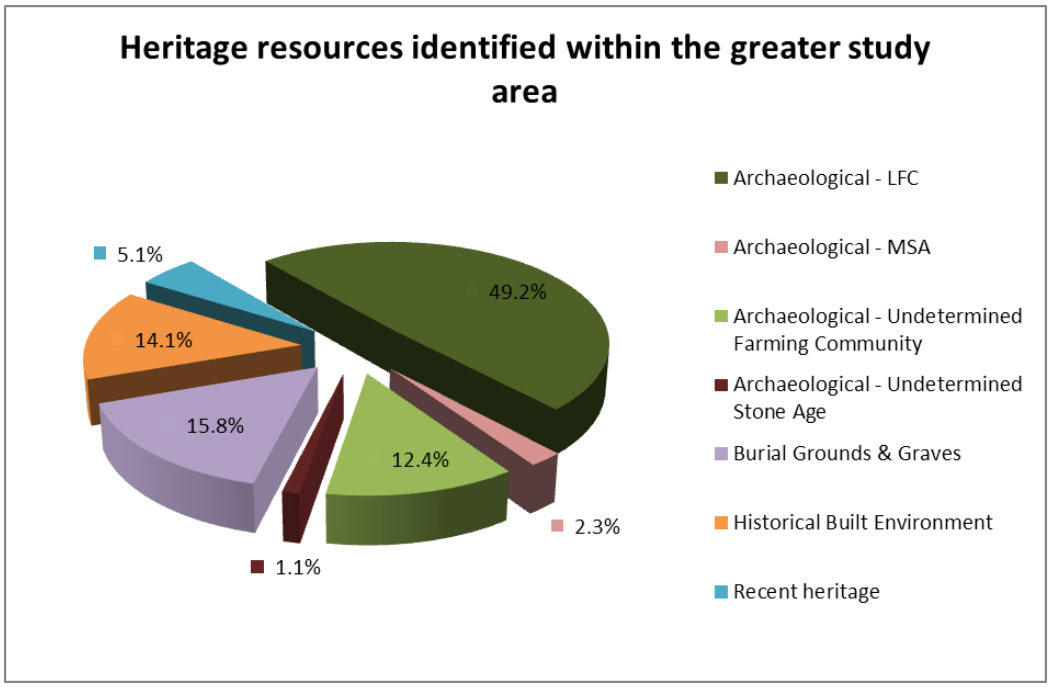

Figure 9-15: Heritage Resources Identified

The heritage resources identified are displayed in Plan 19, Appendix A.

The cultural heritage baseline description is focussed on the LFC period within the study area.

9.10.2.1 The Stone Age

The Stone Age in southern Africa comprises three periods: the Early Stone Age (ESA), MSA and the Later Stone Age (LSA). These periods are characterised by the lithic tools culture produced by the various hominid species though time.

A review of the available literature demonstrated that the study area contains few expressions of the Stone Age (3.4 % of the recorded heritage resources). No ESA or LSA accumulations are known to occur within the regional study area. High proportions of minimally-modified blades characterise the early MSA. Furthermore, the use of good quality raw material and bone tools, ochre, beads and pendants appear in the archaeological record at this time (Clark, 1982) and (Deacon & Deacon, 1999).

The recorded expressions of the MSA are described as low density scatters. In some instances, these are not fully recorded or adequately described. The Stone Age within the regional study area may therefore be underrepresented in existing literature.

9.10.2.2 Archaeo-Historical Context

The farming community period correlates with the movements of agro-pastoralists, including ancestors of modern Sotho-Tswana and Nguni peoples, moving into southern Africa (Makhura, 2007). This period is divided into two stages to distinguish between widespread

events, namely the Early Farming Communities (EFC) between 200 Common Era (CE[2]) and 1000 CE and the LFC between 1000 and 1840 CE.

Within the regional study area, no instances of EFC heritage resources were recorded in the surveyed literature. Stonewalling is the most visible indicator of LFC settlement. Several types of stonewalling are known to occur within South Africa within the regional study area under consideration, Type N and Molokwane are the most dominant types.

Type N walling is associated with the ancestral origin of the Fokeng in the Free State (Huffman, 2007). Type N walling includes one or multiple cattle kraals in the centre of the settlement; these kraals are linked to other walls. Type N walling occurred between the 1400s and 1600s in the Free State, but dates in other provinces are more tentative. The Molokwane walling is associated with western Sotho-Tswana groups, such as the Hurutshe and the Kwena. These settlements comprise of individual households surrounding the core cattle kraal, which are surrounded by a back wall with multiple arcs demarcating back courtyards. Houses were made of daga (clay) and included verandas.

The extensive stonewalled settlements within the North West region are colloquially referred to as 'Tswana Towns' or 'mega-sites' in the older literature. Through scientific research, it has been demonstrated that these settlements appeared on the landscape from the end of the 17th century, reaching their 'ultimate expression' by the early 19th century (Anderson, 2009).

A second indicator of previous occupation is ceramic remains. Ceramic classification is universally used by archaeologists to establish relative cultural-historical temporal sequences within southern African Farming Communities. In this way, relative dates can be assigned to sites, as well as inferring tenuous cultural similarities or associations. In the regional study area, the following ceramic traditions are known to occur (Huffman, 2007):

- *Uitkomst facies* date between approximately 1650 and 1820 CE and are distributed within the north-east parts of South Africa. The style is characterised by appliqué and stamped arcades and blocks of cord impressions, parallel incisions and stamping; and
- *Buispoort facies* occur between approximately 1700 and 1840 CE and share a distribution very similar to the *Uitkomst*. This facies is characterised by the use of red ochre together with broadly incised chevrons, rim notching and white bands.

9.10.2.3 The Difaqane and Recent Heritage

The period between approximately 1817 and 1826 CE is a period of violence and unrest known as the Difaqane (in Sotho and Mfecane in Nguni languages) (Anderson, 2009) and

[2] Common Era (CE) refers to the same period as *Anno Domini* ("In the year of our Lord", referred to as AD): i.e. the time after the accepted year of the birth of Jesus Christ and which forms the basis of the Julian and Gregorian calendars. Years before this time are referred to as 'Before Christ' (BC) or, here, Before Common Era (BCE).

(Landau, 2010). During this time, escalating violence and competition for resources resulted in settlements being abandoned or destroyed. The previous occupants of the abandoned or destroyed settlements were scattered in the landscape including settlers into the Pilanesberg area.

European settlers, traders, missionaries and travellers also moved into the interior and had been recording the stonewalled settlements they came across during their movements across the interior since the early 1800s, in varying levels of detail. With the influx and settlement of Europeans in the regional study area came the development of towns marked by the built environment. Through the review of available literature, recorded recent heritage is associated with the historical built environment and burial grounds and graves. These were reported as follows:

- Structural remains: (Pistorius, 2007; Pistorius, 2006a; Pistorius, 2006b; Birkholtz, 2016; Milo & Bandama, 2016; Mngomezulu, 2017; Van Schalkwyk, 2017);
- Sites of low and medium complexity (Van der Walt, 2007; Kruger, 2012; Birkholtz, 2016; Van Vollenhoven & Pelser, 2008);
- An ash deposit or midden (Van Vollenhoven & Pelser, 2008);
- Remains of industrial structures (Pistorius, 2007; Matenga, 2017); and
- Burial grounds and graves ranging from single burials to graveyards including as many as one hundred graves, although the sizes of some burial grounds were not reported (Pistorius 2007a, 2007b, 2012, 2013; Van der Walt 2007; Kruger 2012; Muller & Pistorius 2014; Mngomezulu 2015, 2017; Birkholtz 2016; Pelser 2016; Matenga 2017).

9.11 Socio-Economic Environment

The socio-economic baseline profile presented here focuses on the primary and secondary study areas; this is summarised in Table 9-13. The Sun City Resort Complex is located within Ward 14 of MKLM in the BPDM.

Table 9-13: Primary and Secondary Study Areas

Primary Study Area	Secondary Study Area	
Ward 13	Moses Kotane Local Municipality (MKLM)	Bojanala Platinum District Municipality (BPDM)
Ward 14		
Ward 28		
Ward 30		
Ward 2	Rustenburg Local Municipality (RLM)	
Ward 25		

The primary and secondary study areas are depicted in Plan 20, Appendix A.

Data for this baseline was sourced primarily from Wazimap (Wazimap, 2017). This data realigns the 2011 Census data captured and was presented by Statistics South Africa (Statistics South Africa, 2011) with new municipal boundaries used in the 2016 Municipal Elections (Open Up, 2017).

9.11.1 Land Tenure and Ownership

The land tenure and ownership around the study area is reflected in Plan 3, Appendix A. A large portion of land directly to the east, south and west of the Sun City complex is owned by a traditional authority, the Bakubung Ba Ratheo. This is also the proponent of the mixed land use development in Ledig.

Within RLM, there are 24 identified informal settlements on land owned by the municipality, the Royal Bafokeng Administration, Impala Platinum Mines and a variety of private landowners (RLM, 2017). Combined, these settlements cover approximately 731 ha (21.2% of the land area in the municipality).

9.11.2 Population Demographics

The North West Province includes 3 509 953 people, roughly 6.78% of South Africa's population (Statistics South Africa, 2011; Wazimap, 2017). The province includes nineteen local municipalities grouped into four district municipalities. BPDM is the largest of the district municipalities, including 1 507 506 people (42.95% of the province's population). Local municipalities within BPDM include: MKLM, RLM, Kgetetleng Rivier, Madibeng and Moretele. RLM is the largest local municipality (36.46% of the population of BPDM) and Moses Kotane is the third largest (242 554 people or 16.09%), behind the Madibeng Local Municipality. The annual growth rate of the population of BPDM has continuously decreased between 1997 and 2010 (BPDM, 2012). Table 9-14 presents the total population of the study area.

Table 9-14: Populations of MKLM (Statistics South Africa (2011) and Wazimap (2017))

MKLM		**RLM**	
Total Population	242 554	Total Population	549 575
Ward 13	7 226	Ward 2	12 171
Ward 14	6 030	Ward 25	14 221
Ward 28	9 579		
Ward 30	7 363		

The BPDM IDP classifies the majority of the district population as rural with low population densities (BPDM, 2012). Within the MKLM, 7.4% of the population live in an urban environment: 0.3% lives on farms and 92.4% of the population live on "Traditional" land (Statistics South Africa, 2011). In the RLM however, the majority of the population live in

urban environments (68%); the minority reside on farms (2%) and “Traditional” land (30%).Figure 9-16 presents a summary of the population densities for the primary and secondary study area.

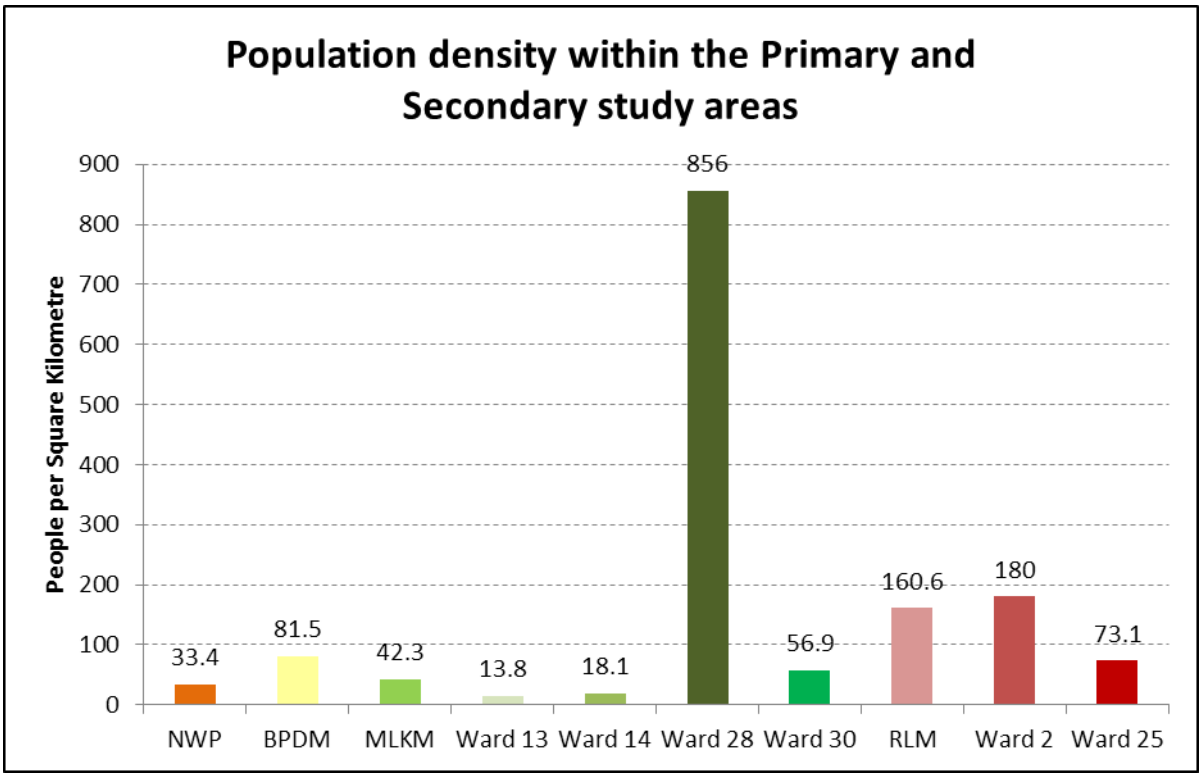

Figure 9-16: Population density within the greater study area adapted from Statistics South Africa (Statistics by Place, 2011) and Wazimap (Wazimap, 2017)

Table 9-15 presents an overview of the number of households within the study area. Some of the statics in the following sections will be presented according to households, and not per capita.

Table 9-15: Total number of households within the greater study area, adapted from Wazimap (2017)

NWP		1 104 553	
BPDM		527 624 (47.8% of NWP)	
MKLM		**RLM**	
Total Population	77 439 (14.7% of BPDM)	Total Population	216 774 (41.1% of BPDM)
Ward 13	3 018	Ward 2	4 569
Ward 14	1 862	Ward 25	4 729
Ward 28	3 039		
Ward 30	2 374		

Table 9-16 summarises the racial distribution of the greater study area. The trend within the greater study region shows a predominantly Black African population but with other races represented in each of the wards and the local and district municipalities. Ward 13 includes a significantly higher population of Indian and Asian people.

Table 9-16: Distribution of the population of the greater study area by race, adapted from Wazimap (2017)

Race	NWP	BPDM	MLKM	Ward 13	Ward 14	Ward 28	Ward 30	RLM	Ward 2	Ward 25
Black African	89.9%	91.4%	98.3%	81.7%	86.8%	99.0%	99.1%	88.5%	99.3%	99.1%
Coloured	2.0%	0.7%	0.3%	1.9%	1.7%	0.3%	0.2%	0.9%	0.1%	0.3%
Indian or Asian	0.6%	0.6%	0.5%	5.9%	3.0%	0.4%	0.2%	0.8%	0.1%	0.3%
White	7.3%	7.0%	0.8%	10.0%	8.0%	0.1%	0.2%	9.4%	0.1%	0.1%
Other	0.3%	0.3%	0.2%	0.5%	0.5%	0.3%	0.2%	0.4%	0.4%	0.2%

The majority of the population within the study areas is of economically-active age (i.e. between 18 and 64). A very small portion of the population is of retirement age (i.e. over the age of 65). A small, but still significant, portion of the population is younger than 18 and is generally quite evenly distributed across the ages. The population across the greater study area is generally evenly spread between male and female. The largest difference between the genders is seen in Ward 13, where males out-number females (57% to 43%). Females just out-number males in MKLM (50.3 % to 49.7%) but this trend is not reflected in the other areas under consideration.

9.11.3 Education

Figure 9-17 presents the highest level of education completed by people within the greater study area who are older than twenty years of age. The majority of the population completed some high school (Grade 10 or Grade 11). Table 9-17 below summarises the proportion of the same population (i.e. those older than the age of twenty) who completed their matric.

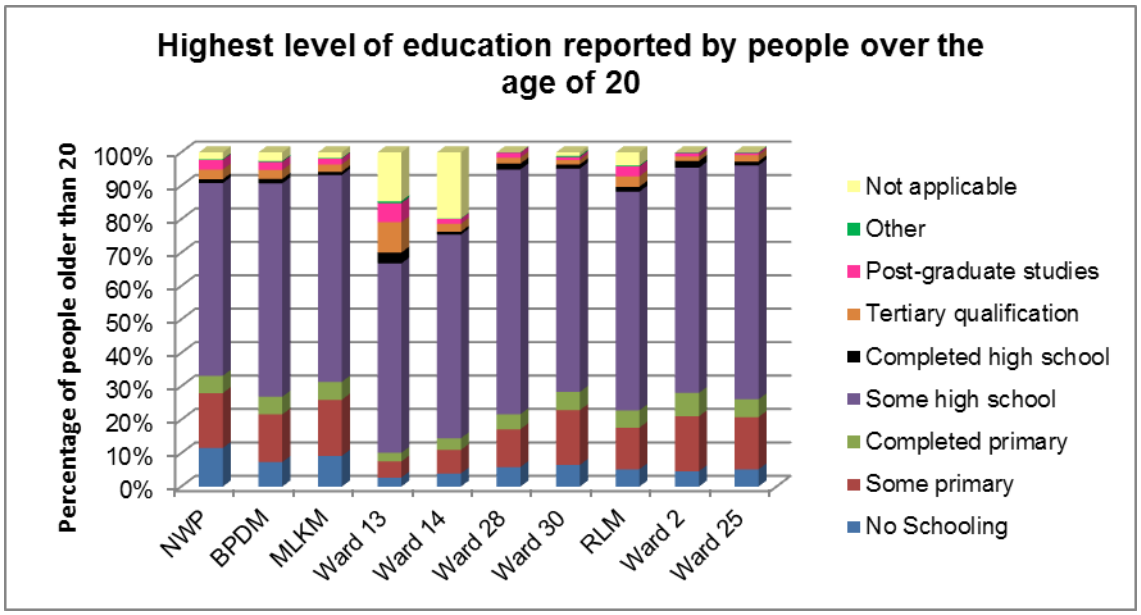

Figure 9-17: Education levels within the Primary and Secondary study areas, adapted from Wazimap (Wazimap, 2017)

Table 9-17: Percentage of all people older than 20 years old that have completed Matric, adapted from Wazimap (2017)

NWP		6.90%	
BPDM		6.42%	
MKLM		**RLM**	
Total Population	4.89%	Total Population	7.53%
Ward 13	18.03%	Ward 2	4.45%
Ward 14	4.67%	Ward 25	3.72%
Ward 28	5.03%		
Ward 30	3.43%		

According to the most recent IDP for BPDM, the education level of the population is increasing (BPDM, 2012). In 2010, the functional literacy level of the population was 73.8%. In the same year, RLM boasted the highest literacy level for the district (78.3%) and the lowest literacy rate was reported in Kgetleng (56.7%).

9.11.4 Household Services

9.11.4.1 Electricity

The predominant source of household energy for cooking, heating and lighting in RLM and MKLM is on-the-grid electricity. Where electricity is not used, paraffin and wood are the most commonly-used alternatives although having no alternative is common in terms of energy for heating. Candles are a common alternative for lighting. Of the households that do have access to electricity, 24 348 (roughly 11.1%) reported outages lasting longer than twelve hours (RLM, 2017).

Electricity in Ledig (the closest settlement to Sun City at approximately 3km southwest of its main entrance) is supplied by Eskom; primarily through rural overhead connections with limited capacity (Bechan, 2017). These connections are now at capacity and will not be able to supply any new developments. An investigation lodged by the proposed Bakubung Ledig Housing development resulted in the following projects to supply the new development as proposed by Eskom (Bechan, 2017):

- A temporary power supply constructed in phases between 2017 and 2023; will connect to the Sun City substation via 22 kV overhead power lines. This will supply only some of the units and will put severe constraints on the Sun City substation which will need to be upgraded; or
- A permanent supply, including a new substation which will be required within the Bakubung Ledig Housing development (and which is referred to as the “Bale Substation”) and will also include the construction of a 132 kV line to the existing Bakubung Substation, 3.5 km away.

9.11.4.2 Water

Figure 9-18 presents an overview of the sources of water used by the population within the greater study area. The vast majority of the people within the greater study area obtain water from a regional or local scheme which is provided by municipal or private suppliers. The MKLM region (including the Sun City Resort) receives its water from Magalies Water, next to the Vaalkop Dam (Boshoff, 2015). Bulk water is currently abstracted from the Vaalkop Dam and is treated at the Vaalkop Water Treatment Works (WTW) to supply the eastern part of MKLM, which includes the community of Ledig (Bechan, 2017). As of 2017, RLM included four WWTWs: Rustenburg, Boitekong, Monnakato and Lethabong (RLM, 2017).

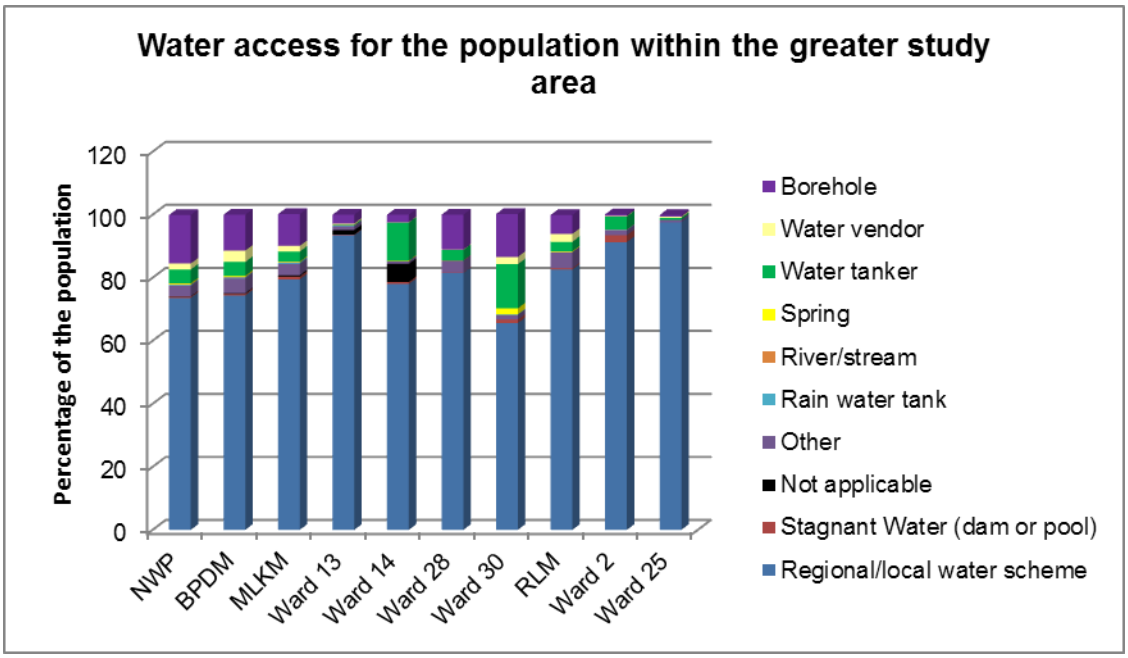

Figure 9-18: Water resources for the population of the greater study area, adapted from Wazimap (2017)

As of 2015, the water requirements from the area surrounding the Crocodile River System exceed the available supply, from the surface and groundwater resources, by more than 400% (Boshoff, 2015). The two main contributors to the increase in demand are an increase in mining activities and increases in the rural population in the district. To meet this demand, large amounts of potable water are transferred to the catchment from the Vaal River system.

Water shortages have affected MKLM in the recent past (Boshoff, 2015). The North West Province was declared a National Disaster area in 2013 during the winter after a long absence of rain, and the chief operating officer of MKLM imposed water restrictions to conserve water supplies. Magalies Water also implemented the Pilanesberg Scheme to increase the bulk supply of water to the MKLM and the RLM in 2013 and proposed a future upgrade of the Bospoort Water Scheme, owned by the MKLM. RLM implemented several short- and medium-term measures in response to the drought conditions. Water restrictions were again imposed in October and November 2014. These restrictions were imposed as the result of upgrades to the Magalies water purification plant and the resultant temporary decrease in fresh water yields. As of 2017, the Vaalkop Dam and WTW did not have enough capacity to supply Ledig's current and future requirements (Bechan, 2017).

Water analyses undertaken in 2011 resulted in concerning amounts of phosphate, which is usually the indication of raw sewerage disposal in fresh water river systems (Boshoff, 2015). This is most likely from faulty water treatment works or illegal sewerage disposal in Johannesburg, Midrand and/or Krugersdorp which travels through the Crocodile West (River) System, which includes Hartebeespoort Dam, Rooikoppies Dam and Vaalkop Dam.

In 2011 it was reported that 'good-to-moderate' quality groundwater is available in BPDM (Boshoff, 2015). The groundwater quality is affected by the use of fertilisers (increasing nitrate concentration) and inadequate and poor sanitation (which increases TDS, total coliforms and e-coli, and could increase chlorine). Magalies Water is still compliant with South African National Standard (SANS) 41, which regulates the standards water must meet when being supplied to consumers.

Sun City also receives its water from Magalies Water (Boshoff, 2015). To decrease its demand on the municipal water supply, Sun City recovers some of its waste water through the WWTW, which purifies and disinfects its waste water which is then pumped to the golf courses for irrigation (Boshoff, 2015). As of 2013, 84% of waste water was treated and used for irrigation and refilling the water features around the hotels. Sun City's water policy ensures that Sun City will not contaminate watercourses or groundwater adjacent to the property through resort operations and will minimise the risk of pollution and environmental damage (Boshoff, 2015).

The South Pilanesberg Water Scheme is currently being initiated to create the possibility for the MKLM to provide a sustainable water source to the Ledig community (Bechan, 2017). The scheme includes a Magalies bulk water supply pipeline that has already been constructed. The South Pilanesberg Water Scheme will also include the construction of a 20 Mℓ reservoir and a pump station next to the reservoir. A proposed housing development, Bakubung Ledig Housing, has been requested by MKLM to provide a 48-hour storage reservoir. This will be constructed next to the existing Ledig reservoir but will be supplied by the new reservoir built through the South Pilanesberg Water Scheme.

9.11.4.3 Toilet Facilities and Sanitation

Figure 9-19 presents the toilet facilities that people have access to across the greater study area. Pit latrines (without ventilation) and flush toilets that are connected to the municipal sewerage system are the most common types of facilities available. In 2016, RLM included 7 815 people with no access to toilet facilities (approximately 3% of the population).

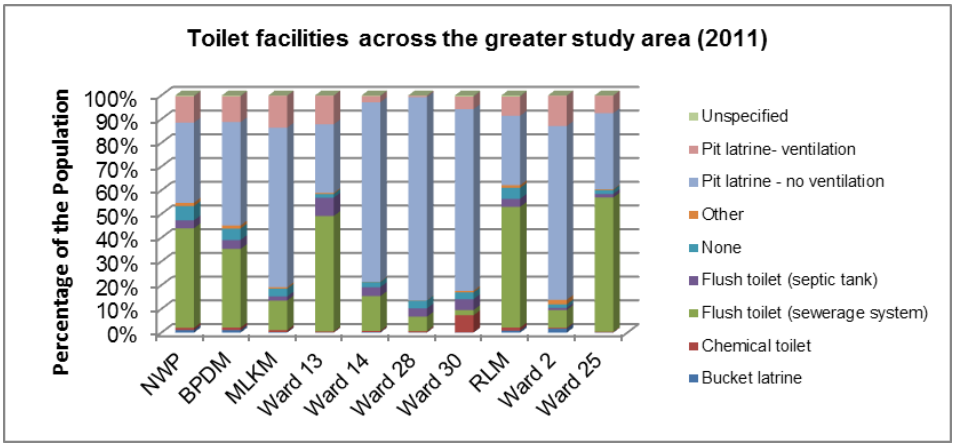

Figure 9-19: Access to toilet facilities within the greater study area, adapted from Wazimap (2017)

9.11.5 Housing

9.11.5.1 Type of dwelling

Figure 9-20 shows the various types of dwellings owned, rented or occupied by the people within the greater study area. In this figure, the category labelled “dwelling in association with a larger dwelling” refers to a room or a flatlet on a property included in a larger dwelling; servants quarters; or a granny flat. Across the greater study area, most of the population reside in dwellings on a separate stand (i.e. a house or block structure on a separate stand, yard or farm). Flats or apartments and informal dwellings, both in backyards and in other locations, are significant types of dwellings as well.

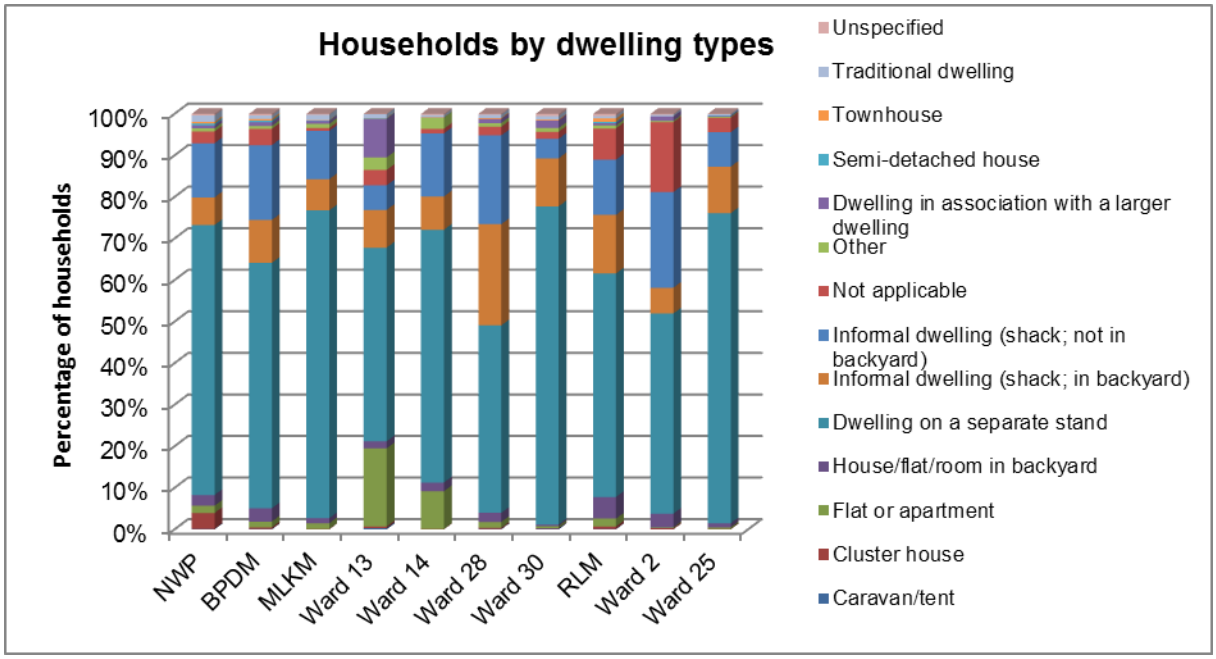

Figure 9-20: Types of dwellings of the households within the greater study area, adapted from Wazimap (2017)

9.11.5.2 Home ownership

Renting, occupying a dwelling rent-free and owning a house which is paid off are the three most common forms of home ownership across the greater study area. The dominant form of ownership differs across the various areas within the primary and secondary study areas; this data is presented in Figure 9-21.

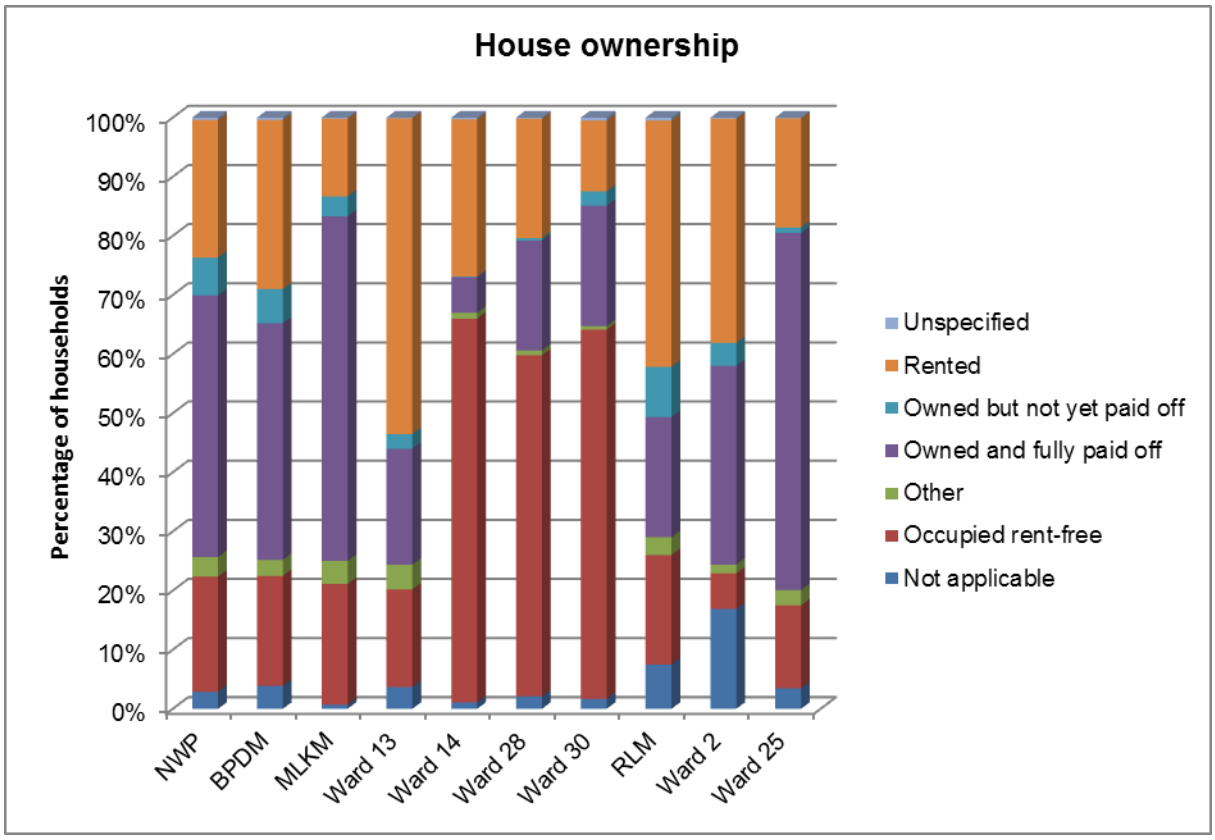

Figure 9-21: Ownership of households within the greater study area, adapted from Wazimap (2017)

9.11.5.3 Planned Residential Developments

The process for the above-mentioned proposed Bakubung Ledig Housing development has been initiated by the Bakubung Ba Ratheo Community and Kubu Property Investments (Bechan, 2017). The project is proposed to include housing for high and low income residents across 4 608 units including: subsidised units, institutional units, bonded units and security villages. The project will be implemented on Portion 15 of the farm Ledig 909 and will cover 364.73 hectares (ha). The project will also entail the construction of internal roads and bridges, bulk storm water outlets, sewerage infrastructure and other supporting infrastructure and social facilities.

Safari Investments Rustenburg (Pty) Ltd was recently awarded a tender for development near the Rustenburg Central Business District (CBD) (RLM, 2017). This development is intended to be a “mixed and integrated development” which will include residential, medium-density residential, residential/commercial and social/residential components across part of the 300.7 ha land earmarked for the total project.

Residential structures will also be included as a component of the CBD Upgrade project recently awarded to Fox Power North West (RLM, 2017). Single and multiple residential developments are planned in Boitekong, according to a Precinct Plan approved in 2012.

The Presidential Priority Project: Thusaneng Project is a proposed development which will include up to 20 000 houses (RLM, 2017). Anglo American Platinum, RLM and the Provincial Housing Department signed a Memorandum of Understanding during 2013. Anglo-American Platinum and the Rustenburg Platinum Mine agreed to provide heavy subsidies for the project. The project does not appear to have been completed to date.

9.11.6 Road Infrastructure and Traffic

The bulk road infrastructure of BPDM includes the R556 (a provincial and Class 2 Road which is under the custodianship of the South African National Road Agency Limited (SANRAL) and the R565 (Bechan, 2017).Table 9-18 presents the characteristics of the existing road network.

Table 9-18: Total road length (km) included in the district and municipalities as of 2012

Municipality	Gravel (Unpaved)	Tarred (Paved)	Total	Poor/very poor condition
MKLM	832	200	1 032	10
RLM	367	497	864	51
BPDM	2 490	1 703	4 193	151

Within BPDM in 2012, the three largest transport-related problems according to the community were (BPDM, 2012):

- Lack of public transport;
- Long waiting times; and
- Poor quality of the public transport.

The three most important transport priorities reported in BPDM in 2012 were (BPDM, 2012):

- Improving the roads;
- Increasing or improving the public transport facilities; and
- Increasing or improving the public transport services.

These priorities were reflected in MKLM, but improving the public transport services was of higher priority than improving the facilities. Improving the roads and improving the public transport facilities were prioritised in RLM, but the second highest priority here was to improve road infrastructure.

9.11.7 Economy

Figure 9-22 shows the contribution of each broad economic sector to the economy of each of the municipalities within BPDM, with contributions made to the national and provincial economies for comparison as of 2010 (BPDM, 2012). This information has been summarised in Table 9-19 to highlight the three largest contributors for the secondary study area.

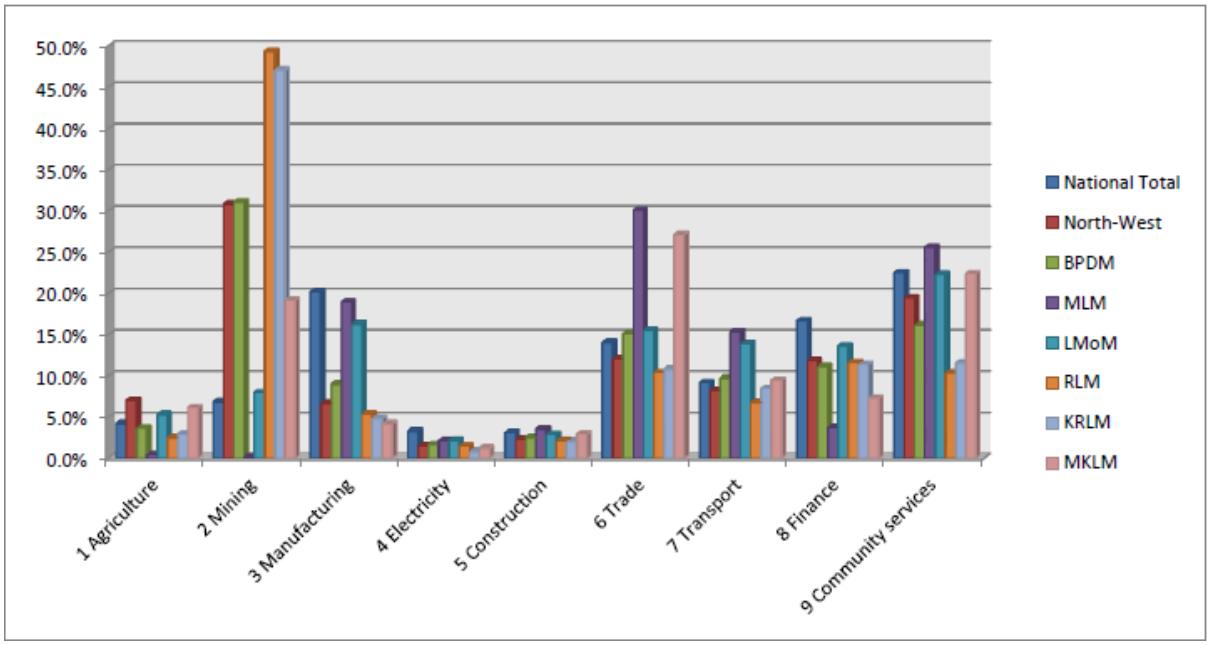

Figure 9-22: Economic structure of each district by Broad Economic Sectors in 2010

(Source: BPDM, 2012)

Table 9-19: Economic structure of each district by Broad Economic Sectors in 2010 (adapted from BPDM 2012)

Economic Contributors	NWP	BPDM	MKLM	RLM
Largest	Mining	Mining	Trade	Mining
Second largest	Community Services	Community Services	Community Services	Finance
Third largest	Trade	Trade	Mining	Trade

The economy of the North West Province is largely dependent on the mining sector (BPDM, 2012; RLM, 2017). Small, Medium and Micro Enterprises (SMMEs) also play a large role in the economy of the province (RLM, 2017). The North West Province plans to diversify its economy and increase the non-mining sector, specifically in tourism and non-mining manufacturing industries.

In terms of the Gross Value Added (GVA), BPDM makes a considerable contribution to the North West Province, in terms of employment opportunities and production output (BPDM, 2012). The RLM contributes the largest GVA to BPDM, far exceeding the other local municipalities.

9.11.8 Employment

Employment figures across the greater study area are relatively consistent across the ward, municipality, district and province levels. The percentage of the population as a whole that are employed range between 19.1% in MKLM and 36.6% in Ward 13 (in MKLM). The rate of unemployment amongst the economically active (i.e. those between the ages of 15 and 64) accounts for between 9.3% and 15.4% of the total population in the different regions. Figure 9-23 summarises the employment status within study areas.

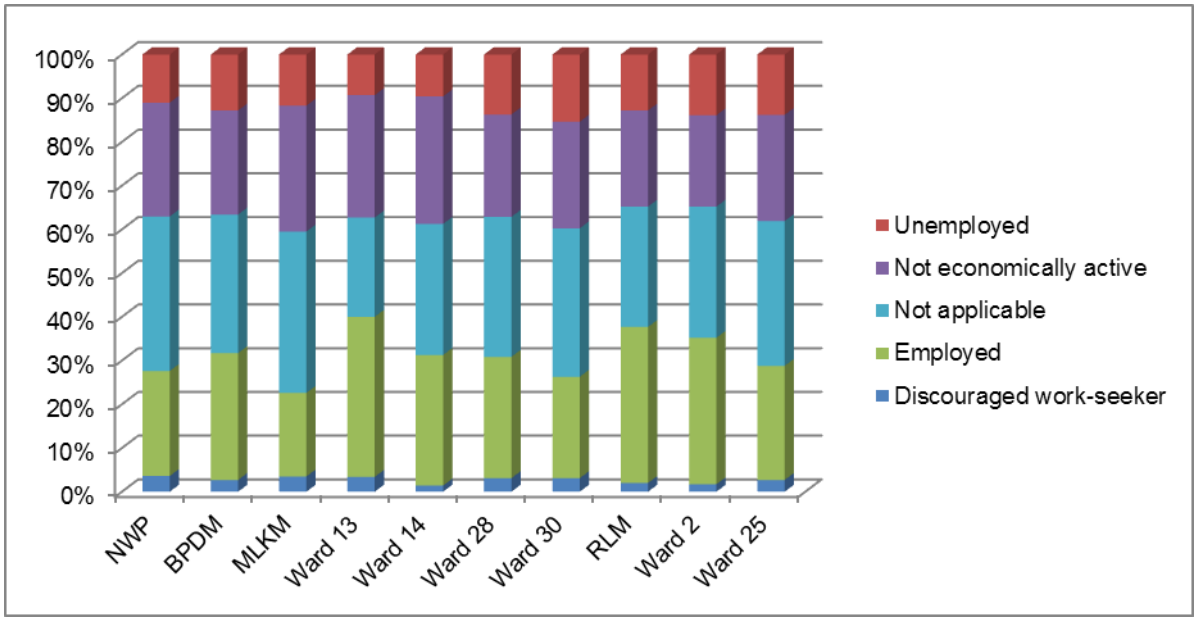

Figure 9-23: Employment status within the population of the greater study area, adapted from Wazimap (2017)

The annual incomes for those who are employed are presented in Figure 9-24. This data reflects the salaries in the year 2011. Although the annual income does vary slightly across the areas of the primary and secondary study areas, most of those employed earned between R 9 601.00 and R 76 800.00 annually, or between approximately R 1 200.00 and R 6 400.00 per month. This means that a fairly significant portion of the project community (10% on average) live in absolute poverty, i.e. a monthly household income of R 1 600 or less for a family of 4, leaving the family unable to meet their basic food needs with no money left for non-food items.

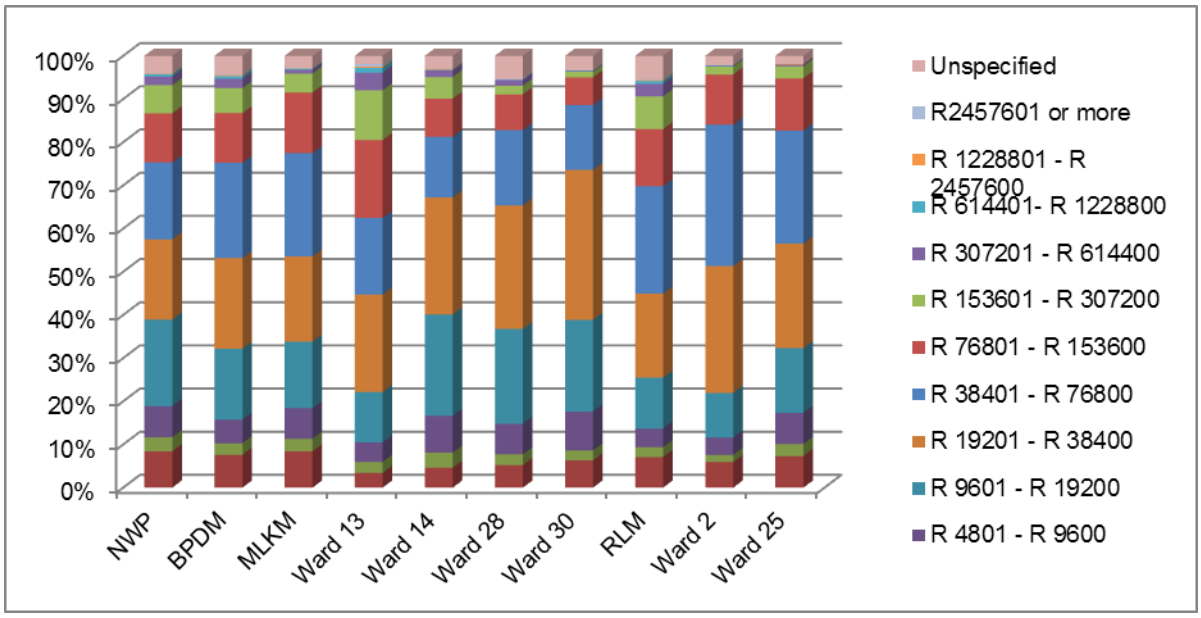

Figure 9-24: Annual income for employed individuals within the greater study area, adapted from Wazimap (2017)

Within the BPDM, the three industries that employed the largest portion of the employed population in 2010 were (from highest to lowest) (BPDM, 2012):

- Mining;
- Trade; and
- Community services.

The three sectors which provide the highest average salary for those employed are community services, the financial sector and the real estate sector.

9.11.9 Health

The most recent IDP of BPDM identifies several issues within the municipal health services (BPDM, 2012). These issues include a lack of ambulance services, long travel distances to healthcare centres and problems with service delivery at the healthcare centres (including insufficient equipment and shortages of staff). The prevalence of HIV/AIDS is also a challenge within the district. HIV/AIDS and other communicable diseases were highlighted during community consultations undertaken to complete the 2016/2017 IDP (MKLM, 2016). In Ward 13, this was considered a “quick win” but no details on the intervention or current or past statistics were included in the IDP.

Table 9-20 presents the health care facilities that are operational in MKLM as of 2016 (MKLM, 2016). The mobile clinics visit the relevant wards regularly, either once a week, once every two weeks or once a month. Clinics which follow business hours are usually open eight hours a day from Monday to Friday or from Monday to Sunday. The clinics that are open for twelve hours a day operate from Monday to Friday or Saturday. Ward 13 has no

medical facilities and residents must use the facilities in other wards; four other such cases occur within MKLM.

Table 9-20: Health Care facilities available in MKLM

Health Post	MKLM	Ward 13	Ward 14	Ward 28	Ward 30
Clinic (business hours)	35	None	None	None	None
Health Centre (12 hours a day)	3		None	None	None
24-hour clinic / health care centre	10		1	1	1
Hospital	1		1	1	None
Mobile clinic	21		1	None	1

(Source: MKLM, 2016)

9.11.10 Poverty, Vulnerability and Crime

There was a reported drop in poverty rates in BPDM between 2002 and 2010, from approximately 44% to 37% (BPDM, 2012). In 2010, MKLM reported the highest poverty rate in the district (52.7%) and Rustenburg the lowest (25.2%). This latter figure increased in 2016 to 27.9% (RLM, 2017). During 2016, households encountered the following challenges:

- Running out of money to buy food within the last twelve months (15.7% of households);
- Running out of money to buy food for five or more days within the last thirty days (9.9%);
- Skipping a meal in the past twelve months (11.6%); and
- Skipping a meal for five or more days within the last thirty days (6.6%).

The youth within BPDM and those older than 60 years old (38.8% and 7.5% of the total population in 2010) require special attention in the provision of facilities and social support (BPDM, 2012). While the BPDM IDP of 2012 to 2017 (BPDM, 2012) indicated that the district would embark on programmes to improve the poverty rate, especially amongst these vulnerable groups, no such programmes were described.

The district is divided into three policing clusters: Rustenburg, Brits and Mmakau. Within the RLM, assault with the intent to do bodily harm, common assault and burglaries (on residential properties) are the most common crimes (RLM, 2017). There is a Sun City South African Police Services (SAPS) station at Sun City (SAPS, 2014). Residents of Ward 28 in MKLM have reported that they feel this police station does not assist the community (MKLM, 2016). Mogwase Police Station is the police station servicing the primary study area (approximately 15 km away from the Project site). The crimes reported at this station between the financial year 2011/2012 to the financial year 2015/2016 are presented in Figure 9-25 (adapted from SAPS website).

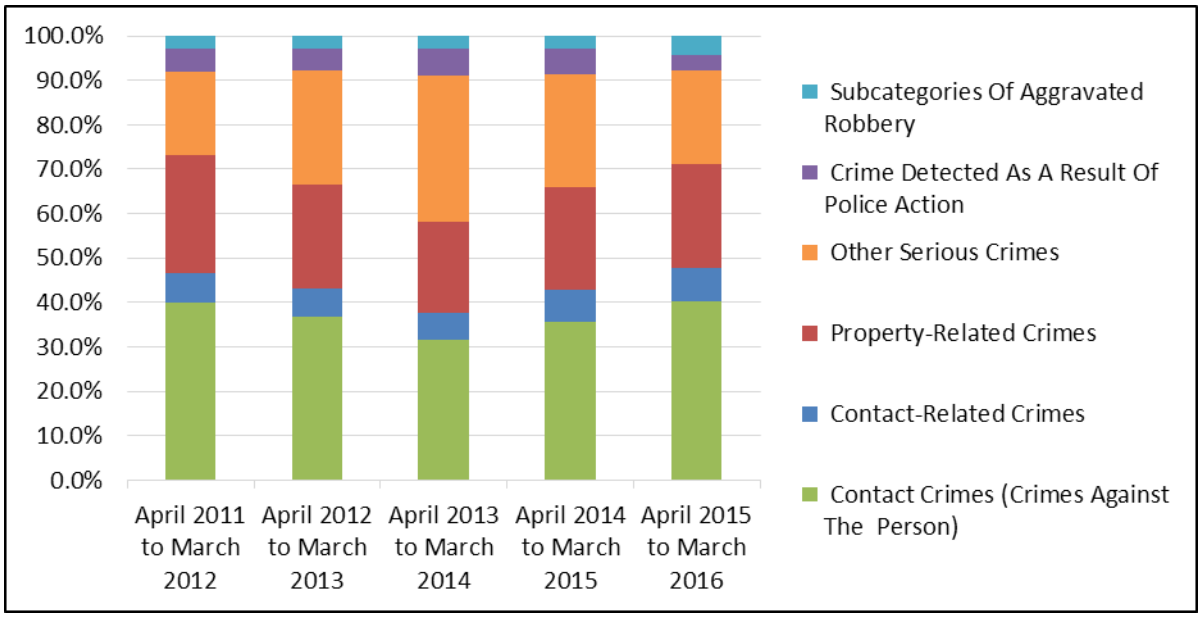

Figure 9-25: Crimes reported at Mogwase Police Station (2011 to 2016)

BPDM is implementing their Disaster Management Plan and the National Policy Framework on Disaster Risk Management through the District Disaster Centre (BPDM, 2012). The fire and emergency services within the district face some serious challenges which must be addressed to ensure the safety of the population. According to the BDPM IDP, one fire station is required to cover approximately 5 700 km^2 in MKLM. Travel times for emergency vehicles are very high across the district.

9.11.11 Attitudes, perceptions and concerns

Stakeholders' attitudes, perceptions and concerns will be determined through the public participation process and will be reflected in the SIA's impact assessment report.

10 Impact Assessment Methodology

To clarify the purpose and limitations of the impact assessment methodology, it is necessary to address the issue of subjectivity in the assessment of the significance of environmental impacts. Even though Digby Wells, and the majority of EIA practitioners, propose a numerical methodology for impact assessments, one has to accept that the process of environmental significance determination is inherently subjective.

The weight assigned to each factor of a potential impact, and also the design of the rating process itself, is based on the values and perception of risk of members of the assessment team, as well as that of the I&AP's and authorities who provide input into the process.

The perception of the probability of an impact occurring is dependent on perceptions, aversion to risk and availability of information.

The purpose of the EIA process is to provide a structured, traceable and defendable methodology of rating the relative significance of impacts in a specific context.

10.1 Impact Rating

The impact assessment methodology utilised during the EIA Phase for the project will consist of two phases namely impact identification and impact significance rating.

Impacts and risks have been identified based on a description of the activities to be undertaken. Once impacts have been identified, a numerical environmental significance rating process will be undertaken that utilises the probability of an event occurring and the severity of the impact as factors to determine the significance of a particular environmental impact.

The severity of an impact is determined by taking the spatial extent, the duration and the severity of the impacts into consideration. The probability of an impact is then determined by the frequency at which the activity takes place or is likely to take place and by how often the type of impact in question has taken place in similar circumstances.

Following the identification and significance ratings of potential impacts, mitigation and management measures will be incorporated into the EMP.

Details of the impact assessment methodology used to determine the significance of physical, bio-physical and socio-economic impacts are provided below.

The significance rating process follows the established impact/risk assessment formula:

Significance = CONSEQUENCE X PROBABILITY X NATURE

Where

Consequence = intensity + extent + duration

And

Probability = likelihood of an impact occurring

And

Nature = positive (+1) or negative (-1) impact

The matrix calculates the rating out of 147, whereby intensity, extent, duration and probability are each rated out of seven as indicated in Table 10-2. The weight assigned to the various parameters is then multiplied by +1 for positive and -1 for negative impacts.

Impacts are rated prior to mitigation and again after consideration of the mitigation has been applied; post-mitigation is referred to as the residual impact. The significance of an impact is determined and categorised into one of seven categories (The descriptions of the significance ratings are presented in Table 10-3).

It is important to note that the pre-mitigation rating takes into consideration the activity as proposed, (i.e., there may already be some mitigation included in the engineering design). If the specialist determines the potential impact is still too high, additional mitigation measures are proposed.

Table 10-1: Impact Assessment Parameter Ratings

Rating	Intensity/ Irreplaceability		Extent	Duration/Reversibility	Probability
	Negative Impacts (Nature = -1)	**Positive Impacts (Nature = +1)**			
7	Irreplaceable loss or damage to biological or physical resources or **highly** sensitive environments. Irreplaceable damage to **highly sensitive** cultural/social resources.	Noticeable, on-going natural and / or social benefits which have improved the overall conditions of the baseline.	International The effect will occur across international borders.	Permanent: The impact is irreversible, even with management, and will remain after the life of the project.	Definite: There are sound scientific reasons to expect that the impact will definitely occur. >80% probability.
6	Irreplaceable loss or damage to biological or physical resources or **moderate to highly** sensitive environments. Irreplaceable damage to cultural/social resources of **moderate to highly** sensitivity.	Great improvement to the overall conditions of a large percentage of the baseline.	National Will affect the entire country.	Beyond project life: The impact will remain for some time after the life of the project and is potentially irreversible even with management.	Almost certain / Highly probable: It is most likely that the impact will occur.>65 but <80% probability.

Rating	Intensity/ Irreplaceability		Extent	Duration/Reversibility	Probability
	Negative Impacts (Nature = -1)	**Positive Impacts (Nature = +1)**			
5	Serious loss and/or damage to physical or biological resources or **highly** sensitive environments, limiting ecosystem function. Very serious widespread social impacts. Irreparable damage to highly valued items.	On-going and widespread benefits to local communities and natural features of the landscape.	Province/ Region Will affect the entire province or region.	Project Life (>15 years): The impact will cease after the operational life span of the project and can be reversed with sufficient management.	Likely: The impact may occur. <65% probability.
4	Serious loss and/or damage to physical or biological resources or **moderately** sensitive environments, limiting ecosystem function. On-going serious social issues. Significant damage to structures / items of cultural significance.	Average to intense natural and / or social benefits to some elements of the baseline.	Municipal Area Will affect the whole municipal area.	Long term: 6-15 years and impact can be reversed with management.	Probable: Has occurred here or elsewhere and could therefore occur. <50% probability.

Rating	Intensity/ Irreplaceability		Extent	Duration/Reversibility	Probability
	Negative Impacts (Nature = -1)	**Positive Impacts (Nature = +1)**			
3	Moderate loss and/or damage to biological or physical resources of **low to moderately** sensitive environments and, limiting ecosystem function. On-going social issues. Damage to items of cultural significance.	Average, on-going positive benefits, not widespread but felt by some elements of the baseline.	Local Local including the site and its immediat surrounding area.	Medium term: 1-5 years and impact can be reversed with minimal management.	Unlikely: Has not happened yet but could happen once in the lifetime of the project, therefore there is a possibility that the impact will occur. <25% probability.
2	**Minor loss and/or effects** to biological or physical resources or low sensitive environments, not affecting ecosystem functioning. Minor medium-term social impacts on local population. Mostly repairable. Cultural functions and processes not affected.	Low positive impacts experience by a small percentage of the baseline.	Limited Limited extending only as far as the development site area.	Short term: Less than 1 year and is reversible.	Rare / improbable: Conceivable, but only in extreme circumstances. The possibility of the impact materialising is very low as a result of design, historic experience or implementation of adequate mitigation measures. <10% probability.

Rating	Intensity/ Irreplaceability		Extent	Duration/Reversibility	Probability
	Negative Impacts (Nature = -1)	**Positive Impacts (Nature = +1)**			
1	**Minimal to no loss** and/or effect to biological or physical resources, not affecting ecosystem functioning. Minimal social impacts, low-level repairable damage to commonplace structures.	Some low-level natural and / or social benefits felt by a very small percentage of the baseline.	Very limited/Isolated Limited to specific isolated parts of the site.	Immediate: Less than 1 month and is completely reversible without management.	Highly unlikely / None: Expected never to happen. <1% probability.

Table 10-2: Probability/Consequence Matrix

Significance																																						
-147	-140	-133	-126	-119	-112	-105	-98	-91	-84	-77	-70	-63	-56	-49	-42	-35	-28	-21	21	28	35	42	49	56	63	70	77	84	91	98	105	112	119	126	133	140	147
-126	-120	-114	-108	-102	-96	-90	-84	-78	-72	-66	-60	-54	-48	-42	-36	-30	-24	-18	18	24	30	36	42	48	54	60	66	72	78	84	90	96	102	108	114	120	126
-105	-100	-95	-90	-85	-80	-75	-70	-65	-60	-55	-50	-45	-40	-35	-30	-25	-20	-15	15	20	25	30	35	40	45	50	55	60	65	70	75	80	85	90	95	100	105
-84	-80	-76	-72	-68	-64	-60	-56	-52	-48	-44	-40	-36	-32	-28	-24	-20	-16	-12	12	16	20	24	28	32	36	40	44	48	52	56	60	64	68	72	76	80	84
-63	-60	-57	-54	-51	-48	-45	-42	-39	-36	-33	-30	-27	-24	-21	-18	-15	-12	-9	9	12	15	18	21	24	27	30	33	36	39	42	45	48	51	54	57	60	63
-42	-40	-38	-36	-34	-32	-30	-28	-26	-24	-22	-20	-18	-16	-14	-12	-10	-8	-6	6	8	10	12	14	16	18	20	22	24	26	28	30	32	34	36	38	40	42
-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21
-21	-20	-19	-18	-17	-16	-15	-14	-13	-12	-11	-10	-9	-8	-7	-6	-5	-4	-3	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21

Consequence

Table 10-3: Significance Rating Description

Score	Description	Rating
109 to 147	A very beneficial impact that may be sufficient by itself to justify implementation of the project. The impact may result in permanent positive change	Major (positive) (+)
73 to 108	A beneficial impact which may help to justify the implementation of the project. These impacts would be considered by society as constituting a major and usually a long-term positive change to the (natural and / or social) environment	Moderate (positive) (+)
36 to 72	A positive impact. These impacts will usually result in positive medium to long-term effect on the natural and / or social environment	Minor (positive) (+)
3 to 35	A small positive impact. The impact will result in medium to short term effects on the natural and / or social environment	Negligible (positive) (+)
-3 to -35	An acceptable negative impact for which mitigation is desirable. The impact by itself is insufficient even in combination with other low impacts to prevent the development being approved. These impacts will result in negative medium to short term effects on the natural and / or social environment	Negligible (negative) (-)
-36 to -72	A minor negative impact requires mitigation. The impact is insufficient by itself to prevent the implementation of the project but which in conjunction with other impacts may prevent its implementation. These impacts will usually result in negative medium to long-term effect on the natural and / or social environment	Minor (negative) (-)
-73 to -108	A moderate negative impact may prevent the implementation of the project. These impacts would be considered as constituting a major and usually a long-term change to the (natural and / or social) environment and result in severe changes.	Moderate (negative) (-)
-109 to -147	A major negative impact may be sufficient by itself to prevent implementation of the project. The impact may result in permanent change. Very often these impacts are immitigable and usually result in very severe effects. The impacts are likely to be irreversible and/or irreplaceable.	Major (negative) (-)

11 Preliminary Identification of Impacts, Risks and Mitigation Measures

An impact can be defined as any change in the physical-chemical, biological, cultural and/or socio-economic environmental system that can be attributed to human activities related to alternatives under study for meeting a project need. An impact can be positive or negative, and the same activity can lead to impacts that are perceived as positive by certain stakeholder groups, and negative by others.

Significance of an impact can be reduced (if the impact is negative) by the implementation of management or mitigation measures. This is achieved through the following:

- Identify alternatives that could lead to the avoidance of the impact occurring at all;
- Implement measures to reduce the likelihood of an impact occurring by ensuring effective management; or
- Implement procedures that will ensure timely and effective corrective measures in the event of an impact occurring.

Management and Mitigation Measures can also be prescribed to enhance positive impacts by maximizing their occurrence or maximizing their positive effect.

A detailed impact assessment will be undertaken during the EIA Phase. The significance of an impact ultimately determines the level of mitigation required to reduce the impact significance to acceptable levels. The EMP that will be compiled as part of the EIA Phase will include detailed mitigation measures to address each identified impact.

Table 11-1 provides a preliminary identification of activities the proposed projects will be associated with, the potential impacts of those activities, and associated possible mitigation and management measures.

In accordance with the EIA Regulations stipulating the contents of a Scoping Report, this Table identifies the following:

- The impacts and risks associated with various aspects of the proposed development, including the nature, significance, consequence, extent, duration and probability of such identified impacts;
- The degree to which these impacts can be reversed (by mitigation or lapse of time), may cause irreplaceable loss of resources and can be avoided, managed or mitigated;
- The positive and negative nature of impacts that the proposed activity will have on the environment and on the community that may be affected focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects; and
- Possible mitigation measures that could be applied and level of residual risk.

Table 11-1: Preliminary Impacts and Mitigation Measures

No	Activity	Aspect	Impact / Risks	Phase	Probability	Duration	Scale / Extent	Magnitude	Nature of Impact	Significance		Mitigation Type (can the impact be reversed, avoided, managed or mitigated?)	Residual Risk
1	Construction	Air Quality	Particulate matter and gaseous emissions	Construction	Probable	Medium Term	Project site	Low	Negative	-27	Negligible negative	Due to the small number of vehicles in the fleet and their operating hours (i.e. employed intermittently), anticipated emissions are not expected to significantly increase pollutants load in the atmosphere.	Low
2	Construction	Noise	Noise generation	Construction	Likely	Medium Term	Project site	Low	Negative	-55	Minor Negative	Noise suppression mechanisms must be put in place for construction machinery and vehicles. Environmental noise monitoring to establish compliance with the regulations and to verify the predicted noise levels.	Medium
3	Site clearance	Flora	Loss of flora	Construction	Likely	Medium Term	Project site	Moderate	Negative	-77	Moderate Negative	Construction activities should be restricted to the footprint area, all workers to be trained before construction starts	Low
4	Construction	Fauna	Disturbance of Fauna	Construction	Likely	Medium Term	Project site	Moderate	Negative	-84	Moderate Negative	No unnecessary disturbance of animals, worker education to include littering and poaching topics. No domestic animals allowed on site. No disturbance to snakes, reptiles etc. allowed.	Low
5	Site clearance and presence of developments	Fauna	Restriction of Faunal movement	Construction	Almost Certain	Long term	Project site	Moderate	Negative	-84	Moderate Negative	Provision must be made where possible to allow for fauna movement	Low
6	Presence of development	Biodiversity	Reduced ecological functioning	Operation	Likely	Medium Term	Project site	Moderate	Negative	-45	Minor Negative	Monitor alien invasive species encroachment and control	Low
7	Construction	Biodiversity	Habitat disturbance due to pollution and littering	Construction	Likely	Medium Term	Project site	Moderate	Negative	-45	Minor Negative	Promote good housekeeping, environmental awareness training, no fires allowed on site. Provide bins.	Low
8	Construction	Wetlands	Destruction of Wetland Habitat	Construction	Definite	Long Term	Site and Surrounds	Moderate-High	Negative	-84	Moderate Negative	Set Buffer Zone. Wetland Rehabilitation. Alien invasive management	Medium
9	Construction	Wetlands	Altered hydrological flow of wetland	Operation	Almost Certain	Long Term	Isolated	High	Negative	-66	Minor Negative	Buffer zone and appropriate design of stormwater systems must be established and implemented.	Low

No	Activity	Aspect	Impact / Risks	Phase	Probability	Duration	Scale / Extent	Magnitude	Nature of Impact	Significance		Mitigation Type (can the impact be reversed, avoided, managed or mitigated?)	Residual Risk
10	Construction	Wetlands	Erosion and siltation	Construction	Almost Certain	Long Term	Project site	High	Negative	-72	Minor Negative	No workers or vehicles allowed in buffer zone. Erosion protection measures	Low
11	Hazardous chemicals on site during construction	Surface water, groundwater & wetlands	Contamination due to spills or poor waste management practices	Construction	Probable	Project Life	Project site	Moderate	Negative	-44	Minor Negative	Implement waste management plan. Prohibit and prevent dumping in or near water courses	Low
12	Additional impermeable surfaces	Surface water & wetlands	Increased runoff, erosion and altered runoff patterns	Construction	Likely	Project Life	Local	Moderate	Negative	-60	Minor Negative	Implement erosion prevention s and stormwater management measures	Low
13	Presence of the Development	Groundwater	Reduction in Recharge	Construction	Likely	Project Life	Project site	Low-Moderate	Negative	-50	Minor Negative	No mitigation possible or necessary, but water levels should be monitored. Reduced recharge due to increased impermeable surfaces may be compensated	Low
14	Site Clearance & construction activities	Soil	Erosion, compaction, loss of topsoil	Construction	Likely	Medium Term	Isolated	High	Negative	-55	Minor Negative	Strip topsoil and subsoil separately. Prevent erosion and contamination.	Medium
15	Storage of hazardous chemicals and fuel on site	Soil	Contamination due to spills	Construction	Likely	Medium Term	Project site	High	Negative	-55	Minor Negative	Maintain and service construction vehicles off-site at designated facilities or use drip trays for emergencies on site. Spill kits must be available. Appropriate storage facilities to be used	Low
16	Construction	Heritage Resources	Damage to Heritage Resources near the development sites	Construction	Unlikely	Permanent	Isolated	Very High	Negative	-45	Minor Negative	Worker education, demarcation of sites	Low
17	Construction	Palaeontology	Destruction of fossils	Construction	Rare/Improbable	Permanent	Isolated	High	Negative	-28	Negligible negative	Worker education, demarcation of sites	Low
18	Construction	Socio-Economic Environment	Creation of temporary job opportunities	Construction	Almost Certain	Medium Term	Municipal	Moderate	Positive	66	Minor Positive	Ensure procurement practices focus on local employment and local skills development	Low

No	Activity	Aspect	Impact / Risks	Phase	Probability	Duration	Scale / Extent	Magnitude	Nature of Impact	Significance		Mitigation Type (can the impact be reversed, avoided, managed or mitigated?)	Residual Risk
19	Construction	Socio-Economic Environment	Additional job opportunities from the developments	Construction	Almost Certain	Medium Term	Municipal	Moderate-High	Positive	72	Minor Positive	Ensure procurement practices focus on local employment and local skills development	Low
20	Presence of the Development	Socio-Economic Environment	Additional Business Sales	Operation	Almost Certain	Long Term	National	Moderate-High	Positive	84	Moderate Positive	Ensure infrastructures are maintained and promoted to attract consumers to the resort	Low
21	Presence of the Development	Socio-Economic Environment	Additional GDP	Operation	Almost Certain	Long Term	Municipal	Moderate	Positive	78	Moderate Positive	Ensure infrastructures are maintained and promoted to attract consumers to the resort	Low
22	Construction & presence of development	Visual	Visual intrusion for nearby receptors	Construction & Operation	Likely	Permanent	Local	Moderate	Negative	-60	Minor Negative	Vegetation should only be removed when and where necessary. Visual barriers must be established where possible.	Low
23	Construction and presence of the development	Traffic	Increased traffic on surrounding road network (safety, damage to infrastructure)	Construction &Operation	Definite	Permanent	Municipal	Moderate-High	Negative	-98	Moderate Negative	Ensure required road upgrades are implemented. Safety signage. Municipal responsibility for maintenance & upgrades as required.	Low

12 Concluding Statement

Sun International is proposing various developments at the Sun City Resort which will be carried out over a ten to fifteen year period. These developments span across expansion, utilities and services as well as maintenance projects with the overarching aim to expand the capacity of the resort and enhance guest experience. Based on the investigations undertaken in relation to relevant provincial and national objectives and development policies it is believed that this project will expand the tourism node of the area and provide for additional tourism related capacity and recreational activities. All planned developments are to take place within the existing Sun City Resort footprint, some of which comprises of undeveloped areas.

This Scoping Report has been compiled as part of the application for EA for listed activities in terms of NEMA. The impacts of Activities that are Listed in terms of the NEMA EIA Regulations must be investigated prior to those activities being undertaken. The Scoping Phase aims to provide the context of the proposed development, preliminary baseline information and potential impacts, as well as the proposed Plan of Study for the EIA Phase of the application.

Based on the preliminary investigation of potential impacts the key potential negative impacts associated with the project include vegetation loss as a result of site clearance, disturbance of fauna species and increased traffic on the surrounding road network which has been found to already be insufficient.

It is also noted that the Sun City Complex is bounded by a protected area of ecological importance, the Pilanesburg Nature Reserve. These impacts will be quantified during the EIA Phase prior to and post the implementation of mitigation measures. On the other hand, the proposed projects have potential for various positive impacts including additional business opportunities and contributing towards National and Provincial development of the tourism sector.

Various specialist studies which aim to provide a comprehensive understanding of the baseline conditions / limitations of the site, potential impacts that could arise and identify mitigation / enhancement measures will be included in the EIA report. Further to this, a stakeholder engagement process forms part of the process where public concerns and gaps will be revealed and addressed as far as possible and also to allow for informed decision-making.

13 Plan of Study for undertaking the EIA

This Scoping Report highlights potential impacts that should be further investigated during the EIA Phase. The EIA process will be undertaken in line with this plan of study for environmental impact assessment (if approved as part of the Scoping Report approval by READ).

The purpose of this Plan of Study is to explain the approach that will be followed in undertaking the EIA and EMP Compilation. Appendix 2 of the EIA Regulations, Section 2(1)(h) prescribes the required contents of the Plan of Study as follows:

(h) a plan of study for undertaking the environmental impact assessment process to be undertaken, including−

i. a description of the alternatives to be considered and assessed within the preferred site, including the option of not proceeding with the activity;
ii. a description of the aspects to be assessed as part of the environmental impact assessment process;
iii. aspects to be assessed by specialists;
iv. a description of the proposed method of assessing the environmental aspects, including aspects to be assessed by specialists;
v. a description of the proposed method of assessing duration and significance;
vi. an indication of the stages at which the competent authority will be consulted;
vii. particulars of the public participation process that will be conducted during the environmental impact assessment process;
viii. a description of the tasks that will be undertaken as part of the environmental impact assessment process; and
ix. identify suitable measures to avoid, reverse, mitigate or manage identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

Table 13-1: Plan of Study for EIA

Requirement	Response
Alternatives to be assessed in the EIA Phase.	The EIA will include further detailed assessment of site layout alternatives. This will specifically refer to proposed Resort Expansion Projects and potential alternative locations for REP1, REP3, REP4, REP 6 and REP7, as well as alternative locations for the establishment of USP2, USP3, USP5 and USP7. The EIA will further include detailed assessment of the “no-go” alternative.

Requirement	Response
Aspects to be assessed as part of the EIA.	The potential impacts of the preferred alternative will be assessed in the EIA phase in terms of the following aspects: ▪ Soils, Land Use and Agricultural Potential; ▪ Air Quality; ▪ Noise; ▪ Surface Water; ▪ Groundwater; ▪ Fauna and Flora; ▪ Aquatic Ecology; ▪ Wetlands; ▪ Heritage and Palaeontological resources; ▪ Visual Impacts; and ▪ The social and economic environment.
Aspects to be assessed by specialists in the EIA Phase	Specialist studies for the aspects to be assessed as part of the EIA provided above will all be completed and detailed reports will be appended to the EIA.
Method of Assessing Impacts (including duration and significance)	Please refer to Section 10 of this Report for the proposed Impact Assessment Methodology.
an indication of the stages at which the competent authority will be consulted;	North West READ will be / has been consulted as follows: ▪ Provided a copy of the EA application and Draft Scoping Report by 12 July 2018; ▪ Submit copy of Final Scoping Report for consideration. ▪ Provided a copy of the Draft EIA Report for comment; and ▪ Submit a copy of the Final EIA Report for consideration
Public Participation	An I&AP database has been compiled from current research and the previous EIA Process (landfill site decommissioning project). I&APs were invited to comment on the Draft Scoping Report for a 30 day period. Comments received were captured and in a CRR and included in this Final Scoping Report. Similar to this scoping phase, I&APs will also be provided an opportunity to comment on the Draft EIA Report in due course. It is further proposed that a Public Meeting be held during the Scoping and EIA Phases to ensure effective communication with stakeholders.

13.1 Proposed Content of the EIA and EMP Report

The EIA and EMP to be compiled during the EIA Phase will be in accordance with Appendix 3 and 4 of the EIA Regulations. These are outlined in summary below:

13.1.1 Content of the EIA Report

The EIA report will contain the information that is necessary for the competent authority to consider and come to a decision on the application, and will include the following:

- Details of the EAP who prepared the report, including the expertise of the EAP and the EAP's CV (same as Section 2 of this Report);
- The location of the development footprint of the activity on the site as contemplated in the accepted scoping report, including:
  - The 21 digit Surveyor General code of each cadastral land parcel;
  - The physical address and farm name; and
  - The coordinates of the boundary of the properties (same as Section 3 of this Report)
- A plan which locates the proposed activity applied for as well as the associated structures and infrastructure at an appropriate scale,
- A description of the scope of the proposed activity (same as Section 4 of this Report);
- A description of the policy and legislative context relevant to the proposed development (same as Section 5 of this Report, to be expanded)
- A motivation for the need and desirability for the proposed development, and the preferred development footprint within the preferred site (same as Section 6 of this Report, to be expanded);
- A full description of the process followed to reach the proposed development footprint within the approved site as contemplated in the accepted scoping report;
- The impacts and risks identified (as well as the Methodology for assessing impacts) including the nature, significance, consequence, extent, duration and probability of the impacts;
- Possible mitigation measures that could be applied and level of residual risk;
- A concluding statement (Environmental Impact Statement);
- Summary of Specialist Findings and Recommendations;
- Details of the Public Participation Process, comments received from I&APs and responses to the comments;

13.1.2 Content of the EMP

The EMP will comply with section 24N of the NEMA and include the following:

- Details of the EAP who prepared the EMP and the expertise of that EAP to prepare an EMP, including a CV (same as Section 2 of this Report);

- A detailed description of the aspects of the activity that are covered by the EMP as identified by the project description;
- A map at an appropriate scale which superimposes the proposed activity, its associated structures, and infrastructure on the environmental sensitivities of the preferred site;
- A description of the impact management outcomes, including management statements, identifying the impacts and risks that need to be avoided, managed and mitigated as identified through the environmental impact assessment process for all phases of the development;
- A description of proposed impact management actions, identifying the manner in which the impact management outcomes will be achieved;
- Methods of monitoring the implementation of the impact management actions, including the frequency of monitoring, time periods and responsible persons;
- A description of reporting requirements relevant to the development; and
- An environmental awareness plan.

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Appendix A: Maps and Plans

Plan 1: Regional Locality

Plan 2: Local Setting

Plan 3: Land Tenure

Plan 4: Infrastructure (Proposed Projects)

Plan 5: Regional Geology

Plan 6: Topological Model

Plan 7: Land Type

Plan 8: Land Capability

Plan 9: Land Use

Plan 10: Noise Monitoring Locations

Plan 11: Hydrological Setting

Plan 12: Surface Water Sampling Locations

Plan 13: Groundwater Hydrocensus Locations

Plan 14: Aquatic Sampling Locations

Plan 15: Vegetation Types

Plan 16: Biodiversity Sensitivity

Plan 17: Wetland Delineation and Buffer Zones

Plan 18: Wetland Sensitivity

Plan 19: Identified Heritage Resources

Plan 20: Socio-economic Primary and Secondary Study Areas

Appendix B: Public Participation

Appendix C: CV of the EAP