

GREEN DOOR environmental

FINAL BASIC ASSESSMENT REPORT:

The Proposed Phase 2 Expansion of the Existing Intaba Ridge Private Game Estate on Erf 115, Almond Bank, Bisley Valley, Msunduzi Local and uMgungundlovu District Municipality, KwaZulu-Natal

Ref Number: DC22/0016/2018

PREPARED FOR: INTABA RIDGE DEVELOPMENTS (PTY) LTD

DATE: 17 AUGUST 2018



Residential
Commercial
Industrial
Agriculture
Linear

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Date of review: 14 August 2018
**Professional Affiliations
and Qualifications:** EAPSA, IAIA, IWMSA
PHD

Declaration of Independence by the EAP

I, Phillipa Harrison, declare that –

General declaration:

- I will comply with the requirements for EAPs as stipulated in Regulation 13(1) of the EIA Regulations, 2014 (amended 2017);
- I act as the independent environmental practitioner in this application
- I will perform the work relating to the application in an objective manner, even if this results in views and findings that are not favourable to the applicant
- I declare that there are no circumstances that may compromise my objectivity in performing such work;
- I have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- I will comply with the Act, regulations and all other applicable legislation;
- I have no, and will not engage in, conflicting interests in the undertaking of the activity;
- I undertake to disclose to the applicant and the competent authority all material information in my possession that reasonably has or may have the potential of influencing - any decision to be taken with respect to the application by the competent authority; and - the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority;
- I will ensure that information containing all relevant facts in respect of the application is distributed or made available to interested and affected parties and the public and that participation by interested and affected parties is facilitated in such a manner that all interested and affected parties will be provided with a reasonable opportunity to participate and to provide comments on documents that are produced to support the application;
- I will ensure that the comments of all interested and affected parties are considered and recorded in reports that are submitted to the competent authority in respect of the application, provided that comments that are made by interested and affected parties in respect of a final report that will be submitted to the competent authority may be attached to the report without further amendment to the report;
- I will keep a register of all interested and affected parties that participated in a public participation process; and
- I will provide the competent authority with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not
- all the particulars furnished by me in this form are true and correct;
- will perform all other obligations as expected from an environmental assessment practitioner in terms of the Regulations; and
- I am aware that a person is guilty of an offence in terms of Regulation 48 (1) of the EIA Regulations, 2014 (amended 2017), if that person provides incorrect or misleading information. A person who is convicted of an offence in terms of sub-regulation 48(1) (a)-(e) is liable to the penalties as contemplated in section 49B(1) of the National Environmental Management Act, 1998 (Act 107 of 1998).

Disclosure of Vested Interest

- I do not have and will not have any vested interest (either business, financial, personal or other) in the proposed activity proceeding other than remuneration for work performed in terms of the Environmental Impact Assessment Regulations, 2014 (amended 2017).



Signature of the environmental assessment practitioner:

Green Door Environmental

Name of company:

14 August 2018

Date:

EXECUTIVE SUMMARY

The Applicant, Intaba Ridge Developments (Pty) Ltd has proposed the expansion (Phase 2) of the existing Intaba Ridge Private Game Estate located on Erf 115 Almond Bank in the Bisley Valley area of Pietermaritzburg, Msunduzi Local and uMgungundlovu District Municipalities of KwaZulu-Natal. Please note that in all documentation to date the Applicant has been Sign Power Investments 8 (Pty) Ltd, however the Applicant has informed us that Intaba Ridge Developments (Pty) Ltd is now the Applying entity.

Intaba Ridge Private Game Estate is located at GPS Coordinates 29°41'36.22"S and 30°23'32.83"E within the Bisley Valley area of Pietermaritzburg. The property is approximately 278ha in extent and has historically been used for agricultural production, prior to Phase 1 being developed.

The site currently comprises 59.6ha of primary grassland, 16.7ha of wetland, 1.1ha of indigenous woodland, 8.3ha of alien woodland and 192.6ha of transformed land. There are six wetland systems (seepage wetlands) located on and within a 500m radius of the Intaba Ridge Estate property. Four Riparian B-Section Channels are also located on the site. The Mpushini River is located approximately 0.6km south of the site. A system of small farm dams have been established on these seep wetlands to historically provide water for agricultural activities.

The property is surrounded by agricultural properties and small game farms, and the Bisley Valley Nature Reserve to the north. The property bounds the Richmond Road (P5-4) at its very south western. The main access road to the estate runs through the Bisley Valley Nature Reserve.

The Intaba Ridge Private Game Estate development comprises two separate phases, namely Phase 1 and Phase 2. Phase 1 of the development received environmental authorisation on the 16th March 2007 (Ref EIA 7161). The following infrastructure was approved under Phase 1 of the Intaba Ridge development:

- 100 residential houses;
- 2 residential subdivisions for the existing houses on the property;
- 2 subdivisions for a clubhouse and office;
- A new subdivision for the remainder of the property which is to be common property of the Homeowner's Association;
- Communal facilities including stables, estate office, convenience centre and clubhouse; and
- Associated infrastructure including internal roads, water and electricity reticulation, and sewage disposal.

The Applicant, Intaba Ridge Developments (Pty) Ltd, now wishes to further expand the existing Intaba Ridge Private Game Estate through Phase 2 of the development to include the following additional infrastructure:

- 52 residential freehold sites;
- A 100 unit low impact Sectional Title Village (A lifestyle retirement village for over 50's);

- A package plant (sewage treatment plant); and
- A 250KI reservoir.

In addition, the proposed Phase 2 expansion will also include the upgrading of existing infrastructure as follows:

- Upgrade and surfacing of all internal roads in the estate;
- Upgrade of the estate security infrastructure; and
- Upgrade of communal facilities and the clubhouse.

The Phase 2 development footprint comprises a total area of 20.5ha in extent and is located on previously cultivated land. Of this area, about 14.5ha meets the definition of indigenous vegetation, i.e. it has reverted back to a secondary grassland with a mix of indigenous species. The remaining areas comprise Kikuyu pastures that are frequently mowed and can be considered as still transformed and would therefore not be regarded as indigenous vegetation. Therefore less than 20ha of indigenous vegetation will be cleared for the proposed Phase 2 development.

The proposed Phase 2 infrastructure is proposed to be incorporated into the existing freehold sites where possible and 85% (approximately 230ha) of the property will remain undeveloped open space. The proposed package plant will be situated in a lower lying, less visible area of the property near the main entrance gatehouse. The proposed expansion is therefore not considered to deviate from the development concept as historically approved. The key difference is an increase in net density of residential units on the property.

In terms of the National Environmental Management Act (NEMA) (107 of 1998) and the Environmental Impact Assessment (EIA) Regulations 2014 (amended 2017), published in Government Notices No. R. 327, 325 and 324 of 2017 (GNR 983, 984 and 985 of 2014) and Section 21 of the National Water Act (36 of 1998), the proposed development requires a Basic Assessment process and Water Use License Application to be conducted.

The main issues raised to date during the public participation process for the project are:

- Impact of the package plant including impacts on downstream water users;
- Impacts on fauna and flora, including impacts to wildlife movement on the estate;
- Increased traffic and traffic related impacts on fauna in the Bisley Valley Nature Reserve;
- Increased security risks;
- Water related impacts including decreased water pressure and impacts on the water table levels;
- Increased pollution, dust, noise and litter; and
- Need and desirability of the proposed development (as there are still unsold plots in Phase 1).

The following Specialist Studies have been undertaken as part of the Basic Assessment process for the proposed Phase 2 expansion:

- Biodiversity Assessment including both a floral and faunal study;
- Geotechnical Assessment;
- Geohydrological Assessment;
- Traffic Impact Studies;
- Wetland Assessment;
- Aquatic Assessment;
- Heritage Impact Assessment;
- Need and Desirability Statement; and
- Bulk and Internal Services Study.

The Environmental Assessment Practitioner (EAP) concludes that no fatal-flaws have been identified during the Basic Assessment Process, and, provided the Environmental Management Programme (EMPr) and recommendations made in this report are **strictly adhered to**, there should be no significant, detrimental impacts on the environment.

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1. PROJECT & ACTIVITY DESCRIPTION

1.1 PROJECT TITLE

The Proposed Phase 2 expansion of the existing Intaba Ridge Private Game Estate located on Erf 115 Almond Bank, Bisley Valley, Msunduzi Local and uMgungundlovu District Municipality, KwaZulu-Natal.

1.2 LISTED ACTIVITIES

All the listed activities that make up this application are listed below:

GNR 327 and 324 - Basic Assessment Process:		
Listed Activity	Activity Description	Applicability
GNR 327 of 2017 (GNR 983 of 2014) - Part 19	<i>"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; but excluding where such infilling, depositing, dredging, excavation, removal or moving – (a) will occur behind a development setback; (b) is for maintenance purposes undertaken in accordance with a maintenance management plan; (c) falls within the ambit of activity 21 in this Notice, in which case that activity applies; (d) occurs within existing ports or harbours that will not increase the development footprint of the port or harbour; or (e) where such development is related to the development of a port or harbour, in which case activity 26 in Listing Notice 2 of 2014 applies".</i>	Applicable to a number of activities that will be undertaken as part of the Phase 2 expansion. These include the rehabilitation of historic on-site farm dams that are no longer in use, construction of the on-site waste water treatment plant (package plant – release point infrastructure), and construction of stormwater management infrastructure.
GNR 327 of 2017 (GNR 983 of 2014) - Part 27	<i>"The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for – (i) the undertaking of a linear activity; or (ii) maintenance purposes undertaken in accordance with a maintenance management plan".</i>	Applicable as the Phase 2 development footprint comprises a total area of 20.5ha in extent and is located on old cultivated land. Of this area, about 14.5ha meets the definition of indigenous vegetation, i.e. has reverted back to a secondary grassland with a mix of indigenous species. The remaining areas comprise Kikuyu pastures that are frequently mowed and can be considered as still transformed and would therefore not be regarded as indigenous vegetation. Therefore more than 1ha but less than 20ha of indigenous vegetation will be cleared for the proposed Phase 2 development.
GNR 327 of 2017 (GNR 983 of 2014) – Part	<i>"Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian</i>	The Phase 2 residential development footprint comprises a total area of

28	<p><i>purposes or afforestation on or after 01 April 1998 and where such development:</i></p> <p><i>(ii) will occur outside an urban area, where the total land to be developed is bigger than 1 hectare; excluding where such land has already been developed for residential, mixed, retail, commercial, industrial or institutional purposes.”</i></p>	<p>20.5ha in extent and is located on previously cultivated land. Of this area, about 14.5ha meets the definition of indigenous vegetation, i.e. has reverted back to a secondary grassland with a mix of indigenous species. The remaining areas comprise Kikuyu pastures that are frequently mowed and have been used for agriculture on or after 01 April 1998. Therefore more than 1ha of previously cultivated land will be used for the residential development.</p>
<p>GNR 324 of 2017 (GNR 985 of 2014) - Part 4</p>	<p><i>“The development of a road wider than 4 metres with a reserve less than 13.5 metres.</i></p> <p><i>d. KwaZulu-Natal</i></p> <p><i>(viii) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p> <p><i>(xi) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority”</i></p>	<p>Applicable as the proposed Phase 2 expansion will require the construction of additional roads to link the existing road network to the new residential erven. Portions of the development site comprise Dry Coast Hinterland Grassland which has an irreplaceability rating of 1 (totally irreplaceable) according to the Msunduzi Municipal C-Plan. In addition, the Msunduzi EMF has identified parts of the site as sensitive in terms of high wetland development constraints, high biodiversity constraints, high flood potential, high agricultural potential and high water quality constraints.</p>
<p>GNR 324 of 2017 (GNR 985 of 2014) - Part 12</p>	<p><i>“The clearance of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</i></p> <p><i>d. KwaZulu-Natal</i></p> <p><i>(iv) Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</i></p> <p><i>(v) Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p> <p><i>(xii) Sensitive areas as identified in an environmental management framework as</i></p>	<p>Applicable as the proposed Phase 2 expansion will require the clearance of more than 300 square meters of indigenous vegetation. Portions of the development site comprise Dry Coast Hinterland Grassland which has an irreplaceability rating of 1 (totally irreplaceable) according to the Msunduzi Municipal C-Plan. In addition, the Msunduzi EMF has identified parts of the site as sensitive in terms of high wetland development</p>

	<i>contemplated in chapter 5 of the Act and as adopted by the competent authority..."</i>	constraints, high biodiversity constraints, high flood potential, high agricultural potential and high water quality constraints.
GNR 324 of 2017 (GNR 985 of 2014) - Part 14	<p><i>"The development of –</i></p> <p><i>(ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs –</i></p> <p><i>(a) within a watercourse;</i></p> <p><i>(b) in front of a development setback; or</i></p> <p><i>(c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse;</i></p> <p><i>d. KwaZulu-Natal</i></p> <p><i>vii. Critical biodiversity areas or ecological support areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans;</i></p> <p><i>viii. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority;</i></p>	<p>Applicable as the proposed Phase 2 expansion will require the development of infrastructure with a physical footprint of more than 10 square meters within 32 meters of a watercourse. Portions of the development site comprise Dry Coast Hinterland Grassland which has an irreplaceability rating of 1 (totally irreplaceable) according to the Msunduzi Municipal C-Plan. In addition, the Msunduzi EMF has identified parts of the site as sensitive in terms of high wetland development constraints, high biodiversity constraints, high flood potential, high agricultural potential and high water quality constraints.</p>

The Application form for this project is included in Appendix A.

1.3 LIST OF LEGISLATION, POLICIES AND/OR GUIDELINES THAT ARE RELEVANT TO THE APPLICATION

Title of legislation, policy or guideline:	Administering authority:	Date:
uMgungundlovu District Municipality's Integrated Development Plan (IDP) - Draft	uMgungundlovu District Municipality	2018
Msunduzi Municipality Revised Integrated Development Plan	Msunduzi Local Municipality	2018 - 2019
Msunduzi Environmental Management Framework (EMF)	Msunduzi Local Municipality	2010
uMgungundlovu District Municipality Draft Environmental Management Framework (EMF)	uMgungundlovu District Municipality	2017
Msunduzi Municipality Environmental Services Plan (ESP)	Msunduzi Local Municipality	2010
Msunduzi Municipality Conservation Plan (C-Plan)	Msunduzi Local Municipality	2010
Msunduzi Municipality Spatial Development Framework (SDF)	Msunduzi Local Municipality	2009
Climate Change Policy for Msunduzi Municipality	Msunduzi Local Municipality	2014
Msunduzi Municipality Draft Spatial Planning of Land Use Management By-Law (Draft SPLUMA By-Laws)	Msunduzi Local Municipality	2016

Msunduzi Municipality Integrated Environmental Management Policy (IEMP)	Msunduzi Local Municipality	2007
Strategic Environmental Assessment (SEA) of the Mkhondeni Stream Catchment Area	Msunduzi Local Municipality	2009
Spatial Planning and Land Use Management Act (SPLUMA)	Msunduzi Local Municipality	2013
KwaZulu-Natal Planning and Development Act (PDA)	Msunduzi Local Municipality	2008
KZN Terrestrial Systematic Conservation Plan	SANBI	2010
National Environmental Management Act (NEMA)	DEA	1998
Environmental Impact Assessment Regulations, section 24(5) and 44 of the National Environmental Management Act, 1998	DEA	2014 (amended 2017)
Integrated Environmental Management Guideline Series: Companion to the EIA Regulations 2010 and Public Participation 2010.	DEA	2010
The National Water Act (NWA), 1998 (36 of 1998)	DWS	1998
National Water Act Regulations, 1999	DWS	1999
The National Heritage Resources Act, 1999	SAHRA	1999
KwaZulu Natal Heritage Resources Act 10 of 1997	SAHRA	1997
The Constitution of South Africa 108 of 1996	DOJCD	1996
National Roads Act 83 of 1996	DOT	1998
Water Services Act 108 of 1997	DWS	1997
EIA Guideline and Information Document Series. Western Cape Department of Environmental Affairs & Development Planning: Guideline on Alternatives,	DEA&DP	2011
EIA Guideline and Information Document Series. Western Cape Department of Environmental Affairs & Development Planning: Guideline on Public Participation.	DEA&DP	2011
EIA Guideline and Information Document Series. Western Cape Department of Environmental Affairs & Development Planning: Guideline on Need and Desirability.	DEA&DP	2011
EIA Guideline and Information Document Series. Western Cape Department of Environmental Affairs & Development Planning: Guideline on Generic Terms of Reference for EAPs and Project Schedules.	DEA&DP	2011
Guideline on Need and Desirability, Integrated Environmental Management Guideline Series 9, Department of Environmental Affairs (DEA), Pretoria, South Africa	DEA	2014
Department of Environmental Affairs (2017) Public Participation Guideline in terms of NEMA EIA Regulations.	DEA	2017

1.4 SG 21 DIGIT CODE(S) OF THE PROPERTIES

N	0	F	T	0	7	2	8	0	0	0	0	0	1	1	5	0	0	0	0
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1.5 PHYSICAL ADDRESS & FARM NAME

Address	Intaba Ridge Private Game Estate, Bisley Valley
Farm Name	Erf 115 Almond Bank, Bisley Valley
Town	Bisley Valley, Pietermaritzburg
Postal Code	3200

1.6 COORDINATES OF THE BOUNDARY OF THE PROPERTY

Corner/Position	Latitude (S)	Longitude (E)
Point 1	29°40'40.83"S	30°23'47.93"E
Point 2	29°41'57.34"S	30°24'29.19"E
Point 3	29°42'2.03"S	30°23'13.96"E
Point 4	29°41'51.38"S	30°22'55.33"E

1.7 DETAILED PROJECT DESCRIPTION OF THE ACTIVITIES TO BE UNDERTAKEN

The Applicant, Intaba Ridge Developments (Pty) Ltd, wishes to apply for Environmental Authorisation for the development of Phase 2 of the existing Intaba Ridge Private Game Estate located on Erf 115 Almond Bank in the Bisley Valley area of Pietermaritzburg, Msunduzi Local and uMgungundlovu District Municipality, KwaZulu-Natal. Please note that in all documentation to date the Applicant has been Sign Power Investments 8 (Pty) Ltd, however the Applicant has informed us that Intaba Ridge Developments (Pty) Ltd is now the Applying entity.

Development Property

The proposed development property, Erf 115 Almond Bank is approximately 278ha in extent and is located to the south of Pietermaritzburg in the Upper Mpushini Conservancy. The property is under the ownership of the Intaba Ridge Home Owners' Association and is zoned Special Area Y Zone and includes the following permitted land uses:

- Agricultural Building
- Agricultural Land
- Dwelling
- Outbuilding
- Restaurant
- Shop
- Social Hall
- Specialised Office
- Home Activity (permitted by special consent)
- Home Business (permitted by special consent)

The property was historically used for agriculture in the form of dairy farming and currently comprises a mix of residential, historic agricultural and conservation areas. Existing infrastructure on the site includes small farm dams, sheds, cultivated fields and pastures, a 70ha grassland conservation area including wildlife, and residential infrastructure associated with Phase 1 of the estate.

The site currently comprises 59.6ha of primary grassland, 16.7ha of wetland, 1.1ha of indigenous woodland, 8.3ha of alien woodland and 192.6ha of transformed land. There is also an existing system of ecological corridors on the site which were established during Phase 1 of the development, to ensure species movement through the property, linking with adjoining areas. There are six wetland systems (seepage wetlands) located on and within a 500m radius of the Intaba Ridge Estate property. Four Riparian B-Section Channels are also located on the site. The Mpushini River is located approximately 0.6km south of the site. A system of small farm dams have been established on these seep wetlands to historically provide water for agricultural activities.

Portions of the development site comprise Dry Coast Hinterland Grassland which has an irreplaceability rating of 1 (totally irreplaceable) according to the Msunduzi Municipal Conservation Plan (C-Plan). In

addition, the Msunduzi Environmental Framework (EMF) has identified parts of the site as sensitive in terms of high wetland development constraints, high biodiversity constraints, high flood potential and high water quality constraints. However, the existing and proposed new residential footprint is not located within the above-mentioned sensitive areas, occurring on transformed land which has low conservation value. The Mkhondeni Catchment Strategic Environmental Assessment (SEA) indicates that Erf 115 Almond Bank comprises a combination of Normal Urban Development, Conservation with Development, and Open Space areas in terms of land use planning for the Mkhondeni Catchment, with the majority of the site comprising Conservation with Development areas. Conservation with Development areas are areas where there is limited development, focussed on eco-estate and eco-tourism types of developments.

The Phase 2 development footprint comprises a total area of 20.5ha in extent and is located on previously cultivated land. Of this area, about 14.5ha meets the definition of indigenous vegetation, i.e. has reverted back to a secondary grassland with a mix of indigenous species. The remaining areas comprise Kikuyu pastures that are frequently mowed and can be considered as still transformed and would therefore not be regarded as indigenous vegetation. Therefore less than 20ha of indigenous vegetation will be cleared for the proposed Phase 2 development.

The property is surrounded by agricultural properties and small game farms, and the Bisley Valley Nature Reserve to the north. The property bounds the Richmond Road (P5-4) at its very south western corner. The main access road to the estate comprises the Bisley Road (P120) which runs through the Bisley Valley Nature Reserve.

Development Infrastructure

Phase 1

The development of the Intaba Ridge Estate is being undertaken in two separate phases. Phase 1 of the development was authorised on the 16th March 2007 (Ref EIA 7161) and comprises the following infrastructure:

- 100 residential houses;
- 2 residential subdivisions for the existing houses on the property;
- 2 subdivisions for a clubhouse and office;
- A new subdivision for the remainder of the property which is to be common property of the Homeowner's Association;
- Communal facilities including stables, estate office, convenience centre and clubhouse; and
- Associated infrastructure including internal roads, water and electricity reticulation, and sewage disposal.

In addition, Phase 1 of the development included the consolidation of three separate properties, Portion 2 of the Farm Lamontsvale No. 1210, Portion 1 of the Farm Leliefontein No. 1175 and Portion 5 of the Farm Leliefontein No. 1175 to form Erf 115 Almond Bank.

Phase 2

The Developer now wishes expand the Intaba Ridge Private Game Estate through the establishment of Phase 2 of the development, which includes the following additional infrastructure:

- 52 residential freehold sites (minimum size of 2 000m²);
- A 100 unit low impact Sectional Title - Lifestyle Retirement Village (100-150m²);
- A package plant (sewage treatment plant); and
- A 250Kl reservoir.

In addition, the proposed Phase 2 expansion will also include the upgrading of existing infrastructure as follows:

- Upgrade and surfacing of all internal roads in the estate;

- Upgrade of the estate fencing and security infrastructure; and
- Upgrade of communal facilities and the clubhouse.

The proposed Phase 2 infrastructure will be incorporated into the existing freehold sites where possible and 85% (approximately 230ha) of the property will remain undeveloped open space. The proposed package plant will be situated in a lower lying, less visible area of the property near the gatehouse. The proposed expansion is therefore not considered to deviate from the development concept as historically approved. The key difference is an increase in net density of residential units on the property, as the Phase 2 expansion will densify the development to 154 residential units and 100 lifestyle retirement units in total. All existing home owners at the Intaba Ridge Estate have been made aware of the proposed Phase 2 expansion since 2010, as it has been included in every sale agreement and site plan since then.

The Applicant has identified the need to expand the existing Intaba Ridge Private Game Estate in order to upgrade the non-sustainable infrastructure including the gravel roads and the security fence and also get the Homeowners Association levy budget to an affordable and sustainable level to adequately manage the 8km of roads, 250ha of open space and 8km of fenceline. In addition, the proposed development will help meet a growing need for Lifestyle Retirement Villages in KwaZulu-Natal, especially within secure gated estates and close to hospitals, schools and shopping centres. Although there are these kinds of developments on the northern parts of Pietermaritzburg, in areas like Hilton, there are none of these developments in the south of Pietermaritzburg. The proposed Intaba Ridge Phase 2 expansion project will increase the GDP for Pietermaritzburg by an estimated R786 million over 8 years and it will generate 6556 jobs.

Provision of Services

Bulk Water Supply

The Intaba Ridge Estate is currently supplied by municipal water via a 275Kl reservoir (Intaba Ridge Reservoir), from an offtake on an Umgeni Water 1200mm diameter steel pipeline that runs from Worldsvie Reservoir to Umlaas Road Reservoir. The pressure within the development is controlled by a pressure reducing valve operated by the Msunduzi Municipality on the Umgeni Water pipeline offtake. Intaba Ridge Estate is billed for water consumption by the Msunduzi Municipality via a bulk meter across the gate of the development. A uPVC pipeline of varying class and diameter acts as both a supply pipeline to the Intaba Ridge Reservoir and the same pipeline reticulates to the houses within the development.

Under normal operating conditions the existing 275Kl Intaba Ridge Reservoir is supplied by gravity from the Umgeni Water offtake if the pressure at the offtake does not drop below 150m. However, due to the recent drought conditions Umgeni Water has forced water restrictions and dropped the available pressure to all supply points in their network, dropping the incoming pressure at Intaba Ridge to a maximum of 140m. An in-line booster pump station has now been installed within the Intaba Ridge development to cater for the temporary reduction in water pressure by Umgeni due to drought.

Phase 2 Water Demand

The water demand for the Intaba Ridge Estate has been estimated as follows:

- 1000 liters per day per unit for the freehold residential units; and
- 800 liters per day per unit for the lifestyle retirement units.

Based on the above, the average daily demand for the entire Intaba Ridge Estate after the completion of the Phase 2 expansion (Phase 1 and Phase 2) is 367.5Kl per day. Confirmation has been received from Umgeni Water that there is capacity to meet the total demand of 367.5Kl/day (245 x 1.5 peak factor). Refer to Appendix K for the confirmation letter from Umgeni Water.

Reservoir Water Bulk Supply

Any development that is supplied via the Umgeni Water reticulation is required to have a minimum of 48 hours of emergency water storage to be at the disposal of the consumers in the event of an interruption of supply from their side. The existing 275KI Intaba Ridge Reservoir only has 48 hours of available storage to cater for 132 fully developed sites. Phase 1 of the development includes 102 high income residential sites. If approved, after the completion of the Phase 2 expansion, there will be a total of 154 high income freehold sites and 100 lifestyle retirement units. To accommodate the development of these additional Phase 2 units, a new 250KI reservoir is also required as part of the Phase 2 expansion.

Sewage

In line with Phase 1, all new freehold stands (which will be a minimum of 2000m²) will be serviced by means of septic tanks and soakaways. However new freehold erven 1 to 17 and the lifestyle retirement village will be serviced by a piped gravity system that drains to the proposed new wastewater package treatment plant.

The total estimated sewage discharge for the Intaba Ridge Estate after the completion of the Phase 2 expansion is 192.8KI per day, with a peak sewage flow of approximately 16.1 liters per second. The maximum flow generated by the proposed development that will lead to the package plant is 98KI per day. This will be drained under gravity to the wastewater package treatment plant which will have a proposed capacity of 125KI per day. The treated effluent will be discharged to the large dam north of the main entrance gatehouse and will then be used as irrigated water within the estate. No effluent under normal daily conditions will leave the site.

The wastewater treatment facility will be designed, commissioned and handed over by a specialist and monitored daily by a suitable individual or service provider. The discharged water will be required to meet the specifications regulating the quality of discharge water as per Government Gazette No. 20526 of 8 October 1999.

Roads

There are two existing entrances to the Intaba Ridge Estate, a main gate which is always operational and a secondary gate available specifically for residents during the day. In terms of the existing internal road infrastructure, the Main Road, Intaba Drive is surfaced while the other roads are unsurfaced. The internal road network will be upgraded as part of the Phase 2 expansion. Additional road lengths will be added for accessibility to the proposed new erven 37 to 43 sites.

Stormwater

The existing stormwater system comprises a combination of open channels which convey runoff to field inlets where it is then piped through to appropriate discharge points where it infiltrates or runoffs into existing natural watercourses and storage dams on the property.

To manage the additional stormwater runoff, the existing dam structures will be used to attenuate this additional flow to ensure that the post development runoff remains at pre Phase 2 development flows. Run-off from the roadways will be accommodated in roadside drainage situated on both sides of the road. The roadside channel will be sized to accommodate a minimum of a 1:2 year storm event.

To cater for large storm events (>1:5 year) and where the road and on-site storage facilities will not be able to handle excess flow, roadways will be provided with piped stormwater conduits with inlets designed to allow flow into the pipes when the roadside channel reaches a pre-determined capacity. Refer to Appendix K for the Stormwater Management Plan.

In addition, a site specific stormwater management plan will be compiled for each building plan submitted, to ensure that the post development runoff remains at pre Phase 2 development flows.

Electricity

The existing electrical supply to the Intaba Ridge Private Game Estate comprises a 500kVA connection supplied from Eskom reticulation, which is reticulated to the site via a new ring main unit which is currently being installed. A new revised connection is needed to cater for the Phase 2 expansion infrastructure. The new connection should be in the order of a total load of 500kVA especially in that the retirement units will require more of a constant load than normal dwellings.

The current site reticulation has two branches of supply taken from the main incoming switch supplying two separate legs on the site. The current two legs will be extended to supply new mini substations to supply power to cater for the Phase 2 development.

An application to Eskom to increase the supply is currently being undertaken.

Refer to Appendix K for a copy of the Electrical Engineering Service Report and confirmation of capacity from Eskom.

Solid Waste

Solid waste (refuse) is currently removed by the Intaba Ridge Private Game Estate staff and disposed of at the New England Municipal Landfill site. This will continue with the Phase 2 expansion.

Refer to Figures 1 and 2 for locality maps of the property and surrounding areas and Plates 1 - 4 for photographs of the site. The layout plan for the proposed Intaba Ridge Phase 2 development has been included in Appendix B.

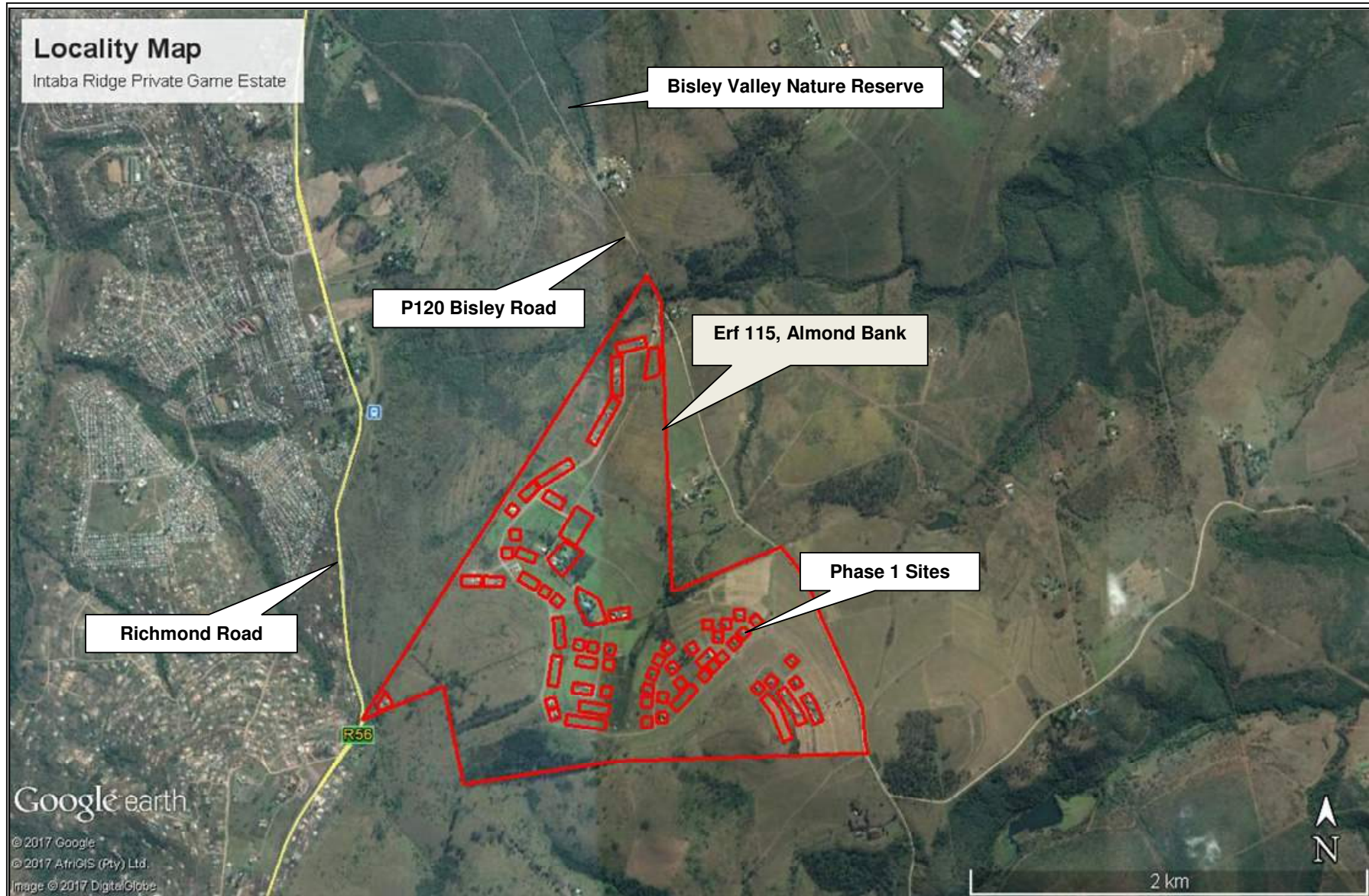


Figure 1: Locality Map of the Intaba Ridge Private Game Estate and surrounding areas (Google Earth).

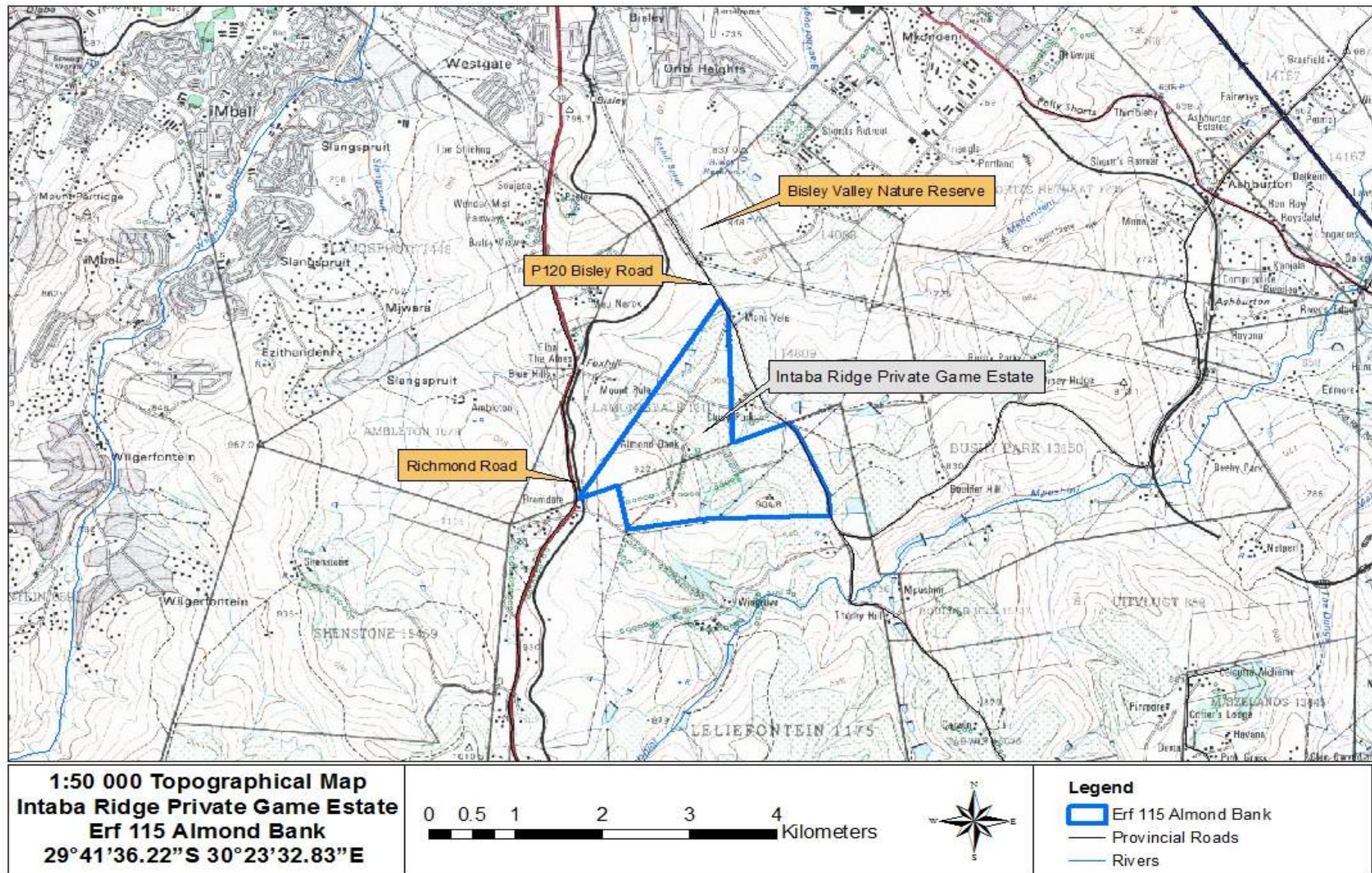


Figure 2: Topographic Map of the Intaba Ridge Private Game Estate and surrounds.

Site Photos



Plate 1: Phase 1 housing on the Intaba Ridge Private Game Estate.



Plate 2: The Intaba Ridge access road through the Bisley Valley Nature Reserve.



Plate 3: Farm dam on the Intaba Ridge Private Game Estate.



Plate 4: View of the Intaba Ridge Private Game Estate looking northwards.

2. NEED AND DESIRABILITY

Motivate and explain the need and desirability of the activity.

The following section makes use of the Western Cape Department of Environmental Affairs and Development Planning (DEA&DP) Guideline on Need and Desirability (2011) and the Department of Environmental Affairs (DEA) Pretoria, Integrated Environmental Management Guideline Series 9: Guideline on Need and Desirability (2014).

1. Is the activity permitted in terms of the property's existing land use rights?

Yes. The proposed activity comprises the Phase 2 expansion of the existing Intaba Ridge Private Game Estate on Erf 115 Almond Bank. Phase 1 of the development received environmental authorisation on the 16th March 2007 (Ref EIA 7161) and comprises residential subdivisions, communal facilities and service infrastructure. Phase 1 of the development also received approval in terms of the Development Facilitation Act (DFA) No. 67 of 1995 on 13 December 2007. The DFA approval included the consolidation of three properties, Portion 2 of the Farm Lamontsvale No. 1210, Portion 1 of the Farm Leliefontein No. 1175 and Portion 5 of the Farm Leliefontein No. 1175 to form Erf 115 Almond Bank, and the subdivision of the consolidated property into residential subdivisions for the establishment of the Intaba Ridge Estate residential development. The site is zoned Special Area Y Zone and includes the following permitted land uses:

- Agricultural Building
- Agricultural Land
- Dwelling
- Outbuilding
- Restaurant
- Shop
- Social Hall
- Specialised Office
- Home Activity (permitted by special consent)
- Home Business (permitted by special consent)

The proposed Phase 2 infrastructure will be incorporated into the existing Phase 1 residential area. 85% of the property will remain undeveloped open space. The proposed package plant will be situated in a lower lying, less visible area of the property near the gatehouse. The proposed expansion is therefore not considered to deviate from the development concept as historically approved, as Phase 2 will only result in an increase in net density of units within the existing residential area on the property. As such, the activity is permitted in terms of the property's existing land use rights and all existing home owners at the Intaba Ridge Estate have been made aware of the proposed Phase 2 expansion since 2010, as it has been included in every sale agreement and site plan since then.

2. Will the activity be in line with the Provincial Spatial Development Framework (PSDF)?

The National Spatial Development Framework (NSDF) promotes rapid economic growth that is sustained and inclusive, and is a pre-requisite for the achievement of other policy objectives, among which poverty alleviation is key. The Provincial SDF takes as its starting point this goal of sustainable development. Development is only acceptable and in the public interest if it is ecologically justifiable, socially equitable and economically viable, i.e. environmentally sustainable. This means that the development needs of present generations should be met without the ability of future generations to meet their own needs, being compromised.

The map below indicates that the Intaba Ridge Private Game Estate site falls within an Economic Value Adding and Economic Support Area. Areas of Economic Value Adding and Support can be defined as key economic centres and areas where all of the variety of economic sectors (agriculture, tourism, manufacturing, services) are prevalent and perceived to have good potential to be further expanded on. These areas are visibly linked to high accessibility areas with existing bulk infrastructure and relatively high population densities which would both contribute to the economic expansion and benefit from interventions in these areas. Due to these factors, further economic processing and value adding at a provincial level, are mainly proposed within these identified areas.

Richards Bay, Msunduzi, Newcastle and Port Shepstone have been identified as provincial Secondary Nodes and thus urban centres with good existing economic development and the potential for growth and services to the regional economy. At a strategic level, the PSDF strongly reinforces the concept of promoting development around the main activity corridors of the Province. The KZN Provincial Spatial Economic Development Strategy (PSEDS) states that infrastructure investment and development spending should primarily support localities that will become future growth nodes, supported by municipal integrated development plans. The Msunduzi area is one such area where infrastructural development and employment is urgently needed.

The Phase 2 expansion of the existing Intaba Ridge Estate will address job creation during the construction phase and optimise land use to meet the demand for housing due to the growth of the middle-income group in the Pietermaritzburg area, which is in line with the goals of the Provincial SDF (Figure 3).

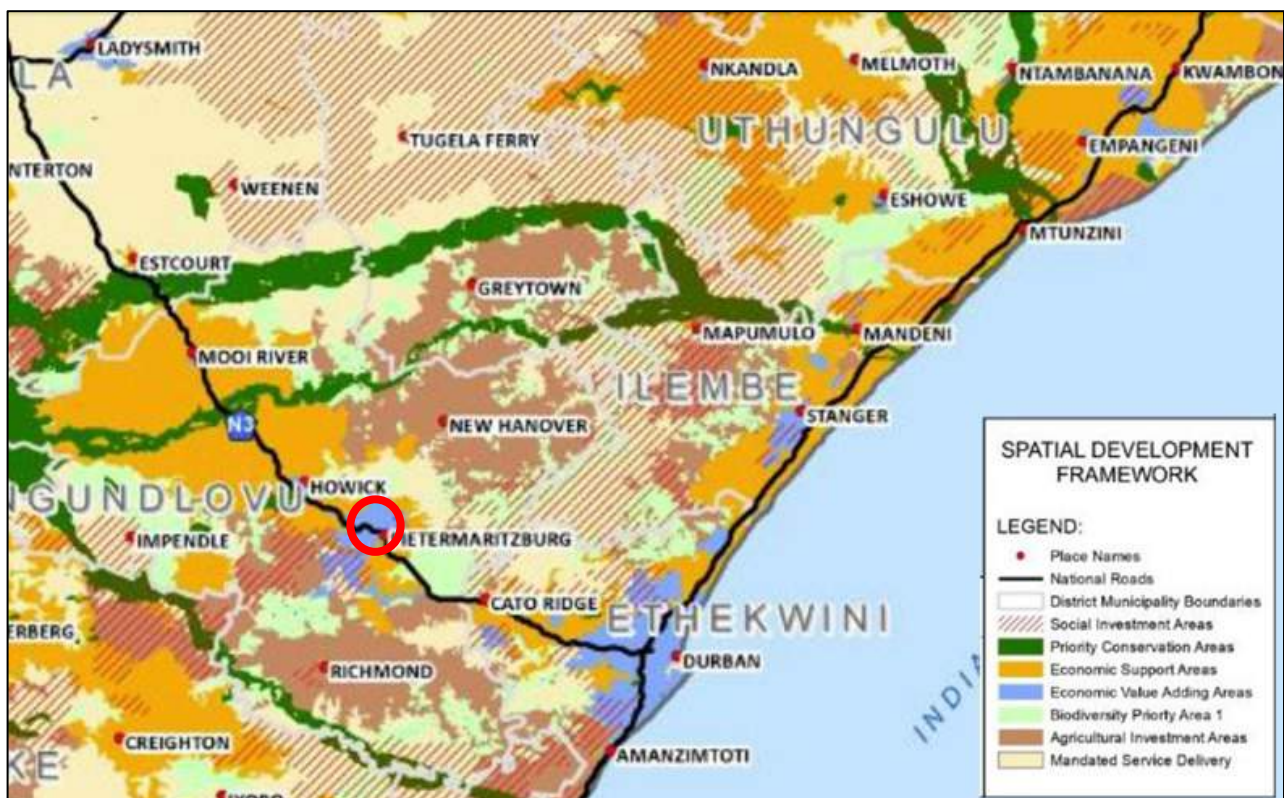


Figure 3: Provincial Spatial Development Framework (PSDF).

3. Will the activity be in line with the Urban Edge / Edge of Built Environment for the area?

Yes. An urban edge is a distinguished line that serves to manage, direct and control urban expansion. It

indicates the edge between land available for urban development and land that is to remain part of the rural landscape and natural environment. The proposed expansion falls within a rural agricultural setting, however is in close proximity to the urban development of Pietermaritzburg, thereby not resulting in further urban expansion within the city centre. In addition, the site is already developed with residential units.

4. Will the activity be in line with the Integrated Development Plan (IDP) and Spatial Development Framework (SDF) of the Local Municipality; would the approval of this application compromise the integrity of the existing approved and credible Municipal IDP and SDF?

In terms of the Municipal Systems Act (Act 32 of 2000), every Municipality in South Africa is obliged to develop an Integrated Development Plan (IDP) to realise the constitutional mandate of local government. The IDP is a strategic management tool, which aims to guide and align all planning, budgeting and operational decisions of the Municipality and other spheres of governments. It is a legally binding document and replaces all other plans that guide development at local government level.

The Msunduzi Municipal IDP lists the following in terms of sustainable economic growth:

- Development of all appropriate sectors of the local economy;
- Development and retention of all businesses formal and informal;
- Developing economic opportunity in communities;
- Creation of jobs;
- Skills development for the local economy;
- Attracting investment; and
- Funding of local economic development.

In addition, the Msunduzi Municipality has the following organisational goals outlined in its IDP and SDF:

- A healthy citizenry with access to affordable, quality health care;
- A safe city with low crime levels and quality living areas;
- An efficiently managed, financially viable and sustainable, city;
- A well governed city underpinned by meaningful public participation;
- A vibrant economic centre, attracting investment, supporting business development and creating jobs;
- A city where all have access to habitable human settlements – decent houses, clean water and proper sanitation;
- An environmentally sustainable and healthy city; and
- A well planned, spatially integrated city.

The Phase 2 expansion of the Intaba Ridge Private Game Estate is in line with the Msunduzi Municipality's IDP and SDF in terms of job creation, attracting investment, development of all appropriate sectors of the local economy and provision of quality living areas. The estate, most notably the lifestyle retirement village, will help meet the demand for housing due to the growth of the middle-income group in the Pietermaritzburg area.

Residential development is beneficial as it results in employment opportunities during the construction phase, as well as additional property taxes and other revenue for local governments. The income that is generated recycles in the local economy and results in local economic development. The Msunduzi SDF recognises that a variety of housing choices for both poorer and affluent residents should be available. In this case, the proposed expansion will provide housing for middle and upper-income buyers.

5. Will the activity be in line with an approved Structure Plan of the Municipality?

Yes. The proposed Phase 2 expansion is in line with the structure plan of the municipality. The Msunduzi

and uMgungundlovu IDP and SDF both identify the need for improved housing infrastructure for the rising middle and upper-income groups in the Pietermaritzburg area.

6. Will the activity be in line with an Environmental Management Framework (EMF) adopted by the Department; would the approval of this application compromise the integrity of the existing environmental management priorities for the area and if so, can it be justified in terms of sustainability considerations?

The proposed development site has been assessed in terms of the Msunduzi Environmental Management Framework (EMF), the Msunduzi Ecosystem Services Plan (ESP), the Mkhondeni Strategic Environmental Assessment (SEA) and the Msunduzi Conservation Plan (C-Plan). Refer to Appendix C for the Msunduzi and Mkhondeni Environmental Management Information for the project site.

The Msunduzi EMF has identified parts of the site to have high wetland development constraints, high biodiversity constraints, high flood potential, high agricultural potential and high water quality constraints. However, the existing and proposed new residential infrastructure will not be located within any of the above-mentioned sensitive areas, with the exception of areas with high water quality constraints. As the Intaba Ridge Estate is serviced with municipal water it does not rely on groundwater resources.

The Msunduzi EMF also states that all residents have the right to appropriate, secure and affordable housing and access to basic services to meet their basic needs and to live with dignity. It also states that environmentally sustainable communities are established where development is informed by social needs and the improvement of the quality of life and does not compromise the natural environment and cultural heritage. Therefore, the proposed expansion is in line with the above.

The Draft Ecosystem Services Plan (ESP) indicates the presence of key biodiversity areas and riparian corridors on the property while the C-Plan indicates totally irreplaceable biodiversity areas on the property. The existing and proposed new residential infrastructure will not be located within the above-mentioned sensitive areas.

The Mkhondeni SEA indicates that Erf 115 Almond Bank comprises a combination of Normal Urban Development, Conservation with Development, and Open Space areas in terms of the Most Desirable Land Use Scenario planning for the Mkhondeni Catchment, with the majority of land comprising Conservation with Development areas (refer to Appendix C).

Conservation with Development areas are areas where there is limited development, focussed on eco-estate and eco-tourism types of developments. Within these areas, the main land use will be in the form of open spaces, in many cases rehabilitated back to indigenous vegetation from degraded or presently transformed land covers. Significant areas of this proposed land use are on old farmlands or very degraded areas.

The Intaba Ridge development comprises an eco-estate and therefore is in line with the most desirable land use scenario for the development site. Erf 115 Almond Bank is approximately 278ha in extent and 230ha of this area will remain as open space after the proposed Phase 2 expansion, including corridors of open space within the residential development footprint. As such, the Intaba Ridge Private Game Estate development is in line with the requirements of the Mkhondeni SEA in terms of landuse planning.

7. Will the activity be in line with any other plans (e.g. Guide Plan)?

Refer to Section 6 above.

8. Is the land use (associated with the activity being applied for) considered within the timeframe intended by the existing approved SDF agreed to by the relevant environmental authority (i.e. is the proposed development in line with the projects and programmes identified as priorities within the credible IDP)?

Yes, the proposed development is in line with the IDP and SDF timeframes / priority programmes for the Msunduzi Local Municipal area. Refer to Point 4 above.

9. Does the community/area need the activity and the associated land use concerned (is it a societal priority)? This refers to the strategic as well as local level (e.g. development is a national priority, but within a specific local context it could be inappropriate?).

At a provincial level the proposed development site is located within Economic Value Adding and Economic Support Areas which are key economic centres and areas where all of the variety of economic sectors (agriculture, tourism, manufacturing, services) are prevalent and perceived to have good potential to be further expanded on. These areas are visibly linked to high accessibility areas with existing bulk infrastructure and relatively high population densities which would both contribute to the economic expansion and benefit from interventions in these areas. The provision of housing in such areas is necessary for the further development and growth of such key economic centres.

At a local Municipal level there is demand for housing, services, facilities and economic opportunities, particularly in the Imbali, Bisley, Pelham, Boughton, Cascades, Cleland, and Chase Valley areas. A growing middle-income group has resulted in an increased sale of residential properties and increasing demand for housing. There is a shortage of housing in the Pietermaritzburg area, and a high demand for lifestyle housing developments.

The Phase 2 expansion will result job creation, income generation, skills development as well as local economic development. It will also attract conservation-minded residents, and therefore result in conservation of the estate, and the fauna and flora that it provides. The majority of the development is proposed on previously transformed areas. Therefore, most of the estate will be left as a conservation area, which will form part of an open space and conservation system for the entire Mkhondeni catchment area, and will provide biodiversity conservation linkages with surrounding areas of conservation importance. Therefore, the proposed expansion is in line with the above.

As outlined in the Need and Desirability Statement (refer to Appendix P) there is a growing need for Lifestyle Retirement Villages in KwaZulu-Natal, especially within secure gated estates and close to hospitals, schools and shopping centres. This follows a global trend for demand for active over 50's villages to cater for the growing needs of the baby-boomer generation. Although there are these kinds of developments on the northern parts of Pietermaritzburg, in areas like Hilton, there are none of these developments in the south of Pietermaritzburg. The proposed Intaba Ridge Phase 2 expansion project will increase the GDP for Pietermaritzburg by an estimated R786 million over 8 years and it will generate 6556 jobs.

10. Are the necessary services with adequate capacity currently available (at the time of application), or must additional capacity be created to cater for the development?

There are currently adequate services for the existing Phase 1 development. However, additional services will have to be made available to cater for the proposed Phase 2 expansion. Such services include the construction of an additional 250kl reservoir for provision of water and the construction of a package treatment plant for the treatment of sewage from the proposed lifestyle retirement village and some of the additional freehold sites. Internal roads and stormwater infrastructure will also be upgraded as part of the

proposed Phase 2 expansion.

11. Is this development provided for in the infrastructure planning of the Municipality, and if not, what will the implication be on the infrastructure planning of the municipality (priority and placement of services and opportunity costs)?

Refer to point 10 above and Section 1.7 for a detailed description of service provision.

12. Is this project part of a national programme to address an issue of national concern or importance?

As the proposed Phase 2 expansion of the Intaba Ridge Estate is a private sector development, the project is not part of a national programme to address an issue of national concern or importance. However, the proposed expansion will provide job opportunities during the construction phase as well as housing infrastructure, which is addressing an issue of national concern. In addition, the proposed Intaba Ridge Phase 2 expansion project will increase the GDP for Pietermaritzburg by an estimated R786 million over 8 years and it will generate 6556 jobs.

13. Do location factors favour this land use (associated with the activity applied for) at this place? (This relates to the contextualisation of the proposed land use on this site within its broader context.)

Yes. The proposed Phase 2 infrastructure will be incorporated into the existing Phase 1 residential area. 85% (approximately 230ha) of the property will remain undeveloped open space. The proposed expansion is therefore not considered to deviate from the development concept as historically approved, as Phase 2 will only result in an increase in net density of units within the existing residential area on the property. As such, location factors favour this land use as it is a continuation of an existing land use on the property.

The Applicant has identified the need to expand the existing Intaba Ridge Private Game Estate in order to upgrade the non-sustainable infrastructure including the gravel roads and the security fence and also get the Homeowners Association levy budget to an affordable and sustainable level to adequately manage the 8km of roads, 250ha of open space and 8km of fenceline.

14. Is the development the best practicable environmental option for this land/site?

As outlined in point 13 above the proposed Phase 2 infrastructure will be incorporated into the existing Phase 1 development, while 230ha of the property will remain as undeveloped open space. The property was historically used for dairy farming and was largely transformed to provide grazing for the livestock. The development of the Intaba Ridge Estate was coupled with the rehabilitation of large sections of the property including riparian areas, to remove alien invasive vegetation and return open spaces back into grassland. Game species such as Oribi, Wildebeest, Zebra, Blesbok, Impala, Reedbuck and duiker have also been re-introduced into the estate. The rehabilitation of areas of the property and re-introduction of wildlife is directly in line with the surrounding land uses in the area which include private game farms and the Bisley Valley Nature Reserve. The proposed Phase 2 expansion will ensure that there is funding available for the continued rehabilitation and management of the 230ha of open space and conservation areas on the property. As such, the proposed development (expansion of the existing eco-estate) is the best practical development option for the site. It must be noted that since the commencement of Phase 1, Biodiversity experts have been contracted on an on-going bases to advise on the correct management of the property.

15. Will the benefits of the proposed land use/development outweigh the negative impacts of it?

Yes. Refer to point 14 above. The proposed Phase 2 expansion will have minimal negative impacts on the surrounding environment while ensuring the continued rehabilitation and management of 230ha of

grassland and open space for conservation purposes, provided recommendations provided in this report and the EMPr are fully implemented.

16. Will the proposed land use/development set a precedent for similar activities in the area (local municipality)?

There is a growing demand for low density eco-estates on the outskirts of urban areas. As the property is located within an area that is characterised by conservation and agricultural areas it is a prime location for the further development of low impact eco-estates. The Intaba Ride Estate may set a precedent for other developers who want to take advantage of the existing character of the area to target conservation-minded middle to upper-income buyers. However each proposed project would need to go through an environmental and planning process in order to determine whether the development is acceptable.

17. Will any person’s rights be negatively affected by the proposed activity/ies?

No. The activity is permitted in terms of the property’s existing land use rights and all existing home owners at the Intaba Ridge Estate have been made aware of the proposed Phase 2 expansion since 2010, as it has been included in every sale agreement and site plan since then. A detailed Sale Agreement and Development Agreement has been signed between the Homeowners Association and the developer, to protect the interests of all parties.

18. Will the proposed activity/ies contribute to any of the 18 Strategic Integrated Projects (SIPS)?

As the proposed Intaba Ridge Private Game Estate is a private development, the project does not contribute towards any of the 18 SIPS. However, it will contribute towards the creation of jobs and income generation.

19. What will the benefits be to society in general and to the local communities?

Residential development is beneficial as it results in employment opportunities and income generation for construction workers, as well as additional property taxes and other revenue for local governments. The income that is generated recycles in the local economy and results in local economic development. The proposed Intaba Ridge Phase 2 expansion project will increase the GDP for Pietermaritzburg by an estimated R786 million over 8 years and it will generate 6556 jobs.

The Msunduzi SDF explains that a variety of housing choices for both poorer and affluent residents should be available. In this case, the proposed expansion will provide housing for middle and upper-income buyers.

The proposed Phase 2 expansion will ensure that there is funding available for the continued rehabilitation and management of the 230ha of open space and conservation areas on the property. The conservation and management of natural faunal and floral habitat is of benefit to society and also helps the municipality meet its conservation targets.

20. Any other need and desirability considerations related to the proposed activity?

Addressed above.

21. How does the project fit into the National Development Plan for 2030?

The proposed development addresses Point 1 of the National Development Plan for 2030, through the creation of employment.

1. Unemployment	X
2. The quality of school education for black people is poor.	

3. Infrastructure is poorly located, inadequate and under-maintained.
4. Spatial divides hobble inclusive development.
5. The economy is unsustainably resource intensive.
6. The public health system cannot meet demand or sustain quality.
7. Public services are uneven and often of poor quality.
8. Corruption levels are high.
9. South Africa remains a divided society.

22. Please describe how the general objectives of Integrated Environmental Management as set out in section 23 of NEMA have been taken into account.

This Basic Assessment Report covers all the objectives set out in Section 23 of NEMA. Refer to Section 8 of this Report. Numerous Specialists have been consulted as part of the feasibility work undertaken for this development. Mitigation measures have been developed to address the potential environmental impacts identified by the specialists and mitigation measures have been included in the EMPr. Participation of key Interested and Affected Parties has been facilitated.

23. Please describe how the principles of environmental management as set out in section 2 of NEMA have been taken into account.

Section 2 of NEMA states that 'environmental management must place people and their needs at the forefront of its concern, and serve their physical, psychological, developmental, cultural and social interests equitably'. The disturbance of ecosystems has been minimised and rehabilitation guidance is included in the EMPr.

3. ALTERNATIVES

3.1 “Alternatives”, in relation to a proposed activity, means different means of meeting the general purpose and requirements of the activity, which may include alternatives to —

(a) The “do nothing” option of not implementing the activity:

The “do nothing” option would mean that the proposed Phase 2 expansion of the Intaba Ridge Private Game Estate will not be undertaken and the estate will remain in its present state with only Phase 1 of the residential development having been undertaken.

The proposed expansion will result in a number of benefits, namely further temporary and permanent job creation, skills development, income generation and investment opportunities. There is a shortage of housing in Pietermaritzburg and there is a high demand for lifestyle housing developments in the area. The property is in a rural conservation and agricultural setting, however, it is still in close proximity to urban centres such as Pietermaritzburg, Ashburton, Camperdown, Cato Ridge and Durban. This makes the estate an attractive investment for those who want to escape the congestion of urban residential areas but still want to have easy access to urban amenities.

The development property was historically used for dairy farming and was largely transformed to provide grazing for the livestock. The development of the Intaba Ridge Estate has resulted in the rehabilitation of large sections of the property back to natural grassland and removal of alien invasive vegetation, providing habitat for a wide range of bird and faunal species. Game species such as Oribi, Wildebeest, Zebra, Blesbok, Impala, Reedbuck and duiker have also been re-introduced onto the estate. The property has been fenced off to protect the wildlife from poaching. The Phase 2 expansion will provide revenue through levies for the ongoing removal of alien invasive vegetation, rehabilitation of the undeveloped areas of the estate and effective management of the conservation areas and wildlife. It will integrate residential land use with conservation, making the ongoing management of the property for biodiversity conservation objectives possible.

In addition, the Phase 2 expansion will include the upgrading and surfacing of the internal roads in the estate, the upgrade of the estate security and the upgrade of the communal facilities and the clubhouse. These upgrades will be of benefit to the existing estate residents, while the security upgrades will help ensure the long term protection of not only the residents but also the estate wildlife.

If the “do nothing” option is selected, none of the above benefits will be realised. There will likely be a negative impact on the conservation objectives of the estate, due to reduced funds, as well as the socio-economic wellbeing of the estate residents, as there will not be funds to upgrade the existing amenities.

(b) The property on which or location where it is proposed to undertake the activity:

The proposed development comprises the Phase 2 expansion of an existing residential estate. The Phase 2 expansion is considered to be an ‘in fill’ development. As the residential development is already established at that location on the affected property, it is not considered feasible to assess alternative properties for the proposed expansion. Thus no other properties or locations have been assessed in this Report.

In terms of alternative land uses preferences for the development site, the Mkhondeni SEA indicates that the development property, Erf 115 Almond Bank comprises a combination of Normal Urban Development, Conservation with Development, and Open Space areas in terms of the Most Desirable Land Use Scenario planning for the Mkhondeni Catchment, with the majority of land comprising Conservation with Development areas (refer to Appendix C).

Conservation with Development areas are areas where there is limited development, focussed on eco-estate and eco-tourism types of developments. Within these areas, the main land use will be in the form of open spaces, in many cases rehabilitated back to indigenous vegetation from degraded or presently transformed land covers. Significant areas of this proposed land use are on old farmlands or very degraded areas.

The Intaba Ridge development comprises an eco-estate with 85% of the property being left as undeveloped open space. The property was historically used for dairy farming and was largely transformed to provide grazing for the livestock. The development of the Intaba Ridge Estate was coupled with the rehabilitation of large sections of the property including riparian areas, to remove alien invasive vegetation and return open spaces back into grassland. Game species such as Oribi, Wildebeest, Zebra, Blesbok, Impala, Reedbuck and Duiker have also been re-introduced into the estate. The rehabilitation of areas of the property and re-introduction of wildlife is directly in line with the preferred landuse planning for the property as contained in the Mkhondeni SEA.

(c) The type of activity to be undertaken:

The proposed activity is the expansion of the existing Intaba Ridge Private Game Estate. The Application is specifically for the Phase 2 expansion of the estate and thus no alternative activity types have been assessed in this Report. Please note that the 20 room spa which was originally planned, has been removed from this application.

(d) The design or layout of the activity:

Layout:

Several alternative layouts have been investigated as part of the Basic Assessment Process for the proposed Phase 2 expansion of the Intaba Ridge Estate. In the originally proposed layout for the Phase 2 infrastructure (refer to Figure 4 below), site 30 was located within the 32m boundary of a wetland area. Sites 31 to 34 fell within an area identified as a Category 1 indigenous woodland area. As per the recommendations contained in the specialist Biodiversity Assessment, these five sites were repositioned outside of the 32m wetland buffer and indigenous woodland area (refer to Appendix B for the amended, preferred layout plan).



Figure 4: Originally proposed layout showing sites 30 to 34 located within ecologically sensitive areas.

In addition to the above, alternative locations for the proposed wastewater treatment package plant were investigated as part of the Basic Assessment Process. It was originally proposed to locate the package plant in a low lying area in the south western corner of the property away from the residential areas. However, it was subsequently determined that it will be more cost effective to locate the package plant in the northern, top most section of the property next to the gate house. Locating the plant here will ensure easy access to the plant for operation and maintenance work. It will also enable the cost effective connection of units 1 to 17 and the lifestyle retirement village to the plant using a piped gravity system. The originally proposed site in the south western corner of the property would require the establishment of a significantly longer piping system to connect the estate infrastructure to the plant which would be more costly. Lastly, the preferred location for the plant also allows for the discharge of treated effluent to the large dam north of the main entrance gatehouse.

One of the biggest issues raised by I&APs for the project to date is the suitability of the existing 1.1km long access road (P120) through the Bisley Valley Nature Reserve. As such, the option of creating a new access point off the Richmond Road (P5-4) in the very south western corner of the property was investigated as part of the Basic Assessment Process. However, the development of a new access point off Richmond Road was found to be unsuitable for a number of reasons.

Firstly, comment was received from the Department of Transport (DoT) stating that in terms of section 10 of the Kwazulu-Natal Provincial Roads Act No. 4 of 2001 and Section 3 of the Regulations, access to the development shall be taken via the existing access point from Main Road 120 (Bisley Road). No direct

access to Main Road 5-4 (Richmond Road) whatsoever shall be permitted.

Although the above comment is a fundamental flaw with this potential access point, as the DoT are the ruling authority on road infrastructure, another issue associated with this access point is a potential future land swap of a portion of Erf 115 between the Intaba Ridge residential area and the Richmond Road boundary. However this land swop has not been confirmed and the EAP has not been provided with any additional information on this. In addition, it must be noted that there is an existing house and railway line located at the point where Erf 115 bounds the Richmond Road.

Design:

Design alternative have not been investigated because Phase 2 will have to adopt the existing Phase 1 architectural controls which are governed by the Homeowners Association. The architectural controls will ensure that the new houses will blend in with the natural surroundings, including the use of natural materials and wall colours and dark coloured roofs. In addition, no visible light sources and street lights will be allowed, to ensure darkness at night. The Homeowners Association also has controls in place to prevent the planting of non-indigenous vegetation in the estate. Although the lifestyle retirement village units will mean some amendments to the controls, most likely in terms of scale of buildings, the lifestyle retirement village units will still be in keeping with the existing infrastructure.

(e) The technology to be used in the activity:

Technological alternatives in terms of sewage disposal were investigated as part of the Basic Assessment Process. Septic tank and soakaway systems were initially proposed for all of the new Phase 2 infrastructure. However, due to the shallow, silty and clayey soils in the northern portion of the property, septic tanks and soakaways are not ideal in this area. Therefore, a wastewater treatment package plant was recommended as an alternative technology to be used for the disposal and treatment of sewage and wastewater from this northern portion of the development. Units 1 to 17 and the lifestyle retirement village will be connected to the package plant.

(f) The operational aspects of the activity:

There are no alternative operational aspects to be used in the proposed activity.

4. PUBLIC PARTICIPATION PROCESS

A Public Participation Process was undertaken according to Regulations 39 to 44 of the EIA Regulations as promulgated under the National Environmental Management Act (NEMA, Act 107 of 1998).

4.1 NOTIFICATION OF THE PROPOSED DEVELOPMENT

Notification of the proposed Phase 2 expansion was conducted through the publication of newspaper adverts in English in the Witness and Zulu in the Echo on 07 April 2017, in order to notify Interested and Affected Parties (I&APs) of the proposed expansion (Appendix D).

Notice boards were placed on site to notify the public and existing residents of the proposed expansion. The notice boards were in English and Zulu and included details of the application, its nature and location, the assessment procedure in terms of the Regulations and details of the EAP. These were placed on site and at the main entrance gate on 06 April 2017 (Appendix E).

4.2 INTERESTED AND AFFECTED PARTIES

A register of I&APs was compiled at the outset of the project. This includes names and contact details of Authorities, Government / Municipal Departments, NGOs, local interest groups, existing Intaba Ridge Estate residents and neighbouring landowners (Refer to Appendix F). The list of I&APs has been continually updated to include persons responding to the adverts and site notice boards.

4.3 BACKGROUND INFORMATION DOCUMENT

Written notification in the form of Background Information Documents (BIDs) were circulated from 10 April 2017 (Refer to Appendix G). These BID's were circulated by e-mail, post, fax or hand delivery to relevant authorities.

Comments received following circulation of the BID, adverts in the newspapers and the displaying of site posters are summarised and responded to in Table 1, below (Refer to Appendix H).

Table 1: Comments received following the newspaper adverts, placing of site notice boards, and circulation of the BID.

I&AP	COMMENT	RESPONSE
Ms N. Sontangane Department of Agriculture, Forestry and Fisheries (DAFF). 19 April 2017	<ul style="list-style-type: none"> Clarity in terms of the vegetation type that occurs along the proposed developmental site is required. Further comment will be issued upon receipt and review of the Draft Basic Assessment Report and Biodiversity Assessment. 	<ul style="list-style-type: none"> The site comprises the following vegetation components: 59.6ha of primary grassland comprising "Themeda grassland". There are also two areas of Dry Coast Hinterland Grassland on the site; 16.7ha of wetland habitat, 1.1ha of indigenous woodland; 8.3ha of alien woodland and 192.6ha of transformed land. Please refer to the specialist biodiversity Assessment for a detailed description of these vegetation components and maps showing the location of the various vegetation habitats on the property.
Craig Markham Estate Resident 02 May 2017	<ul style="list-style-type: none"> There is a site planned for the end of Kudu Trail. This is part of the game corridor. There is a lot of game that come down and graze on this site. Building on this site will impact on the game movement. 	<ul style="list-style-type: none"> Noted. A specialist Biodiversity Assessment has been undertaken for the proposed Phase 2 expansion. The study included an assessment of the proposed layout of the infrastructure and made recommendations to relocate infrastructure out of any sensitive areas and ensure that the existing wildlife corridors are maintained. The layout plan has been updated based on the recommendations provided in the study.
Carmen Blomeyer Estate Resident 26 April 2017	<ul style="list-style-type: none"> Why have documents not been circulated to all residents/owners of Intaba Ridge Private Game Estate. We should be in the loop as to what is going on. It is our property that the developer wants to develop. The land belongs to the HOA. 	<ul style="list-style-type: none"> The Estate Manager was contacted and the Background Information Document was sent to the Admin Manager who circulated it to all existing homeowners.
Pandora Long Preservation of the Mkondeni Mpushini Biodiversity (PMMB) Trust 12 April 2017	<ul style="list-style-type: none"> It is not possible to comment on the BID without seeing the layout plan and seeing how the extension affects the conservation area and Mkhondeni River. The two documents go hand in hand. 	<ul style="list-style-type: none"> Noted. The layout plan was not available at the time of circulating the BID for comment as it was dependent on the completion of the specialist studies. Please refer to Appendix B for the layout plan.
David Gearing I&AP 12 June 2017	<ul style="list-style-type: none"> I would like to register my objection to the proposed development at Intaba Ridge. I cycle through the reserve every day, and love the animal encounters, and the quiet rural setting sans cars. 	<ul style="list-style-type: none"> Noted.
Mick and Lyne Broughton Estate Resident 25 April 2017	<ul style="list-style-type: none"> We bought into an environmental Estate and we aren't too sure how a Spa fits into that. Is the package plant to provide waterborne sewage for the estate or to process sewage brought in by tankers? 	<ul style="list-style-type: none"> Noted. The Spa with 20 rooms has been removed. The package plant will treat the sewage from the residential sites erf 1 – 17 and the 100 unit lifestyle retirement village. This is because the soils in the northern portion of the estate are unsuitable septic tank

I&AP	COMMENT	RESPONSE
	<ul style="list-style-type: none"> Who is going to make sure the infrastructure keeps pace with any future developments i.e. water, electricity, roads etc. so far the roads are lagging behind the development that is taking place. Who will maintain the access road to the estate for the increased vehicle load? What is the commercial development going to be? 	<p>and soakaway systems.</p> <ul style="list-style-type: none"> The Intaba Ridge Estate Homeowners Association is responsible for the maintenance of infrastructure and services within the estate. The Msunduzi Municipality is responsible for the management of the access road through the Bisley Valley Nature Reserve. The commercial component of the estate, which comprises communal facilities, estate office, convenience centre and clubhouse was approved under Phase 1 of the development and is therefore existing and does not form part of this expansion application (Phase 2).
<p>Susan Machpesh I&AP 03 May 2017</p>	<ul style="list-style-type: none"> Please advise on your methods to notify neighbours and landowners of the EIA and WULA process. Please could you advise how the new proposed expansion interacts with the Sale Agreements / legal standing of property owners who currently live at Intaba Ridge, i.e. they bought into an estate that had a much lower density with green open spaces etc. This is now proposed to be changed to higher density, commercial etc. 	<ul style="list-style-type: none"> The Public Participation Process that has been undertaken as part of the Basic Assessment process has been comprehensive and complies with Regulations 39 to 44 of the EIA Regulations as promulgated under the National Environmental Management Act (NEMA, Act 107 of 1998). Notification methods include placement of adverts in the Witness and Echo, site posters at the site entrance, circulation of the BID and undertaking a public meeting. All owners have been made aware of Phase 2 since 2010, as it has been included in every sale agreement and site plan since then. Two Special General meetings and 2 General meetings, were held in 2015/2016 with all owners, going through the details of the Phase 2 application. The rights of the developer to do Phase 2 are also protected in the Articles of Association of the Intaba Ridge HOA, as drawn up in 2008 (Refer to Appendix I).
<p>Michele Schmid Department of Transport (DoT) 09 May 2017</p>	<ul style="list-style-type: none"> The Minister as the Controlling Authority as defined in the Kwazulu-Natal Roads Act No. 4 of 2001, has in terms of section 21 of the said Act, no objections to the proposed application as represented in the Background Information Document. In terms of section 13 of the Roads Act No. 4 of 2001, no buildings or any structures whatsoever, other than a fence, hedge or a wall which does not rise higher than 2.1 meters above or below the surface of the land on which it stands, shall be erected on the land within a distance of 15 meters measured from the existing road reserve boundaries 	<ul style="list-style-type: none"> Noted. Noted.

I&AP	COMMENT	RESPONSE
	<p>of Main Roads 5-4 (Richmond Road) and 120 (Bisley Road).</p> <ul style="list-style-type: none"> • The road reserve boundaries of Main Roads 5-4 and 120 shall be determined in consultation with this Departments Road Information Services. • The applicant's attention is drawn to the relevant stormwater clause contained in section 12 of the Kwazulu-Natal Provincial Roads Act No. 4 of 2001 and section 5 of the Roads Regulations, wherein it is advised that the disposal of stormwater emanating from the road reserve through the layout, or any stormwater emanating from the layout through the road reserve, shall be undertaken in consultation with and to the satisfaction of this Departments Cost Centre Manager, Pietermaritzburg during the development of the property concerned. • In terms of section 10 of the Kwazulu-Natal Provincial Roads Act No. 4 of 2001 and Section 3 of the Regulations, access to the development shall be taken via the existing access point from Main Road 120. No direct access to Main Road 5-4 (Richmond Road) whatsoever shall be permitted. • In view of the development this Department requires, in terms of section 21 of the Kwazulu-Natal Provincial Roads Act No. 4 of 2001, a detailed to scale plan to be submitted to this Department for review and comments, upon finalization of the layout. • This correspondence does not grant authorization or exemption from compliance with any other relevant and applicable legislation. 	<ul style="list-style-type: none"> • Noted. • Noted. • Noted. • Noted. • Noted.
<p>Anthony Stella Property Neighbour 19 May 2017</p>	<ul style="list-style-type: none"> • Requested location of the proposed package plant. Is the plant to serve the existing estate? I utilise the water downstream from Intaba Ridge what is the impact on water quality? • Concerned about the increase in traffic in the area as our current infrastructure is already under strain. Considering the increase in the number of units, this is a concern. 	<ul style="list-style-type: none"> • It is proposed to locate the package plant in the northern portion of the estate next to the existing entrance gatehouse. The package plant will only treat the effluent from the residential sites erf 1 – 17 and the 100 unit lifestyle retirement village. The rest of the units (erf 18 – 161) will have septic tank and soakaways. The treated effluent from the plant will be discharged to the large dam north of the main entrance gatehouse. A specialist Geohydrological Assessment has been undertaken which assessed the possible impact of the package plant on both surface and groundwater resources. The findings of the study show that the risk to water resources will be minimal and limited to within the immediate vicinity of the plant and sewage pipelines. As such the plant does not pose any risk to offsite water resources. • Noted. A specialist Traffic Impact study has been undertaken which assessed the potential impact of the Phase 2 development on the surrounding road

I&AP	COMMENT	RESPONSE
	<ul style="list-style-type: none"> Although I am not a resident in the estate, I have experienced 4 breakins this year. I can't say it is directly related, but having had 1 previous break in since 1997, this is a concern for me. 	<p>network, including the Bisley Valley Road (P120). The findings of the study show that the surrounding road network, including the Bisley Road has capacity to accommodate the expected traffic demand for the Phase 2 expansion with little effect on the levels of service. The study provides recommendations to manage any negative traffic related impacts.</p> <ul style="list-style-type: none"> Noted. It is unlikely that the breakins are associated with the Intaba Ridge Private Game Estate. The proposed Phase 2 expansion includes and upgrade of the estates security infrastructure.
<p>Angela Ainsworth Estate Resident 22 May 2017</p>	<ul style="list-style-type: none"> Apparently an agreement has been signed between the Homeowners Association (HOA) and the Developer. As far as I was aware we had no say as representatives on the HOA. How and when was the agreement signed by the HOA to sell property to the developer? Please provide more information on the package plant. I have heard that is necessary for the 100 units (it is supposed to be for over 55 but with the law changing could it not end up being low cost housing). The development will result in at least 200 more vehicles on the road through Bisley Valley Nature Reserve. The road is not adequate. What about the impact on the animals in the reserve? 	<ul style="list-style-type: none"> The EAP has been informed that all owners have been aware of Phase 2 since 2010, as it has been included in every sale agreement and site plan since then. The rights of the developer to do Phase 2 are protected in the Articles of Association of the Intaba Ridge HOA, as drawn up in 2008. A letter of support for Phase 2 was also signed by the HOA's representatives. (Refer to Appendix I). The proposed package plant will serve the new residential sites erf 1 to 17 and the sectional title lifestyle retirement village. Soils on the northern portion of the property are not suitable for disposal of sewage via soakaway system. As such, the package plant has been proposed as an alternative method of sewage treatment and disposal. The plant will be located near to the existing entrance gatehouse in the north of the property and the treated effluent will be discharged to the large dam to the north of the main entrance gatehouse. A specialist Traffic Impact study has been undertaken which assessed the potential impact of the Phase 2 development on the Bisley Valley Road (P120). The findings of the study show that the Bisley Road has the capacity to accommodate the expected traffic demand for the Phase 2 expansion and provides recommendations to limit any negative impacts on both the wildlife and road users. Refer to Appendix J, Bisley

I&AP	COMMENT	RESPONSE
	<ul style="list-style-type: none"> • My main concern is the animals. I hope none of the development impacts on any the animals in the Bisley Valley Nature Reserve. I hope they are going to keep the animals at Intaba? 	<p>Road TIA.</p> <ul style="list-style-type: none"> • Noted. The proposed Phase 2 expansion comprises an increase in density of the existing residential areas on the estate. This will not result in the loss of the on-site conservation areas or wildlife. A specialist Biodiversity assessment has been undertaken for the Phase 2 development which provides recommendations to ensure that the impacts on both fauna and flora on the estate are minimal. In terms of the wildlife in the Bisley Valley Nature Reserve, the only identified potential impact is traffic related, which has been adequately addressed in the specialist Bisley Road TIA and Biodiversity Assessment.
<p>Dave Griffin Estate Resident 17 May 2017</p>	<ul style="list-style-type: none"> • To have a package plant on the estate is going to cause unwanted smells and will be an eyesore. There are trails and paths around the estate including the fence line which will come into direct contact with the sewerage farm. There is also the possibility of increased flies and mosquitoes in the areas. • The estate has an ethos of a residential estate which means that commercial units and a spa are in direct conflict to what was advertised and sold to the residents. A commercial unit will bring with it increased traffic and security risks which also applies to the Spa as a 20 room Spa is definitely not for residents only. • The increased residential density will also have an adverse effect on the ethos of the estate. I do understand the additional 50 sites, however 100 units in a sectional title village will be more like dense cluster housing which will also detract from the current ethos of the estate. 	<ul style="list-style-type: none"> • The package plant will be located in the vicinity of the main entrance gate. The package plant will be designed, commissioned and monitored by a specialist. It will be maintained by a suitable service provider. The plant will have to adhere to the Department of Water and Sanitation specifications regulating the quality of discharge water, as per Government Gazette No. 20526 of 8 October 1999. If properly managed, the package plant will not result in bad odours or increased flies. The use of a package plant is a more environmentally sound method of sewage disposal as the soils in the northern portion of the site are unsuitable for sewage disposal via septic tank and soakaway system. • The commercial component of the Intaba Ridge estate, which comprises communal facilities, estate office, convenience centre and clubhouse was approved under Phase 1 of the development and is therefore existing, and does not form part of this expansion application (Phase 2). The proposed Spa with 20 rooms has been removed from the application. • Noted, however all existing estate homeowners have been made aware of the Phase 2 expansion since 2010, as it has been included in every sale agreement and site plan since then.

I&AP	COMMENT	RESPONSE
	<ul style="list-style-type: none"> The current road infrastructure within the estate and through Bisley Game Reserve will be totally inadequate for the anticipated traffic as there are only about 32 occupied sites currently and the road has crumbled badly and is very dangerous in places. If there were 250 occupied sites we are talking about a completely different scenario. Bulk services are already being stretched to the limit with water being a major concern due to the decreased water pressure due to the water situation. This will become a major problem as water is essential for all the homes and the current reservoir in case of emergencies lasts for up to 5 days currently and with an increased residential capacity of over 800% this won't even last 1 day. Who needs to give approval for the Second Phase to proceed? Who currently owns the land that the proposed development is going to take place on? Who gives approval for the land to be used? Can we get a proposed plan of where all the development is going to take place including the sewerage plant? 	<ul style="list-style-type: none"> Noted. The internal estate road network will be upgraded as part of the Phase 2 expansion. Recommendations have been provided in the specialist Traffic Impact Assessment for the improvement and management of the Bisley Road (P120). However, the Bisley Road is a municipal road and is the responsibility of the Msunduzi Municipality. Noted. A bulk and engineering services study has been undertaken which outlines the additional service infrastructure requirements that are needed for the Phase 2 expansion. Approval in terms of the environmental legislation is issued by the Department of Economic Development, Tourism and Environmental Affairs (DEDTEA). The Intaba Ridge Private Game Estate Homeowners Association. Please refer to Appendix B for the proposed layout plan.
<p>Malcom Kidd Estate Resident 26 May 2017</p>	<ul style="list-style-type: none"> My major concern is the road through Bisley Nature Reserve. At this moment we have 35 residents and the road is a nightmare. It is too narrow and the S-bend is a death trap, so when we have 150 homes it will be a real problem for humans and animals alike. 	<ul style="list-style-type: none"> Noted. A specialist Traffic Impact study has been undertaken which assessed the potential impact of the Phase 2 development on the Bisley Valley Road (P120). In addition the specialist Biodiversity Assessment also included an assessment of traffic related impacts on wildlife. The studies provide recommendations to improve the condition of the road and improve sight distance to limit any negative impacts on both the wildlife and road users. However, as the road falls under the management of the Msunduzi Municipality the responsibility rests with the Municipality to implement the recommendations.
<p>Kim Walker I&AP 02 June 2017</p>	<ul style="list-style-type: none"> Intaba Ridge was initially built as a private game estate with 70ha grassland conservation area. What is the impact on this conservation area? The access road to Intaba Ridge runs through the Bisley reserve. 150 additional units is at least another 150 vehicles through the park, not to mention a Spa with 20 rooms and 	<ul style="list-style-type: none"> The Phase 2 expansion entails an increase in density of the existing Intaba Ridge residential area. The preservation and management of the 70ha grassland conservation area will be ongoing with the Phase 2 expansion. An increase in traffic through the Bisley Nature Reserve is the only anticipated impact directly

I&AP	COMMENT	RESPONSE
	<p>the traffic of the builders. Besides the traffic impacting on the wildlife what will the human impact be on the animals.</p> <ul style="list-style-type: none"> • Being a resident of Bisley I strongly oppose this development due to the direct impact on the Bisley Nature Reserve which is used by the general public and school groups in addition to this there will be a huge influx of people and traffic to the entire area. • One of the conditions of the study is to inform and involve all I&APs of the proposed development. Being a concerned resident of Bisley I for one have never been notified of this development and found out about it quiet accidently. I therefore feel that other residents have the right to know what is being planned for our neighbour along with the Secret garden, residents surrounding Intaba Ridge, the Canterbury riding school and all relevant conservation groups. 	<p>associated with the Phase 2 expansion on the Bisley Reserve wildlife. The following recommendations are provided to address traffic related impacts along the section of road that passes through the Bisley Nature Reserve: construction of three additional speed humps; cutting back of road verges to improve sight distance (in consultation with vegetation specialist); re-instatement of road to its full width (in agreement with Municipality); addition of two more 40km/h speed limit signs and two more wildlife warning signs, one from each direction. However, as the road is under the management of the Msunduzi Municipality, the Municipality will be responsible for implementing the recommendations.</p> <ul style="list-style-type: none"> • Noted. • The Public Participation Process that has been undertaken as part of the Basic Assessment process has been comprehensive and complies with Regulations 39 to 44 of the EIA Regulations as promulgated under the National Environmental Management Act (NEMA, Act 107 of 1998). Green Door has notified the public of the proposed expansion project but placing adverts in the Witness and Echo newspapers, site posters, circulation of the BID and conducting a public meeting. All neighbours to Intaba Ridge Estate have been notified and are included on the I&AP list.
<p>Abulele Qulu Msunduzi Municipality 29 May 2017</p>	<ul style="list-style-type: none"> • A copy of the Msunduzi Environmental Management Framework (EMF), Ecosystem Services Plan (ESP) and Conservation Plan (C-Plan) must be included in the Draft and Final environmental assessment reports. Mitigation measures with regards to development constraints identified by the above reports must be addressed in the DBAR. • An amended Storm Water Management Plan will be required. 	<ul style="list-style-type: none"> • Noted. Refer to the Need and Desirability Section (Section 2) of this report. (Refer to Appendix C). • Stormwater has been addressed in the Bulk Services Report (Appendix K). A site specific stormwater management plan will be compiled for each building plan submitted.

I&AP	COMMENT	RESPONSE
	<ul style="list-style-type: none"> • The Msunduzi EMF has identified wetlands within the proposed site, a wetland specialist study must be undertaken in order to determine the condition of these sensitive areas. Proposed development must be undertaken outside of 500m wetland buffer zone. Therefore if development is expected to commence within environmentally sensitive areas such as wetlands or watercourses then a water use license may also be required. The onus is on the applicant to ensure that consultation is made with the Department of Water and Sanitation DWS to obtain all necessary approvals prior to the commencement of any site works. • The proposed package plant must avoid natural water resources and environmentally sensitive areas as per the EMF, C Plan and ESP to avoid negative impacts on the water quality of the stream that runs through the property. • Landscape management plan to address impacts to biodiversity must be submitted to Msunduzi Environmental Management Unit for approval. 	<ul style="list-style-type: none"> • Noted. A specialist Wetland Assessment study has been undertaken (Refer to Appendix L). The DWS water use licensing requirements are known and Green Door Environmental has been appointed to undertake the Water Use License Application for the proposed Phase 2 expansion project. • Noted. • Noted. Refer to Appendix Y.
Jim Stockley I&AP 05 June 2017	<ul style="list-style-type: none"> • We are the immediate neighbours and share a 900m long border with Intaba Ridge estate. Our company owns Rem1/14809 Cluny Park which we operate as the wedding venue "Secret Garden". • We support most of what Intaba Ridge wants to do and leave it to the HOA, the residents and the authorities to ensure that issues within the estate are dealt with in an appropriate manner, that's in everyone's best interests. • Of great concern to us is the road through Bisley Nature Reserve and the impenetrable dust cloud that current traffic throws up on the road in front of our venue. • The road through Bisley, even at current low occupancy levels at Intaba, is becoming dangerous. Particularly on the S-bend. Cattle grid to cattle grid, the tarmac needs to be slightly wider to avoid collisions, especially when traffic volumes dramatically increase with the proposed expansion. 	<ul style="list-style-type: none"> • Noted. • Noted. • The road through Bisley Reserve is hardened. The internal road network in the estate will be surfaced as part of the Phase 2 expansion which will help to reduce dust impacts. • Noted. A specialist Bisley Road TIA has been undertaken which assesses the potential impact of the Phase 2 development on the Bisley Valley Road (P120) (Refer to Appendix J). The study provides recommendations to improve the road condition and limit any negative impacts on both the wildlife and road users. The following recommendations are provided to address traffic related impacts along the section of road that passes through the Bisley Nature Reserve: construction of three additional speed humps; cutting back of road verges to improve sight distance (in consultation with vegetation specialist); re-instatement of road to its full width (in agreement with Municipality); addition of two more 40km/h speed limit signs and two more wildlife warning signs, one from each direction.

I&AP	COMMENT	RESPONSE
	<ul style="list-style-type: none"> Regarding traffic to the 'second gate' back in the early days of the development, this gate was for emergency use only. Now it is the regular entry for all residents on the southern side of the estate. At times, the road is covered by a dense and dangerous dust cloud, particularly in winter. One can only imagine how bad this will get as more and more houses are built. Either Intaba must tar the road to the second gate to eliminate the choking dust cloud or go back to preventing residents from using that gate for all but emergencies. These two issues must be adequately addressed before we can offer our full support to the expansion. 	<p>However, as the road is under the management of the Msunduzi Municipality, the Municipality will be responsible for implementing the recommendations.</p> <ul style="list-style-type: none"> Noted. The Phase 2 expansion includes the upgrading of the estate roads from gravel to surfaced roads. Noted.
<p>Jennifer Harrison I&AP 11 June 2017</p>	<ul style="list-style-type: none"> Surfacing of Bisley Nature Reserve Road is going to enable traffic to increase speed endangering entire wildlife groups which run across at one time. Speed humps at every 100m will be required to slow down vehicles. A package plant? Larger and heavier trucks on the road to the detriment of the reserve animals. Traffic at the intersection of Alexander Road with Murray Road is already a nightmare. Any increase in traffic where there are no traffic lights at present will only result in more congestion. How many residents even know where Bisley Nature Reserve is? How many have actually visited the Reserve? Having lived in this area for 39 years and visited the Reserve regularly, this proposal is horrific. 	<ul style="list-style-type: none"> The Bisley Valley Nature Reserve Road is already surfaced. The speed limit on the road is 40km/hour and there are four existing speed humps located along the road. The package plant will not result in an increase in the number of trucks on the road. Noted. This has been addressed in the specialist Traffic Impact Assessment studies. (Appendix J and M). The main access road to the Intaba Ridge Private Game Estate runs through the Bisley Valley Nature reserve. All of the existing estate residents are aware of the reserve. Noted.
<p>Anthony Stildolph I&AP 12 June 2017</p>	<ul style="list-style-type: none"> The fact that Bisley Valley Nature Reserve and its game could now be under threat from the proposed Intaba Ridge expansion is of deep concern to me and I would hate to think other keen naturalists might be denied the pleasures Bisley Valley Nature Reserve once afforded me. 	<ul style="list-style-type: none"> The proposed Intaba Ridge Phase 2 expansion will result in an increase in the net density of residential units incorporated into the existing estate infrastructure. The existing estate is not a threat to the Bisley Valley Nature Reserve and there is no evidence to suggest the expansion will threaten the reserve. The main impact will be an increase in traffic along the Bisley Road (P120). This has been assessed in a specialist Traffic Impact study and Biodiversity Assessment which includes recommendations to mitigate any negative impacts that may result from an

I&AP	COMMENT	RESPONSE
		increase in traffic through the reserve.
Greg Steyn I&AP 12 June 2017	<ul style="list-style-type: none"> I am an avid conservationist and it saddens me to see the Bisley Valley Nature Reserve go to wreck and ruin. I sincerely hope that this reserve continues to offer a "safe" haven for its fauna. 	<ul style="list-style-type: none"> Noted.
Gary Ladbrook I&AP 12 June 2017	<ul style="list-style-type: none"> As the development benefits from its proximity to the Bisley Valley Nature Reserve, both as a sales aid and as an enviable neighbour, it should make good any effect i.e. activity, traffic, etc. in favour of the reserve. This should be either in the way of development and maintenance or financial contributions. 	<ul style="list-style-type: none"> Noted.
Clyde and Hilary Wilson I&AP 13 June 2017	<ul style="list-style-type: none"> Concerned that the proposed expansion will have a dire and dramatic effect on the safety of the animals in the Bisley Valley Nature Reserve and on their wellbeing, not to mention the danger to an ever-increasing number of motorists using the road in question when it comes to colliding with an animal crossing the road. Surely a less controversial access to any proposed expansion of Intaba Ridge exists from the Richmond Road? 	<ul style="list-style-type: none"> The specialist Traffic Impact study and Biodiversity Assessment assessed the potential impact of the Phase 2 development on the Bisley Valley Road (P120) and wildlife. The findings of the studies show that the Bisley Road has the capacity to accommodate the expected traffic demand for the Phase 2 expansion and provide recommendations to limit any negative impacts on both the wildlife and road users. Constructing a new access road for the estate from Richmond Road is not a viable option as the Department of Transport does not support this.
Mandy Smit I&AP 13 June 2017	<ul style="list-style-type: none"> This project is very unfair to existing residents and especially the animals in the Bisley valley Nature Reserve. To tar the road would mean speeding bringing great danger to the animals and a huge problem in the park. Since Murray Road was tarred 25 years is not good for pollution, noise etc. for the animals. I am very against this project. 	<ul style="list-style-type: none"> Noted. All existing owners have been aware of Phase 2 since 2010, as it has been included in every sale agreement and site plan since then. The section of Bisley Valley Road that provides access to the Intaba Ridge Estate is already surfaced. Noted. Noted.
Anthony Grant Grant and Swanepoel Attorneys 07 June 2017	<ul style="list-style-type: none"> We act on behalf of Monsy's Family Trust, the owner of Erf 3 and 12 Cluny Park, Bisley Valley. We have been instructed by our client to note its objection and concern to the proposed expansion to the existing Intaba Ridge Private Game Reserve. Our client's major concern is the increase in traffic through the Bisley Nature Reserve along the existing gravel access road. The impact of increased traffic on the road will be devastating on crawling and slower moving animals traversing the road. 	<ul style="list-style-type: none"> Noted. Noted. Noted. The current speed limit on the Bisley Valley road is 40km/hour. There are also four speed humps located along the road. The implementation of the Phase 2 expansion will result in an increase in traffic along the Bisley Road. However, enforcing the existing traffic calming measures and ensuring the maintenance of the speed humps will help mitigate any

I&AP	COMMENT	RESPONSE
	<ul style="list-style-type: none"> • The fact that there is no water borne sewage means that with the inevitable increase in population density arising from the expansion, there will be a significant impact on the water table. As matters stand, the present ground water can only be described as rich. Not even Tilapia are able to survive. The situation will only worsen. • The dams of the stream traversing the property appear to pre-date the development. A proper assessment of the effect of the development on the stream needs to be undertaken. Besides animals and birds, there are otters and mongoose, all of which depend on the strength of the flow of the stream. • We understand that the top entrance to the development was supposed to be used as an emergency entrance. Over time this has developed into the preferred entrance for many residents. The road from the tarred entrance to the second entrance is gravel and runs passed our clients property. There has been an unacceptable amount of dust which is harming the vegetation and animals on our client's property. • The development as it presently stands has done nothing to replace or enhance the indigenous habitat in the area. A superficial observation indicates that most of the trees are alien and there has been very little or no additional plantings. • We enquire whether there will be a study done to assess the impact of light pollution on the environment. The increased amount of light coming from the current development 	<p>negative impacts associated with the increased traffic. In addition, the following recommendations are provided to address traffic related impacts along the section of road that passes through the Bisley Nature Reserve: construction of three additional speed humps; cutting back of road verges to improve sight distance (in consultation with vegetation specialist); re-instatement of road to its full width (in agreement with Municipality); addition of two more 40km/h speed limit signs and two more wildlife warning signs, one from each direction.</p> <ul style="list-style-type: none"> • Alternatives in terms of sewage disposal have been investigated with the use of a wastewater treatment package plant proposed for the residential sites erf 1 to erf 17 and the 100 unit lifestyle retirement village. Under normal operating conditions the package plant will have no impact on groundwater resources. • Noted. This has been addressed in the specialist Aquatic Assessment. (refer to Appendix N). • Noted. The proposed Phase 2 expansion includes the upgrading of the estates internal road network from gravel to surfaced roads. This will reduce dust impacts. The Applicant is not in control of any other roads. • The establishment of the Intaba Ridge Estate has included a comprehensive and ongoing Environmental Management Programme which has included the rehabilitation of large sections of riparian areas, wattles plantations, gum trees and syringa, bugweed and lantana areas. Game species such as Wildebeest, Zebra, Blesbok, Impala, Reedbuck, Oribi and Duiker have been reintroduced into the estate. Remove of alien vegetation is being undertaken in all areas of the estate on an ongoing basis (refer to Appendix O). • The HOA has put architectural controls in place to ensure that the new infrastructure will blend in with the

I&AP	COMMENT	RESPONSE
	<p>has already made a huge impact on the area, even with the estate only partially developed.</p> <ul style="list-style-type: none"> We enquire whether there will be an assessment done to determine whether or not the City of Pietermaritzburg in fact needs an additional development of this nature. There are still many unsold plots. Given the fact that there are a number of similar developments taking place, one questions the need of a development of this nature, the effect of which will be to degrade the natural habitat of the Bisley Valley. 	<p>natural surroundings and ensure that no visible light sources and street lights are allowed, to ensure darkness at night.</p> <ul style="list-style-type: none"> A Need and Desirability Assessment was undertaken as part of the Phase 1 development of the Intaba Ridge Private Game Estate. The findings of the study indicated that there was scope for such a development in the area, hence Phase 1 of the estate received environmental authorisation. (Refer to Appendix P).
<p>Brian and Sherril Hosking I&AP 14 June 2017</p>	<ul style="list-style-type: none"> We would like to express our concern for the Bisley Valley Nature Reserve. It would be a great pity if anything happened to destroy it. We would like to express our support for any action taken to preserve it. 	<ul style="list-style-type: none"> Noted.
<p>Chris Pretorius I&AP 22 June 2017</p>	<ul style="list-style-type: none"> Since the road was tarred through the Bisley Valley Nature Reserve there has been an increase in litter on the side of the road. Even with the speed humps some cars still race through the reserve. I suggest that entry to the Intaba Ridge Estate should be from the other way and they should clean up the litter along the road. All the tar should be lifted and left as a dirt road. 	<ul style="list-style-type: none"> Noted. The management of litter in the Bisley Valley Nature Reserve is an issue that needs to be addressed by the Msunduzi Municipality's reserve management team. Constructing a new access road for the estate from Richmond Road is not a viable as the Department of Transport will not allow this.
<p>Brian Melmoth I&AP 22 June 2017</p>	<ul style="list-style-type: none"> There is something very special about the animals in Bisley Valley Nature Reserve and they do not need or deserve to lose their natural habitat. You can most definitely add my name to the list of objectors of any interference with the welfare of the animals in the reserve. 	<ul style="list-style-type: none"> Noted. The proposed Phase 2 expansion comprises an increase in the density of the residential units within the existing residential area of the Intaba Ridge estate. The expansion will not result in the loss of any natural habitat within the adjacent Bisley Valley Nature Reserve.
<p>Ian Kiepiel I&AP 12 June 2017</p>	<ul style="list-style-type: none"> The proposed expansion affects zoning regulations. If the area is going to be rezoned for housing, this does not support long term conservation efforts. The area sits amidst the Mpushini Conservancy. Building of more houses will have a tremendous environmental impact on the area. Does this mean the rezoning of all conservation / agricultural areas to housing? Why is this development an exception to town and regional planning strategies that have already been successfully implemented on a provincial scale? When the initial development was established a certain number of houses were allotted to be built at Intaba Ridge Private Game Estate. This cap as such, has clearly fallen by the wayside. The reasoning for this is unclear. What assurance is given that this is the final phase of development? To what extent do the developers of Intaba Ridge Private Game Estate intend on developing the area in the long term (i.e. will the area be 	<ul style="list-style-type: none"> The proposed Intaba Ridge expansion comprises an increase in the net density of residential units incorporated into the existing estate infrastructure, which is already zoned for residential housing, as well as for other activities. No conservation areas are going to be rezoned to housing. The Intaba Ridge estate has comprised a Phase 1 and Phase 2 development since the outset. Phase 2 has been included in every sale agreement and site plan since 2010. The rights of the developer to do Phase 2 are protected in the Articles of Association of the

I&AP	COMMENT	RESPONSE
	<p>rezoned for housing and industry)?</p> <ul style="list-style-type: none"> • Of particular concern is the Traffic Impact and additionally, the construction of a new road. • Additionally, the Heritage Impact will be tremendous, decimating the area of any future conservation potential. • Oribi are endemic to the area. The proposed development does not take this into account nor the potential impact of the development on their population. • The impact of Bulk Services (including sewage) and Stormwater runoff on the surrounding wetland and the local biodiversity (particularly threatened species as well as migratory birds using the area as a stopover). • Why has very little mention been made of the proposed packing plant. Industrial packaging is not light on the environment, yet no mention has been made of an EIA on the effects of a packing plant. What are the motives behind the establishment of an industrial packaging plant in a Private Nature Reserve? Does this fall in line with potential environmental services conferred by Intaba Ridge Private Game Estate (i.e. will this plant package dried meat obtained from animals on Intaba Ridge Private Game Estate)? 	<p>Intaba Ridge HOA, as drawn up in 2008.</p> <ul style="list-style-type: none"> • Noted. Traffic related impacts have been addressed in the specialist Traffic Impact Assessment and Biodiversity Assessment studies. • A specialist Heritage Impact Assessment study has been undertaken for the Intaba Ridge Estate property. (Refer to Appendix Q). The study identified stone walling on the site dating to the late nineteenth century and an ancestral grave in the northern portion of the site. The walling and grave will not be altered or damaged in any way as a result of the Phase 2 expansion. No other heritage resources are present on the property. • The establishment of the Intaba Ridge Estate included a comprehensive and ongoing Environmental Management Programme, which includes the rehabilitation of large sections of the estate and the re-introduction of game species into the estate including the Oribi, which were absent prior to their re-introduction as part of the estate development. Environmental management, including the conservation of the existing Oribi population will be ongoing with the expansion. Refer to Appendix O. • This has been addressed in the Bulk and Engineering Services study (Appendix K) and the Wetland (Appendix L) and Aquatic (Appendix N) Assessments. • The proposed expansion project does not include an industrial packaging plant. No industrial packaging will take place on the Intaba Ridge estate. No animals will be used for dried meat. The proposed development includes a package plant, which is a self contained sewage treatment plant. The use of a package plant is a more environmentally sound method of sewage disposal given the nature of the soils in the northern portion of the estate, than the use of septic tank and soakaways.
Patrick Scallan I&AP	<ul style="list-style-type: none"> • I stand behind protecting the Bisley Valley Nature Reserve whatever it takes. 	<ul style="list-style-type: none"> • Noted.

I&AP	COMMENT	RESPONSE
12 June 2017		
Michelle Nicol Eskom 12 July 2017	<ul style="list-style-type: none"> • The Body Corporate and Land Surveyor should please take note of the powerline servitudes (x 3) indicated on the western side of the property (one is registered but has not yet been constructed). • There is also one on the eastern side. • No construction or encroachment is permitted into these servitudes, 18m from the centre line of the powerline, or where the powerline would be. 	<ul style="list-style-type: none"> • Noted. • Noted. • Noted.
Rob Haswell I&AP 29 May 2017	<ul style="list-style-type: none"> • I will be submitting a detailed and serious objection, which should be tabled and heard at a public meeting. 	<ul style="list-style-type: none"> • Noted.
Valerie Carr- Hyde I&AP 12 June 2017	<ul style="list-style-type: none"> • I wish to register my opposition to the development of proposed Intaba Ridge Estate. 	<ul style="list-style-type: none"> • Noted.
I&AP 12 June 2017	<ul style="list-style-type: none"> • I strongly oppose further development of Intaba Ridge. 	<ul style="list-style-type: none"> • Noted.

4.4 PUBLIC INFORMATION SESSION

A Public Information Session (Public Meeting) was held on Thursday, 06 July 2017 at 17:00pm, at the Intaba Ridge Private Game Estate Club House in Intaba Ridge, Bisley Valley, Pietermaritzburg, KwaZulu-Natal. The purpose of the Public Information Session was to provide information to I&APs of the proposed Phase 2 expansion project, present the major concerns raised to date regarding the proposed project and give I&APs the opportunity to raise any additional issues which they feel should be addressed during the Environmental Process. All registered I&APs were personally invited by fax, e-mail, phone or post on 23 June 2017.

This meeting took place in the form of a Public Information Session whereby all available information on the proposed development and environmental process to be followed was displayed at the meeting venue. The meeting attendees were given the opportunity to view the information and then ask questions and provide comments to the Environmental Assessment Practitioners (EAPs).

The EAPs documented the issues and concerns raised by the I&APs regarding the proposed Phase 2 expansion during the meeting, and the meeting minutes were circulated to all registered I&APs from the 11 July 2017.

The following Project Team members were present:

- Dr Rebecca Bowd – Green Door Environmental (Environmental Assessment Practitioner); and
- Dr Phillipa Harrison – Green Door Environmental (Environmental Assessment Practitioner).

The Attendance Register, meeting invitation, a copy of the presentation, the meeting minutes and photos taken at the Public Information Session are included in Appendix R.

A summary of the queries and comments and responses given at the Public Information Session are contained within Table 2 below, along with comments received after the Public Information Session, along with responses. Hard copy comments are presented in Appendix S.

Table 2: Comments received and responses given at the: A) Public Information Session; and B) After the Public Information Session**A) Comments received and responses given at the Public Information Session**

I&AP	COMMENT	RESPONSE
C. Kingham	<ul style="list-style-type: none"> Is the proposed 100 unit retirement village part of the Phase 2 expansion? 	<ul style="list-style-type: none"> Yes it falls under the scope of the Phase 2 development.
C. Kingham	<ul style="list-style-type: none"> Will the operation of the proposed waste water treatment plant (package plant) require professional maintenance? Concerned that if not adequately maintained it will result in bad odours, increased flies, etc. 	<ul style="list-style-type: none"> Yes. Contractors will be appointed for the maintenance of the package plant.
C. Kingham	<ul style="list-style-type: none"> Concerned about the increase in traffic that will result from the proposed expansion. There will be 150 units and most of the units will likely have two cars, so the vehicle numbers are going to be very high. The current access road through Bisley Valley Nature Reserve is not adequate for this high number of vehicles. 	<ul style="list-style-type: none"> Noted. The increase in traffic has been investigated as part of the specialist Traffic Impact Assessment study.
C. Kingham	<ul style="list-style-type: none"> What will govern the architectural code for the new properties? They are going to be much smaller and cheaper houses. 	<ul style="list-style-type: none"> The proposed free hold units will have to comply with the existing architectural code. It is not known if the existing architectural code caters for the proposed 100 lifestyle retirement units, however we are confident that the architectural code for these units will be in keeping with the rest of the estate.
J. Frost	<ul style="list-style-type: none"> What is the general sentiment towards the proposed expansion from the existing Intaba Ridge estate residents? 	<ul style="list-style-type: none"> The existing residents have been aware of the phase 2 expansion since 2010 as it has been included in every sale agreement and site plan since then. The biggest concern raised by the existing residents is the increase in traffic resulting from the expansion.
J. Frost	<ul style="list-style-type: none"> Concerned about the increase in traffic through the Bisley Valley Nature Reserve that will result from the proposed expansion. Has the option of constructing a new access road from Richmond Road to the south west corner of the estate been considered? 	<ul style="list-style-type: none"> The option of an access road from Richmond Road was considered during Phase 1 of the Intaba Ridge development. This has been assessed again as an alternative during this process.
J. Frost	<ul style="list-style-type: none"> How is sewage currently disposed of at the estate? 	<ul style="list-style-type: none"> The existing houses on the estate make use of septic tank and soakaway systems.
K. Walker	<ul style="list-style-type: none"> Will alternatives access routes be investigated for the proposed expansion to try and avoid the main access route going through the Bisley Valley Game Reserve? 	<ul style="list-style-type: none"> Yes, this has been investigated as part of the Basic Assessment process.
A. Qulu	<ul style="list-style-type: none"> The increase in traffic from the proposed expansion is a concern for the Msunduzi 	<ul style="list-style-type: none"> Noted. This has been assessed in the Traffic

	Municipality. Concerned about the impacts of the increased traffic on the Bisley Valley Nature Reserve. The road through Bisley Nature Reserve is not adequate to be used as the main access road.	Impact study and Biodiversity Assessment.
A. Qulu	<ul style="list-style-type: none"> Concerned about the impact of the expansion on the existing Intaba Ridge estate wildlife. The increase in the number of people and vehicles in the estate and increased light and noise levels may negatively impact on the estate wildlife. The impact of the additional housing on wildlife corridors must be assessed. 	<ul style="list-style-type: none"> Noted. This has been assessed in the specialist Biodiversity study.
A. Qulu	<ul style="list-style-type: none"> What is the capacity of the package plant? What is the distance of the plant to the nearest water course? 	<ul style="list-style-type: none"> The capacity for the waste water treatment plant are provided in the Bulk and Engineering Services study.
A. Qulu	<ul style="list-style-type: none"> The specialist Aquatic Assessment must include an assessment of both aquatic fauna and flora. 	<ul style="list-style-type: none"> Noted.
A. Qulu	<ul style="list-style-type: none"> Concerned about heavy construction vehicles and trucks using the Bisley Nature Reserve road during both the construction and operational phases. 	<ul style="list-style-type: none"> Noted.
A. Qulu	<ul style="list-style-type: none"> Increase in traffic from the estate may result in traffic impacts including an increase in accidents at the Bisley Road and Gladys Manzi Road intersection. 	<ul style="list-style-type: none"> Noted.
L. Jansen van Rensburg	<ul style="list-style-type: none"> Support the expansion. The additional phase 2 sites will add value to our estate by celebrating “neighbours” and neighbourly interaction without being overcrowded. There will still be 85% of the property as undeveloped open space. We have already had success in increasing our Oribi population. We have a great environmental management programme. People need to stick to the Bisley Road speed limits through the reserve and then they will have the pleasure of seeing the animals daily. Speed drives animals away, not the presence of cars. Phase 2 will allow more people to experience and live the Intaba Ridge ethos. 	<ul style="list-style-type: none"> Noted.
K. Blomeyer	<ul style="list-style-type: none"> Concerned about the access road through the Bisley Valley Nature Reserve. The road is too narrow. There are a lot of runners and cyclists that use the road in the afternoons. Animals are also a concern. 	<ul style="list-style-type: none"> Noted.
M. Burnett	<ul style="list-style-type: none"> Support the phase 2 expansion. There is a very good environmental management programme in place at the estate. Oribi have been re-introduced into the estate and numbers are increasing. The access road through the Bisley Valley Reserve is a concern though. The road needs to be improved. 	<ul style="list-style-type: none"> Noted.
A. Nel	<ul style="list-style-type: none"> Requests a statement from the Intaba Ridge developers on their opinion on the relationship between the Intaba Ridge Estate and the adjacent Bisley Valley Game Reserve and the impacts of the proposed expansion on the Bisley Nature Reserve. 	<ul style="list-style-type: none"> Noted. This will be raised with the Applicant.
A. Nel	<ul style="list-style-type: none"> How much of an issue is the proposed Intaba Ridge Estate expansion? 	<ul style="list-style-type: none"> Based on the comments received to date it is a big issue.
C. Metherell	<ul style="list-style-type: none"> One of the biggest issues is the access road through Bisley Valley Nature Reserve. There is no road reserve so the road cannot be widened and the verges along the road cannot be cleared. In addition to the Intaba Ridge Estate traffic, many road users use the Bisley Valley 	<ul style="list-style-type: none"> Noted.

	road as a short-cut between Ashburton and Westgate and Edendale.	
C. Metherell	<ul style="list-style-type: none"> • During phase 1 of the Intaba Ridge development construction vehicles were only allowed to use the second access gate preventing the vehicles from driving through the Bisley Valley Nature Reserve. This is no longer enforced and construction vehicles now use the main entrance through Bisley Reserve. Need to go back to using other gate for construction vehicles only. 	<ul style="list-style-type: none"> • We have been informed that contractors previously used the second entrance only to access Intaba Ridge, whilst the roads within Intaba were dirt. However now the main route through Intaba is hardened, the contractors are able to use the Bisley entrance.
C. Metherell	<ul style="list-style-type: none"> • The road through the Bisley Valley Nature Reserve cannot be widened as there is no road reserve. The Municipality is also not prepared to clear the bush either side as it is within a Nature Reserve. The arrangement between the Municipality and Intaba Ridge for the Bisley Road during phase 1 of the development was that Intaba Ridge estate and the Municipality would pay 50 / 50 for the road to be upgraded, and the Municipality would pay for maintenance. 	<ul style="list-style-type: none"> • It is understood that the Msunduzi Municipality is responsible for the road through Bisley Valley Nature Reserve. • We have been informed by the developer that: <ul style="list-style-type: none"> • <i>“The road servitude is supposed to be 5.5 – 5.7m wide. At present it is around 4.5m wide in places;</i> • <i>The Municipality lacks the resources to maintain the road and there is alien vegetation present along the roadside verges. This has resulted in thick vegetation right up to the road. If this alien vegetation is cleared there will be improved sight distance into the surrounding bush”.</i>
C. Metherell	<ul style="list-style-type: none"> • Heavy vehicles increase road deterioration. 	<ul style="list-style-type: none"> • Noted. All these concerns have been communicated to the Applicant.
Meeting Attendee	<ul style="list-style-type: none"> • Concerned about waste water treatment plant because no details have been provided about the plant. 	<ul style="list-style-type: none"> • Noted. Information on the plant has been provided in the Draft Basic Assessment report.
Meeting Attendee	<ul style="list-style-type: none"> • Concerned about the increase in traffic from the proposed expansion and the impact of the waste water treatment plant on downstream water resources and water users. 	<ul style="list-style-type: none"> • Noted. Has been assessed in the specialist Traffic Study and the Geohydrological Assessment.
R. Devereux	<ul style="list-style-type: none"> • When was phase 1 of the development given approval? Was a Heritage Impact Assessment done for phase 1 of the development and did Amafa provide comments on the Heritage study? 	<ul style="list-style-type: none"> • Green Door Environmental was not involved with Phase 1 of the development. Phase 1 received Environmental Authorisation on 16 March 2007. A Heritage Impact Assessment was undertaken. The findings of the study have been included in this Draft Basic Assessment report.
B. Millard	<ul style="list-style-type: none"> • What is the size of the proposed units? 	<ul style="list-style-type: none"> • The minimum size of the freehold stands will

		be 2000m ² while the lifestyle retirement units will be 100 – 150m ² .
B. Millard	<ul style="list-style-type: none"> Where will the treated waste from the waste water treatment plant go? 	<ul style="list-style-type: none"> The top dam to the north of the entrance gate.
Meeting Attendee	<ul style="list-style-type: none"> Why can't access be off the Richmond Road, instead of going through Bisley Valley Nature Reserve? 	<ul style="list-style-type: none"> The option of an access road from Richmond Road was considered during phase 1 of the Intaba Ridge development. We have assessed this as an alternative in the Basic Assessment report.
R. Haswell	<ul style="list-style-type: none"> I do not like the format of the meeting. I do not only want to talk to the EAP. I will only talk to an audience. I want to talk to the residents of Intaba Ridge Estate. 	<ul style="list-style-type: none"> The format of the meeting allows people to attend between two set times. Having a single start time limits the number of I&APs who are able to attend. In addition, this type of meeting allows the EAPs to interact one on one with EAPs, which enables us to get feedback from a larger number of meeting attendees including those I&APs who do not like to speak in front of a crowd. We also find that formal meetings are monopolized by one or two individuals, which discourages others from participating resulting in complaints after the meeting that all the issues were not raised at the meeting. We are happy for you to talk to the residents of Intaba Ridge Estate, but the purpose of this meeting is for Green Door Environmental to interact with I&APs to understand their issues and concerns.
R. Haswell	<ul style="list-style-type: none"> We want a proper meeting. This meeting does not comply with the legislation. 	<ul style="list-style-type: none"> In terms of the current EIA Regulations it is not a legal requirement to have a public meeting as part of the Basic Assessment process. Green Door chooses to hold these public meetings as we want to engage with I&APs and understand the details of concerns associated with the project.
R. Haswell	<ul style="list-style-type: none"> This is not a country driven by law, it is a country driven by people's needs. 	<ul style="list-style-type: none"> Noted. As previously stated, these meetings are not a legal requirement. Green Door chooses to have them, so that we can fully understand I&APs concerns.

R. Haswell	<ul style="list-style-type: none"> The project does not constitute an expansion to the Intaba Ridge estate. It constitutes an increase in density of the estate. The information contained in the Background Information Document (BID) is therefore incorrect. 	<ul style="list-style-type: none"> Noted. The use of the word 'expansion' is open to interpretation.
R. Haswell	<ul style="list-style-type: none"> Bisley Valley Nature Reserve is zoned conservation. The developer can't build next to it. 	<ul style="list-style-type: none"> Noted.
R. Haswell	<ul style="list-style-type: none"> We will not allow Bisley Valley Nature Reserve to be detrimentally impacted upon by this development. 	<ul style="list-style-type: none"> Noted.
R. Haswell	<ul style="list-style-type: none"> The road through the Bisley Valley Nature Reserve cannot handle any more traffic. More traffic will have a negative impact on both animal and human life. 	<ul style="list-style-type: none"> Noted. This has been assessed as part of the specialist Traffic Impact studies.
N. Haswell	<ul style="list-style-type: none"> Are you aware that African lynx occur at Bisley Valley Nature Reserve? This animal is listed as a red data species. 	<ul style="list-style-type: none"> Noted.
N. Haswell	<ul style="list-style-type: none"> Wildlife in the Bisley Nature Reserve is attracted to the road at night due to the heat that the road gives off. This increases the risk of mortalities. 	<ul style="list-style-type: none"> Noted.
N. Haswell	<ul style="list-style-type: none"> The additional 150 new units at Intaba Ridge estate will have a hugely negative impact on the wildlife within the Bisley Valley Nature Reserve. I can assure you that the African lynx will become extinct in the reserve. There is no doubt that this will happen 	<ul style="list-style-type: none"> Noted.
Meeting Attendee	<ul style="list-style-type: none"> This whole area (Intaba Ridge and Bisley Valley Nature Reserve) is zoned conservation. 	<ul style="list-style-type: none"> At a strategic level that maybe the case, however at a property level Intaba Ridge is zoned as residential and has DFA consent.
Meeting Attendee	<ul style="list-style-type: none"> Does the zoning of the property have to be changed as a result of the development? 	<ul style="list-style-type: none"> No. The property is zoned residential.
M. Acutt	<ul style="list-style-type: none"> I fully support the phase 2 development due to the following: <ul style="list-style-type: none"> Intaba Ridge estate has made significant contributions to the rehabilitation of both the flora and fauna on the estate, e.g. the number of Oribi buck have doubled, kikuyu grass has been replaced by indigenous grassland; The existing number of residents can't continue to afford doing this without the further numbers; The extra cars on the road should not be a problem if the road is upgraded; and The number of new residents will bring extra rates revenue which will help sustain the area. 	<ul style="list-style-type: none"> Noted.
R. Weston	<ul style="list-style-type: none"> I personally have no objection to the phase 2 development. 	<ul style="list-style-type: none"> Noted.
M. Weston	<ul style="list-style-type: none"> We have absolutely no objection to the phase 2 development. Without it this development is not sustainable with regards to levies. 	<ul style="list-style-type: none"> Noted.
<p>B) Comments received and responses given after the Public Information Session</p>		
Colin van Heerden I&AP	<ul style="list-style-type: none"> I have been sent the minutes of the meeting. I have two comments, firstly the only substantial reason to emerge in favour of extending the damage to the Bisley eco system is that the development will reduce the levies of the 	<ul style="list-style-type: none"> Noted. Noted.

<p>17 July 2017</p>	<p>existing residents. The developer didn't mention how it would affect his profits.</p> <ul style="list-style-type: none"> • My second comment is to correct a throwaway comment by yourselves about the majority of the vegetation on the road through Bisley being alien plants. Anyone with only a vague knowledge of plants would know this is not true at all. In fact the opposite is true. There is very little alien growth along the road. Apart from lantana on our property, which we are dealing with, the highest concentration of alien plants in the valley is to be found on the Intaba ridge so called eco estate. Two or three Oribi and a bit less kikuyu and 260 residences on 200ha, can hardly call itself eco friendly. I will forward to list of plants that David Johnson who visits our property two or three times a month to ensure that we preserve the habitat properly, has compiled. These are the same plants that line the Bisley road and that you refer to as aliens. 	<ul style="list-style-type: none"> • Noted. However, Green Door Environmental has not stated that the majority of vegetation along the Bisley Road is alien plants. Reference to the vegetation which occurs along the road verges was made by the Municipality and the developer (see above).
<p>Colin van Heerden I&AP 02 August 2017</p>	<ul style="list-style-type: none"> • Your submission in the public meeting minutes that the roadside through Bisley is mostly lined with aliens prompted me to engage David Johnson to undertake a survey of the vegetation along the road. • The result is attached. David counted 1212 specimens of which only 30 are aliens. The vegetation along the roadside has been exceptionally conserved. • I request that you apologise for placing a complete falsehood on record and that you circulate David's report to all those who received copies of the minutes. 	<ul style="list-style-type: none"> • Noted. See above response. • Noted. • The Public Meeting minutes clearly state: <i>"We have been informed by the developer that the road servitude is supposed to be 5.5 – 5.7m wide. At present it is around 4.5m wide in places. The Municipality lacks the resources to maintain the road and there is alien vegetation present along the roadside verges. This has resulted in thick vegetation right up to the road. If this alien vegetation is cleared there will be improved sight distance into the surrounding bush."</i> As such, nowhere has it been stated that the roadside through Bisley "is mostly lined with aliens". Rather, the developer stated that the Municipality lacks resources to maintain the road and there is alien vegetation present on the verges. • Refer to comment below. In response to the comment from David Johnson: <i>"An accusation has been made that the tar road through Bisley Nature Reserve is lined with weeds. The point being made is that widening the road will not impair the integrity of the reserve; on the contrary it will assist</i>

		<p><i>with weed clearance.”</i></p> <ul style="list-style-type: none"> • Nowhere in the Public Meeting minutes or any other information circulated to date has it ever been stated that the Bisley Road is to be widened and that any indigenous vegetation is to be cut down. • While we appreciate David Johnsons input in terms of identifying the vegetation types present along the Bisley roadsides, his comments that the road will be widened are based on false information that has not been provided by Green Door Environmental. We will therefore not be circulating David's comment it to all I&APs who received the Public Meeting minutes. His comment, together with this response, have been included in the Draft Basic Assessment Report together with all other comments we have received on this project.
<p>David Johnson I&AP July 2017</p>	<ul style="list-style-type: none"> • An accusation has been made that the tar road through Bisley Nature Reserve is lined with weeds. The point being made is that widening the road will not impair the integrity of the reserve; on the contrary it will assist with weed clearance. • Accordingly, a census of the roadside trees was conducted on July 21 and 27 2017. These counts spanned the 1.2 km between the two cattle grids that demarcated the road within the reserve. All woody plants over 1 m tall, within 2 m of the road edge, and on both sides of the road, were counted. Thirty species were found, only two of which <i>Opuntia ficus-indica</i> and <i>Lantana camara</i> are alien. • Many of the individual plants were small, and perhaps scruffy to the untutored eye, particularly in dry season mode, leading to a “weedy” impression. However, the community is actually of above interest because two “specials” are present. <i>Cadaba natalensis</i> is rare, and probably has not been recorded in Bisley before. <i>Acacia gerrardii</i> is well known in tropical Africa, including Zululand, but Bisley is the very end of its world range. • Widening the road could lead to predictable consequences. Whatever speed limit is imposed, traffic will move faster. Disastrous collisions with large animals are inevitable. Next comes the call to either game fence both sides of the road or remove the big animals altogether. Either way, the integrity and functioning of the reserve is threatened. The next step is to deproclaim the reserve because “it is of no further value”. Finally the area is allocated to low-cost housing. The latter is no idle possibility: about 25 years ago the City mooted this very project at a time when there was no realistic call for it. Intaba would do well to consider who or what it would like as a neighbour. 	<ul style="list-style-type: none"> • Nowhere in the Public Meeting minutes or any other information circulated to date has it ever been stated that the Bisley Road is to be widened and that any indigenous vegetation is to be cut down. While we appreciate David Johnsons input in terms of identifying the vegetation types present along the Bisley roadsides, his comments that the road will be widened are based on false information that has not been provided by Green Door Environmental.

<p>Colin van Heerden I&AP 04 August 2017</p>	<ul style="list-style-type: none"> It's very clear that both you and the developer express a strong view that the road could be wider and that the vegetation along the road is dominated by aliens. It is has now been confirmed that the "thick vegetation along the road" is 98% indigenous. The removal of 29 cacti and a Lantana will have not improve the "sight distance" into the reserve at all. The right thing to do remains to amend the minutes and apologise for perpetrating a falsehood. I don't understand why the developer would have mentioned widening the road if he had no intention of pursuing this. I am however heartened by your clarification and confirmation that this is not the case and that the developer does not think the road should be widened. I am also encouraged that the Developer does not wish to harm any indigenous trees lining the road. 	<ul style="list-style-type: none"> Thank you for your response, however it is clear to me that there is still a major misunderstanding on your part regarding the comments made at the Public Meeting. The following comment was made by Chris Metherell from the Msunduzi Municipality (refer to page 5 of the Public Meeting minutes): <i>"The road through the Bisley Valley Nature Reserve cannot be widened as there is no road reserve. The Municipality is also not prepared to clear the bush either side as it is within a Nature Reserve. The arrangement between the Municipality and Intaba Ridge for the Bisley Road during phase 1 of the development was that Intaba Ridge estate and the Municipality would pay 50 / 50 for the road to be upgraded, and the Municipality would pay for maintenance."</i> The developers response was to highlight the fact that even though the Municipality is responsible for the maintenance of this road, maintenance which includes the clearance of alien vegetation, this is not being undertaken. His comment therefore does not allude to the fact that the road should be widened, but rather that the Municipality is not undertaking the maintenance of the road, for which they are responsible. As such, I find your statement that "both you and the developer express a strong view that the road could be wider" a serious allegation as firstly, Green Door Environmental has never circulated information stating such and secondly, your comment is calling into question the integrity and independence of Green Door Environmental as the appointed independent Environmental Assessment Practitioners. Green Door Environmental takes road safety matters extremely seriously and that is why
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		<p>we contract the services of highly qualified Traffic Engineers to undertake specialist assessments for developments. As green door is an environmental consultancy we are not qualified traffic engineers and are guided by the findings and recommendations of these specialists. By including the developers response in the Meeting Minutes we were outlining to the Municipality a concern that has been raised by many of the I&APs for this project, that of the present condition of the Bisley Road and the fact that the maintenance of the road is not being undertaken by the Municipality. As such, I reiterate, Green Door Environmental has never expressed a strong view that the road should be widened and that vegetation along the road is dominated by aliens. We shall therefore not be amending the minutes or apologizing for perpetuating a falsehood as no falsehood is being perpetuated on our part.</p>
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4.5 SUMMARY OF ISSUES RAISED

The main issues which were raised during the public participation process include:

- Impact of Package Plant including impacts on downstream water users;
- Impacts on fauna and flora, including impacts to wildlife movement on the estate;
- Increased traffic and traffic related impacts on fauna in Bisley Valley Nature Reserve;
- Increased security risks;
- Water related impacts including decreased water pressure and impacts on the water table levels;
- Increased pollution, dust, noise and litter; and
- Need and desirability of the proposed development (as there are still unsold plots in Phase 1).

4.6 CIRCULATION OF THE DRAFT BASIC ASSESSMENT REPORT (DBAR)

Copies of the Draft Basic Assessment Report (DBAR) were circulated to the following I&APs for review and comment:

- Dominic Wieners – Ezemvelo KZN Wildlife
- Bernadet Pawandiwa – Amafa Heritage KZN
- Zama Hadebe – Department of Water and Sanitation
- Nandipha Sontangane – Department of Agriculture, Forestry and Fisheries
- Petrus Mans – Department of Agriculture, and Rural Development
- Mandisa Khomo – uMgungundlovu District Municipality
- Abulele Qulu – Msunduzi Local Municipality
- Sindy Luthuli – Umgeni Water
- Ian Felton – Department of Economic Development, Tourism and Environmental Affairs
- Sanele Vilakazi – Duzi-uMgeni Conservation Trust
- Judy Reddy – Department of Transport
- Michele Nicol - Eskom
- Pandora Long – Preservation of the Mkondeni Mpushini Biodiversity Trust

A hard copy of the Draft Report was made available for viewing at the Intaba Ridge Private Game Estate office and electronic copies of the report were made available to all I&APs on request.

All registered I&APs were notified in writing of the availability of the Draft Basic Assessment Report for comment. I&APs were given a 36 day period to comment on the Draft Report. Comments received following circulation of the Draft Basic Assessment Report are summarised and responded to in Table 3 below. Copies of the comments and proof of the comment chase are included in Appendix T.

Table 3: Comments and responses following the circulation of the Draft Basic Assessment Report

I&AP	COMMENT	RESPONSE
<p>I. Felton Department of Economic Development, Tourism and Environmental Affairs (DEDTEA) 20 April 2018</p>	<ul style="list-style-type: none"> • In respect of the Draft BAR and associated specialist studies, the Department raises the following issues (in addition to and support of those raised in the pre-application meeting) that will need to be addressed in the Final BAR process: • 1) It is unclear who the current Authorisation Holder for the Intaba Ridge development is. Authorisation was issued on the 16th March 2007 under EIA Reference No. EIA 7161. It is not clear if this Authorisation has been transferred to the entities referred to in the draft BAR, namely Sign Power Investments 8 (Pty) Ltd; Intaba Ridge Developments (Pty) Ltd; and/or the Intaba Ridge Homeowners Association. Should the existing Authorisation not have been transferred to the correct legal entity responsible to the implementation and management of the development, then this will need to be rectified through a Part 1 Amendment application prior to the application being undertaken for the Phase 2 development. • 2) Clarity also needs to be provided in respect of whether the application falls within BAR or full Scoping/EIA process. It is apparent that approximately 25,6 Hectares of land would be transformed through the Phase 2 development. It is not clear in the draft BAR how much of this area is considered indigenous vegetation (in line with the legal definition contained in the relevant EIA regulations). Should more than 20 Ha of indigenous vegetation be proposed to be transformed, the application would need to follow the full Scoping / EIA process and not a BAR process. • 3) Portions of the property and development area fall within sensitive areas defined in terms of the Gazetted Msunduzi EMF. Please ensure that the activities applied for include all activities that may be triggered in terms of the Listing Notice 3 activities that are relevant. 	<ul style="list-style-type: none"> • Noted. • A Part 1 Amendment Application to transfer the RoD (EIA 7161) for Phase 1 of the Intaba Ridge Estate from Mr. D.C. Arnold / Mr. I. Foxon to Intaba Ridge Developments (Pty) Ltd has been undertaken with amendment authorised on the 20th July 2018 (DC22/Amend/7161/2018). • The Phase 2 development footprint comprises a total area of 20.5 ha in extent and is located on previously cultivated land. As per the findings of the specialist Biodiversity Assessment (Appendix W), of this area, about 14.5 ha meets the definition of indigenous vegetation, i.e. has reverted back to a secondary grassland with a mix of indigenous species. The remaining areas comprise Kikuyu pastures that are frequently mowed and can be considered as still transformed and would therefore not be regarded as indigenous vegetation. Therefore less than 20ha of indigenous vegetation will be cleared for the proposed Phase 2 development and a BAR process is applicable. • Noted, the applicable Listing Notice 3 activities have been included in the Application.

I&AP	COMMENT	RESPONSE
	<ul style="list-style-type: none"> • 4) Please note that Bisley Nature Reserve is not a protected area proclaimed in terms of the National Environmental Management: Protected Areas Act. It is protected in terms of municipal land use zoning as a Conservation Area. The application being made must also include any activities that are listed in terms of the relevant listing notices and that are proposed within the conservation area. This will also require land owner consent and must be considered and included in this application. • 5) In respect of the impacts on Bisley Nature Reserve, it is noted that the biodiversity specialist study has not addressed the impacts of the proposed development on the conservation area, particularly in respect of the increased traffic expected as a result of the proposed development and the cumulative impacts associated therewith. The biodiversity assessment will need to be broadened to include a biodiversity and ecological assessment of the potential impacts on the conservation area of increased traffic and the proposed mitigation measures that are proposed within the conservation area to facilitate traffic safety. Roads and traffic can have impacts a considerable distance from the road edge and an area of at least 50 metres either side of the road must be considered in this ecological impact. • 6) The biodiversity specialist study also has not adequately placed the proposed development in context with existing strategic studies concluded in the area including the Mkondeni SEA and the Msunduzi EMF. • 7) In the original impact assessment for the Intaba Ridge (Almond Bank) development, careful consideration was given to ecological corridors and species movement through the property, linking with adjoining areas. It is not clear if these have been considered or if the increased density and development will impact on these ecological corridors. The original corridors and ecologically sensitive areas, as considered in the original environmental assessment should be indicated on the layout plan and impacts on these areas assessed, as appropriate. • 8) The Mkhondeni SEA defined and recommended specific land use preferences and densities for the development area and surrounding catchment. It is not clear if these recommendations have been considered in the determination of densities and alternatives for the proposed 	<ul style="list-style-type: none"> • Noted. No listed activities will be undertaken within the Bisley Nature Reserve associated with this Application. • The specialist Biodiversity Study has been updated to include an assessment of potential impacts on the Bisley Nature Reserve (refer to Appendix W for the updated Biodiversity Study). • The Biodiversity Assessment has been updated to include this information (refer to Appendix W). • Noted. The existing system of ecological corridors which were established during Phase 1 of the Intaba Ridge development have been taken into consideration and will be fully maintained during the Phase 2 expansion of the Estate. The layout plan has been updated to show the location of the corridors (refer to Appendix B) and the potential impacts on these areas have been assessed in the BAR (refer to Section 6). • The Mkhondeni SEA has been taken into consideration. The Mkhondeni SEA indicates that Erf 115 Almond Bank comprises a combination of Normal

I&AP	COMMENT	RESPONSE
	<p>development, or how the proposed development aligns or conflicts with those land use recommendations. Alternatives must include the alternative densities and land use proposals as suggested by the Mkhondeni SEA.</p>	<p>Urban Development, Conservation with Development, and Open Space areas in terms of the Most Desirable Land Use Scenario planning for the Mkhondeni Catchment, with the majority of land comprising Conservation with Development areas (refer to Appendix C for the Mkhondeni SEA information). Conservation with Development areas are areas where there is limited development, focussed on eco-estate and eco-tourism types of developments. Within these areas, the main land use will be in the form of open spaces. The Intaba Ridge development comprises an eco-estate and therefore is in line with the most desirable land use scenario for the development site. Erf 115 Almond Bank is approximately 278ha in extent and 230ha of this area will remain as open space after the proposed Phase 2 expansion, including corridors of open space within the residential development footprint. As such, the EAP is of the opinion that the Intaba Ridge Private Game Estate development is in line with the requirements of the Mkhondeni SEA in terms of landuse planning.</p>
<p>K. Moodley Department of Agriculture, Forestry and Fisheries (DAFF) 10 July 2018</p>	<ul style="list-style-type: none"> • The Department of Agriculture, Forestry and Fisheries appreciates the opportunity given to review and comment on the Draft Basic Assessment Report. Through the sub-directorate Forestry Regulations and Support is the authority mandated to implement the National Forest Act, (Act No. 84 of 1998) by regulating the use of natural forests and protected tree species in terms of the said Act. • With reference to the document received on 12/06/2018 and site inspection conducted on 21 June 2018, the proposed site comprises of primary grassland, indigenous woodland, alien woodland and transformed land. In addition, four riparian channels were also noted on site. 	<ul style="list-style-type: none"> • Noted. • Noted.

I&AP	COMMENT	RESPONSE
	<ul style="list-style-type: none"> • The proposed development footprint is located on previously cultivated land and transformed areas. • DAFF has no objection towards the proposed development provided the following conditions are strictly adhered to: • The 30 meter buffer as per specialist report must be implemented for riparian zones. The use of the 30m buffer as a no-go area during the construction phase must be enforced in the Environmental Management Programme. The buffer should not be used as a stockpiling area for construction related products. • Indigenous vegetation should be used during the landscaping process. • An alien invasive management programme should be implemented to limit the spread of alien invasive plant species to non-affected areas. • All conditions stipulated in the Environmental Management Programme must be strictly adhered to. • With regards to fire management and the burning of firebreaks within the estate, the relevant legislation that needs to be implemented is the National Veld and Forest Fire Act 101 of 1998 and not the Forest and Veld Conservation Act No. 13 of 1941 as specified on the Environmental Management Plan for Intaba Ridge Estate. 	<ul style="list-style-type: none"> • Noted. • Noted. • Noted and supported. This condition is included in the EMPr. • Noted and supported. This recommendation is included in the EMPr. • Noted. An alien invasive management programme is included in the EMPr. • Noted. The appointed ECO will ensure that the EMPr is implemented should the proposed phase 2 expansion be authorised. • Noted. The National Veld and Forest Fire Act No. 101 of 1998 has been referred to in the EMPr as relating to fire management and the burning of firebreaks.
<p>Kim Walker and Ian Brown I&AP 12 July 2018</p>	<ul style="list-style-type: none"> • With reference to your response to Colin Van Heerden and David Johnson (I&AP) – page 55/56 - <i>“Nowhere in the Public Meeting minutes or other information circulated to date has it ever been stated that the Bisley Road is to be widened and that any indigenous vegetation is to be cut down.”</i> I attended that meeting together with Ian Brown and we have discussed this with Rob and Nic Haswell (all I&AP’s) who attended the meeting and the road widening was definitely discussed at the meeting on the 06th July 2017; if this was not mentioned in your minutes maybe an oversight. If you refer to your own Basic Assessment Report on page 77 – Implications/Risk/Impact and page 81 – Mitigation/Recommendations – you state <i>“so any options to widen the road or clear vegetation from the road verge would have a low impact.”</i> I find this very strange as you emphatically deny any intention of widening the road. 	<ul style="list-style-type: none"> • Please note that at the Public Meeting the issue of widening the road was discussed with the following comment received from C. Metherell from the Msunduzi Municipality (refer to page 5 of the Public Meeting Minutes) <i>“The road through the Bisley Valley Nature Reserve cannot be widened as there is no road reserve. The Municipality is also not prepared to clear the bush either side as it is within a Nature Reserve. The arrangement between the Municipality and Intaba Ridge for the Bisley Road during phase 1 of the development was that Intaba Ridge</i>

I&AP	COMMENT	RESPONSE
	<ul style="list-style-type: none"> I also find it quite strange that you respond to Colin van Heerden (I&AP) – page 57 of DBAR – <i>‘The road through the Bisley Valley Nature Reserve cannot be widened as there is no road reserve. The Municipality is also not prepared to clear the bush either side as it is within the Nature Reserve.’</i> If you refer to page 66 of the BAR – Mitigation/Recommendations – point 4 – <i>“vegetation along the roadside should be cut back”</i> – point 5 – <i>“cutting back the vegetation”</i> – page 77 Implication/Risk/Impact and pages 66/81 – Mitigation/Recommendations – <i>“or clear vegetation from the road verge would have a low impact.”</i> Page 79 – <i>‘road verges should be cut back... A cleared strip of 7 to 10 meters on both sides of the road.’</i> Page 112 – Environmental statement – <i>“vegetation along the road should be cut back (a strip of 7 to 10 meters on both sides of the road).”</i> I personally would be very keen to see David Johnson’s survey regarding 1 212 plant specimens which he counted of which only 30 were alien and 1 	<p><i>estate and the Municipality would pay 50 / 50 for the road to be upgraded, and the Municipality would pay for maintenance.”</i></p> <ul style="list-style-type: none"> As can be seen from Mr. Metherell’s comment, the clearing and widening of Bisley Road is not supported by the Msunduzi Municipality because it is located in a Nature Reserve. However, based on all the comments received to date and the findings of the Specialist Studies, the potential traffic related impacts to both road users and wildlife associated with the increase in traffic from the Phase 2 expansion is one of the most significant issues identified during the Basic Assessment Process. As such, we are required to consider all possible mitigation measures to try and limit traffic related impacts. Cutting back vegetation along either side of the Bisley Road will improve sight distance for both drivers and wildlife and will be an effective means of reducing traffic related risks (refer to specialist Biodiversity Assessment). As such, despite what the Municipality stated during the Public Meeting, we are required to include the recommendation that the road verges be cleared to improve sight distance in the BAR. The onus is then on the Competent Authority and the Municipality to determine what measures, if any, need to be undertaken to limit traffic related impacts along the Bisley Road should the phase 2 expansion be authorised. A copy of David Johnson’s survey which is dated July 2017 was included in the

I&AP	COMMENT	RESPONSE
	<p>strongly agree with Colin van Heerden that this report should be circulated as part of your minutes and form part of the Basic Assessment Report.</p> <ul style="list-style-type: none"> • Floral Assessment – BAR pages 77/81 – <i>“Patches of the study area that were not pristine had been disturbed by road works and drainage trenches.”</i> • Noise and dust nuisances – page 66 <i>“Increase in construction vehicles, traffic, people and potential job seekers”</i> – you mention the negative impacts on the Bisley Game Reserve wildlife if mitigation measures are not implemented. I do not believe for one second that your suggested mitigation on page 67 that <i>“The Homeowners Association must put in place controls to ensure that there are no negative impacts on the estate wildlife and adjacent reserve.”</i> This could never prevent negative impact to the wildlife in the Bisley Game Reserve. • Page 78 of your BAR refers <i>“The increase of traffic volumes on the Bisley Road may (more likely will) result in an increased risk of collisions with wildlife and mortality of small species on the road.”</i> Your solution to this – refer EAP recommendations on page 112 – <i>“The HOA, as far as possible, must record and monitor if and when animal fatalities occur along the road within the Bisley Game Reserve. The HOA must encourage the</i> 	<p>Draft BAR in Appendix S – Comments Following the Public Meeting. It has also been included in the Final BAR.</p> <ul style="list-style-type: none"> • This statement comes from the specialist Biodiversity Assessment study and refers to vegetation along the Bisley Road. The findings of the vegetation assessment revealed that vegetation within the 14.7 ha study area was found to be disturbed in places but it was diverse and representative of the vegetation type of the area (open woodland and closed woodland). Patches of the study area that were not pristine had been disturbed by road works, an old railway line and drainage trenches. • The suggested mitigation measure that you are referring to on page 67 of the Draft BAR states <i>“Due to the presence of wildlife on the Estate and its location adjacent to the Bisley Valley Nature Reserve, the Homeowners Association must put in place controls to ensure that there are no negative impacts on the Estate wildlife and adjacent Reserve, i.e. excess noise, hooting, loud music at the estate is to be prohibited.”</i> This recommendation is aimed directly at trying to limit noise related impacts on wildlife and appears to have been misinterpreted in your comment. • As stated above, the potential traffic related impact to both road users and wildlife associated with the increase in traffic from the Phase 2 expansion is one of the most significant issues identified during the Basic Assessment Process.

I&AP	COMMENT	RESPONSE
	<p><i>Municipality to take the necessary action (e.g. speed cameras, electronic signs which show your speed, 40km/hr painted at various locations the road.</i> By your own admission on page 55 of the BAR – <i>“the Municipality lacks the resources to maintain the road.”</i> Page 57 – <i>“The Municipality is not undertaking the maintenance of the road for which they are responsible.”</i> Page 58 – <i>“The maintenance of the road is not being undertaken by the Municipality.”</i> For the Municipality this is effectively a secondary road through a game reserve with minimal traffic so to expect them to implement your suggested actions above is laughable to say the least.</p> <ul style="list-style-type: none"> • Biodiversity Assessment – page 13 refers – <i>“Appears to be at odds with the SEA recommendation which is of concern.”</i> <i>“Development of this magnitude in such close proximity to the Bisley Valley Nature Reserve has the potential to significantly increase negative impacts on this sensitive area which include noise, aesthetics, light, vehicular and pedestrian traffic amongst others.”</i> • With regards to the Traffic Report I would like to comment as follows: The report has compared traffic in the following Game Reserves 1) Bisley – 350ha, 1.1km of road, a gate at each end; 2) Dinokeng – 21 000ha, 11km of road, 5 gates; 3) Kruger – 19 485km², 1 800 km of road, 9 gates. In my opinion this is like comparing the environmental impact of an elephant and a warthog versus a mouse. • Phase 1 started in 2010 and has 100 residential units planned with approximately 45 units already completed. As per pages 3 and 4 of the BAR, Phase 2 has now been planned to include 52 freehold residential sites and 100 low impact sectional title village for over 50s plus a package plant for sewerage treatment. Existing traffic demand for 45 units: morning peak hour – 56 vehicles; morning period – 131 vehicles; 24 hour period – 574 vehicles. Fully developed estate: morning peak hour – 160 vehicles; 12 hour period – 1162 vehicles. Therefore for an additional 155 units and 52 residential sits (207) additional units, there will be the following increase in traffic: morning peak hour – 104 vehicles; 12 hour period – 588 vehicles. This figure appears to be very low, bearing in mind that the traffic currently 	<p>Should the proposed Phase 2 expansion be authorised, mitigation measures will have to be put in place to reduce these traffic related risks.</p> <ul style="list-style-type: none"> • You are referring to a comment made by the Msunduzi Municipality in March 2009 for the initial Phase 1 development of the Intaba Ridge Estate. The comment is included in the Biodiversity Assessment in order to highlight the issues raised by I&APs during the Phase 1 development as related to the interpretation of the Strategic Environmental Assessment (SEA) for the Mkhondeni Stream Catchment area. • Your opinion is noted. • The potential increase in traffic associated with the phase 2 expansion has been assessed in both of the specialist Traffic Impact Assessment studies. The findings of the studies show that the surrounding road network has capacity to accommodate the traffic from the fully developed estate (phase 1 and phase 2).

I&AP	COMMENT	RESPONSE
	<p>arising from 45 occupied units is 574 vehicles per 24 hours. Intaba Ridge is located 1.4km down a secondary road with no readily available amenities such as shops, chemists, hospitals, service stations, schools, etc. So even if this assumption is based on a retirement village of 100 units, I am hard pressed to believe that each household would not own at least one vehicle and the probability of at least two per household is very high; not to mention that it is highly unlikely that most 50 year olds are retired and would therefore add to the morning peak hour traffic.</p> <ul style="list-style-type: none"> • In my opinion a report can be put together to prove or disprove any argument; not that I am calling into question the integrity and independence of any of the reports submitted in support of the Basic Assessment Report for the proposed Intaba Ridge Phase 2 Expansion. • My main argument has always been the traffic impact to the Bisley Game Reserve but there will also very negative impacts to the water system caused through the planned development of the package plant for sewerage treatment; which I know that some of the I&APs have raised. <ul style="list-style-type: none"> • Having read the Basic Assessment Report and all the supporting appendices I am not convinced that the well being of the wildlife and the Bisley Game Reserve will be protected. I am of the opinion that their very existence will hang very much in the balance should this expansion be approved. 	<ul style="list-style-type: none"> • Your opinion is noted. • The proposed package plant only poses a risk to surface and groundwater resources if the plant is not properly operated and maintained or if the sewer pipeline develops leaks or bursts (refer to the specialist Geohydrological Assessment study; Section 6 and Section 7 of the BAR for an outline of risks associated with the package plant and recommended mitigation measures). • Your concerns are noted, however, the very existence of the Bisley Nature Reserve will not hang in the balance should the expansion be approved. The only significant potential impact to the Bisley Nature Reserve wildlife is traffic related. As outlined in the BAR and specialist studies there are numerous options available to mitigate this risk. The Competent Authority will not approve a development that results in the destruction of a Reserve.
<p>P. Mans Department of Agriculture and Rural Development (DARD)</p>	<ul style="list-style-type: none"> • The Provincial Department of Agriculture and Rural development: Agricultural Resources Management acknowledges receipt of the Draft Basic Assessment Report on the proposed phase 2 expansion of the 	<ul style="list-style-type: none"> • Noted.

I&AP	COMMENT	RESPONSE
17 July 2018	<p>existing Intaba Ridge Private Game Estate.</p> <ul style="list-style-type: none"> • The proposed phase 2 expansion footprint is clustered and all the additional Erf's are within the existing residential properties. • The proposed infrastructure layout does not encroach into the wetland network buffers identified in the wetland study and the ecological corridors established during the phase 1 development. • The mitigation measures provided to manage potential soil erosion from the anticipated increased storm water runoff are deemed adequate. • The Provincial Department of Agriculture and Rural Development: Land Use Regulatory Unit has no objection to the proposed phase 2 expansion of the existing Intaba Ridge Private Game Estate on Erf 115 Almond Bank. 	<ul style="list-style-type: none"> • Noted. • Noted. • Noted. • Noted. Thank you for your comments.
Brian Millard I&AP 25 June 2018	<ul style="list-style-type: none"> • The development of Phase 2 of Intaba Ridge poses a number of interesting challenges. • The access road to Intaba Ridge, off Gladys Manzi Road (Murray Road), will require upgrading. It would appear that the access road is called Bisley Road. • It is noted that concrete posts have been placed on the edge of portions of Bisley Road. This would indicate that this portion of Bisley Road, P120, is a Provincial Main Road and that the Municipality is responsible for the remaining portion of the access road. Confirmation of this would be appreciated. • The width of the road reserve should be confirmed with the responsible authorities. • Adequate storm water drainage will be required alongside the shoulders of the access road. Some concrete storm water channels have previously been constructed on various sections of the access road. • The proposed development will require storm water facilities with suitable discharge points. The storm water requirements should be determined by a Professional Engineer. 	<ul style="list-style-type: none"> • Noted. • Access to the Intaba Ridge Estate is via the Bisley Road (P120) which traverses the Bisley Valley Nature Reserve. The current condition of the Bisley Road has been identified as a significant issue during the Basic Assessment Process. • The portion of the P120, Bisley Road that traverses the Bisley Nature Reserve falls under the responsibility of the Msunduzi Local Municipality. • Noted. The information we have received to date indicates that the road servitude is supposed to be 5.5 – 5.7m wide. At present it is around 4.5m wide in places. • Noted. • Stormwater management for the proposed Phase 2 expansion has been covered in the Engineering Services Report and the stormwater layout plan compiled by Bosch Stemele Consulting Engineers dated August 2017. Refer to

I&AP	COMMENT	RESPONSE
	<ul style="list-style-type: none"> • The necessary protection to the cut and fill slopes will depend on the soil investigation. The cut and fill earthworks may require suitable retaining structures. • It is noted that approximately five speed humps have been constructed on the access road. The proposed additional speed humps on the Bisley Road will have to be strategically sited to ensure adequate traffic safety. The additional speed humps will presumably require the approval of the KZN Department of Transport and any other responsible authority. • Reference is made to the provision of “Public Transport Facilities”. An indication of where the Public Transport facility will be provided would be helpful. Any additional facilities on the access road will require the responsible authority’s approval. • The choice of foundations for the proposed structures will largely depend on the soil investigation/test pit results. Based on the July 2008 Geotechnical Report it would appear that the bearing capacity of the soil is greater than 100KPa at a depth of 0.6 meters below ground level. If not already done the suitability of the founding material at the future foundations should be confirmed to ensure a consistent type of bearing capacity material. • Item 7.9 on page 93 contains the sentence “statement is statement”. The sentence should be revisited. • It is suggested that where reference is made to “competent Engineer” that this is replaced by “Professional Engineer”. 	<ul style="list-style-type: none"> Appendix K for the Engineering Services Report and stormwater layout. • Cut and fill design requirements have been addressed in the Geotechnical Investigation Report compiled by Terratest dated July 2008. Refer to Appendix U for the Geotechnical Investigation Report. • Noted. The Bisley Road falls under the responsibility of the Msunduzi Local Municipality. The Municipality will be required to approve any proposed alterations or upgrades to the Bisley Road. • The Traffic Impact Assessment undertaken by DMA recommends that taxi laybys should be provided at the entrance to the Intaba Ridge Estate. As per above comment, the Msunduzi Local Municipality will be required to approve any proposed alterations or upgrades to the Bisley Road. • Noted. The required geotechnical investigations will be undertaken at each residential site prior to development commencing. • Thank you for highlighting the error. It has been corrected. • Your suggestion has been noted and the BAR has been updated accordingly.
<p>Kevin Blomeyer I&AP 17 July 2018</p>	<ul style="list-style-type: none"> • In reading the Traffic, Roads and access report, I was surprised to read that the writer compares Bisley Nature Reserve through road to that of The Kruger National Park. In the Kruger Park, people are taking a leisurely drive whilst looking for animals as opposed to Bisley where people are commuting to and from work and generally in a rush. 	<ul style="list-style-type: none"> • The aim of the study was to demonstrate that other Nature Reserves in South Africa have high volumes of traffic on their roads and have effectively implemented controls to limit impacts on

I&AP	COMMENT	RESPONSE
	<ul style="list-style-type: none"> • Kruger park roads are wide with ample space for two way traffic, whilst Bisley Road is only 5m wide in places with eroded road edges that reduce the width of the road considerably. Unless the Msundusi Municipality are compelled to maintain the road properly, road safety will be an issue. 	<p>both wildlife and road users. The traffic study confirmed that after the full development of Intaba Ridge Phase 2, the traffic volume through Bisley will be similar to traffic through Kruger Gate at the Kruger Park and approximately 30% lower than traffic through Tau Gate at the Dinokeng Big 5 Reserve. Implementing similar traffic calming measures along the Bisley Road as those implemented at the other Nature Reserves will help reduce traffic related risks.</p> <ul style="list-style-type: none"> • Noted and supported.
<p>Bernadet Pawandiwa Amafa/Heritage KwaZulu-Natal 15 February 2018</p>	<ul style="list-style-type: none"> • The Proposed Phase 2 expansion of the existing Intaba Ridge Residential Private Game Estate located on Erf 115 Almond Bank in the Bisley Valley Area of Pietermaritzburg, Msunduzi Local Municipality and uMgungundlovu District Municipality, KwaZulu-Natal. • Amafa had approved the development on 28 May 2009 based on the application submitted by Afzelia and an HIA by eThembeni. Considering that the application is earmarked on the same property and only constitutes an increase in density of the residential units , Amafa has no objection to the development within the parameters of stipulated recommendations outlined in the eThembeni report. • The developer is required to ensure that the heritage resources identified in the report are not compromised in anyway. 	<ul style="list-style-type: none"> • Noted. • Noted. • The EMPr makes provisions for the protection of the on-site heritage resources as follows: <i>“The location of the historical stone walling on the site must be clearly demarcated from the outset and must not be damaged or altered in any way. The location of the ancestral grave must be clearly demarcated from the outset and should be fenced off to prevent inadvertent damage to it.”</i>

I&AP	COMMENT	RESPONSE
	<ul style="list-style-type: none"> • In addition, the next of kin/affected families of the grave occupant should be identified and an agreement should be reached on grave management and access to the grave site. The heritage practitioner should assist in drawing up the grave management protocol. • You are also required to adhere to the below-mentioned standard conditions: • 1. Amafa should be contacted if any heritage objects are identified during earthmoving activities and all development should cease until further notice. • 2. No structures older than sixty years or parts thereof are allowed to be demolished altered or extended without a permit from Amafa. • 3. No activities are allowed within 50m of a site, which contains rock art. • 4. Sources of all natural materials (including topsoil, sands, natural gravels, crushed stone, asphalt, etc.) must be obtained in a sustainable manner and in compliance with the heritage legislation. 	<ul style="list-style-type: none"> • The EAP has requested that the Developer assist in identifying the next of kin/affected families of the grave occupant. A heritage practitioner must be appointed to compile a grave management plan. • Noted. The standard conditions have been incorporated into the EMPr.
N. Dlamini Ezemvelo KZN Wildlife 10 July 2018	<ul style="list-style-type: none"> • Proposed phase 2 expansion of the existing Intaba Ridge Private Game Estate on Erf 115, Almond Bank, Bisley Valley. • Thank you for forwarding the Draft Basic Assessment Report, dated June 2018, for the abovementioned application to Ezemvelo KZN Wildlife (Ezemvelo) for review and comment. • Ezemvelo will not be providing comment on this application, but trust that all significant biodiversity related concerns have been clearly identified and made known in this assessment together with appropriate measures (viz. avoid, mitigate and thereafter ameliorate) to safeguard the ecological integrity of the developable area. • Please be advised that the potential impacts upon biodiversity will be evaluated by the Competent Authority who may, upon identification of a potential biodiversity concern, refer the biodiversity concern to this organisation for evaluation and advice regarding the specific concern, prior to making a decision. • In such case, the environmental principles prescribed in the National Environmental Management Act 107 of 1998, the objectives of the National Environmental Management Biodiversity Act 10 of 2004 and best practice will be applied. 	<ul style="list-style-type: none"> • Noted. • Noted. • Noted. • Noted. • Noted.
S. Luthuli Umgeni Water	<ul style="list-style-type: none"> • A request was received by Umgeni Water to provide comment on the proposed phase 2 expansion of the Intaba Ridge Private Game Estate. 	<ul style="list-style-type: none"> • Bosch Projects, the appointed Engineers on the development project, have

I&AP	COMMENT	RESPONSE
13 July 2018	<p>Umgeni Water has the following concerns / comments regarding the proposed activity.</p> <ul style="list-style-type: none"> • The document makes mention of a proposed sewage treatment package plant which will discharge into an existing dam on the north eastern portion of the property. Although there is no mention of where the effluent from the dam will eventually be discharged to, it is anticipated that the effluent would flow into the nearby Mpushini River. • Umgeni Water’s ED4 to Umlaas Road pipeline traverses the Mpushini River downstream of the proposed development and there is concern that the effluent from this dam will be flowing over this treated water supply pipeline and expose the pipe to the possibility of corrosion as well as potential health risks. • Therefore it is recommended that the effluent be piped or directed to a point below the potable water pipeline crossing on the Mpushini River. This will assist in reducing the risk to the existing potable water infrastructure in the area. 	<p>provided the following responses to the comments from Umgeni Water.</p> <ul style="list-style-type: none"> • Effluent discharge from the on-site sewage treatment works – the Engineering Services Report makes mention that the effluent (125KI/day max.) will discharge into the northern dam and will then be used as irrigation water within the development. No effluent under normal daily conditions will leave the site. • Effluent quality – any effluent quality will be in accordance with the Department of Water Affairs specifications regulating the quality of discharge water to acceptable standards. These are given in the Government Gazette No. 20526 of 8 October 1999. This will include any risk potential risk from chemicals creating corrosive conditions to your watermain. • Overflow – any discharge from the dam would be of an overflow nature, over a short duration, released at low and controlled volumes, to an approved Stormwater Management Plan, well below the level of your pipe crossing. • Your pipe should be designed at a level that is well above any sustained level of waterflow subjecting it to possible corrosive conditions. • We therefore motivate that the existing discharge proposal remains as it currently stands, any diversion further downstream will simply concentrate flows in a pipe and create potential problems further downstream.
A. Qulu	<ul style="list-style-type: none"> • With reference to the above the Draft Basic Assessment Report for the 	<ul style="list-style-type: none"> • Noted.

I&AP	COMMENT	RESPONSE
<p>Msunduzi Municipality Environmental Management Unit 18 July 2018</p>	<p>proposed expansion of the existing Intaba Ridge Private Game Estate dated 11th June 2018, the following comments are submitted for your information and consideration:</p> <ul style="list-style-type: none"> • Previous comments submitted by this unit regarding the Background Information Document dated 29th May 2017 have reference. • A suitably qualified person should do water quality monitoring, testing and analysis of the treated water from the package plant on a monthly basis. The tests will be done at the cost of the private developer and the results must be made available to this unit. • This unit recommends the implementation of at least two traffic-calming techniques such as speed humps, on the Main Road 120. <ul style="list-style-type: none"> • This unit supports the recommendation from the wetland assessment study that suggests wetlands (seeps) and buffers must be restored and the area to be treated as a conservation zone. • A Storm Water Management Plan must be submitted to this unit and the Msunduzi Storm Water Management Unit. <ul style="list-style-type: none"> • Please ensure that draft and final Landscaping Plans are made available to this unit prior to the commencement of site works. A copy of the Landscape Plan, as a spatial layout, as well as a written document, for comment and approval. • Indigenous plant / tree species are encouraged to be used for 	<ul style="list-style-type: none"> • Noted. • Noted and supported. This has been included as a recommendation in the Final BAR and Operational Phase EMPr. • Noted and supported. The EAP has provided the following recommendations to address traffic related impacts along the section of road that passes through the Bisley Nature Reserve: construction of three additional speed humps; cutting back of road verges to improve sight distance (in consultation with vegetation specialist); re-instatement of road to its full width (in agreement with Municipality); addition of two more 40km/h speed limit signs and two more wildlife warning signs, one from each direction. • Noted and supported. This has been included as a recommendation in the Final BAR and EMPr. • Noted. The Stormwater Management Plan will be submitted to the Msunduzi Municipalities Environmental Management Unit and Storm Water Management Unit for comment and approval prior to construction commencing. • Noted. The draft and final Landscaping Plans will be submitted to the Msunduzi Environmental Management Unit prior to the commencement of site works. • Noted and supported. This has been

I&AP	COMMENT	RESPONSE
	<p>rehabilitation.</p> <ul style="list-style-type: none"> • Please ensure that this unit is notified of site works 14 days prior to the commencement of construction / site activities (this includes the preparation / clearance of the site). This would apply to all phases of the development. • The developer must ensure that the implementation of the Alien Invasive Plant Management Programme is carried out within the entire Intaba Ridge property. • An Environmental Control Officer (ECO) is to monitor compliance with ALL phases of the Environmental Management Plan (EMP) (i.e. site clearing / post-construction, construction, operational, rehabilitation and re-vegetation). • It is recommended that the Environmental Control Officer (ECO) be appointed for the duration of the project, up to and including the completion of the Operational and Rehabilitation Phases. • The ECO is to provide a proposed schedule of site visits / audit dates to this unit. Site visits / audits should be scheduled via email or telephonically. Please ensure that all environmental audit reports are submitted to this unit. • The ECO is to ensure that unnecessary destruction of flora and pollution of the soil and water resources are prevented at all costs. • Compliance with all other conditions of the original approved Environmental Authorization. • Subject to the above concerns and previous comments issued pertaining to this project, this unit has no further requirements. 	<p>included as a recommendation in the Final BAR and EMPr.</p> <ul style="list-style-type: none"> • Noted. The relevant notifications will be sent. • Noted and supported. The appointed ECO will be made aware of this requirement. • Noted. • Noted and supported. • Noted. The appointed ECO will be made aware of this requirement. • Noted. This recommendation has been included in the EMPr. • Noted. • Noted with thanks.

5. POTENTIAL IMPACTS ON THE SOCIAL AND ECONOMIC ENVIRONMENTS

5.1 LOCAL ECONOMY AND EMPLOYMENT OPPORTUNITIES

Description:

The Msunduzi Municipal IDP lists the following in terms of sustainable economic growth:

- Development of all appropriate sectors of the local economy;
- Development and retention of all businesses formal and informal;
- Developing economic opportunity in communities;
- Creation of jobs;
- Skills development for the local economy;
- Attracting investment; and
- Funding of local economic development.

The proposed Phase 2 expansion of the Intaba Ridge Private Game Estate will contribute towards job creation, attracting investment, skills development and provision of residential infrastructure.

Implication / Risk / Impact:

If approved, the proposed expansion will contribute positively to the local economy and social environment through the spending of capital at local businesses. The proposed expansion will provide employment opportunities during the construction phase. There will also be a number of skills transferred during the construction phase, which will temporarily benefit employed people in the long term, when they seek employment elsewhere.

Mitigation / Recommendations:

Local businesses and unemployed people in the immediate area must be considered first, before employing labour and services from further afield.

5.2 NEED AND DESIRABILITY

Description:

There is a growing need for Lifestyle Retirement Villages in KwaZulu-Natal, especially within secure gated estates and close to hospitals, schools and shopping centers. This follows a global trend for demand for active over 50's villages to cater for the growing needs of the baby-boomer generation. Although there are these kinds of developments on the northern parts of Pietermaritzburg, in areas like Hilton, there are none of these developments in the south of Pietermaritzburg.

The property is in a rural agricultural setting, however it is also in close proximity to the urban centre of Pietermaritzburg, and in easy commutable distance to Ashburton, Camperdown, Cato Ridge and the outer reaches of Pinetown and Durban. The development will have positive social and economic benefits in terms of job creation and local economic development. It will integrate residential land use with conservation that will make it possible to effectively manage and rehabilitate the property for biodiversity conservation objectives.

The Applicant has identified the need to expand the existing Intaba Ridge Private Game Estate in order to upgrade the non-sustainable infrastructure including the gravel roads and the security fence and also get the Homeowners Association levy budget to an affordable and sustainable level to adequately manage the 8km of roads, 250ha of open space and 8km of fenceline.

Implication / Risk / Impact:

- The proposed project will result in job creation and skills training during the construction phase.
- It will provide additional residential infrastructure within the Msunduzi Municipal area, attracting middle to upper income level residents to the area which will create additional revenue for the municipality.
- The proposed Intaba Ridge Phase 2 expansion project will increase the GDP for Pietermaritzburg by an estimated R786 million over 8 years and it will generate 6556 jobs.

Mitigation / Recommendations:

- Local businesses and unemployed people in the immediate area must be considered first, before employing labour and services from further afield.
- The use of local contractors, suppliers and service providers must be undertaken.

5.3 PLANNING INITIATIVES

National Spatial Development Perspective (NSDP)

The Policy Co-ordination and Advisory Services introduced a National Spatial Development Perspective (NSDP), which was then endorsed by the Cabinet in March 2003. The NSDP works in conjunction with different Departmental and Provincial spatial and development strategies. The four principles of the NSDP are as follows:

- Economic growth is a prerequisite for achievement of policy objectives;
- Government spending should concentrate on fixed investment, focusing on localities of economic growth and/or economic potential;
- Efforts to address the past and current inequalities should focus on people not on places; and
- To overcome spatial distortions of apartheid, future settlement and economic development opportunities should be channelled into nodes adjacent to the main growth centres.

In order to distinguish between localities, the NSDP uses two concepts as methodological tools, which are Potential and Poverty Gap. These two concepts will assist the NSDP in providing a coarse-grained analysis from a national perspective, which will be supplemented by a more finely, grained analysis at Provincial and Local Government level.

In defining potential, the NSDP has drawn on recent tradition of “institutional economics” a field that has come to dominate both developmental economics and regional planning. The institutional approach suggests that beyond the usual sources of comparative advantage, the institutional adequacy of a locality will help determine whether development is sustainable or not. The NSDP therefore uses concepts of potential that rely strongly on the presence of institutional capacity to realize the developmental impact of other resources.

In summary, the NSDP will have a role to play as an instrument that informs the respective development plans of the three spheres of government i.e. IDP, PGDS and the Medium Term strategic Framework (MTSF).

Accelerated Services on Growth Initiative South Africa (ASGISA)

The mandate was for government to halve poverty by 2016. To do this the country needs a growth rate of 5% on average. Because of backlogs in infrastructure, investment, inadequate planning, and in some cases, market structures that do not encourage competition, the price of moving goods and conveying services over distance is higher than it should be. In South Africa, which is a large country, with considerable concentration of production inland, and which is some distance from all major industrial markets, deficiencies in logistics are keenly felt. This is the main reason why beneficiation processes need

to be encouraged in the development of the local economy and in close proximity to the areas where products are produced.

Those parts of the legacy of apartheid most difficult to unwind are the deliberately inferior system of education and the irrational patterns of population settlement. In a period of growth, it is evident that we lack sufficient skilled professionals, managers and artisans, and that the uneven quality of education remains a contributory factor. In addition the price of labour of the poor is pushed up by the fact that many live a great distance from their places of work.

Certain weaknesses in the way government is organised, in the capacity of key institutions, including some of those providing economic services, and insufficiently decisive leadership in policy development and implementation all negatively impact on the country's growth potential. Countering these constraints entails a series of decisive interventions. These interventions amount not to a shift in economic policy so much as a set of initiatives designed to achieve our objectives more effectively.

In developing responses to the binding constraints, certain measures to counter the constraints were developed:

- Macroeconomic issues;
- Infrastructure programmes;
- Sector investment strategies (or industrial strategies);
- Skills and education initiatives,
- Second economy interventions; and
- Public administration issues.

KZN Growth and Development Strategy (PGDS)

Inequalities exist in our economy and there is a legacy of inequitable spatial development. This has had a negative impact on public sector investment as highlighted by the National Spatial Development Perspective (NSDP). This is evident in the lopsided economic and social costs for poor communities in locations far from employment and other opportunities. The PGDS is a vehicle to address the legacies of the apartheid space economy, to promote sustainable development and to ensure poverty eradication and employment creation.

Government has a mandate to restructure the process of development and service delivery in the province. This is to be achieved through the three spheres of government, the different government sectors and the various strategic frameworks. The key challenges it faces is to effectively align and harmonise these structures towards this end; and to harness and align fiscal, financial and human resources at its disposal towards eradicating poverty, creating employment and laying the foundations for accelerated economic growth.

The PGDS offers a tool through which provincial government can direct and articulate its strategy and similarly for local government to reflect the necessary human, financial and fiscal support it needs to achieve these outcomes. It facilitates proper coordination between different spheres of government and aims to prevent provincial departments from acting out of concert with local municipalities. It enables intergovernmental alignment and guides activities of various role players and agencies (provincial sector departments, parastatals, district and local municipalities). The PGDS will enhance service delivery.

It is a framework for public and private sector investment, indicating areas of opportunities and development priorities. It addresses key issues of implementation blockages whilst providing strategic direction. The PGDS implies a developmental approach to government. This implies a pro-active and facilitative approach to development and not one based of formulating and applying regulations and restrictions. The PGDS on the one hand involves preparing policies, strategies and guidelines and on the

other hand it involves preparing mechanisms to align and facilitate the implementation, monitoring and evaluation of key growth and development priorities.

Millennium Development Goals

Looking ahead to 2017 and beyond, the Municipality believes they can achieve the overarching goal: to put an end to poverty.

The MDGs represent a global partnership that has grown from the commitments and targets established at the world summits of the 1990s. Responding to the world's main development challenges and to the calls of civil society, the MDGs promote poverty reduction, education, maternal health, gender equality, and aim at combating child mortality, AIDS and other diseases.

Set for the year 2017, the MDGs are an agreed set of goals that can be achieved if all actors work together and do their part. Poor countries have pledged to govern better, and invest in their people through health care and education. Rich countries have pledged to support them, through aid, debt relief, and fairer trade. uMgungundlovu District Municipality, as part of the globalized community, is playing its part in ensuring that it provides the necessary infrastructure to help reduce poverty and hunger.

Alignment with Municipal Goals and Objectives

The Msunduzi Local and uMgungundlovu District Municipality IDP and SDF identify the need for well-established residential areas, such as Intaba Ridge Private Game Estate within the Bisley Valley. The proposed project is directly in line with the municipal goals and objectives through the provision of a variety of housing choices within the municipality and the improved access to housing and facilities that promote quality living areas. The proposed development is also in line with landuse planning (conservation with development) for the area in terms of the Mkhondeni SEA.

Implication / Risk / Impact:

None.

Mitigation / Recommendations:

None.

5.4 CULTURAL, HISTORICAL AND ARCHAEOLOGICAL RESOURCES

Description

A specialist Heritage Impact Assessment was undertaken for the development property as part of the Phase 1 development of the Intaba Ridge Estate. Refer to Appendix Q. The findings of the study are applicable to the proposed Phase 2 expansion project. The specialist study identified stone walling on the property dating to the late nineteenth century to demarcate farm boundaries. One ancestral grave was identified on the property located very close to the current entrance gate.

Implication / Risk / Impact:

All human remains have high heritage significance at all levels due to their social value and may not be altered without the permission of the families concerned and a permit from Amafa. As no further heritage resources were identified within the proposed development areas it is recommended that this project may proceed within the limits of prescribed mitigation measures and recommendations.

Mitigation / Recommendations:

- The stone walling identified on the site should not be altered in any way without a permit from Amafa.
- The grave should not be removed, but fenced in such a way so as to prevent inadvertent damage to it.
- Exhuming and reintering the grave will be costly and should be avoided if at all possible.

- The next of kin / affected families of the grave occupant should be identified and an agreement should be reached on grave management and access to the grave site. A heritage practitioner should assist in drawing up the grave management protocol.
- If permission is granted for the development to proceed, the client is reminded that the Act requires that a developer cease all work immediately and notify Amafa should any heritage resources, as defined in the Act, be discovered during the course of development activities.
- No structures older than sixty years or parts thereof are allowed to be demolished, altered or extended without a permit from Amafa.
- Sources of all natural materials (including topsoil, sands, natural gravels, crushed stone, asphalt, etc.) must be obtained in a sustainable manner and in compliance with the heritage legislation.
- Attention is drawn to the National Heritage Resources Act, 1999 (Act No. 25 of 1999) which, requires that operations that expose archaeological or historical remains should cease immediately, pending evaluation by the provincial heritage resources authority.

5.5 SURROUNDING LANDUSE AND AESTHETICS

Description:

- The development site is situated in the Bisley area on the outskirts of Pietermaritzburg. The property is located within a rural agricultural setting surrounded by agricultural areas, private game farms and the Bisley Valley Nature Reserve to the north. The property is located within the upper Mpushini Conservancy area.
- Development of this magnitude in such close proximity to Bisley Valley Nature Reserve and the on-site conservation areas has the potential to significantly increase negative impacts on this sensitive area which include noise, aesthetics, light, vehicular and pedestrian traffic.

Implication / Risk / Impact:

As 230ha of the 278ha property will remain as open space the actual negative impacts on surrounding landuse and aesthetics are likely to be minimal. The proposed Phase 2 expansion infrastructure will be incorporated into the existing, Phase 1 residential area on the property. The remaining extent of the property will not be altered with the proposed Phase 2 expansion. The proposed expansion will therefore not be in conflict with the surrounding land uses and aesthetics of the area.

Mitigation / Recommendations:

- Architectural controls must be put in place to ensure that the new infrastructure will blend in with the natural surroundings, including the use of natural materials and wall colours and dark coloured roofs.
- Draft and Final Landscaping Plans must be submitted to the Msunduzi Municipalities Environmental Management Unit for comment and approval prior to the commencement of any site works.
- The existing ecological corridors on the site must be maintained to ensure landscape connectivity.
- No visible light sources and street lights must be allowed, to ensure darkness at night.
- The planting of non-indigenous vegetation in the estate must be prohibited.
- The Developer must ensure that the implementation of the Alien Invasive Plant Management Programme is carried out within the entire Intaba Ridge property. An increased effort is required for combating invasive alien plants in the sensitive vegetation types, in order to conserve their diversity. Removal of alien invasive species and rehabilitation of the area must be ongoing.
- An Environmental Control Officer (ECO) is to monitor compliance with all phases of the Environmental Management Programme (EMPr) (i.e. site clearing / pre-construction, construction, operation, rehabilitation and re-vegetation).
- Noise and dust impacts must be controlled.

- The current programme of burning the primary grassland areas in alternate years is essential for maintaining their unique assemblage of plants and their value for fauna (including Red List species such as *Alepidea amatymbica* and Oribi).

5.6 TRAFFIC, ROADS AND ACCESS

Description:

Two Traffic Impact Assessments (TIA) have been conducted for this Application: i) A TIA for the traffic impact from Phase 1 and Phase 2 of the development (Appendix M); and ii) A TIA to specifically assess the traffic related impacts on the Bisley Nature Reserve (Appendix J).

The study site is accessed off Gladys Manzi Road (previously Murray Road), via the Bisley Road (P120) which traverses the Bisley Valley Nature Reserve. All the traffic from Intaba Ridge Private Game Estate towards Pietermaritzburg needs to travel through the Bisley Valley Nature Reserve to gain access to the wider road network. The section of the Bisley Road from the access of the estate to Gladys Manzi Road is surfaced.

The Gladys Manzi Road carries moderate volumes of traffic but in real terms the road has ample spare capacity to accommodate additional traffic. Future traffic and road conditions are not cause for concern with traffic volumes being well within accepted, manageable norms. The intersection of the Bisley Road and Gladys Manzi Road has good geometry and will not require any upgrading. The weekday morning and afternoon peak flows are the highest in terms of traffic activity with the morning being the worst case i.e. when school traffic coincides with other commuter traffic. The comparison of the before and after the proposed expansion results indicate that the development can satisfactorily be accommodated by the existing road and traffic situation with little effect on the levels of service.

This study investigated whether or not a traffic warrant as required by KZN DoT for a traffic light at Gladys Manzi/Bisley intersection could be justified. The study confirms that Bisley Road has ample capacity for the additional traffic and that this traffic volume is too low to qualify for a traffic light at the intersection based on the traffic warrant calculations as required by KZN DoT.

As the main access road to the Intaba Ridge Private Game Estate runs through the Bisley Valley Nature Reserve, a specialist Traffic study was undertaken by Corli Havenga Transportation Engineers, dated November 2017, which focused specifically on the current and possible future traffic through the Bisley Valley Nature Reserve. Refer to Appendix J. The study compared traffic conditions at Bisley Valley Nature Reserve with two other Nature Reserves in South Africa, namely the Kruger National Park and the Dinokeng Game Reserve, located some 60km north of Pretoria. Corli Havenga Transportation Engineers were involved with the Traffic Impact Assessment as part of the Environmental Impact Assessment for the proposed Skukuza Safari Lodge in the Kruger National Park in 2014. The study compared traffic flow through the three gates in the Kruger National Park (Numbi Gate, Phabeni Gate and Kruger Gate), the Bisley Valley Nature Reserve and the Dinokeng Game Reserve.

All the traffic from Intaba Ridge Private Game Estate towards Pietermaritzburg needs to travel through the Bisley Valley Nature Reserve to gain access to the wider road network. The section of the Bisley Road from the access of the estate to Gladys Manzi Road is approximately 1.1km long and was surfaced as recommended in the Traffic Impact Assessment that was originally done for Phase 1 of the development. Four speed humps were also implemented as recommended in the study. The speed limit is 40km/hour. For a road of such short length and such a low speed limit, this is more than adequate. The road width is approximately 5m but the road edge is badly eroded along sections of the road and this needs serious maintenance to prevent further damage to the road. This impedes two-way traffic flow. There is also a sharp curve along the road which has poor sight distance.

The expected morning peak hour traffic flow on Bisley Road with the expected peak hour trips from the fully developed estate added is 114 outbound vehicles and 46 inbound vehicles, totaling 160 vehicles. This represents a worst-case traffic scenario with all of the expected Intaba Ridge traffic travelling northwards. The expected 12 hour traffic flow on Bisley Road is 581 outbound vehicles and 581 inbound vehicles, totaling 1162 vehicles.

A comparison between the 12 hour traffic flows on the different roads through different Game reserves shows that Kruger National Park Kruger has 800-1000 vehicles, Dinokeng Game Reserve has 1479 vehicles and Bisley Valley Nature Reserve Road has 1162 vehicles (expected) and 502 vehicles (current). The Kruger National Park is a tourist destination and through traffic is negligible. The Dinokeng Game Reserve has one 11km long surfaced road that runs through the game reserve between the two reserve gates. It serves all the farms, both game and commercial, which fall within the game reserve, lodges, caravan park, a school, a shop with access off it, and it is also a bus and taxi route.

The speed limit in the Kruger National Park is 40km/hour and no traffic calming is used outside of the camps. The speed limit is enforced with law enforcement. The speed limit in the Dinokeng Game Reserve is 60km/hour. Initially, 13 speed humps were constructed along the 11km long section of surface road through the game reserve. However, despite these the speed still appears to remain a problem and an additional set of 3 speed humps were implemented along the problem sections. The height and angle of the speed humps were also changed to ensure a vehicle must slow down significantly to cross these. The threat to the wildlife was also mitigated by cutting the grass along the road to improve visibility to motorists.

The specialist traffic study has confirmed that after the full development of Intaba Ridge Phase 2, the traffic volume through Bisley will be similar to traffic through Kruger Gate at the Kruger Park and approximately 30% lower than traffic through Tau Gate at the Dinokeng Big 5 Reserve.

The completion of Phase 1 together with the implementation of Phase 2 of Indaba Ridge Estate will result in an increase in traffic on Bisley Road. Travelling speed is regarded as a big threat, and traffic calming is provided in the short section of Bisley Road through the Bisley Nature Reserve. From a traffic flow point of view, Bisley Road has the capacity to accommodate to expected traffic demand. Road safety through the nature reserve section poses a threat to both road users and animals and the following additional measures can be considered.

Implication / Risk / Impact:

- The implementation of the Phase 2 expansion will result in an increase in traffic along the Bisley Road (P120), which may result in an increased risk of collisions with wildlife.
- The increased traffic volumes on the Bisley Road may result in an increased mortality of small species on the road.
- The current eroded state of the Bisley Road edges impedes two-way traffic in some sections.
- The current state of the Bisley Road, i.e. reduced road width due to the erosion and poor sight distance decreases road safety and poses a threat to both road users and wildlife.
- Excessive speed poses a threat to both road users and wildlife.
- Increased use of the Bisley Road may result in accelerated deterioration of the road.

Mitigation / Recommendations:

- During construction there will be a frequent presence of construction vehicles and, during this time, additional temporary warning signage must be erected on the P120 (Bisley Road) approaches to the site access during construction.
- Traffic calming and speed humps must be maintained to ensure their effectiveness. Changing the design of the speed humps to make them slightly higher could be considered.

- Vehicle speeds may be reduced by adding at least three more speed humps along the section of road that passes through the Bisley Nature Reserve.
- The road surface must be repaired and re-instated to its full width, in agreement with the Municipality. The ongoing maintenance of the road must be undertaken by the Municipality.
- The addition of two more 40km/h speed limit signs and two more wildlife warning signs, one from each direction should be erected.
- The dense plant growth along the road verges should be cut back to improve sight distance. A cleared strip of 7 to 10 metres on both sides of the road, plus additional speed humps, will likely assist in reducing the risk of collisions to the benefit of both motorists and wildlife. Once clearing has commenced the activity must be maintained.
- A road verge management plan is recommended for maintaining the road verges and ensuring that the impacts are confined to a predetermined distance from the road verge.
- The lowering of the ground level on the inside of the sharp curve and cutting the vegetation on a regular basis could be considered to improve the sight distance on the curve.
- Vehicles accessing the properties must be driven cautiously within the required speed limits which is 40 km/h.

5.7 NOISE AND DUST NUISANCES

Description:

Construction activities on site will require the use of heavy machinery for earthworks. The construction phase will generate noise from the use of construction machinery and increased traffic (construction vehicles) and dust. There will also be an increase in the number of people in the area due to the presence of construction labourers on the site, as well as other potential job seekers.

This impact however, is only a temporary impact, ending with the completion of the construction phase.

During the operational phase increased traffic from the estate residents will result in additional noise. The presence of the estate residents and staff on the site will also result in additional noise.

Implication / Risk / Impact:

- It is likely that there will be dust and noise impacts on the existing estate residents and neighbouring properties during the construction phase.
- There may be negative impacts on the estate wildlife associated with increased noise during both the construction and operational phases if mitigation measures are not implemented.

Mitigation / Recommendations:

- It is recommended that activities of construction vehicles, building contractors and labourers should be limited to working hours between 7am and 5pm during weekdays. Furthermore, construction on weekends and public holidays should not be permitted.
- Machinery and equipment must be maintained and regularly serviced to ensure that unnecessary noise is prevented.
- Workers on site must not create unnecessary noise such as hooting or shouting.
- Dust from the construction site must be managed in an efficient and environmentally sensitive manner.
- Dust suppression measures, such as the spraying of water on bare soil, must be undertaken during dry and windy conditions.
- Speed limits must be strictly adhered to at all times.
- Due to the presence of wildlife on the estate and its location adjacent to the Bisley Valley Nature Reserve the Homeowners Association must put in place controls to ensure that there are no negative

impacts on the estate wildlife and adjacent Reserve during the operational phase, i.e. excess noise, hooting, loud music at the estate is to be strictly prohibited.

5.8 SECURITY

Description:

The construction phase will result in an increase in the number of people in the area due to the presence of construction labourers on the site, as well as other potential job seekers.

The operational phase of the project will result in a large influx of people onto the site including new estate residents, staff such as domestic workers, service providers and visitors.

Additional security upgrades will be funded with the approval of Phase 2. This includes biometric access and records for all residents, staff and contractors and police clearances for all permanent staff.

Implication / Risk / Impact:

Security personnel will be required during the construction phase, to manage staff and construction vehicles and materials. Potential exists for labourers to trespass onto adjoining properties. Crime in the area could increase as a result of criminals posing as people seeking employment on the site. There is also the potential for increased poaching of the estate wildlife and the Bisley Valley Reserve wildlife.

Crime in the area may also potentially increase during the operational phase, as a result of the increase in people accessing the estate including visitors, staff, and service provision contractors.

Mitigation / Recommendations:

- Additional security personnel should be employed during the construction phase to manage construction staff and ensure that there is no trespassing onto restricted areas of the estate and adjacent properties.
- Construction labourers should be sourced from surrounding communities.
- All labourers must remain within the boundaries of the construction footprint at all times.
- Access onto and off the site must be controlled by a register system, this includes visitors.
- All restricted areas of the construction site must be designated with appropriate warning signs.

6. POTENTIAL IMPACTS ON THE BIOPHYSICAL ENVIRONMENT

6.1 TOPOGRAPHY

Description:

Indicate the general gradient of the site:

Flat	1:50 – 1:20	1:20 – 1:15	1:15 – 1:10	1:10 – 1:7,5	1:7,5 – 1:5	Steeper than 1:5
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Indicate the landform(s) that best describes the site:

Ridgeline	Plateau	Side slope of hill/mountain	Closed valley	Open valley	Plain	Undulating plain/low hills	Dune	Sea- front
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Ground Cover:

Natural veld - good condition ^E	Natural veld with scattered aliens ^E	Natural veld with heavy alien infestation ^E	Veld dominated by alien species ^E	Gardens
Sport field	Cultivated land	Paved surface	Building or other structure	Bare soil

The topography across the site is variable from flat to moderately sloped. The site is at an approximate elevation ranging from 763 – 917 mamsl. It is located on gently sloped terrain steepening towards the south west and south east. The site is underlain by rock units of the Pietermaritzburg Formation of the Ecca Group, Karoo Supergroup. These strata consist of massive carbonaceous siltstone and shale. The region is also extensively intruded by post-Karoo dolerite.

Implication / Risk / Impact:

- Vegetation clearance on the site, stockpiling of soil and uncontrolled construction activities have the potential to result in soil erosion and sedimentation of the surrounding freshwater ecosystems.

Mitigation / Recommendations:

- All nearby undisturbed slopes must be protected from erosion by demarcating the construction site. No vehicular or pedestrian access should be allowed beyond the demarcated area.
- A 30m no-development buffer must be implemented around the on-site seepage wetlands. The use of the 30m buffer must be adhered to during both the construction and operational phases of this development.
- The buffer must not be used as a stockpiling area for construction related products.
- Erosion control measures must be implemented on destabilised slopes.
- Steep slopes must be stabilised by soil stabilisation mechanisms, such as cladding, netting or hard structures, preferably with a natural look and that allow plant growth.
- Service trenches must be backfilled as soon as possible.
- Re-vegetation of exposed soil should take place as soon as possible.

6.2 CLIMATE

Description:

The climate within the Msunduzi area is strongly influenced by topography. The study area is characterised by a summer rainfall pattern with sporadic rainfall events in the winter months. The mean annual precipitation is approximately 786mm. The wettest time of the year is January with an average of 145mm and the driest is June with 9mm. Temperatures are also relatively high with maximum temperatures ranging from 21.20°C in June to 27.30°C in February. The region is coldest in June with minimum temperatures of 4.30°C on average. Refer to Figures 5 and 6.

Implication / Risk / Impact:

Topsoil, which is stockpiled during the construction phase, has the potential to be wind-blown, causing dust. Sediment rich stormwater runoff may enter the surrounding watercourses impacting negatively upon these systems. Potential exists for high intensity rainstorm events to cause severe erosion at the construction site.

Mitigation / Recommendations:

- Appropriate measures (as outlined in the EMP) must be taken to minimise the area of soil disturbance and the potential for the mobilisation of these bare areas.
- Earth dikes and diversions should be used to direct all storm flows away from the bare soils to reduce the risks of sedimentation.
- Any areas of active erosion should be managed and controlled to minimise sediment entering the riparian systems through these sources.
- Sediment management during the construction phase of the development will be important. Sediment control devices such as sediment fences should be used.
- Soil stabilisation practises, such as sediment blankets and mulching, should also be introduced onsite.
- Vegetation should remain intact where possible during the construction phase to limit high surface flows and mobilisation of sediment.
- Measures should be taken to cover exposed areas during high intensity rainfall events. Stockpiled topsoil should be dampened or covered during times of high wind to prevent dust.
- The subsoil stockpiles must be positioned on the higher side of a disturbed area.
- Rehabilitation and landscaping should take place in the wetter summer months to increase the newly planted vegetations' chance of becoming established.

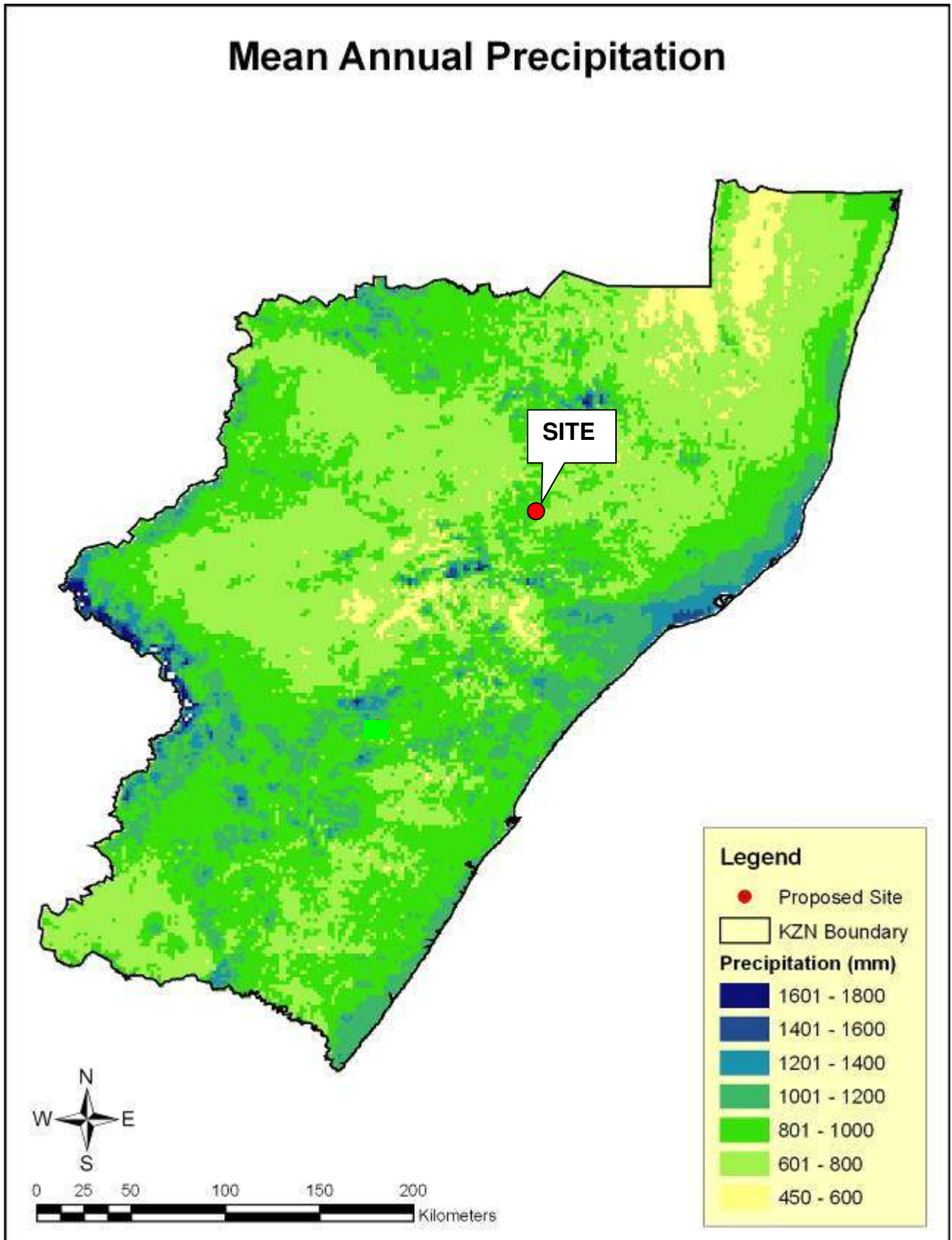


Figure 5: Mean Annual Precipitation for KwaZulu-Natal

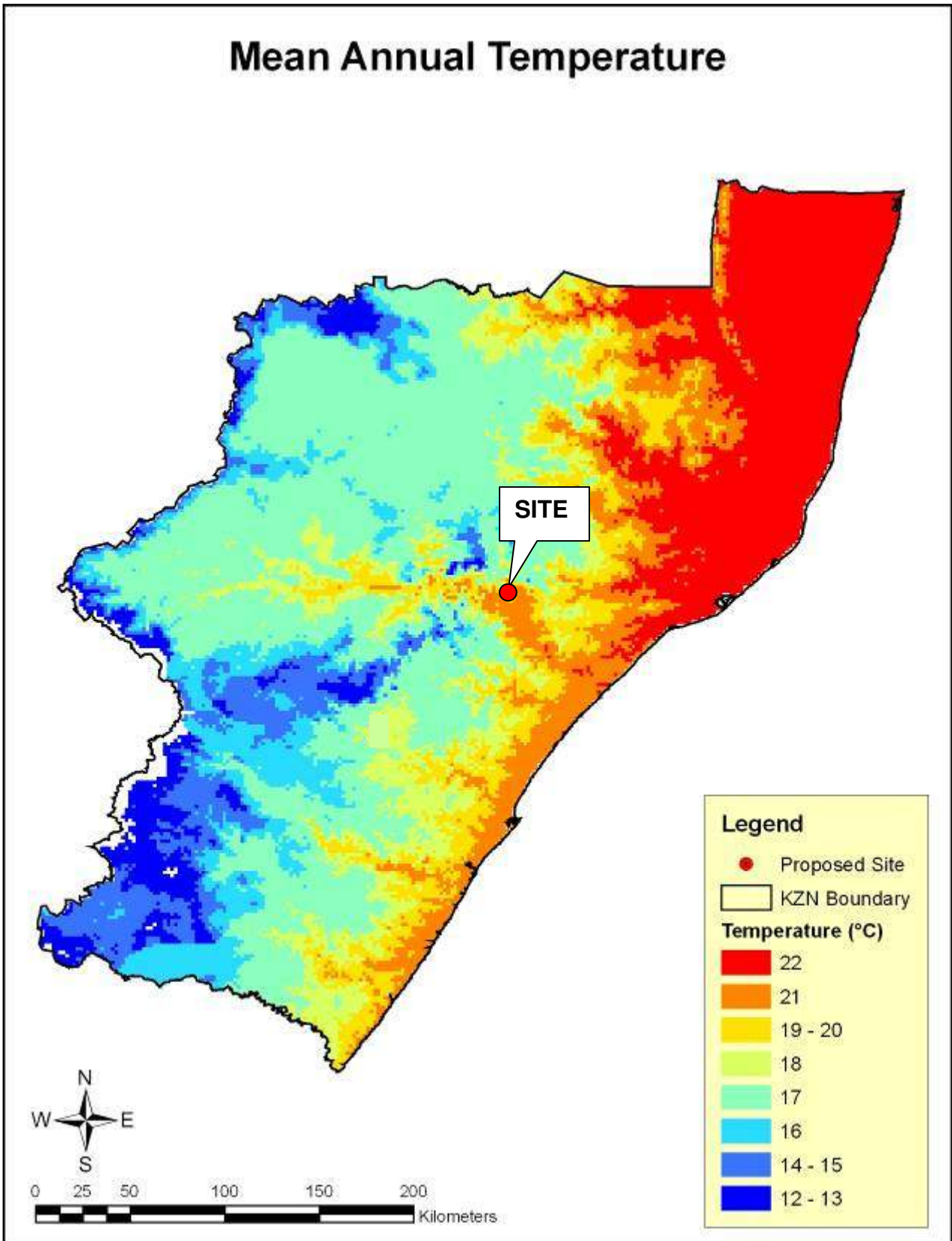


Figure 6: Mean Annual Temperature for KwaZulu-Natal

6.3 GEOLOGY AND SOILS

Description:

A Geotechnical Assessment was compiled for Phase 1 (refer to Appendix U). It identified that the regional geology of the area is characterised by dark grey shale, siltstone and subordinate sandstone of the Pietermaritzburg Formation intruded by the Jurassic age dolerite. The site is underlain by rock units of the Pietermaritzburg Formation of the Ecca Group, Karoo Supergroup. These strata consist of massive carbonaceous siltstone and shale. The region is also extensively intruded by post-Karoo dolerite. A mantle of transported colluvial and residual soils overlies the geological units in the area.

The ground conditions are largely consistent across the site. The soil profile consists of a mantle of colluvial soils underlain by weathered shale of the Pietermaritzburg Formation. No groundwater seepage was encountered on the site. The soils on the site are of low expansiveness and are therefore unlikely to cause problems due to swelling and shrinking as a result of moisture content changes. Specialised foundation measures are not likely to be required.

The site is suitable for the proposed development dependent on the implementation of mitigation measures. However, the Terratest Report concluded that the site was generally unsuitable for effluent disposal by soak-away systems.

More detailed assessments were undertaken by PDC (refer to Appendix U). The findings and recommendations of these studies are:

- A site specific study to determine the suitability for a septic tank and soakaway and the availability of suitable material for evapotranspiration bed must be done for each site;
- There are only a few sites in Phase 1 that are suitable for septic tank and soakaways;
- Septic tank and soakaways are not suitable in residual shale or shallow topsoil. Where this is the case an evapotranspiration bed is required to be designed using dolerite or topsoil stockpiled during site earthworks.

In response to the above, where no suitable soil exists on the site for evapotranspiration beds, the Developer has stockpiles of suitable material available. To date only a few sites have been required to make use of these stockpiles, as there is generally enough topsoil/dolerite that needs to be cleared on each site in order to construct the home and drive-way.

Implication / Risk / Impact:

- Soils underlying the site have low potential expansiveness, therefore are expected to be non-problematic with regard to seasonal ground movements.
- Construction activities may result in soil disturbance and compaction leading to erosion of the seep wetland systems.
- There is potential for the pollution of the wetlands and soil as a result of construction and operation activities within the development site.
- Construction and operational activities may result in disturbance within the wetland system therefore increasing the encroachment of alien invasive species and the loss of natural habitat for fauna and flora.

Mitigation / Recommendations:

- A site specific study to determine the suitability for a soak-away and the availability of suitable material for evapotranspiration bed must be done for each site.
- The choice of foundation type and design will need to be undertaken by a professional engineer once the structural layouts have been determined.

- It is imperative that site drainage and landscaping is implemented in all areas to prevent surface ponding. This must also include the conveyance of all runoff and roof discharge away from the buildings and into the natural drainage lines.
- All cut and fill slopes must be suitably vegetated as soon as possible after construction to reduce the risk of erosion and instability due to infiltration.

6.4 SURFACE WATER

Description:

A Wetland Assessment (refer to Appendix L) and an Aquatic Assessment (refer to Appendix N) were conducted for the proposed development. These studies found that there are six wetland systems (seepage wetlands) located on and within a 500m radius of the Intaba Ridge Estate property. Four Riparian B-Section Channels are also located on the site. The Mpushini River is located approximately 0.6km south of the site.

The seepage wetlands are categorised as moderately to largely modified. The modifications are historic, as the seepage wetlands were dammed for agricultural use. The creation of agricultural dams within the seeps has resulted in the hydrological isolation of the wetland units as the dams are designed to attenuate water, negatively affecting downstream habitat. Erosion gullies were identified within the seep systems.

Further to this, the Intaba Ridge property has been historically used for grazing and this has had a negative effect on the vegetation communities within the wetland systems. The majority of all the wetland units have been severely encroached by alien invasive species.

The Riparian B-Section Channels are classified as largely modified due to the large scale encroachment of alien invasive woody and herbaceous vegetation. Sediment deposition along parts of the riparian zones has also had a negative effect on the growth of riparian vegetation.

Implication / Risk / Impact:

- Any use of the wetlands as storage areas during construction will lead to the sedimentation of the wetland, affecting the hydrological flow of the system and therefore its geomorphological integrity.
- During the operational phase the use of the wetland as conservation zone could lead to the compaction of the soil should paths be created to access the areas. Soil compaction increases the runoff of water over the topsoil and the reduction in stormwater infiltration into the soil profile, therefore increasing the likelihood of erosion gully formation and wetland desiccation.
- Sediment release from a construction site into the wetland environment is one of the most common forms of waterborne pollution.
- Mismanagement of waste and pollutants including hydrocarbons, construction waste and other hazardous chemicals will result in these substances entering and polluting the sensitive wetland habitats either directly through surface runoff during rainfall events, or subsurface water movement from spill sites. An increase in pollutants will lead to changes in the water quality of the wetlands and watercourses, affecting their ability to act as ecological corridors within the development landscape.
- Stormwater runoff from the site downstream will carry pollutants away from the site, having a negative effect on downslope soil resources.
- The development will increase the volume of traffic to the site during the operational phase as well as amplify the potential for waste and by-products entering the wetland systems.
- Stormwater runoff from any parking lot built to service the development will be contaminated with pollutants including petroleum residues, metals from brake linings, rubber particles from tires, nitrous oxide from car exhausts, and grease. These pollutants enter the soil profile and affect water quality if the stormwater is not treated before it is released.

- The development of a package plant for effluent treatment can lead to a decline in the water quality of the wetland and watercourse systems if the plant is not designed and operated to the standards required for the proposed development.
- The removal of vegetation within the site will lead to the continual disturbance within the area, having a further negative impact on the functionality of the vegetation community associated with the seep systems.
- Alien invasive species occur within the development footprint and particularly within the seeps. If no control methods are put in place these, species will further encroach into disturbed areas.

Mitigation / Recommendations:

- A 30m no-development buffer must be implemented around the seepage wetlands.
- The use of the 30m buffer must be adhered to during both the construction and operational phases of this development.
- The buffer must not be used as a stockpiling area for construction related products. Further to this the package plant must be situated outside of this buffer.
- Measure must be put in place to attenuate water from the development and reduce runoff.
- Indigenous landscaping in open areas needs to be incorporated into the management plan.
- Do not allow surface water or storm water to be concentrated, or to flow down cut or fill slopes without erosion protection measures being in place;
- Vegetation clearing must be undertaken only in the areas to be developed and must not extend outside of the development footprint and particularly into the wetland systems.
- The package plant must be operated in accordance with the Department of Water and Sanitations standards for effluent discharge.
- If treated water from the package plant is discharged into the wetland systems it must be monitored for water quality.
- Monitoring of water quality by the local authority at key monitoring points must be undertaken to determine any negative impacts on water quality.
- All waste generated during construction is to be disposed of as per an Environmental Management Programme (EMPr) and washing of containers, wheelbarrows, spades, picks or any other equipment that has been contaminated with cement or chemicals within the 30m buffer zone must be strictly prohibited.
- Do not locate the construction camp or any depot for any substance which causes or is likely to cause pollution within the designated buffer zones.
- Waste disposal during the operational phase must ensure no litter or other contaminants on site are deposited in the wetland and watercourse environments.
- No release of any substance i.e. cement or oil, that could be toxic to fauna or faunal habitats within the wetlands.
- Spillages of fuels, oils and other potentially harmful chemicals must be cleaned up immediately and contaminants properly drained and disposed of using proper solid/hazardous waste facilities (not to be disposed of within the natural environment). Any contaminated soil must be removed and the affected area rehabilitated immediately.
- An alien invasive management programme in terms of the National Environmental Management: Biodiversity Act must be incorporated into an Environmental Management Programme for both the construction and operational phase as extirpation of alien invasive vegetation is an on-going activity.
- Indigenous species must be planted in the garden/landscaped areas to control the spread of alien species outside of the hardened development areas.

6.5 GROUNDWATER

Description:

A specialist Geohydrological Assessment was undertaken as part of the Basic Assessment Process (refer to Appendix V). The groundwater within the study site consists of an intergranular and fractured aquifer type, with median borehole yields in the expected range of 0.5 to 2.0L/s. The aquifer is characterised as a moderately yielding Minor aquifer in terms of the South African Aquifer Classification System. The Mean Annual Precipitation (MAP) for the quaternary catchment is approximately 840mm/annum and the recharge is 59.76mm/annum. There are nine boreholes located within a 2km radius of the site.

Implication / Risk / Impact:

- During the construction phase, groundwater quality is unlikely to be affected by site processes unless there are accidental spillages or poor waste and sanitation practices within construction areas.
- Construction phase earthworks may also mobilise existing macro and micro determinants in the soils which may percolate to the groundwater or ingress into surface water resources.
- The impacts associated with the proposed activity on water resources including the underlying aquifer and downstream surface waters during the operation phase are expected to be limited.
- During the operational phase the possible immediate contamination may be as a result of sewer pipeline leaks, pipeline bursts or effluent leaks from the package plant due to poor operation and maintenance.
- Pipeline leaks may result in the contamination of groundwater in the immediate vicinity of sewer pipeline routes and the package plant. This will only impact negatively on existing groundwater users in the immediate vicinity of said leaks. Microbiological die off with time will mean the zone of influence is limited to several metres but it is unlikely the extent thereof will be far reaching.
- Major water and sewer pipeline breaks/burst may contribute to localised scour, erosion and contamination of mainly surface water resources with limited groundwater resource contribution.
- There may be loss of containment due to power failure.
- Leachate discharging from effluent leaking from the package plant may contribute to groundwater contamination. This can be attributed to a poorly maintained treatment plant.

Mitigation / Recommendations:

- Stormwater management must be implemented for both construction and operation phases.
- Construction areas should be well planned and timeously executed to minimise exposed soils.
- Refuelling of any plant should be carried out in designated fuelling areas which have appropriate compacted low permeability base course layering or hardstand and storm water management.
- Any accidental spills must be immediately remediated by excavating and removing the impacted soils, for disposal at a registered waste site.
- All infrastructure should be appropriately designed and constructed as per design recommendations.
- For the operation phase, stormwater management is key to ensure the storm water drains are not over capacitated during high rainfall events where large volumes of storm water runoff may overload the network.
- Operational controls and management systems including isolation valves are critical to avoiding incidental and uncontrolled releases from the network.
- A backup automatically operated generator must be considered as an alternative power source if power failure occurs at the package plant.
- An inspection and maintenance plan must be included in the operating phase.
- During the operational phase, effluent must be treated to acceptable standards prior to its discharge.
- A suitably qualified person should do water quality monitoring, testing and analysis of the treated water from the package plant on a monthly basis. The results must be made available to the Msunduzi Municipalities Environmental Management Unit.

6.6 FLORA

A specialist Biodiversity Assessment was conducted as part of the Basic Assessment process which focused on biodiversity impacts specifically within the Intaba Ridge Private Game Estate as well as biodiversity impacts on the adjacent Bisley Valley Nature Reserve, particularly related to traffic – Refer to Appendix W for a copy of the Biodiversity Assessment. This Biodiversity Assessment was conducted by the same consultants who compiled and have implemented the Environmental Management Guidelines for the property, since Phase 1 (Refer to Appendix O).

Intaba Ridge Private Game Estate

Description:

The Biodiversity Assessment reported that the vegetation on site and on surrounding land is primarily KwaZulu-Natal Hinterland Thornveld. There is a protrusion from the west of Dry Coast Hinterland Grassland which has a high conservation value. The site can be divided into the following vegetation components: 59.6ha of primary grassland comprising “Themeda grassland”; 16.7ha of wetland; 1.1ha of indigenous woodland; 8.3ha of alien woodland and 192.6ha of transformed land. There is also an existing system of ecological corridors on the site which were established during Phase 1 of the development, to ensure species movement through the property, linking with adjoining areas (refer to the layout plan in Appendix B which shows the location of the corridors and links to surrounding areas).

The primary grassland, wetlands and indigenous woodland are identified as being of high conservation value and are to be avoided.

The total Intaba Ridge Private Game Estate development footprint covers an area of approximately 23ha, of which about 15ha is on land that meets the definition of indigenous vegetation, i.e. it has reverted to secondary grassland with a mix of indigenous and alien species. The remaining 8ha (minus 1.1ha of indigenous woodland) is on land dominated by Kikuyu pastures that were established more than 10 years ago but are frequently mowed. These sites are still transformed and should not be regarded as indigenous vegetation.

Implication / Risk / Impact:

- Most of the proposed development sites are located in vegetation with low biodiversity value and low development constraints.
- There is potential loss of habitats that have recently been identified as having high irreplaceability value. These are the Primary Grassland and Indigenous Woodland areas.
- There is potential loss of ecological linkages (corridors) within the development footprint which enables species movement through the property, linking with adjoining areas.
- There is a risk of further spread of alien vegetation where soil is disturbed.

Mitigation / Recommendations:

- No development is to be permitted in the wetland, grassland and indigenous woodland habitat present on the property.
- The ecologically sensitive vegetation types (primary grassland, indigenous woodland and wetland habitat) may not be used for storage of materials, parking of vehicles, or disturbed in any way.
- A condition of authorising further developments must be that an increased effort is required for combating invasive alien plants in the sensitive vegetation types, in order to conserve their diversity.
- The current programme of burning the primary grassland areas in alternate years is essential for maintaining their unique assemblage of plants and their value for fauna (including Red List species such as *Alepidea amatymbica* and *Oribi*).
- Maintenance of landscape connectivity and the existing ecological corridors are of paramount importance for the persistence of functioning ecological systems.

- All sites which have been disturbed by construction activities must be monitored for colonisation by exotics or invasive plants.
- The alien vegetation management programme contained within the EMPr must be implemented.
- Only locally indigenous or endemic plant species may be used for landscaping and within private gardens.

Bisley Valley Nature Reserve

Description:

The Biodiversity Study included an assessment of the potential impacts of the Phase 2 development on the Bisley Valley Nature Reserve resulting from the increase in traffic associated with the development. The study focused on the section of Bisley Road that traverses the Bisley Valley Nature Reserve and 50m on either side of the road. The study site therefore comprised a 100m wide by 1 470m long section of the Reserve, giving a total study area of 14.7ha. The study site and surrounding land comprises KwaZulu Natal Hinterland Thornveld. A channelled valley bottom wetland bisects the road but its vegetation assemblage was generally similar to closed woodland rather than riparian.

Two habitat types occur along Bisley Road within the study site, namely open woodland (5.03ha) and closed woodland (9.67ha). Open woodland has a dense grass component while closed canopy woodland has a high density of sub-canopy shrubs. The vegetation on the 14.7ha study area was found to be disturbed in places but it was diverse and representative of this vegetation type. Patches of the study area that were not pristine had been disturbed by road works, an old railway line and drainage trenches.

The vegetation is representative of KwaZulu Natal Hinterland Thornveld, which is widespread in the surrounding areas. The status of the vegetation type in KZN Vegetation targets statistics and conservation status (2014) is 'Least Threatened' and 'Nominally Protected'. The only plant of conservation concern that occurred was the KZN endemic *Aloe pruinosa*, which is ranked Vulnerable in the SANBI Red List (2017.1).

Implication / Risk / Impact:

- The vegetation type is common and locally well represented, so any options to widen the road or clear vegetation from the road verge would have a low impact on the KwaZulu Natal Hinterland Thornveld as a whole.
- The potential impacts of clearing vegetation from the road verge are of concern for *Aloe pruinosa* specimens that may be present along the road verges.

Mitigation / Recommendations:

- A road verge management plan is recommended for maintaining the road verges and ensuring that the impacts are confined to a predetermined distance from the road verge.
- Any *Aloe pruinosa* specimens occurring within areas along the road verges that may be cut back need to be removed and replanted elsewhere on the nature reserve. Details should be dealt with in the management plan.

6.7 FAUNA

The specialist Biodiversity Study also focused on faunal impacts both within the Intaba Ridge Private Game Estate property and the adjacent Bisley Valley Nature Reserve, particularly related to traffic – Refer to Appendix W for a copy of the Biodiversity Assessment.

Intaba Ridge Private Game Estate

Description:

According to the Ezemvelo KZN Wildlife Conservation Plan three species of conservation significance are listed as occurring on the site (*Doratogonus cristulatus*, *Bradypodion borquini* and *Ourebia oribi*).

The Oribi antelope was identified as being present on the site, which were re-introduced into the estate as part of Phase 1 of the development.

Two species of millipede occur on the site. A new species of millipede (*Orthoporoides cf pyrocephala*) also known as the red-headed millipede was recently found on the Grange development site not far from Intaba Ridge. These were relocated to Intaba Wildlife Estate in 2016 and released in the indigenous woodland area. They have established themselves in this area. *Doratogonus cristulatus* or the Cristulate Millipede, which is listed in the C-Plan is also found on the site.

Green Giant Earthworms *Michrochaetus papillatus* are known to occur in the areas with indigenous vegetation but at a fairly low density. They will not be affected by the proposed development as long as there is no construction in these areas.

Implication / Risk / Impact:

- The proposed development sites which form part of the Phase 2 expansion fall in vegetation with low biodiversity value (e.g.secondary grasslands and Kikuyu Plantations) and as a result they have low development constraints.

Mitigation / Recommendations:

- The primary grasslands, wetlands and indigenous woodlands are of high value and should be retained with no development.
- When construction commences on approved sites the ecologically sensitive vegetation types and the wetland areas, including 30m buffers, may not be used for storage of materials, parking of vehicles or in any way disturbed during the process.
- The current programme of burning and/or mowing the grasslands is to be continued to retain the biodiversity of both primary and secondary grasslands.
- It is essential that the existing ecological corridors remain between the housing clusters in order to allow the larger species of animals to access all parts of the estate.
- Poaching must not be permitted at the development site or on adjacent properties.
- Additional security personnel should be employed during the construction phase to manage construction staff and ensure that there is no trespassing onto restricted areas of the estate and adjacent properties.
- All labourers must remain within the boundaries of the construction footprint at all times.
- All restricted areas of the site must be designated with appropriate warning signs.

Bisley Valley Nature Reserve

Description:

The faunal groups in Bisley Nature Reserve that appear to be most relevant to this study are the larger introduced mammals, such as Giraffe and Zebra. However, roads and traffic have impacts on many smaller species as well, these impacts are often not quantified, especially for slow-moving species such as millipedes and snails. Many faunal groups occurring in the Bisley Nature Reserve would traverse the 14.7ha study site. The KZN Wildlife C-Plan data listed the following red data species as occurring in the greater nature reserve area:

- *Bradypodion borquini* (fauna - chameleon)
- *Ourebia oribi* (fauna - antelope)

However, the Biodiversity Study found that there was no suitable habitat within the 14.7ha road corridor area for either of the above species.

Implication / Risk / Impact:

- The increased traffic volumes on the Bisley Road as a result of the Phase 2 expansion may result in an increased risk of collisions with wildlife.

- The increased traffic volumes on the Bisley Road may result in an increased mortality of small species on the road.

Mitigation / Recommendations:

- Vehicle speeds may be reduced by adding at least three more speed humps along the section of road that passes through the Bisley Nature Reserve.
- The dense plant growth along the road verges should be cut back to improve sight distance. A cleared strip of 7 to 10 metres on both sides of the road, plus additional speed humps, will likely assist in reducing the risk of collisions to the benefit of both motorists and wildlife. Once clearing has commenced the activity must be maintained.
- The addition of two more 40km/h speed limit signs and two more wildlife warning signs, one from each direction should be erected.
- A road verge management plan is recommended for maintaining the road verges and ensuring that the impacts are confined to a predetermined distance from the road verge.

7. SPECIALIST STUDIES: KEY FINDINGS AND RECOMMENDATIONS

The following specialist studies were undertaken for the proposed development as part of the Basic Assessment Process:

- Biodiversity Assessment;
- Engineering Services Report;
- Geotechnical Assessment;
- Geohydrological Assessment;
- Two Traffic Impact Assessments;
- Wetland Assessment;
- Aquatic Assessment; and
- Heritage Impact Assessment.

7.1 BIODIVERSITY ASSESSMENT

A specialist Biodiversity Assessment comprising both a floral and faunal component was undertaken for the proposed Phase 2 expansion, dated May 2018 (refer to Appendix W). The aims of the biodiversity study were to assess the biodiversity components within both the Intaba Ridge Private Game Estate and along the Bisley Road corridor within the adjacent Bisley Valley Nature Reserve and report on likely impacts resulting from the Phase 2 expansion and provide mitigation measures and alternatives.

Floral Assessment:

Intaba Ridge Private Game Estate

The vegetation of the site and surrounding areas is primarily KwaZulu-Natal Hinterland Thornveld. An area of Dry Coast Hinterland Grassland protrudes into the site from the west. This is classified as a vulnerable ecosystem and is classified as irreplaceable in the Msunduzi Municipality C Plan.

The following vegetation types occur on the site:

- 59.6ha of primary grassland comprising “*Themeda* grassland”, which is connected to similar grassland on adjoining properties. Two sections of Dry Coast Hinterland Grassland occurs on the property which has a high conservation value.
- 16.7ha of wetland with a series of dams in the western and central portions of the property. The wetlands are disturbed and contain alien invasive vegetation species.
- 1.1ha of indigenous woodland comprising a small but diverse woodland area on the western portion of the site, connected to similar vegetation on the neighbouring property. Populations of *Aloe pruinos* and a millipede *Orthoporoides cf pyrocephala* were relocated from the nearby Grange development site in 2013 to the 1.1ha indigenous woodland area on the Intaba Ridge Estate. Both of these species have successfully established on the site.
- 8.3ha of alien woodland comprising dense stands of alien trees with low biodiversity significance.
- 192.6ha of transformed land comprising old croplands, Kikuyu pastures, alien vegetation and residential areas, with low biodiversity significance.

The primary grassland, wetlands and indigenous woodland are identified as being of high conservation value and to be completely avoided for the Phase 2 development and any future developments.

The total footprint for the Intaba Ridge Estate residential development site is approximately 23.18ha in extent, of which about 15ha is on land that meets the definition of indigenous vegetation, i.e. *has reverted to secondary grassland with a mix of indigenous and alien species*. The remaining 8.18ha (minus 1.1ha of indigenous woodland) is on land dominated by Kikuyu pastures that were established more than 10 years

ago but are frequently mowed. These sites are still transformed and should not be regarded as indigenous vegetation.

Mitigation / Recommendations:

- Most of the proposed development sites are located in vegetation with low biodiversity value and low development constraints.
- The overriding concerns relate to requiring zero impacts on primary grasslands that have been identified in the municipal C-Plan as being irreplaceable.
- The portions of the property identified as 'Irreplaceable' in the C-Plan were viable and good examples of the vegetation types, these being Primary Grassland and Indigenous Woodland. No development should be permitted in these areas.
- When construction commences on approved sites it is strongly recommended that the following be enforced:
 - The ecologically sensitive vegetation types and the wetlands may not be used for storage of materials, parking of vehicles, or disturbed in any way.
 - A condition of authorising further developments must be an increased effort for combating invasive alien plants in the sensitive vegetation types, in order to conserve their diversity. This function is presently underresourced and lagging behind.
 - The current programme of burning the primary grassland areas in alternate years is essential for maintaining their unique assemblage of plants and high value for fauna, in particular Red List species such as *Alepidea amatymbica* and Oribi.

Floral Assessment:

Bisley Valley Nature Reserve

This section of the Biodiversity Assessment focuses on a nearby but separate site, being the Bisley Nature Reserve that may be affected by increased traffic resulting from the proposed expansion of housing on Intaba Ridge Estate.

The study site comprised the section of Bisley Road that traverses Bisley Nature Reserve, plus 50 metres on either side of the road. Measurements are 100 metres by 1 470 metres, giving a total study area of 14.7 ha. The study site and surrounding land was mapped by Mucina and Rutherford as SVs3 KwaZulu Natal Hinterland Thornveld. A channelled valley bottom wetland bisects the road but its vegetation assemblage was generally similar to closed woodland rather than riparian.

Two habitat types were evident along Bisley Road within the 50 metre buffer, namely Open Woodland (5.03ha) and Closed woodland (9.57ha).

Habitats comprised open woodland with a dense grass component and closed canopy woodland with a high density of sub-canopy shrubs. The vegetation on the 14.7 ha study area was found to be disturbed in places but it was diverse and representative of this vegetation type. Patches of the study area that were not pristine had been disturbed by road works, an old railway line and drainage trenches. The vegetation is representative of KwaZulu Natal Hinterland Thornveld, which is widespread in the surrounding areas. The status of the vegetation type in KZN Vegetation targets statistics and conservation status (2014) is 'Least Threatened' and 'Nominally Protected'. The only plant of conservation concern that occurred was the KZN endemic *Aloe pruinosa*, which is ranked Vulnerable in the SANBI Red List (2017.1). Although very few specimens were found in the study area, the species is plentiful in other parts of the Bisley Nature Reserve.

Mitigation / Recommendations:

- The vegetation type is common and locally well represented, so any options to widen the road or clear vegetation from the road verge would have a low impact on the KwaZulu Natal Hinterland Thornveld as a whole.
- A road verge management plan is recommended for ensuring that the agreed measures are effective, ongoing and that the impacts are confined to a predetermined distance from the road verge.
- The potential impacts of clearing vegetation are of concern for *Aloe pruinosa* and any specimens occurring within proposed cleared areas need to be removed and replanted elsewhere on the nature reserve. Details should be dealt with in the management plan.

Faunal Assessment:

Intaba Ridge Private Game Estate

According to the Ezemvelo KZN Wildlife C Plan three species of conservation significance are listed as occurring on the site (*Doratogonus cristulatus*, *Bradypodion borquini* and *Ourebia oribi*).

The Oribi antelope was identified as being present on the site, which were re-introduced into the estate as part of Phase 1 of the development.

Two species of millipede occur on the site. A new species of millipede (*Orthoporoides cf pyrocephala*) also known as the red-headed millipede was recently found on the Grange development site not far from Intaba Ridge. These were relocated to Intaba Wildlife Estate in 2016 and released in the indigenous woodland area. They have established themselves in this area. *Doratogonus cristulatus* or the Cristulate Millipede, which is listed in the C Plan is also found on the site.

Green Giant Earthworms *Michrochaetus papillatus* are known to occur in the areas with indigenous vegetation but at a fairly low density. They will not be affected by the proposed development as long as there is no construction in these areas.

Mitigation / Recommendations:

- Most of the proposed development sites fall in vegetation with low biodiversity value (e.g. secondary grasslands) and as a result they have low development constraints.
- The portions of the property with high conservation value as identified in the Msunduzi Municipality C-Plan were found to be good examples of the vegetation types, i.e. primary grassland and indigenous woodland and no development should be permitted in these.
- It is the primary grasslands, wetlands and indigenous woodlands that are of high value and should be retained with no development.
- When construction commences on approved sites it is strongly recommended that the ecologically sensitive vegetation types and the wetland not be used for storage of materials, parking of vehicles or in any way disturbed during the process.
- The current programme of burning and/or mowing the grasslands is continued to retain the biodiversity of both primary and secondary grasslands.
- It is essential that corridors remain between the housing clusters in order to allow the larger species of animals to access all parts of the Estate.

Faunal Assessment:

Bisley Valley Nature Reserve

The faunal groups in Bisley Nature Reserve that appear to be most relevant to this study are the larger introduced mammals, such as Giraffe and Zebra. However, roads and traffic have impacts on many smaller

species as well; these impacts are often not quantified, especially for slow-moving species such as millipedes and snails.

Many faunal groups occurring in the Bisley Nature Reserve would traverse the 14.7 ha study site. The KZN Wildlife C Plan data listed the following red data species as occurring in the greater nature reserve area:

- *Bradypodion borquini* (fauna - chameleon)
- *Ourebia oribi* (fauna - antelope)

From the field visit it was evident that there was no suitable habitat in the 14.7ha study area for either of the above species.

It is accepted that in most wildlife areas there is a correlation between increased traffic volumes and increased risk of collisions. Risks of collisions with wildlife have been reduced in other game reserves; in the Bisley Nature Reserve the most practical options are considered as (a) reducing vehicle speeds by adding at least three more speed humps; and (b) clearing dense plant growth adjacent to the road.

Mitigation / Recommendations:

- Additional traffic humps would be beneficial because it was noted while on site that a number of vehicles were speeding between the humps.
- Road repairs to maintain the original width is supported.
- Speed limit and animal warning signs are supported.
- Cutting back vegetation is supported; this is widely practised in game reserves and even along provincial roads, eg. in Mpumalanga. Cleared road verges make it easier for motorists to see animals alongside the road (and vice versa).
- However, the downside is that short grass habitats attract grazers, so animal density/presence is increased adjacent to the road.
- Once clearing has commenced the activity must be maintained.
- After considering the positive and negative aspects of clearing road verges it was concluded that a cleared strip of 7 to 10 metres on both sides of the road, plus additional speed humps, would be practical, easy to maintain and likely to assist in reducing the risk of collisions, to the benefit of both motorists and wildlife.
- An approved management plan for the mitigation actions is essential.

7.2 ENGINEERING SERVICES REPORT

An engineering services provision study for the Intaba Ridge Private Game Estate by Bosch Stemele (Pty) Ltd dated August 2017. Refer to Appendix K. The study covers the bulk civil engineering services requirements for the Phase 2 development and proposes solutions to these requirements.

Bulk Water Supply

The Intaba Ridge Estate is currently supplied by municipal water via a 275kl reservoir (Intaba Ridge Reservoir), from an offtake on an Umgeni Water 1200mm diameter steel pipeline that runs from Worldsvie Reservoir to Umlaas Road Reservoir. The pressure within the development is controlled by a pressure reducing valve operated by the Msunduzi Municipality on the Umgeni Water pipeline offtake. Intaba Ridge Estate is billed for water consumption by the Msunduzi Municipality via a bulk meter across the gate of the development. A uPVC pipeline of varying class and diameter acts as both a supply pipeline to the Intaba Ridge Reservoir and the same pipeline reticulates to the houses within the development.

Under normal operating conditions the existing 275Kl Intaba Ridge Reservoir is supplied by gravity from the Umgeni Water offtake if the pressure at the offtake does not drop below 150m. However, due to the recent drought conditions Umgeni Water has forced water restrictions and dropped the available pressure to all supply points in their network, dropping the incoming pressure at Intaba Ridge to a maximum of 140m. An in-line booster pump station has now been installed within the Intaba Ridge development to cater for the temporary reduction in water pressure by Umgeni due to drought. This booster pump is adequate for both Phase 1 and 2.

Water Demand

The water demand for the Intaba Ridge Estate has been estimated as follows:

- 1000 liters per day per unit for the freehold residential units; and
- 800 liters per day per unit for the lifestyle retirement units.

Based on the above, the average daily demand for the entire Intaba Ridge Estate after the completion of the Phase 2 expansion (Phase 1 and Phase 2) is 367.5Kl per day (245 x 1.5 peak factor).

Reservoir Water Bulk Supply

Any development that is supplied via the Umgeni Water reticulation is required to have a minimum of 48 hours of emergency water storage to be at the disposal of the consumers in the event of an interruption of supply from their side. The existing 275Kl Intaba Ridge Reservoir only has 48 hours of available storage to cater for 132 fully developed sites. Phase 1 of the development includes 102 high income residential sites. After the completion of the Phase 2 expansion there will be a total of 151 high income freehold sites and 100 lifestyle retirement units. To accommodate the development of these additional Phase 2 units, a new 250Kl reservoir is also required as part of the Phase 2 expansion.

Sewage

All new freehold stands will be serviced by means of septic tanks and soakaways. New freehold erven 1 to 17 and the lifestyle retirement village will be serviced by a piped gravity system that drains to the proposed new waste water package treatment plant.

The total estimated sewage discharge for the Intaba Ridge Estate after the completion of the Phase 2 expansion is 192.8Kl per day, with a peak sewage flow of approximately 16.1 liters per second. The proposed new freehold units that will be located on erf 18 to 161 will each have their own septic tank and soak-away system. The units located on erf 1 to 17, which includes the 100 unit lifestyle retirement village will be connected to a proposed on-site waste water treatment works (package plant). The maximum flow generated by the proposed development that will lead to the package plant is 98Kl per day. This will be drained under gravity to the waste water package treatment plant which will have a proposed capacity of 125Kl per day. The treated effluent will be discharged to the large dam north of the main entrance gatehouse. The facility will be designed, commissioned and handed over by a specialist and monitored daily by a suitable individual or service provider. The discharged water will be required to meet the specification regulating the quality of discharge water as per Government Gazette No. 20526 of 8 October 1999.

Roads

There are two existing entrances to the Intaba Ridge Estate, a main gate which is always operational and a secondary gate available specifically for residents during the day. In terms of the existing internal road infrastructure, the Main Road, Intaba Drive is surfaced while the other roads are unsurfaced. The internal road network will be upgraded as part of the Phase 2 expansion. Additional road lengths will need to be added for accessibility to the proposed new erf 37 to 43 sites.

Stormwater

The existing stormwater system comprises a combination of open channels which convey runoff to field inlets where it is then piped through to appropriate discharge points where it infiltrates or runoffs into existing natural watercourses and storage dams on the property.

To manage the additional stormwater runoff, the existing dam structures will be used to attenuate this additional flow to ensure that the post development runoff remains at pre phase 2 development flows. Run-off from the roadways will be accommodated in roadside drainage situated on both sides of the road. The roadside channel will be sized to accommodate a minimum of a 1:2 year storm event.

To cater for large storm events (>1:5 year) and where the road and on-site storage facilities won't be able to handle excess flow, roadways will be provided with piped stormwater conduits with inlets designed to allow flow into the pipes when the roadside channel reaches a pre-determined capacity.

To limit the impacts of stormwater runoff a site specific stormwater management plan will be compiled for each building plan submitted to ensure that the post development runoff remains at pre Phase 2 development flows.

Electricity

The existing electrical supply to the Intaba Ridge Private Game Estate comprises a 500kVA connection supplied from Eskom reticulation, which is reticulated to the site via a new ring main unit which is currently being installed. A new revised connection is needed to cater for the Phase 2 expansion infrastructure. The new connection should be in the order of a total load of 500kVA especially in that the retirement units will require more of a constant load than normal dwellings.

The current site reticulation has two branches of supply taken from the main incoming switch supplying two separate legs on the site. The current two legs will be extended to supply new mini substations to supply power to cater for the Phase 2 development.

An application to Eskom to increase the supply is currently being undertaken.

Solid Waste

Solid waste (refuse) is currently removed by the Intaba Ridge Private Game Estate staff and disposed of at the New England Municipal Landfill site. This will continue with the Phase 2 expansion.

7.3 GEOTECHNICAL ASSESSMENTS

A specialist Geotechnical Assessment of the Intaba Ridge Estate development property was undertaken by Terratest for the Phase 1 development of the estate in 2008. The findings of the Geotechnical study are however still applicable to the Phase 2 expansion and are therefore being used for this process. Refer to Appendix U.

The objective of the study was to assess the suitability of the property from a geotechnical perspective and provide an overview of the founding conditions on the site and suitability of the subsoils for sewage disposal.

The study entailed the following:

- Excavation of 9 trial pits.
- Driving 9 Dynamic Cone Penetrometer Tests.
- Conducting of 9 in-situ percolation tests.

- Appropriate laboratory testing.

The investigation concluded that the site is suitable for the proposed development provided that the mitigation measures outlined in the Geotechnical Assessment report are implemented. The ground conditions were found to be fairly consistent across the site. The soil profile generally consists of a mantle of colluvial soils underlain by weathered shale of the Pietermaritzburg Formation. No groundwater seepage was encountered in any of the nine trial pits. Low expansiveness soils occur across the site and therefore specialised foundation measures are not likely to be required. Excavation of service trenches by means of a TLB should be possible over those areas proposed for development. Shallow spread or strip footings are suitable foundation options to be used across the site.

In summary, the site is suitable for the proposed development dependent on the implementation of mitigation measures. However, the Terratest Report concluded that the site was generally unsuitable for effluent disposal by soak-away systems.

More detailed assessments were undertaken by PDC (refer to Appendix U). The findings and recommendations of these studies are:

- A site specific study to determine the suitability for a septic tank and soakaway and the availability of suitable material for evapotranspiration bed must be done for each site;
- There are only a few sites in Phase 1 that are suitable for septic tank and soakaways;
- Septic tank and soakaways are not suitable in residual shale or shallow topsoil. Where this is the case an evapotranspiration bed is required to be designed using dolerite or topsoil stockpiled during site earthworks.

In response to the above, where no suitable soil exists on the site for evapotranspiration beds, the developer has stockpiles of suitable material available. To date only a few sites have been required to make use of these stockpiles, as there is generally enough topsoil/dolerite that needs to be cleared on each site in order to construct the home and drive-way.

Implication / Risk / Impact:

- Soils underlying the site have low potential expansiveness, therefore are expected to be non-problematic with regard to seasonal ground movements.
- Construction activities may result in soil disturbance and compaction leading to erosion of the seep wetland systems.
- There is potential for the pollution of the wetlands and soil as a result of construction and operation activities within the development site.
- Construction and operational activities may result in disturbance within the wetland system therefore increasing the encroachment of alien invasive species and the loss of natural habitat for fauna and flora.

Mitigation / Recommendations:

- A site specific study to determine the suitability for a soak-away and the availability of suitable material for evapotranspiration bed must be done for each site.
- The choice of foundation type and the design of the foundations will need to be undertaken by a professional engineer once the structural layouts have been determined.
- Site drainage and landscaping must be implemented in all areas to prevent surface ponding.
- This must include the conveyance of all runoff and roof discharge away from the buildings and into the natural drainage lines;
- All cut and fill slopes must be suitably vegetated as soon as possible after construction to reduce the risk of erosion and instability due to infiltration.

- Although excavations are not expected to be problematic, the contractor will need to appoint an excavation supervisor in terms of section 11 of the Construction Regulations 2003.
- It is recommended that all earthworks be carried out in accordance with SANS 1200D: 1998, (as amended).

7.4 GEOHYDROLOGICAL ASSESSMENT

A specialist Geohydrological Assessment was undertaken by Terratest dated May 2017. Refer to Appendix V. The aim of the study was to determine the risk and impact on the groundwater systems due to the activities associated with the proposed housing development. The project falls within the U20J quaternary catchment. The primary drainage of the quaternary catchment is the Msunduzi River. The Mkhondeni River, which is located in the vicinity of the project area, drains to the Msunduzi River.

The principal groundwater occurrence in the area consists of an intergranular and fractured aquifer type, with median borehole yields in the expected range of 0.5 to 2.0 L/s. The aquifer is characterised as a moderately yielding Minor aquifer in terms of the South African Aquifer Classification System. The Mean Annual Precipitation (MAP) for the quaternary catchment is approximately 840mm/annum. The anticipated recharge for the inferred local catchment area of 4.51km² for the project area is 0.198Mm³/annum. There are nine existing boreholes located within a 2km radius of the development site. Analysis of water groundwater samples show that the water quality is unacceptable for human consumption without treatment, with total coliforms and heterotrophic plate counts exceeding the operational limits.

During the construction phase, groundwater quality is unlikely to be affected by site processes unless there are accidental spillages or poor waste and sanitation practices within construction areas. Construction phase earthworks may however mobilise existing macro and micro determinants in the soils which may percolate to the groundwater or ingress into surface water resources.

During the operational phase, impacts on water resources including the underlying aquifer and downstream surface waters are also expected to be limited. Possible immediate contamination may result from sewer pipeline leaks, pipeline bursts or effluent leaks from the package plant due to poor operation and maintenance. This will only impact negatively on existing groundwater users in the immediate vicinity of said leaks. Major water and sewer pipeline breaks/burst may contribute to localised scour, erosion and contamination of mainly surface water resources with limited groundwater resource contribution.

Mitigation / Recommendations:

- Surface water runoff management is required at all construction areas.
- Suitable sanitation facilities must be provided at all construction areas.
- Earthwork plant/machinery spills must be remediated immediately by removal of all impacted soils and disposal thereof at a registered waste site
- Refuelling of plant and machinery must be carried out in a controlled environment as specified by the Environmental Management Programme (EMPr).
- Pipe leaks and pipe bursts need to be attended to urgently during the operation phase. The use of isolation valves throughout the network could be considered.
- Effluent from the package plant must be treated to acceptable standards prior to its discharge into the wetland system.
- A routine water quality monitoring plan must be implemented.

7.5 TRAFFIC IMPACT ASSESSMENT – INTABA RIDGE PRIVATE GAME ESTATE

A specialist Traffic Impact Assessment (TIA) was undertaken by David McFarlane and Associates (DMA) dated April 2017. Refer to Appendix M. The aim of the study was to assess the likely traffic impact of the proposed Phase 2 expansion. A TIA was initially undertaken by SSI Engineers in 2009 for the Phase 1 development of the Intaba Ridge Estate. As the previous TIA is now over 8 years old, the intention of this investigation was to review and update this document to current 2017 conditions.

After reviewing the previously approved TIA, DMA concluded that the only item requiring an update is the background traffic on Gladys Manzi Road. The previous assessment for Phase 1 concluded that the proposed expansion will not materially affect the traffic operational conditions which currently exist. Gladys Manzi Road carries moderate volumes of traffic but in real terms the road has ample spare capacity to accommodate additional traffic. A significant amount of lifestyle retirement units have been included in phase 2 of the development which will reduce the traffic generated by the development. The Gladys Manzi/Bisley/Alexandra intersection is currently operating at comfortable levels. When the additional traffic that the proposed development will generate is added, overall intersection delays will increase, but still at an acceptable level for an urban environment.

Future traffic and road conditions are not cause for concern with traffic volumes being well within accepted, manageable norms. The weekday morning and afternoon peak flows are the highest in terms of traffic activity with the morning being the worst case i.e. when school traffic coincides with other commuter traffic. Traffic growth in general is likely to be in the range of 0% to 3% per annum for the foreseeable future. This growth in traffic will be felt at all times of the week including the peak periods. The comparison of the before and after the proposed expansion results indicate that the development can satisfactorily be accommodated by the existing road and traffic situation with little effect on the levels of service. Therefore, the proposed expansion may be allowed to proceed under the same conditions as stipulated in the previous TIA undertaken in 2009.

This study confirmed that additional traffic due to phase 2, does not warrant traffic light at Gladys Manzi/Bisley intersection. This study clearly confirms that Bisley Rd has ample capacity for the additional traffic and that this traffic volume is too low to qualify for a traffic light at the intersection based on the traffic warrant calculations as required by KZN DoT.

Mitigation / Recommendations:

- The intersection of the Bisley Valley Nature Reserve road and Gladys Manzi Road has good geometry and will not require any upgrading.
- The extension of Bisley Road (P120) as it passes through the Bisley Valley Nature Reserve will require traffic calming in the form of speed control humps and speed restriction.
- During construction there will be a frequent presence of construction vehicles and, during this time, additional warning signage should be erected on the P120 approaches to the site access.
- As there are likely to be a number of people employed on the estate who will be dependent on public transport in the form of mini-bus taxis, they should be catered for.
- Taxi laybys should therefore be provided at the proposed entrance to the development.
- Additional temporary warning signage to be installed on P120 in the vicinity of the access during construction.

7.6 TRAFFIC IMPACT ASSESSMENT – BISLEY VALLEY NATURE RESERVE

As the main access road to the Intaba Ridge Private Game Estate runs through the Bisley Valley Nature Reserve, a specialist Traffic study was undertaken by Corli Havenga Transportation Engineers, dated November 2017, which focused specifically on the current and possible future traffic through the Bisley Valley Nature Reserve. Refer to Appendix J. The study compared traffic conditions at Bisley Valley Nature Reserve with two other Nature Reserves in South Africa, namely the Kruger National Park and the Dinokeng Game Reserve, located some 60km north of Pretoria. Corli Havenga Transportation Engineers were involved with the Traffic Impact Assessment as part of the Environmental Impact Assessment for the proposed Skukuza Safari Lodge in the Kruger National Park in 2014. The study compared traffic flow through the three gates in the Kruger National Park (Numbi Gate, Phabeni Gate and Kruger Gate), the Bisley Valley Nature Reserve and the Dinokeng Game Reserve.

All the traffic from Intaba Ridge Private Game Estate towards Pietermaritzburg needs to travel through the Bisley Valley Nature Reserve to gain access to the wider road network. The section of the Bisley Road from the access of the estate to Gladys Manzi Road is approximately 1.1km long and was surfaced as recommended in the Traffic Impact Assessment that was originally done for Phase 1 of the development. Four speed humps were also implemented as recommended in the study. The speed limit is 40km/hour. For a road of such short length and such a low speed limit, this is more than adequate. The road width is approximately 5m but the road edge is badly eroded along sections of the road and this needs serious maintenance to prevent further damage to the road. This impedes two-way traffic flow. There is also a sharp curve along the road which has poor sight distance.

The expected morning peak hour traffic flow on Bisley Road with the expected peak hour trips from the fully developed estate added is 114 outbound vehicles and 46 inbound vehicles, totalling 160 vehicles. This represents a worst-case traffic scenario with all of the expected Intaba Ridge traffic travelling northwards. The expected 12 hour traffic flow on Bisley Road is 581 outbound vehicles and 581 inbound vehicles, totalling 1162 vehicles.

A comparison between the 12 hour traffic flows on the different roads through different Game reserves shows that Kruger National Park Kruger has 800-1000 vehicles, Dinokeng Game Reserve has 1479 vehicles and Bisley Valley Nature Reserve Road has 1162 vehicles (expected) and 502 vehicles (current). The Kruger National Park is a tourist destination and through traffic is negligible. The Dinokeng Game Reserve has one 11km long surfaced road that runs through the game reserve between the two reserve gates. It serves all the farms, both game and commercial, which fall within the game reserve, lodges, caravan park, a school, a shop with access off it, and it is also a bus and taxi route.

The speed limit in the Kruger National Park is 40km/hour and no traffic calming is used outside of the camps. The speed limit is enforced with law enforcement. The speed limit in the Dinokeng Game Reserve is 60km/hour. Initially, 13 speed humps were constructed along the 11km long section of surface road through the game reserve. However, despite these the speed still appears to remain a problem and an additional set of 3 speed humps were implemented along the problem sections. The height and angle of the speed humps were also changed to ensure a vehicle must slow down significantly to cross these. The threat to the wildlife was also mitigated by cutting the grass along the road to improve visibility to motorists.

The specialist traffic study has confirmed that after the full development of Intaba Ridge Phase 2, the traffic volume through Bisley will be similar to traffic through Kruger Gate at the Kruger Park and approximately 30% lower than traffic through Tau Gate at the Dinokeng Big 5 Reserve.

The completion of Phase 1 together with the implementation of Phase 2 of Indaba Ridge Estate will result in an increase in traffic on Bisley Road. Travelling speed is regarded as a big threat, and traffic calming is provided in the short section of Bisley Road through the Bisley Nature Reserve. From a traffic flow point of

view, Bisley Road has the capacity to accommodate to expected traffic demand. Road safety through the nature reserve section poses a threat to both road users and animals and the following additional measures can be considered.

Mitigation / Recommendations:

- Traffic calming and speed humps must be maintained to ensure their effectiveness. Changing the design of the speed humps to make them slightly higher could be considered.
- The road surface must be maintained to ensure its original 5m width.
- The addition of two more 40km/h speed limit signs and two more wildlife warning signs, one from each direction should be erected.
- Vegetation along the road should be cut back and maintained to improve visibility.
- The lowering of the ground level on the inside of the sharp curve and cutting the vegetation on a regular basis could be considered to improve the sight distance on the curve.

7.7 WETLAND ASSESSMENT

A specialist Wetland Impact Assessment was undertaken for the proposed Phase 2 expansion by Malachite Specialist Services dated June 2017. Refer to Appendix L. The aim of the study was to identify, delineate and assess any wetland areas and / or watercourses within a 500m boundary of the development site.

Six seep wetlands and four watercourse systems comprising B-Section channels were identified within the study site. The current status of the wetland systems were assessed using the wetland health methodology. The wetland systems received a Present Ecological Score (PES) of moderately modified to largely modified (PES Category C and D). The dominant modifications to the wetland units are historic in nature as the seeps were dammed for agricultural use. The creation of agricultural dams within the seep systems has resulted in the hydrological isolation of the wetland units, as the dams are designed to attenuate water, negatively affecting downstream habitat. Erosion gullies were identified within the seep systems. Further to this, the Intaba Ridge property has been historically used for grazing and this has had a negative impact on vegetation communities within the wetland systems.

The current state of the riparian B-Section channels were assessed using the Riparian Vegetation Response Assessment Index (VEGRAI) Level 3. The riparian zone for the 'B' Section channels has been classified as largely modified (PES Class D). This is predominantly due to the large-scale encroachment of alien invasive woody and herbaceous vegetation.

A 30m buffer has been calculated for the wetland systems and is considered appropriate for the protection of the ecosystem services provided by the seep systems. It is recommended that the wetlands and buffers are rehabilitated, particularly through the removal of alien invasive species and the area made into a conservation zone as part of the development.

The impact assessment identified the following potential negative impacts associated with the proposed Intaba Ridge development on the wetland systems:

- Soil disturbance and compaction leading to erosion of the seep systems.
- Pollution of the wetlands and soil as a result of construction and operation within the development site.
- Disturbance within the wetland system thereby increasing the encroachment of alien invasive species and the loss of natural habitat for fauna and flora.

However, provided the mitigation measures specified in the Wetland Assessment report are implemented and the continued monitoring and rehabilitation of the wetlands and any disturbed areas is undertaken, the

proposed development is expected to have a limited negative effect on the receiving environment, and water resources and have a positive impact with regards to improving the health and functional integrity of the wetland systems.

Mitigation / Recommendations:

- The use of the 30m buffer must be adhered to during both the construction and operational phases of this development. The buffer must not be used as a stockpiling area for construction related infrastructure or products. Further to this the package plant must be situated outside of this buffer.
- Measures must be put in place to attenuate water from the development and reduce runoff.
- Indigenous landscaping in open areas needs to be incorporated into the management plan.
- Do not allow surface water or storm water to be concentrated, or to flow down cut or fill slopes without erosion protection measures being in place.
- Vegetation clearing must be undertaken only in the areas to be developed and must not extend outside of the development footprint and particularly into the wetland systems.
- The package plant must be operated in accordance with the Department of Water and Sanitations standards for effluent discharge.
- If treated water from the package plant is discharged into the wetland systems it must be monitored for water quality.
- Monitoring of water quality by the local authority at key monitoring points must be undertaken to determine any negative impacts on water quality.
- All waste generated during construction is to be disposed of as per an EMPr and washing of containers, wheelbarrows, spades, picks or any other equipment that has been contaminated with cement or chemicals within the 30m buffer zone must be strictly prohibited.
- There must be no release of any substance i.e. cement or oil, that could be toxic to fauna or faunal habitats within the wetlands.
- Spillages of fuels, oils and other potentially harmful chemicals must be cleaned up immediately and contaminants properly drained and disposed of using proper solid/hazardous waste facilities (not to be disposed of within the natural environment). Any contaminated soil must be removed and the affected area rehabilitated immediately.
- An alien invasive management programme in terms of the National Environmental Management: Biodiversity Act must be incorporated into an EMPr for both the construction and operational phase as extirpation of alien invasive vegetation is an on-going activity.
- Indigenous species must be planted in the garden/landscaped areas to control the spread of alien species outside of the hardened development areas. This will also add to the value of the proposed development site from a biodiversity aspect.

7.8 AQUATIC ASSESSMENT

A specialist Aquatic Ecology Impact Assessment was undertaken by Offset Industries dated May 2017. Refer to Appendix N. The study aimed at establishing baseline conditions for the on-site aquatic environments. The aquatic ecology site assessment took place on the 6th of April 2017. Multiple dams were identified on the site, however only one dam site contained any water (lower dam).

In situ water quality at this dam was within acceptable levels, except for the oxygen concentrations, which may have been as a result of the low level of the dam as well as nutrient inputs which stimulate microbial growth and increase dissolved oxygen demand within the system. Invertebrates were sampled and identified but could not be compared to reference conditions as flow and connectivity were largely different from rivers within the ecoregion. Habitat was found to be seriously modified within the reach associated with the development. The system was likely originally a wetland that has been dammed multiple times, despite these dams standing empty. It is recommended that the non-functional dams be removed and

rehabilitated to a functional wetland system which will support biodiversity and increase water filtration resulting in improvements to the water quality reaching the lower dam. This process should only be carried out with the input of a wetland ecologist and once the necessary authorisation has been secured.

The largest impact relating to the aquatic environment within Intaba Ridge is the spread and colonisation of the riparian zone by alien invasive plant species. This impact can be reduced with a comprehensive alien plant management plan.

During the construction phase, large earth moving equipment may be necessary to clear ground and supply cement for foundations. Hardened surfaces increase the speed of runoff during rainfall events increasing the erosion risk posed by the higher velocity water. Site clearing will remove vegetation and expose sediments to wind and water erosion impacts. Vegetation clearing also poses the risk of allowing invasive plant species to colonise the area. The construction of a sewage packaging plant or a septic tank and soak away pose potential risks to the aquatic environment. Sewage disposal, if carried out incorrectly can negatively impact on water quality within the local area.

The operational phase of the project poses very low levels of risk to the aquatic environment. Vehicular and domestic animal (particularly heavy, hoofed animals, horses) movement within riparian zone should be prohibited to prevent damaging vegetation and reduce the likelihood of sedimentation and bank collapse. The high significance impacts are again associated with alien vegetation which if allowed to take hold can self-propagate and colonise large areas, if monitoring and alien plant control is not implemented.

Mitigation / Recommendations:

Construction Phase

- Where possible the development footprint should be minimised and vegetation clearing should only be done for the area under development.
- Levelling of garden areas should be minimised and only if necessary and be carried out in the shortest possible time frames.
- Bare ground must be re-planted with fast growing indigenous ground cover in order to secure the sediment and reduce the risk of erosion.
- Site camps, storage areas, stockpiles and chemicals must be kept out of the riparian zone and set back by a distance of at least 30m from the edge of the riparian zone. Temporary storage within the aquatic or riparian zone is prohibited and no dumping is to be permitted within the aquatic or riparian zone.
- No washing of vehicles, equipment or personal is to be permitted within the aquatic environment or riparian zone.
- Construction waste and building rubble must be removed from the site to a registered landfill site.
- Appropriate toilet facilities must be made available to workers on site. No pit latrines are to be installed.
- Soil stockpiles must have cut off trenches to prevent the migration of sediment downslope.
- No water is to be abstracted from the dam without necessary permitting and approval from the Department of Water and Sanitation.
- Additional roads, should they be necessary, must follow contours to avoid creating erosion pathways directly downslope.
- Roads must be designed with stormwater controls to prevent erosion.
- Current stormwater controls on site need to be upgraded in order to cope with the increase in hardened surface runoff.
- Gabion baskets and bioswales should be investigated to reduce the velocity of water running off these surfaces as well as increase infiltration and retention of water.
- The unused empty dams should be rehabilitated back to functional wetland systems. This should be carried out with input from a wetland ecologist.

- Rehabilitation must be conducted concurrently and the indigenous vegetation planted should be monitored and maintained to prevent die off and alien invasive plant encroachment.

Operational Phase

- All vehicles are to be prohibited from driving within the riparian zone and must be constrained to established roads at all times.
- It is essential that maintenance be attended to timeously and monitoring of the sewage infrastructure is conducted regularly for its entire lifetime. This insures the early identification of weak points and replacement of parts before incidents occur.
- It is imperative that maintenance of roads, stormwater and sewage systems in kept up to date.
- Alien invasive plants need to be addressed on the site, as multiple instances of Lantana, gums trees, bugweed and blackjacks were observed. These alien invasive plants often utilise far more water than indigenous plants and reduce water availability for terrestrial faunal and floral species.
- An alien invasive management plan must be implemented to curtail the invasion currently underway and prevent further spread of these species. Input from a professionally registered botanist should be included.
- Aquatic ecology monitoring should be conducted biannually.

7.9 NEED AND DESIRABILITY STATEMENT

A Need and Desirability Assessment was undertaken by Greene Land for the proposed Phase 2 expansion of the Intaba Ridge Private Game Estate. Refer to Appendix P. The purpose of the Need and Desirability Statement is to provide an overview regarding the need for and the desirability in the public interest of the proposed phase 2 expansion of the existing Intaba Ridge Estate. The key findings of the study revealed:

- There is a growing need for Lifetsyle Retirement Villages in KwaZulu-Natal, especially within secure gated estates and close to hospitals, schools and shopping centres. This follows a global trend for demand for active over 50's villages to cater for the growing needs of the baby-boomer generation.
- Although there are these kinds of developments on the northern parts of Pietermaritzburg, in areas like Hilton, there are none of these developments in the south of Pietermaritzburg.
- The phase 2 expansion of Intaba Ridge will increase the GDP for Pietermaritzburg by R786 million over 8 years and it will generate 6556 jobs.
- At current rates tariffs, phase 2 of Intaba Ridge will add another R525 000.00 per annum in rates, resulting in an extra R4 200 000.00 of annual rates on completion in 8 year's time (in current rand value).
- This increase in rates will allow for the upgrade of non-sustainable infrastructure including the gravel roads and the security fence and also get the Homeowners Association levy budget to an affordable and sustainable level to adequately manage the 8km of roads, 250ha of open space and 8km of fenceline.
- The proposed overall density of the development is 0.9 units per hectare. This is a lower density than any gated estate in Kwazulu-Natal. It is projected that of the order of 230 hectares will as private conservation and/or Open Space total, and hence remains free of any development. This amounts to approximately 81% of undeveloped Open Space.
- Based on the above, the proposed phase 2 expansion project is both necessary and desirable.

7.10 HERITAGE IMPACT ASSESSMENT

A specialist Heritage Impact Assessment (HIA) was undertaken as part of the Phase 1 development of the Intaba Ridge Private Game Estate by eThembeni Cultural Heritage dated January 2009. Refer to Appendix Q. As the proposed Phase 2 expansion will be incorporated into the existing Phase 1 development area

and the HIA assessed the entire development property, the findings of the study are still applicable to the Phase 2 expansion.

The HIA identified stone walling on the property dating to the late nineteenth century to demarcate farm boundaries. One ancestral grave was also identified on the property, located very close to the current entrance gate.

No further heritage resources were identified on the property.

Mitigation / Recommendations:

- It is recommended that the stone walling not be altered in any way without a permit from Amafa.
- The grave should not be removed, but fenced in such a way as to prevent inadvertent damage to it.
- Exhuming and reintering the grave will be costly and should be avoided.
- Should any heritage resources, as defined in the KwaZulu-Natal Heritage Act, No 10 of 1997 and the National Heritage Resources Act No. 25 of 1999, be discovered during the course of development activities, the Act requires that a developer cease all work immediately and notify Amafa aKwaZulu-Natali.

8. ASSESSMENT OF ENVIRONMENTAL IMPACTS

In order to assess potential environmental issues associated with the proposed development, each aspect addressed in Section 5 and 6 have been given a qualitative rating in relation to its environmental impact (Table 4). Each aspect has been divided into a number of different classes, each of which has been assigned various criteria.

Where relevant, the following methods have been used to predict the characteristics of identified impacts:

- Professional judgement;
- Quantitative mathematical models;
- Experiments and physical models;
- Physical or visual simulations or maps (including GIS tools);
- Case studies; and
- Past experience.

Table 4: Summary of aspects used for assessing environmental impacts

ASPECT	CLASS	CRITERIA
NATURE OF IMPACT	Positive	The impact on the environment will be positive.
	Negative	The impact on the environment will be negative.
	Direct	The impact is caused directly by the activity and generally occurs at the same time and at the place of the activity.
	Indirect	The impact induces changes that may occur as a result of the activity.
OCCURRENCE OF IMPACT	Construction	The impact will happen during construction.
	Operation	The impact will happen during operation.
	Decommissioning	The impact will happen during decommissioning.
PROBABILITY OF IMPACT OCCURRING (with mitigation)	Immediate	The impact will happen immediately
	Delayed	There will be a delay in the impact occurring.
REVERSIBILITY (with mitigation)	Definitely	The impact will definitely occur even with mitigation (100%).
	Likely	It is likely that the impact will occur (60%-99%).
	Fair	There is a fair chance that the impact will occur (30% -59%).
	Unlikely	It is unlikely that the impact will occur (0% - 29%)
EXTENT OF IMPACT	Not possible	It is not possible to reverse the impact.
	Partly	It is partly possible to reverse the impact.
	Possible	It is possible to reverse the impact.
EXTENT OF IMPACT	Site	The impact will be limited to the site.
	Local	The impact will affect the local area (within a radius of 40km).

(with mitigation)	Provincial	The impact will affect areas beyond the site but within the boundaries of KwaZulu-Natal.
	National	The impact will affect areas beyond the Province but within the boundaries of South Africa.
DURATION (with mitigation)	Short-term	0-5 years (construction phase).
	Medium-term	5-40 years (construction and operation).
	Long-term	(>40 years).
	Permanent	Permanent damage to the environment.
SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	Low	Small impact / disturbance.
	Medium	Moderate impact / disturbance expected.
	High	Significant impact / disturbance expected.
SIGNIFICANCE OF IMPACT POST- MITIGATION	Low	Small impact / disturbance.
	Medium	Moderate impact / disturbance expected.
	High	Significant impact / disturbance expected.

Table 5 lists potential impacts associated with the proposed development, and details what mitigation measures should be taken to minimize these impacts.

Table 5: Assessment of potential impacts associated with the development:

DESCRIPTION OF IDENTIFIED ENVIRONMENTAL IMPACT	MITIGATION	NATURE OF IMPACT	DEGREE TO WHICH IMPACT CAN BE MITIGATED	PROBABILITY OF IMPACT OCCURRING		REVERSIBILITY OF IMPACT		EXTENT OF IMPACT		DURATION OF IMPACT		SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	SIGNIFICANCE OF IMPACT WITH MITIGATION
				WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION		
<p>LOCAL ECONOMY AND EMPLOYMENT OPPORTUNITIES</p> <ul style="list-style-type: none"> The proposed Phase 2 expansion will contribute towards job creation, attracting investment, skills development and provision of residential infrastructure. 	<ul style="list-style-type: none"> Local businesses and unemployed people in the immediate area must be considered first, before employing labour and services from further afield. 	Positive Direct	-	Definite	Definite	-	-	Local	Local	Short-term during Construction.	Short-term during Construction.	High Positive	High Positive
<p>NEED AND DESIRABILITY</p> <ul style="list-style-type: none"> The proposed project will result in job creation and skills training during the construction phase. It will provide additional residential infrastructure in the Msunduzi Municipal area, attracting middle to upper income level residents to the area which will create additional revenue for the municipality. It will integrate residential land use with conservation that will make it possible for the development to continue to effectively manage and rehabilitate the property for biodiversity conservation objectives. 	<ul style="list-style-type: none"> Local businesses and people must be employed before sourcing skills from further afield. The use of local contractors, suppliers and service providers must be undertaken. 	Positive Direct and Indirect	-	Definite	Definite	-	-	Local	Local	Short-term during Construction. Medium-term during Operation.	Short-term during Construction. Medium-term during Operation.	High Positive	High Positive
<p>PLANNING INITIATIVES</p> <ul style="list-style-type: none"> The proposed development complies with the Planning Initiatives of job creation, skills development and provision of a variety of housing choices within the municipality and improved access to housing and facilities that promote quality living areas. 	<ul style="list-style-type: none"> None 	Positive Direct and Indirect	-	Definite	Definite	-	-	Local	-	Medium-term & long-term	Medium-term & long-term	High Positive	High Positive

DESCRIPTION OF IDENTIFIED ENVIRONMENTAL IMPACT	MITIGATION	NATURE OF IMPACT	DEGREE TO WHICH IMPACT CAN BE MITIGATED	PROBABILITY OF IMPACT OCCURRING		REVERSIBILITY OF IMPACT		EXTENT OF IMPACT		DURATION OF IMPACT		SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	SIGNIFICANCE OF IMPACT WITH MITIGATION
				WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION		
<p>CULTURAL AND HISTORICAL RESOURCES</p> <ul style="list-style-type: none"> The study site contains stone walling dating back to the late nineteenth century as well as an ancestral grave located near to the current property entrance gate. No other heritage resources have been identified on the proposed development site. 	<ul style="list-style-type: none"> The stone walling may not be altered in any way without a permit from Amafa. The grave should not be removed, but fenced in such a way as to prevent inadvertent damage to it. Exhuming and reintering the grave will be costly and should be avoided. The next of kin / affected families of the grave occupant should be identified and an agreement should be reached on grave management and access to the grave site. A heritage practitioner should assist in drawing up the grave management protocol. The KwaZulu-Natal Heritage Act requires that all operations exposing archaeological and historical remains should cease immediately pending an evaluation by the heritage authorities. 	Negative Direct	Highly likely	Unlikely	Unlikely	Possible	Possible	Site & local	Site & local	Medium-term	Medium-term	Med	Low

DESCRIPTION OF IDENTIFIED ENVIRONMENTAL IMPACT	MITIGATION	NATURE OF IMPACT	DEGREE TO WHICH IMPACT CAN BE MITIGATED	PROBABILITY OF IMPACT OCCURRING		REVERSIBILITY OF IMPACT		EXTENT OF IMPACT		DURATION OF IMPACT		SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	SIGNIFICANCE OF IMPACT WITH MITIGATION
				WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION		
<p>SURROUNDING LANDUSE AND AESTHETICS</p> <ul style="list-style-type: none"> A development of this magnitude has the potential to significantly increase negative impacts on the adjacent Bisley Valley Nature Reserve, including noise, aesthetics, light, vehicular and pedestrian traffic. However, as 230ha of the 278ha property will remain as open space the actual negative impacts on surrounding landuse and aesthetics are likely to be minimal. The proposed Phase 2 expansion infrastructure will be incorporated into the existing, Phase 1 residential area on the property. The remaining extent of the property will not be altered with the proposed Phase 2 expansion. The proposed expansion will therefore not be in conflict with the surrounding land uses and aesthetics of the area. 	<ul style="list-style-type: none"> Architectural controls must be put in place to ensure that the new infrastructure will blend in with the natural surroundings, including the use of natural materials and wall colours and dark coloured roofs. Draft and Final Landscaping Plans must be submitted to the Msunduzi Municipalities Environmental Management Unit for comment and approval prior to the commencement of any site works. The existing ecological corridors on the site must be maintained to ensure landscape connectivity. No visible light sources and street lights must be allowed, to ensure darkness at night. The planting of non-indigenous vegetation in the estate must be prohibited. The Developer must ensure that the implementation of the Alien Invasive Plant Management Programme is carried out within the entire Intaba Ridge property. Removal of alien invasive species and rehabilitation of the area must be ongoing. An Environmental Control Officer (ECO) is to monitor compliance with all phases of the Environmental Management Programme (EMPr) (i.e. site clearing / pre-construction, construction, operation, rehabilitation and re-vegetation). Noise and dust impacts must be controlled. 	<p>Negative Direct &</p>	<p>Partly</p>	<p>Definitely</p>	<p>Fair</p>	<p>Not Possible</p>	<p>Possible</p>	<p>Site & local</p>	<p>Site & local</p>	<p>Long-term</p>	<p>Medium-term</p>	<p>High</p>	<p>Med</p>

DESCRIPTION OF IDENTIFIED ENVIRONMENTAL IMPACT	MITIGATION	NATURE OF IMPACT	DEGREE TO WHICH IMPACT CAN BE MITIGATED	PROBABILITY OF IMPACT OCCURRING		REVERSIBILITY OF IMPACT		EXTENT OF IMPACT		DURATION OF IMPACT		SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	SIGNIFICANCE OF IMPACT WITH MITIGATION
				WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION		
<p>TRAFFIC, ROADS AND ACCESS</p> <ul style="list-style-type: none"> The implementation of the Phase 2 expansion will result in an increase in traffic along the Bisley Road. The current eroded state of the road edges impedes two-way traffic in some sections. Road safety through the reserve poses a threat to both road users and animals. Excessive speed poses a threat to both road users and animals. Increased use of the access road may result in accelerated deterioration of the road. 	<ul style="list-style-type: none"> Traffic calming and speed humps must be maintained to ensure their effectiveness. Vehicle speeds may be reduced by adding at least three more speed humps along the section of road that passes through the Bisley Nature Reserve. The road surface must be repaired and re-instated to its full width. The ongoing maintenance of the road must be undertaken by the Municipality. The addition of two more 40km/h speed limit signs and two more wildlife warning signs, one from each direction should be erected. The dense plant growth along the road verges should be cut back to improve sight distance. A cleared strip of 7 to 10 metres on both sides of the road, plus additional speed humps, will likely assist in reducing the risk of collisions to the benefit of both motorists and wildlife. Once clearing has commenced the activity must be maintained. A road verge management plan is recommended for maintaining the road verges and ensuring that the impacts are confined to a predetermined distance from the road verge. The lowering of the ground level on the inside of the sharp curve and cutting the vegetation on a regular basis could be considered to improve the sight distance on the curve. Vehicles accessing the properties must be driven cautiously within the required speed limits which is 40 km/h. It is recommended that warning signage be erected to warn motorists of slow-moving vehicles during the construction phase. 	Negative Direct	Partly	Definitely	Definitely	Partly	Possible	Site & local	Site & local	Short-term during Construction. Medium-term during Operation.	Short-term during Construction. Medium-term during Operation	High	Med

DESCRIPTION OF IDENTIFIED ENVIRONMENTAL IMPACT	MITIGATION	NATURE OF IMPACT	DEGREE TO WHICH IMPACT CAN BE MITIGATED	PROBABILITY OF IMPACT OCCURRING		REVERSIBILITY OF IMPACT		EXTENT OF IMPACT		DURATION OF IMPACT		SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	SIGNIFICANCE OF IMPACT WITH MITIGATION
				WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION		
<p>CONSTRUCTION ACTIVITIES, NOISE AND DUST</p> <ul style="list-style-type: none"> The construction phase will generate noise from the use of construction machinery and increased traffic and dust. During the operational phase increased traffic from the estate residents will result in additional noise. The presence of the estate residents on the site will also result in additional noise. Dust and noise impacts may negatively impact surrounding local residents. It is likely that there will be dust and noise impacts on the existing estate residents during the construction phase. There may be negative impacts on the estate wildlife and adjacent Bisley Valley Reserve wildlife associated with increased noise during both the construction and operational phases. 	<ul style="list-style-type: none"> It is recommended that activities of construction vehicles, building contractors and labourers should be limited to working hours between 7am and 5pm during weekdays. Furthermore, construction on weekends and public holidays should not be permitted. Machinery and equipment must be maintained and regularly serviced to ensure that unnecessary noise is prevented. Workers on site must not create unnecessary noise such as hooting or shouting. Dust from the construction site must be managed in an efficient and environmentally sensitive manner. Dust suppression measures, such as the spraying of water on bare soil, must be undertaken during dry and windy conditions. Speed limits must be strictly adhered to at all times. Due to the presence of wildlife on the estate and its location adjacent to the Bisley Valley Nature Reserve the Homeowners Association must put in place controls to ensure that there are no negative impacts on the estate wildlife and adjacent Reserve during the operational phase, i.e. excess noise, hooting, loud music at the estate is to be strictly prohibited. 	Negative Direct	Partly	Definitely	Fair	Partly	Partly	Site & local	Site & local	Short-term during Construction. Medium-term during Operation.	Short-term during Construction. Medium-term during Operation.	Med	Low

DESCRIPTION OF IDENTIFIED ENVIRONMENTAL IMPACT	MITIGATION	NATURE OF IMPACT	DEGREE TO WHICH IMPACT CAN BE MITIGATED	PROBABILITY OF IMPACT OCCURRING		REVERSIBILITY OF IMPACT		EXTENT OF IMPACT		DURATION OF IMPACT		SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	SIGNIFICANCE OF IMPACT WITH MITIGATION
				WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION		
<p>SECURITY</p> <ul style="list-style-type: none"> The construction phase will result in an increase in the number of people in the area due to the presence of construction labourers on the site, as well as other potential job seekers. Potential exists for labourers to trespass onto adjoining properties. Crime in the area could increase during the construction phase, as a result of criminals posing as construction workers, or people seeking employment on the site. There is also potential for increased poaching of the estate wildlife and the Bisley Valley Reserve wildlife. The operational phase of the project will result in an influx of people onto the site including new residents, staff such as domestic workers, service providers and visitors. Crime in the area may also potentially increase during the operational phase, as a result of the increase in people on the site. 	<ul style="list-style-type: none"> Additional security personnel should be employed during the construction phase to manage construction staff and ensure that there is no trespassing onto restricted areas of the estate and adjacent properties. Construction labourers should be sourced from surrounding communities. All labourers must remain within the boundaries of the construction footprint at all times. Access onto and off the site must be controlled by a register system, this includes visitors. All restricted areas of the construction site must be designated with appropriate warning signs. 	<p>Negative Direct</p>	<p>Highly likely</p>	<p>Fair</p>	<p>Unlikely</p>	<p>Partly</p>	<p>Possible</p>	<p>Site & local</p>	<p>Site</p>	<p>Short-term during Construction. Medium-term during Operation.</p>	<p>Short-term during Construction. Medium-term during Operation.</p>	<p>Med</p>	<p>Low</p>

DESCRIPTION OF IDENTIFIED ENVIRONMENTAL IMPACT	MITIGATION	NATURE OF IMPACT	DEGREE TO WHICH IMPACT CAN BE MITIGATED	PROBABILITY OF IMPACT OCCURRING		REVERSIBILITY OF IMPACT		EXTENT OF IMPACT		DURATION OF IMPACT		SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	SIGNIFICANCE OF IMPACT WITH MITIGATION	
				WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION			
TOPOGRAPHY	<ul style="list-style-type: none"> Vegetation clearance on the site, stockpiling of soil and uncontrolled construction activities have the potential to result in soil erosion and sedimentation of the surrounding freshwater ecosystems. 	<ul style="list-style-type: none"> All nearby undisturbed slopes must be protected from erosion by demarcating the construction site. No vehicular or pedestrian access should be allowed beyond the demarcated area. A 30m no-development buffer must be implemented around the on-site seepage wetlands. The use of the 30m buffer must be adhered to during both the construction and operational phases of this development. The buffer must not be used as a stockpiling area for construction related products. Erosion control measures must be implemented on destabilised slopes. Steep slopes must be stabilised by soil stabilisation mechanisms, such as cladding, netting or hard structures, preferably with a natural look and that allow plant growth. Service trenches must be backfilled as soon as possible. Re-vegetation of exposed soil should take place as soon as possible. 	Negative Direct and Indirect	Likely	Definitely	Unlikely	Partly	Possible	Site & local	Site	Medium-term	Short-term	Med	Low

DESCRIPTION OF IDENTIFIED ENVIRONMENTAL IMPACT	MITIGATION	NATURE OF IMPACT	DEGREE TO WHICH IMPACT CAN BE MITIGATED	PROBABILITY OF IMPACT OCCURRING		REVERSIBILITY OF IMPACT		EXTENT OF IMPACT		DURATION OF IMPACT		SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	SIGNIFICANCE OF IMPACT WITH MITIGATION
				WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION		
<p>CLIMATE</p> <ul style="list-style-type: none"> • Topsoil, which is stockpiled during the construction phase, has the potential to be wind-blown, causing dust. • Sediment rich stormwater runoff may enter the onsite watercourses. • Potential exists for high intensity rainstorm events to cause severe erosion at the construction site. 	<ul style="list-style-type: none"> • Appropriate measures (as outlined in the EMP) must be taken to minimise the area of soil disturbance and the potential for the mobilisation of these bare areas. • Earth dikes and diversions should be used to direct all storm flows away from the bare soils to reduce the risks of sedimentation. • Any areas of active erosion should be managed and controlled to minimise sediment entering the riparian systems through these sources. • Sediment management during the construction phase of the development will be important. Sediment control devices such as sediment fences should be used. • Soil stabilisation practises, such as sediment blankets and mulching, should also be introduced onsite. • Vegetation should remain intact where possible during the construction phase to limit high surface flows and mobilisation of sediment. • Measures should be taken to cover exposed areas during high intensity rainfall events. Stockpiled topsoil should be dampened or covered during times of high wind to prevent dust. • The subsoil stockpiles must be positioned on the higher side of a disturbed area. • Rehabilitation and landscaping should take place in the wetter summer months to increase the newly planted vegetations' chance of becoming established. 	<p>Negative Direct & Indirect</p>	<p>Partly</p>	<p>Likely</p>	<p>Fair</p>	<p>Partly</p>	<p>Possible</p>	<p>Site & Local</p>	<p>Site</p>	<p>Medium-term</p>	<p>Short-term</p>	<p>Med</p>	<p>Low</p>

DESCRIPTION OF IDENTIFIED ENVIRONMENTAL IMPACT	MITIGATION	NATURE OF IMPACT	DEGREE TO WHICH IMPACT CAN BE MITIGATED	PROBABILITY OF IMPACT OCCURRING		REVERSIBILITY OF IMPACT		EXTENT OF IMPACT		DURATION OF IMPACT		SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	SIGNIFICANCE OF IMPACT WITH MITIGATION
				WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION		
<p>GEOLOGY AND SOILS</p> <ul style="list-style-type: none"> • Soils underlying the site have low potential expansiveness, therefore are expected to be non-problematic with regard to seasonal ground movements. • Construction activities may result in soil disturbance and compaction leading to erosion of the seep wetland systems. • There is potential for the pollution of the wetlands and soil as a result of construction and operation activities within the development site. • Construction and operational activities may result in disturbance within the wetland system therefore increasing the encroachment of alien invasive species and the loss of natural habitat for fauna and flora. 	<ul style="list-style-type: none"> • A site specific study to determine the suitability for a soak-away and the availability of suitable material for evapotranspiration bed must be done for each site. • The choice of foundation type and the design of the foundations will need to be undertaken by a professional engineer once the structural layouts have been determined. • Site drainage and landscaping must be implemented in all areas to prevent surface ponding. • This must include the conveyance of all runoff and roof discharge away from the buildings and into the natural drainage lines; • All cut and fill slopes must be suitably vegetated as soon as possible after construction to reduce the risk of erosion and instability due to infiltration. • Although excavations are not expected to be problematic, the contractor will need to appoint an excavation supervisor in terms of section 11 of the Construction Regulations 2003. • It is recommended that all earthworks be carried out in accordance with SANS 1200D: 1998, (as amended). 	Negative Direct and Indirect	Partly	Definitely	Unlikely	Partly	Possible	Site & Local	Site	Medium-term	Short-term	Med	Low

DESCRIPTION OF IDENTIFIED ENVIRONMENTAL IMPACT	MITIGATION	NATURE OF IMPACT	DEGREE TO WHICH IMPACT CAN BE MITIGATED	PROBABILITY OF IMPACT OCCURRING		REVERSIBILITY OF IMPACT		EXTENT OF IMPACT		DURATION OF IMPACT		SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	SIGNIFICANCE OF IMPACT WITH MITIGATION
				WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION		
<p>SURFACE WATER</p> <ul style="list-style-type: none"> Any use of the wetlands as storage areas may lead to the sedimentation of the wetland. The use of the wetland areas as conservation zones could lead to the compaction of the soil should paths be created to access the areas. This will increase the likelihood of erosion gully formation and wetland desiccation. Mismanagement of waste and pollutants may result in these substances entering and polluting the wetland habitats. Stormwater runoff from parking areas may be contaminated with pollutants. These pollutants may enter the soil profile and affect water quality if the stormwater is not treated before it is released. The operation of the package plant may lead to a decline in the water quality of the wetland and watercourse systems if the plant is not properly designed and maintained. The removal of vegetation within the site will lead to the continual disturbance within the area, having a further negative impact on the functionality of the vegetation community associated with the seep systems. Alien invasive species occur within the development footprint and particularly within the seeps. If no control methods are put in place these, species will further encroach into disturbed areas. 	<ul style="list-style-type: none"> A 30m no-development buffer must be implemented around the seepage wetlands. The buffer must not be used as a stockpiling area for construction related products. The package plant must be situated outside of this buffer. Measure must be put in place to attenuate water from the development and reduce runoff. Indigenous landscaping in open areas needs to be incorporated into the management plan. Surface water and stormwater flows must not be concentrated, or allowed to flow down cut or fill slopes without erosion protection measures being in place. Vegetation clearing must be undertaken only in the areas to be developed. The package plant must be operated in accordance with the Department of Water and Sanitations standards for effluent discharge. Treated water from the package plant must be monitored for water quality. Monitoring of water quality by the local authority at key monitoring points must be undertaken to determine any negative impacts on water quality. Washing of equipment that has been contaminated with cement or chemicals within the 30m buffer zone must be strictly prohibited. An alien invasive management programme must be implemented. Only indigenous species must be planted in the garden/landscaped areas. 	Negative Direct and Indirect	Highly likely	Definitely	Fair	Partly	Possible	Site & local	Site	Long-term	Medium-term	High Negative	Low

DESCRIPTION OF IDENTIFIED ENVIRONMENTAL IMPACT	MITIGATION	NATURE OF IMPACT	DEGREE TO WHICH IMPACT CAN BE MITIGATED	PROBABILITY OF IMPACT OCCURRING		REVERSIBILITY OF IMPACT		EXTENT OF IMPACT		DURATION OF IMPACT		SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	SIGNIFICANCE OF IMPACT WITH MITIGATION
				WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION		
<p>GROUNDWATER</p> <ul style="list-style-type: none"> During the construction phase, groundwater quality is unlikely to be affected by site processes unless there are accidental spillages or poor waste and sanitation practices within construction areas. Construction phase earthworks may also mobilise existing macro and micro determinants in the soils which may percolate to the groundwater or ingress into surface water resources. During the operational phase the possible immediate contamination may be as a results of sewer pipeline leaks, pipeline bursts or effluent leaks from the package plant due to poor operation and maintenance. Major water and sewer pipeline breaks/burst may contribute to localised scour, erosion and contamination of surface water resources. There may be a loss of containment due to power failure. 	<ul style="list-style-type: none"> Stormwater management must be implemented for both construction and operation phases. Refuelling of any plant should be carried out in designated fuelling areas. Any accidental spills must be immediately remediated by excavating and removing the impacted soils, for disposal at a registered waste site. All infrastructure should be appropriately designed and constructed as per design recommendations. For the operation phase, stormwater management is key to ensure the stormwater drains are not over capacitated during high rainfall events where large volumes of storm water runoff may overload the network. Operational controls and management systems including isolation valves are critical to avoiding incidental and uncontrolled releases from the network. A backup automatically operated generator should be considered as an alternative power source if power failure occurs at the package plant. An inspection and maintenance plan should be included in the operating phase. Effluent from the package plant should be treated to acceptable standards. A suitably qualified person should do water quality monitoring, testing and analysis of the treated water from the package plant on a monthly basis. The results must be made available to the Msunduzi Municipalities Environmental Management Unit. 	Negative Direct and Indirect	Highly likely	Definitely	Fair	Partly	Possible	Site & local	Site	Long-term	Medium-term	High Negative	Low

DESCRIPTION OF IDENTIFIED ENVIRONMENTAL IMPACT	MITIGATION	NATURE OF IMPACT	DEGREE TO WHICH IMPACT CAN BE MITIGATED	PROBABILITY OF IMPACT OCCURRING		REVERSIBILITY OF IMPACT		EXTENT OF IMPACT		DURATION OF IMPACT		SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	SIGNIFICANCE OF IMPACT WITH MITIGATION
				WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION		
<p>VEGETATION</p> <ul style="list-style-type: none"> Most of the proposed development sites are located in vegetation with low biodiversity value and low development constraints. There is potential loss of habitats that have recently been identified as having high irreplaceability value. These are the Primary Grassland and Indigenous Woodland areas. There is a risk of further spread of alien vegetation where soil is disturbed. <i>Aloe pruinoso</i> specimens located along the Bisley Road verges may be damaged or destroyed during vegetation clearing. 	<ul style="list-style-type: none"> The ecologically sensitive vegetation types and the wetland may not be used for storage of materials, parking of vehicles, or disturbed in any way. A condition of authorising further developments must be that an increased effort is required for combating invasive alien plants in the sensitive vegetation types, in order to conserve their diversity. The current programme of burning the primary grassland areas in alternate years is essential for maintaining their unique assemblage of plants and their value for fauna (including Red List species such as <i>Alepidea amatymbica</i> and <i>Oribi</i>). Maintenance of landscape connectivity and ecological corridors are of paramount importance for the persistence of functioning ecological systems; All sites which have been disturbed by construction activities must be monitored for colonisation by exotics or invasive plants. The alien vegetation management programme contained within the EMPr must be implemented. Only locally indigenous or endemic plant species may be used for landscaping and within private gardens. A road verge management plan is recommended for maintaining the road verges and ensuring that the impacts are confined to a predetermined distance from the road verge. Any <i>aloe pruinoso</i> specimens located along the road verges must be removed and replanted elsewhere on the Bisley Nature Reserve. 	Negative Direct and Indirect	Likely	Definitely	Unlikely	Not possible	Partly	Site & Local	Site & Local	Medium-term	Short-term	High Negative	Low

DESCRIPTION OF IDENTIFIED ENVIRONMENTAL IMPACT	MITIGATION	NATURE OF IMPACT	DEGREE TO WHICH IMPACT CAN BE MITIGATED	PROBABILITY OF IMPACT OCCURRING		REVERSIBILITY OF IMPACT		EXTENT OF IMPACT		DURATION OF IMPACT		SIGNIFICANCE OF IMPACT WITHOUT MITIGATION	SIGNIFICANCE OF IMPACT WITH MITIGATION
				WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION	WITHOUT MITIGATION	WITH MITIGATION		
<p>FAUNA</p> <ul style="list-style-type: none"> Most of the proposed development sites fall in vegetation with low biodiversity value (e.g.secondary grasslands) and as a result they have low development constraints. The proposed development is unlikely to have an adverse effect on the mammal species as long as there are corridors between houses to access the open areas. The portions of the property with high conservation value as identified in the Msunduzi Municipality C-Plan were found to be good examples of the vegetation types, i.e. primary grassland and indigenous woodland and no development should be permitted in these. The increased traffic volumes on the Bisley Road as a result of the Phase 2 expansion may result in an increased risk of collisions with wildlife. The increased traffic volumes on the Bisley Road may result in an increased mortality of small species on the road. 	<ul style="list-style-type: none"> The primary grasslands, wetlands and indigenous woodlands are of high value and should be retained with no development. When construction commences on approved sites it is strongly recommended that the ecologically sensitive vegetation types and the wetland not be used for storage of materials, parking of vehicles or in any way disturbed during the process. The current programme of burning and/or mowing the grasslands is to be continued to retain the biodiversity of both primary and secondary grasslands. It is essential that corridors remain between the housing clusters in order to allow the larger species of animals to access all parts of the Estate. Poaching must not be permitted at the development site or on adjacent properties. If poaching occurs during construction, the culprit must be fined. Vehicle speeds may be reduced by adding at least three more speed humps along the Bisley Road. The dense plant growth along the road verges should be cut back to improve sight distance. A strip of 7 to 10 meters is recommended on both sides of the road. Once clearing has commenced the activity must be maintained. The addition of two more 40km/h speed limit signs and two more wildlife warning signs, one from each direction should be erected. 	Negative Direct	Highly likely	Fair	Unlikely	Partly	Possible	Site & Local	Site	Medium-term	Short-term	Med	Low

9. ENVIRONMENTAL MANAGEMENT PROGRAMME

In terms of the regulations stated in Appendix 4 of Chapter 8 of NEMA (GNR 326) an Environmental Management Programme (EMPr) has been compiled (Appendix X), which contains guidelines for ensuring that all activities associated with the proposed development are carried out in an environmentally responsible and acceptable manner. Specific management objectives and mitigation measures have been specified for the entire duration of the development.

The EMPr is based on the principles of the NEMA as well as the recommendations made in this Report. It identifies roles and responsibilities of management personnel on site, and will be used as a framework for environmental compliance monitoring and reporting, should the proposed activity(s) be authorised.

An EMPr is a legally-binding document that contains guidelines with which land owners and contractors must comply, and which must be strictly implemented and regularly monitored. If this is done, it is likely that the majority of the potentially adverse impacts associated with proposed activities can be minimised or prevented. An Environmental Control Officer (ECO) should be appointed by the Applicant to ensure compliance with the EMPr during the construction and operational phases. Should non-compliance occur, this must be brought to the attention of the DEDTEA, who will conduct the required prosecution procedure.

Specific management objectives and mitigation measures are specified in the EMPr for the entire duration of the operation, including the following stages:

- Pre-construction and site establishment;
- Construction activities;
- Operation or undertaking of the activity;
- Rehabilitation of the environment; and
- Closure (decommissioning), where relevant.

10. POSITIVE AND NEGATIVE IMPLICATIONS OF THE PROPOSED ACTIVITY

POSITIVE SUMMARY:

- The project will result in job creation and skills training during the construction and operational phases.
- The project will result in investment opportunities and provision of residential infrastructure.
- The proposed project is directly in line with municipal goals and objectives by providing a variety of housing choices within the municipality and the improved access to housing and facilities that promote quality living areas.
- The proposed project will help ensure that the residential land use will continue to be integrated with conservation and, in doing so, will make it possible for the continued effective management and rehabilitate of the property in terms of biodiversity conservation objectives.
- The project will result in the rehabilitation of wetland areas and ongoing removal of alien invasive vegetation.
- The expansion will ensure ongoing protection and management of sensitive habitats on the site (primary grassland, indigenous woodland and wetland).
- The proposed expansion will result in an upgrade of estate infrastructure and security.
- Phase 2 of the development will result in an increase in rates for the Msunduzi Municipality during the operational phase.
- The Phase 2 development will result in an increase in levies for the Intaba Ridge Homeowners Association which, in turn will increase money and staff available at Intaba Ridge for: a) alien vegetation eradication and ongoing maintenance and removal b) game management and grassland preservation, which is especially important for the growing Oribi population within Intaba Ridge, c) security controls including poaching controls, and d) additional security measures (e.g. biometric access).

NEGATIVE SUMMARY:

- The implementation of the Phase 2 expansion will result in an increase in traffic along the Bisley Road (P120), which may result in an increased risk of collisions with wildlife.
- The increased traffic volumes on the Bisley Road may result in an increased mortality of small species on the road.
- Potential traffic safety impacts to road users and wildlife within the Bisley Valley Reserve as a result of an increase in traffic volumes and poor road conditions (road width and sight distance).
- Potential accelerated deterioration of the Bisley Valley Reserve road resulting from increased traffic.
- Potential loss of habitats that have been identified as having high irreplaceability value, namely the primary grassland and indigenous woodland areas on the site.
- Potential loss of ecological linkages (corridors) within the development footprint which enables species movement through the property, linking with adjoining areas.
- Potential noise and dust impacts to existing estate residents and neighbouring landowners.
- Potential safety and security impacts, particularly during the construction phase, including increased crime and poaching of wildlife.
- Potential soil erosion and sedimentation of surrounding wetland and riparian habitat resulting from the clearance of vegetation and stockpiling of material during the construction phase.
- Potential erosion and contamination of surface water resources from uncontrolled stormwater runoff from hardened surfaces.
- Potential contamination of surface and groundwater resources from accidental spillage of effluent from the package plant and poor maintenance and management of the plant.
- Risk of further spread of alien invasive vegetation.

10.1 POSITIVE AND NEGATIVE IMPLICATIONS OF THE IDENTIFIED ALTERNATIVES

For this project, a variety of different alternatives types were investigated.

DO-NOTHING

- The “do-nothing” option would mean the proposed Phase 2 expansion of the Intaba Ridge Private Game Estate will not be undertaken and the estate will remain in its present state with only Phase 1 of the residential development having been undertaken.

POSITIVE

- The negative impacts that may result from the proposed Phase 2 expansion including increased traffic, increased stormwater flows, noise and dust impacts, potential pollution of surface and groundwater resources, floral impacts and faunal impacts to the onsite wildlife and adjacent Bisley Valley Nature Reserve wildlife will not apply.

NEGATIVE

- The “do nothing” option would result in negative economic impacts in terms of loss of job opportunities and negative social impacts in terms of a lack of provision of housing infrastructure. It could also result in negative conservation and biodiversity impacts due to less funds being available for the ongoing rehabilitation of wetland habitat, removal of alien invasive vegetation and continued conservation and management of sensitive grassland, woodland and wetland habitat. It will also mean that the estate infrastructure and security will not be upgraded.

ALTERNATIVE DESIGN OR LAYOUTS

Housing Sites

Alternative layouts were investigated as part of the Basic Assessment Process for the proposed Phase 2 expansion of the Intaba Ridge Estate. In the originally proposed layout a housing site was located within the 30m boundary of the wetland area, while four housing sites were located within the indigenous woodland area. As per the recommendations of the specialist Biodiversity Assessment the layout plan was subsequently amended and the five sites were repositioned outside of the sensitive areas.

POSITIVE

- The amended layout allowed for the relocation of development site footprint outside of the 30m wetland buffer and sensitive indigenous woodland habitat.

NEGATIVE

- The amended layout does not allow for the maximisation of available space on the site.

Package Plant

Alternative locations were also investigated from the proposed waste water treatment package plant. It was originally proposed to locate the package plant in a low lying area in the south western corner of the property away from the residential areas. This was subsequently amended to locate the proposed package plant in the northern top most section of the property next to the existing entrance gate.

POSITIVE

- The amended location allows for easy access to the plant for operation and maintenance work.
- The amended location allows for the cost effective connection of housing units and the lifestyle retirement village to the plant using a piped gravity system.

- The amended location allows for the discharge of treated effluent to the large dam north of the main entrance gatehouse.

NEGATIVE

- Placing the package plant in the northern portion of the site results in the plant being significantly closer to the residential areas of the estate as well as a neighbouring landowners property. However, provided it is properly managed, this should not cause any issues.

Access Road

The development of a new access road off Richmond Road (P5-4) in the south western portion of the site was investigated.

POSITIVE

- The construction of an access point off Richmond Road will prevent residents from having to drive through the Bisley Valley Nature Reserve.
- This will prevent the potential traffic related impacts on the Bisley Reserve wildlife and the road users.

NEGATIVE

- The Department of Transport does not support the development of a new access off the Richmond Road (P5-4).

Design:

Alternatives in terms of infrastructure design have been investigated for the proposed Phase 2 expansion. This includes putting in place architectural controls to ensure that the new infrastructure will blend in with the natural surroundings, including the use of natural materials and colours. Controls are also being put in place to prevent the planting of non-indigenous or invasive vegetation in the estate.

POSITIVE

- Architectural controls will ensure that the development blends in with the natural surroundings and will not have aesthetic impacts on surrounding areas.
- The risk of the spread of invasive vegetation from landscaping and gardens is minimised.
- Indigenous vegetation provides habitat for fauna.

NEGATIVE

- The use of green technology and natural materials may be more expensive than using conventional materials.

ALTERNATIVE TECHNOLOGY

Technological alternatives in terms of sewage disposal were investigated. Septic tank and soak-away systems were initially proposed for all of the new Phase 2 infrastructure. However, the soils in the northern portion of the property are generally unsuitable for effluent disposal via soakaway systems. Therefore a package plant was recommended as an alternative technology to be used for the treatment and disposal of waste water and sewage.

POSITIVE

- Disposal of sewage via package plant is a more environmentally sound method of sewage disposal given the nature of the soils than the use of septic tank and soakaways.

NEGATIVE

- The package plant will require ongoing management and maintenance to ensure that it is operating at the required levels.
- The operation of the package plant poses a risk to surface and groundwater resources if the plant is not properly designed and maintained.

11. EAP RECOMMENDATIONS & CONCLUSION

The EAP wishes to reiterate that the information provided in this report is true and based on factual information provided by the specialist and I&APs.

Signed:  Date: 17 August 2018

ENVIRONMENTAL STATEMENT

Through the conducting of this Basic Assessment Process several key areas of concern have been raised by I&APs. The main area of concern, by far, is the potential traffic related impact on the wildlife within the adjacent Bisley Valley Nature Reserve. A specialist Traffic Engineer who has expertise in assessing the impact of vehicle movement within reserves was commissioned to undertake an assessment. The Specialist concluded that the following traffic calming measures needed to be implemented:

- Traffic calming and speed humps must be maintained along the section of road through the Bisley Nature Reserve to ensure their effectiveness. Changing the design of the speed humps to make them slightly higher could be considered.
- The road surface must be maintained to ensure its original 5m width.
- The addition of two more 40km/h speed limit signs and two more wildlife warning signs, one from each direction should be erected.
- Vegetation along the road should be cut back and maintained to improve visibility.
- The lowering of the ground level on the inside of the sharp curve and cutting the vegetation on a regular basis could be considered to improve the sight distance on the curve.
- Vehicles accessing the properties must be driven cautiously within the required speed limits which is 40 km/h.
- It is recommended that warning signage be erected to warn motorists of slow-moving vehicles during the construction phase.

The specialist Biodiversity Assessment also supported the implementation of the above-mentioned traffic calming measures and concluded that the most practical option of reducing the risk of collisions with wildlife are (a) reducing vehicle speeds by adding at least three more speed humps; and (b) cutting back of vegetation on the road verges adjacent to the road (a strip of 7 to 10 meters on both sides of the road).

In addition to the above, the following recommendation has been included:

- The HOA, as far as possible, must record and monitor if and when animal fatalities occur along the road within Bisley Reserve. The following must be noted – type of animal, time of day, location, route being travelled (to confirm whether they are visiting Intaba). On a regular basis these findings must be reported to the Municipality and, if deemed necessary, the HOA, with the Municipality must seek further advice on what additional methods should be implemented from the Traffic Specialist. If it is deemed that additional traffic calming measures are required, the HOA must encourage the Municipality to take the necessary action (e.g. speed cameras – manned or unmanned, electronic signs which show your speed, 40km/hr painted at various locations along the road).

The second most frequent issue raised was regarding the impacts associated with the Package Plant, including impacts on downstream water users if the Package Plant malfunctions. To address this we have recommended the following to be made a condition of the Environmental Authorisation:

- The Package Plant must be designed, commissioned and handled by a specialist and monitored and maintained by a suitable service provider.
- Once the Package Plant specialist and service provider has been identified, an i) inspection and maintenance plan; and ii) quality monitoring plan, must be compiled and appended to the EMPr.

- A suitably qualified person should do water quality monitoring, testing and analysis of the treated water from the package plant on a monthly basis. The results must be made available to the Msunduzi Municipalities Environmental Management Unit.
- The plant must meet the Department of Water and Sanitation specifications regulating the quality of discharge water as provided in Government Gazette No. 20526 of 8 October 1999.

The third most frequent issue raised was on the potential impacts to fauna and flora on the estate. Since the commencement of Phase 1, an Environmental Management Programme has been implemented, together with regular external monitoring (refer to Appendix X). The proposed development areas are such that they do not impact upon the existing ecological corridors or sensitive grassland, woodland and wetland areas. Given the above, and the fact that additional funds will be available, through the additional levies should the development be approved, there will be more money available for conservation activities on the property.

The following nuisance related issues were also raised: dust, noise and light impacts. Mitigation measures to address these issues have been included in the EMPr and as recommendations of this report, which will be legally binding should the development be approved. As the Phase 2 expansion includes the surfacing of roads within the development, there will be reduced dust. Dust suppression measures, such as dampening, will be employed during construction. During the operational phase no visible light sources and street lights will be allowed.

The issue of security was raised. The following mitigation measures have been recommended:

- Additional security personnel should be employed during the construction phase to manage construction staff and ensure that there is no trespassing onto restricted areas of the estate and adjacent properties.
- Construction labourers should be sourced from surrounding communities.
- All labourers must remain within the boundaries of the construction footprint at all times.
- Access onto and off the site must be controlled by a register system, this includes visitors.
- All restricted areas of the construction site must be designated with appropriate warning signs.

It must be noted that as part of the Phase 2 expansion, the security system at Intaba Ridge is proposed to be upgraded. This will improve the overall security at the estate.

Water related impacts, including decreased water pressure and impacts on the water table levels, were also raised. The appointed Services Engineer has provided details on what additional infrastructure is required to ensure that there is sufficient water to cater for the Phase 2 development. The Geohydrological Assessment confirmed that there will be no impacts on the water table.

The need and desirability of the proposed development was also raised, as there are still unsold plots in Phase 1.

As outlined in the specialist Need and Desirability Statement (Appendix P), the Applicant has identified the need to expand the existing Intaba Ridge Private Game Estate in order to upgrade the non-sustainable infrastructure including the gravel roads and the security fence and also get the Homeowners Association levy budget to an affordable and sustainable level to adequately manage the 8km of roads, 250ha of open space and 8km of fenceline.

Given the above impacts, both positive and negative, the EAP is of the opinion that the proposed activity should be authorised, provided the following recommendations are made conditions of the Environmental Authorisation:

RECOMMENDATIONS

COMPLIANCE AND MONITORING

- An Environmental Control Officer (ECO) is to monitor compliance with all phases of the Environmental Management Programme (EMPr) (i.e. site clearing / pre-construction, construction, operation, rehabilitation and re-vegetation).
- It is recommended that the ECO be appointed for the duration of the project, up to and including the completion of the operational and rehabilitation phases.
- The ECO is to ensure that unnecessary destruction of flora and pollution of the soil and water resources are prevented at all costs.
- The Developer must ensure that the implementation of the Alien Invasive Plant Management Programme is carried out within the entire Intaba Ridge property.
- A suitably qualified person should do water quality monitoring, testing and analysis of the treated water from the package plant on a monthly basis. The tests will be done at the cost of the Developer and the results must be submitted to the Msunduzi Municipalities Environmental Management Unit.
- Draft and Final Landscaping Plans must be submitted to the Msunduzi Municipalities Environmental Management Unit for comment and approval prior to the commencement of any site works.
- A stormwater management plan must be submitted to the Msunduzi Municipalities Environmental Compliance Unit and the Msunduzi Stormwater Management Unit for approval.
- Indigenous plant species must be used for landscaping and rehabilitation.
- The use of local contractors, suppliers and service providers must be undertaken.
- Construction areas should only be cleared of vegetation immediately prior to the commencement of construction, in order to reduce the period which soils are exposed.
- The Phase 2 development of the Intaba Ridge Private Game Estate must be in accordance with the approved design and layout specifications.
- All construction and operational activities must adhere to the EMPr.

HERITAGE

- The stone walling identified on the property which dates to the nineteenth century must not be altered in any way without a permit from Amafa.
- The identified ancestral grave in the northern portion of the property should not be removed, but fenced in such a way as to prevent inadvertent damage to it.
- The next of kin / affected families of the grave occupant should be identified and an agreement should be reached on grave management and access to the grave site. A heritage practitioner should assist in drawing up the grave management protocol.
- No structures older than sixty years or parts thereof are allowed to be demolished, altered or extended without a permit from Amafa.
- Sources of all natural materials (including topsoil, sands, natural gravels, crushed stone, asphalt, etc.) must be obtained in a sustainable manner and in compliance with the heritage legislation.
- Should any heritage resources, as defined in the KwaZulu-Natal Heritage Act, No 10 of 1997 and the National Heritage Resources Act No. 25 of 1999, be discovered during the course of development activities, the Act requires that a developer cease all work immediately and notify Amafa.

SURROUNDING LANDUSE AND AESTHETICS

- Architectural controls must be put in place to ensure that the new infrastructure will blend in with the natural surroundings, including the use of natural materials and wall colours and dark coloured roofs.
- Draft and Final Landscaping Plans must be submitted to the Msunduzi Municipalities Environmental Management Unit for comment and approval prior to the commencement of any site works.
- The existing ecological corridors on the site must be maintained to ensure landscape connectivity.

- No visible light sources and street lights must be allowed, to ensure darkness at night.
- The planting of non-indigenous vegetation in the estate must be prohibited.
- The Developer must ensure that the implementation of the Alien Invasive Plant Management Programme is carried out within the entire Intaba Ridge property. An increased effort is required for combating invasive alien plants in the sensitive vegetation types, in order to conserve their diversity. Removal of alien invasive species and rehabilitation of the area must be ongoing.
- An Environmental Control Officer (ECO) is to monitor compliance with all phases of the Environmental Management Programme (EMPr) (i.e. site clearing / pre-construction, construction, operation, rehabilitation and re-vegetation).
- Noise and dust impacts must be controlled.
- The current programme of burning the primary grassland areas in alternate years is essential for maintaining their unique assemblage of plants and their value for fauna (including Red List species such as *Alepidea amatymbica* and Oribi).

SECURITY

- Additional security personnel should be employed during the construction phase to manage construction staff and ensure that there is no trespassing onto restricted areas of the estate and adjacent properties.
- Construction labourers should be sourced from surrounding communities.
- All labourers must remain within the boundaries of the construction footprint at all times.
- Access onto and off the site must be controlled by a register system, this includes visitors.
- All restricted areas of the construction site must be designated with appropriate warning signs.

TRAFFIC

- During construction there will be a frequent presence of construction vehicles and, during this time, additional temporary warning signage must be erected on the P120 (Bisley Road) approaches to the site access during construction.
- Traffic calming and speed humps must be maintained to ensure their effectiveness. Changing the design of the speed humps to make them slightly higher could be considered.
- Vehicle speeds may be reduced by adding at least three more speed humps along the section of road that passes through the Bisley Nature Reserve.
- The road surface must be repaired and re-instated to its full width, in agreement with the Municipality. The ongoing maintenance of the road must be undertaken by the Municipality.
- The addition of two more 40km/h speed limit signs and two more wildlife warning signs, one from each direction should be erected.
- The dense plant growth along the road verges should be cut back to improve sight distance. A cleared strip of 7 to 10 metres on both sides of the road, plus additional speed humps, will likely assist in reducing the risk of collisions to the benefit of both motorists and wildlife. Once clearing has commenced the activity must be maintained.
- A road verge management plan is recommended for maintaining the road verges and ensuring that the impacts are confined to a predetermined distance from the road verge.
- The lowering of the ground level on the inside of the sharp curve and cutting the vegetation on a regular basis could be considered to improve the sight distance on the curve.
- Vehicles accessing the properties must be driven cautiously within the required speed limits which is 40 km/h.

NOISE AND NUISANCE

- It is recommended that activities of construction vehicles, building contractors and labourers should be limited to working hours between 7am and 5pm during weekdays. Furthermore, construction on weekends and public holidays should not be permitted.

- Machinery and equipment must be maintained and regularly serviced to ensure that unnecessary noise is prevented.
- Workers on site must not create unnecessary noise such as hooting or shouting.
- Dust from the construction site must be managed in an efficient and environmentally sensitive manner.
- Dust suppression measures, such as the spraying of water on bare soil, must be undertaken during dry and windy conditions.
- Speed limits must be strictly adhered to at all times.
- Due to the presence of wildlife on the estate and its location adjacent to the Bisley Valley Nature Reserve the Homeowners Association must put in place controls to ensure that there are no negative impacts on the estate wildlife and adjacent Reserve during the operational phase, i.e. excess noise, hooting, loud music at the estate is to be strictly prohibited.

FLORA

Intaba Ridge Private Game Estate

- No development is to be permitted in the wetland, grassland and indigenous woodland habitat present on the property.
- The ecologically sensitive vegetation types (primary grassland, indigenous woodland and wetland habitat) may not be used for storage of materials, parking of vehicles, or disturbed in any way.
- A condition of authorising further developments must be that an increased effort is required for combating invasive alien plants in the sensitive vegetation types, in order to conserve their diversity.
- The current programme of burning the primary grassland areas in alternate years is essential for maintaining their unique assemblage of plants and their value for fauna (including Red List species such as *Alepidea amatymbica* and *Oribi*).
- Maintenance of landscape connectivity and the existing ecological corridors are of paramount importance for the persistence of functioning ecological systems.
- All sites which have been disturbed by construction activities must be monitored for colonisation by exotics or invasive plants.
- The alien vegetation management programme contained within the EMPr must be implemented.
- Only locally indigenous or endemic plant species may be used for landscaping, rehabilitation and within private gardens.

Bisley Valley Nature Reserve

- The dense plant growth along the road verges should be cut back to improve sight distance. A cleared strip of 7 to 10 metres on both sides of the road, plus additional speed humps, will likely assist in reducing the risk of collisions to the benefit of both motorists and wildlife. Once clearing has commenced the activity must be maintained.
- A road verge management plan is recommended for maintaining the road verges and ensuring that the impacts are confined to a predetermined distance from the road verge.
- Any *Aloe pruinosa* specimens occurring within areas along the road verges that may be cut back need to be removed and replanted elsewhere on the nature reserve. Details should be dealt with in the management plan.

FAUNA

Intaba Ridge Private Game Estate

- The primary grasslands, wetlands and indigenous woodlands are of high value and should be retained with no development.
- When construction commences on approved sites the ecologically sensitive vegetation types and the wetland areas, including 30m buffers, may not be used for storage of materials, parking of vehicles or in any way disturbed during the process.

- The current programme of burning and/or mowing the grasslands is to be continued to retain the biodiversity of both primary and secondary grasslands.
- It is essential that the existing ecological corridors remain between the housing clusters in order to allow the larger species of animals to access all parts of the estate.
- Poaching must not be permitted at the development site or on adjacent properties.
- Additional security personnel should be employed during the construction phase to manage construction staff and ensure that there is no trespassing onto restricted areas of the estate and adjacent properties.
- All labourers must remain within the boundaries of the construction footprint at all times.
- All restricted areas of the site must be designated with appropriate warning signs.

Bisley Valley Nature Reserve

- Vehicle speeds may be reduced by adding at least three more speed humps along the section of road that passes through the Bisley Nature Reserve.
- The dense plant growth along the road verges should be cut back to improve sight distance. A cleared strip of 7 to 10 metres on both sides of the road, plus additional speed humps, will likely assist in reducing the risk of collisions to the benefit of both motorists and wildlife. Once clearing has commenced the activity must be maintained.
- The addition of two more 40km/h speed limit signs and two more wildlife warning signs, one from each direction should be erected.
- The HOA, as far as possible, must record and monitor if and when animal fatalities occur along the road within Bisley Reserve. The following must be noted – type of animal, time of day, location, route being travelled (to confirm whether they are visiting Intaba). On a regular basis these findings must be reported to the Municipality and, if deemed necessary, the HOA, with the Municipality must seek further advice on what additional methods should be implemented from the Traffic Specialist. If it is deemed that additional traffic calming measures are required, the HOA must encourage the Municipality to take the necessary action (e.g. speed cameras – manned or unmanned, electronic signs which show your speed, 40km/hr painted at various locations along the road).

ENGINEERING SERVICES

- For erf 18 to erf 161 a site specific geotechnical investigation and percolation test must be carried out before construction commences.
- The Package Plant must be designed, commissioned and handled by a specialist and monitored and maintained by a suitable service provider.
- Once the Package Plant Specialist and service provider has been identified, an i) inspection and maintenance plan; and ii) quality monitoring plan, must be compiled and appended to the EMPr.
- The plant must meet the Department of Water and Sanitation specifications regulating the quality of discharge water as provided in Government Gazette No. 20526 of 8 October 1999.
- Treated water from the package plant must be monitored for water quality.
- Monitoring of water quality by the local authority at key monitoring points must be undertaken to determine any negative impacts on water quality.
- The existing Intaba Ridge Estate internal road network must be upgraded as outlined in the specialist Engineering Services Report compiled by Bosch Stemele dated August 2017.
- To limit the impacts of stormwater runoff, the discharge of stormwater runoff into the natural environment must be managed by means of a site specific stormwater management plan for each building plan submitted to ensure that the post development runoff remains at pre Phase 2 development flows.
- A suitably qualified person should do water quality monitoring, testing and analysis of the treated water from the package plant on a monthly basis. The results must be made available to the Msunduzi Municipalities Environmental Management Unit.

GEOTECHNICAL

- A site specific study to determine the suitability for a soak-away and the availability of suitable material for evapotranspiration bed must be done for each site.
- The choice of foundation type and the design of the foundations will need to be undertaken by a professional engineer once the structural layouts have been determined.
- Site drainage and landscaping must be implemented in all areas to prevent surface ponding.
- This must include the conveyance of all runoff and roof discharge away from the buildings and into the natural drainage lines;
- All cut and fill slopes must be suitably vegetated as soon as possible after construction to reduce the risk of erosion and instability due to infiltration.
- Although excavations are not expected to be problematic, the contractor will need to appoint an excavation supervisor in terms of section 11 of the Construction Regulations 2003.
- It is recommended that all earthworks be carried out in accordance with SANS 1200D: 1998, (as amended).

WETLAND

- The implementation of a 30m buffer around the wetland systems must be adhered to during both the construction and operational phases of this development. The buffer must not be used as a stockpiling or storage area for construction related infrastructure or products.
- Vegetation clearing must be undertaken only in the areas to be developed and must not extend outside of the development footprint and particularly into the wetland systems.
- The wetland areas and buffers must be rehabilitated and treated as a conservation zone.

AQUATIC

- Bare ground must be re-planted with fast growing indigenous ground cover in order to secure the sediment and reduce the risk of erosion.
- Appropriate toilet facilities must be made available to workers on site. No pit latrines are to be installed.
- Soil stockpiles must have cut off trenches to prevent the migration of sediment downslope.
- No water is to be abstracted from the dams without necessary permitting and approval from the Department of Water and Sanitation.
- Aquatic ecology monitoring must be conducted biannually.

GENERAL

- Local businesses and unemployed people in the immediate area must be considered first, before employing services from further afield.
- The existing architectural controls for Intaba Ridge must be applied to Phase 2.
- No visible light sources and street lights must be allowed.
- It is recommended that activities of construction vehicles, building contractors and labourers should be limited to working hours between 7am and 5pm during weekdays. Furthermore, construction on weekends and public holidays should not be permitted.

The EAP concludes that no fatal-flaws have been identified during the environmental process and, provided the EMPr and recommendations made in this report are strictly adhered to, there should be no significant, detrimental impacts on the environment.

12.APPENDICES