APPENDIX 1

ENVIRONMENTAL MANAGEMENT PROGRAM

REC SERVICES
ENVIRONMENTAL CONSULTANTS

2nd Floor, Rubenstein Office Park
566 Rubenstein Drive
Moreleta Park, 0181

PO Box 40541
Moreleta Park, 0044

www.recservices.co.za

REC SERVICES
ENVIRONMENTAL CONSULTANTS

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESS

PROPOSED FARMING ACTIVITIES FOR CROP PRODUCTION AND ASSOCIATED INFRASTRUCTURE SUCH AS A WORKSHOP AND CROP PRODUCTION TUNNELS ON THE REM. OF POR. 2 OF THE FARM UITMALKAAR 126IR, MPUMALANGA.

Reference No.: **1/3/1/16/1 G-263**
NEAS No.: MPP/EIA/0001095/2022

ENVIRONMENTAL MANAGEMENT PROGRAMME

Prepared for:
MS. SINDISIWE MBUYANE
MPUMALANGA PROVINCE DEPARTMENT OF AGRICULTURE, RURAL DEVELOPMENT, LAND AND ENVIRONMENTAL AFFAIRS
GERT SIBANDE DISTRICT - EIM
13 DE JAGER ST.
ERMELO
2351

On behalf of:
NOMVULA MPUMELELO (PTY) LTD.
MR EWERT SNYMAN
PORTION 2 OF THE FARM UITMALKAAR NO 126
KINROSS
2270
CELL: 084 511 5811
E-MAIL: E.SNYMAN@MAKWENZEKE.COM

Author:
ROWAN VAN TONDER & PIETER VAN DER MERWE
REC SERVICES (PTY) LTD

Date: **30 November 2022**

TABLE OF CONTENTS

ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP) AND EXPERTISE

EAP: P.N. van der Merwe (Director)	➢ Expertise: Environmental Impact Assessments in Land-use and Infrastructure Development. ➢ Years of experience: 30. Qualifications: B.Sc. Hons. Environmental Management PU for CHE.
EAP: Rowan van Tonder	➢ Expertise: Currently involved with various applications for activities under the National Environmental Management Act (NEMA) (Act 107 of 1998), Mineral and Petroleum Recourses Development Act 2002 (Act No. 28 of 2002), and National Environmental Management: Waste Act, 2008 (Act 59 of 2008). ➢ Years of experience: 15. Qualifications: M.Sc. Botany (Conservation Management), B.Sc. Hons. Physical Geography - Environmental Management at TUKS. (For Extended Details, See Appendix 6 – EAP CV). ➢ SACNASP (Pri.Sci.Nat) Reg. No.: 119204. EAPASA Reg, No.: 2020/2579

GENERAL TERMS AND ABBREVIATIONS:

Audit	Regular inspection and verification of implementation of the EMPr
Bund	A sealed enclosure under or around a storage facility to contain any spillage
Batch plant	Concrete or plaster mixing facility and associated equipment and materials
Contractor	Principal persons or company undertaking the construction of the development
Development site	Boundary and extent of development works and infrastructure
Engineer	Person who represents the client and is responsible for enforcing the technical and contractual requirements of the project
ECO	Environmental Control Officer: - Person tasked with monitoring implementation of the EMPr during construction
Emergency situation	An incident, which potentially has the ability to significantly impact on the environment, and which could cause irreparable damage to sensitive environmental features. Typical situations amongst others are: o Large spills of petroleum products and lubricants on site, o Potential damage, erosion and slumping of unstable slopes, o Indiscriminate dumping of construction waste on site, and accessing exclusion zones
RE/PM	Resident Engineer/Project Manager: Person representing the Engineer on site
BAR	Basic Assessment Report
Full EIA	Full Environmental Impact Assessment Process that includes a Scoping and EIR
DWS	Department of Water and Sanitation
EAP	Environmental Assessment Practitioner
EMPr	Environmental Management Program
DARDLEA	Mpumalanga Department of Agriculture, Rural Development, Land and Environmental Affairs
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
EIR	Environmental Impact Report

1. INTRODUCTION

This Environmental Management Program (EMPr) describes impact mitigation measures to be implemented during the construction and operation phases of the proposed establishment of new land for crop production and some associated infrastructure such as a workshop and crop production tunnels.

The careful implementation and management of activities on site, during the entire process of project construction and operation, is vitally important. Focus should be placed on the activities to occur on the site of the proposed development; however, consideration of the adjacent environment (socially and ecologically) is equally important. The mitigation measures represented in this EMPr should not be seen as static measures, but rather as methodologies that can be updated and improved during implementation, as and when site conditions become clearer. However, this EMPr sufficiently serves to provide the most practicable methods to promote sound environmental management during the construction and operational phases of the development.

The measures and principles are provided to assist placing impacts identified in another perspective – more towards the firm potential of mitigating the impacts during the development and implementation of the project. But this, as already mentioned, also implies that during the course of the project certain adaptations can be made or will be eminent during the construction implementation period. These adaptations will be the result of the EMPr monitoring exercise that is planned to take place during the construction period. The EMPr subsequently is an on-site working and dynamic document.

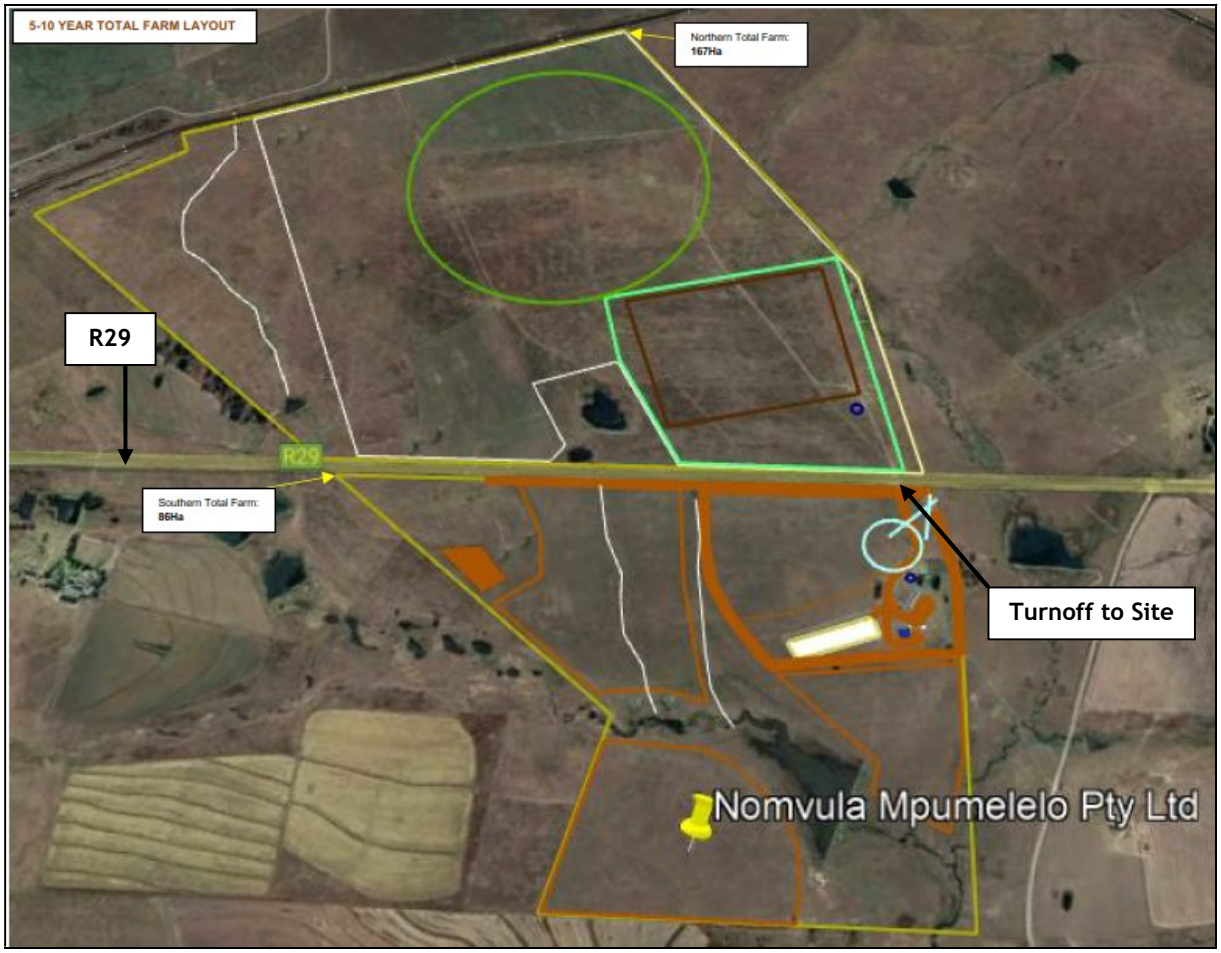
This section of the report provides recommendations on matters relating to the impact of the development on the physical environment, the biological environment and the social environment (of the site and study area) by describing mitigation measures that are to be implemented.

2. PROJECT DESCRIPTION

The application for the establishment of a new pasture, crop production tunnels, and vegetable production fields and associated infrastructure as part of the overall farming

enterprise. Approximately 176 Ha will be developed for this vegetable production and pasture fields.

The proposed establishment of new land for crop production and some associated infrastructure such as a workshop and crop production tunnels, on the Rem. of Por. 2 OF the farm Uitmalkaar 126IR, Mpumalanga Province. The turn-off to the farm, from the R29, is about 7.2km from the R29 and R547 interchange at Kinross. GPS coordinates of site: -26.383846°, 29.022789°.



The proposed sites are all situated in a grassland biome affected by agricultural practices ranging from crop production, planted pastures, sheep, and cattle farming to game farming. Small streams and rivers crisscross the area with an occasional earth dam in it.

A broad study area was created around the proposed development. Although details of a

proposed development will be accumulated and made available as the EIA process develops.

The future land use surrounding the development is predominantly agricultural, undeveloped, and undetermined in the Gert Sibande Regional Spatial Development Framework (RSDF).

3. DESCRIPTION OF THE ENVIRONMENTAL ASPECTS OF THE ACTIVITY

Environmental Aspects	N4 Road Upgrade & Preferred/Proposed Machado Interchange
Topography	The 'terrain type' of the area is classified as level plains to valleys with some relief. The terrain contains some distinct topographical sections, namely: ▪ Sensitive features include a stream/drainage line with small wetlands and a earth dam in the southern section of the site. ▪ 2 small dams found in the northern section of the site. ▪ The R29 divides the portion. ▪ Cropland/planted pastures south and west the proposed site. ▪ Grassland all around the site. The area has a very gentle slope. The site falls within the Waterval (Kleinspruit) Quaternary catchment area (C12D catchment). Wetlands occur around of the study areas which is often associated with small dams and streams and drainage ways (perennial and non-perennial). The potential impact of construction activities during the proposed development is identified as a high significant impact, which needs a detailed impact assessment and mitigation measures for these areas. However, it should be noted that aerial imagery clearly indicates that the wetland areas have historically been impacted on by agricultural activities. This is to be expected as the regional area focusses on agriculture and the impact (or lack thereof) will be confirmed during the Specialist Studies to be undertaken. Furthermore, as indicated by the South African National Biodiversity Institute (SANBI) the northern section of the study area has river unit (Type: 11_P_U), Rolspruit, in terms of Rivers National Freshwater

Environmental Aspects	N4 Road Upgrade & Preferred/Proposed Machado Interchange
	Ecosystem Priority Areas (NFEPAs), as well as an artificial wetland (Type: Mesic Highveld Grassland Group 3_Seep) in terms of Wetlands National Freshwater Ecosystem Priority Areas (NFEPAs). Impacts: • Blasting/Drilling/excavation of geology to accommodate bridge and road foundations may alter the topography slightly.
Soil, Land Capability and Land Use	The land potential, and specifically the agricultural potential of a site, is determined by the combination of climate, soil conditions and slope prevailing in that region or site, resulting in the classification of areas with similar agricultural land potential. These land potential classes range from "Very High Potential" to "Very Low Potential". The Department of Agriculture has mapped the agricultural potential of South Africa. Using this mapping files, (Agricultural Geo-Referenced Information System [AGIS]), the study area as well as surrounding the site, the agricultural potential is rated as marginal potential arable land. The study area does represent large parts of terrain where intensive or extensive cultivation are or were practised. The area is characterized by agriculture. Impacts: • Soil compaction. • Possible soil erosion due to removed vegetation. • Surface disturbance and topsoil removal. • Loss of natural vegetation/habitat.
Flora	The study area is situated in the Soweto Highveld Grassland. This vegetation type is characterized by grassland dominated by *Andropogon appendiculatus, Cynodon dactylon, Eragrostis curvula* and *Themeda triandra*. The vegetation types on site are further categorized by low shrubs like *Anthospermum rigidum* subs. *pumilum*, *Berkheya annectens, Felicia muricata,* and *Ziziphus zayheriana*. In some places that are not disturbed, only scattered small wetlands, narrow streams alluvia, pans and occasional ridges or rocky outcrops interrupt the continuous grassland cover (Mucina and Rutherford, 2006).

Environmental Aspects	N4 Road Upgrade & Preferred/Proposed Machado Interchange
	A Threatened species and Species of Conservation Concern list for the Grids 2629 AC was obtained from the Plants of South Africa (POSA) database on the South African National Biodiversity Institute (SANBI) website. Threatened species are those that are *facing high risk of extinction, indicated by the categories Critically Endangered, Endangered and Vulnerable*. Species of Conservation Concern include the Threatened Species, but additionally contain the categories Near Threatened, Data Deficient, Critically Rare, Rare and Declining. This is in accordance with the new Red List for South African Plants (Raimondo *et al*. 2009). However, the POSA list is based on herbarium specimens housed in the National Herbarium of SANBI; therefore, many plant species that do occur in the area are not listed. The following possible red data plant species (by the categories Critically Endangered, Endangered and Vulnerable) could occur in the areas surrounding the study area: *Kniphofia typhoides Codd according to the POSA database for grid 2629 AC*. Impacts: • Stripping of surface vegetation during construction.
Fauna	The study area is stretched over a large area. No Red Data Book Species were encountered. Possible smaller mammals that would commonly occur in the wider surrounding area are: *Rhabdomys pumilio* (Xeric Four-striped Grass Rat), *Myosorex varius* (Forest Shrew), and *Otomys auratus* (Southern African Vlei Rat). No Red Data Book species were recorded. There are also no records of red data (Critically Endangered, Endangered and Vulnerable) mammals for the wider area (2629AC). According to available literature, approximately 211 bird species occur in the Kinross quarter degree grid cell (2629AC). No Red Data species were recorded on site. According to Taylor et al. (2014) and South African Bird Atlas Project 2, the following bird species are threatened in the wider area:

Environmental Aspects	N4 Road Upgrade & Preferred/Proposed Machado Interchange

SCIENTIFIC NAME	COMMON NAME
Mycteria ibis	Yellow-billed Stork
Geronticus calvus	Southern Bald Ibis
Phoenicopterus roseus	Greater Flamingo
Phoeniconaias minor	Lesser Flamingo
Sagittarius serpentarius	Secretarybird
Circus ranivorus	African Marsh-Harrier
Circus macrourus	Pallid Harrier
Circus maurus	Black Harrier
Falco biarmicus	Lanner Falcon
Falco naumanni	Lesser Kestrel
Glareola nordmanni	Black-winged Pratincole
Hydroprogne caspia	Caspian Tern
Spizocorys fringillaris	Botha's Lark

No Red Data species was recorded. And no amphibians were encountered on site. This might be due to the lack of suitable habitats like grassland, wetlands and rocks, as well as the history of farming activities and other anthropogenic on site, or survey techniques.

List of herpetofauna possibly on site or rather found in the wider area.

SCIENTIFIC NAME	COMMON NAME
Semnodactylus wealii	Rattling Frog
Amietophrynus gutturalis	Guttural Toad
Amietia fuscigula	Cape River Frog
Pseudocordylus melanotus Subs. melanotus	Common Crag Lizard
Leptotyphlops scutifrons Subs. conjunctus	Eastern Thread Snake
Semnodactylus wealii	Rattling Frog

Impacts:

- Removal of surface vegetation thereby depleting food sources.
- Human presence resulting in emigration of animals.
- The disturbances of the vegetation cover and natural habitat

Environmental Aspects	N4 Road Upgrade & Preferred/Proposed Machado Interchange
	will have a limited impact on the wildlife. However, it should be viewed against the background of the disturbances by human movement and activities through the area.
Surface Water	Sensitive features include the streams, dams, and drainage lines with their associated wetlands. Water course: There is a water course crossing the North-western part of the site. At the upstream (Northern) part of the site there was standing water. There are small dams on this water course but at the time of the site visit these were not holding water. The water visible in the dam is on the neighbouring property. Roadside borrow pits: There are two borrow pits to the north of the road. Both of these were holding water at the time of the site visit. There is a drainage line flowing across the southern part of the site. There is a dam on this drainage line which was overflowing through the spillway at the South-western end of the wall. The drainage line flowing across the North-western side of the property flows into this line, flowing back onto the property South of the R29. There is an unchannelled valley bottom wetland running southwards from the R29 (-26.379583° 29.021565°) joining this drainage line at the upstream end of the dam (-26.383543° 29.019655°). At the time of the site visit the clay in this unchannelled valley bottom wetland was wet, indicating that it is a temporary wetland and so it has been delineated as such. The average slope of this unchannelled valley bottom wetland is 3.6 m/100 m which is steeper than palustrine wetlands are generally found. However, the clay soil, the moisture content and the vegetation indicate that this is, in fact, a wetland. There was a lot of seepage downstream of this dam wall, contributing to the flow of water downstream. Most of the wet areas on the site were riparian. The only wetland area is the unchannelled valley bottom wetland running from the R29 southwards into the dam to the South of the R29.

Environmental Aspects	N4 Road Upgrade & Preferred/Proposed Machado Interchange
	Impacts: • Impacts on the riverbed and wetlands will be caused by the construction of dam walls and possible siltation into river and wetlands. • Drainage line could be altered or blocked by construction activities.
Ground Water	Use of ground water resources is possible but is it anticipated that natural surface water sources would be used. A water license application is being conducted in this regard. WULA will concentrate on the effects on the riverbanks and wetlands. Impacts: • Moderate potential environmental impact predicted. • Temporary toilets (chemical) left unmanaged can leak raw sewage and effluent into the soil, surface and even ground water sources, during the construction phase.
Air Quality	Dust will be generated by vehicular movements on site. The tipper trucks from the nearby towns will also add to the negative impact on air quality, but only during the construction phase. Impacts: • Low potential environmental impact (temporary). • During the construction phase; dust could cause problems for nearby human settlements. During the construction phase the air quality could be negatively impacted.
Noise	Noise generation by operating air compressors, excavators and other heavy machinery. Noise is also generated by the construction workers. Impacts: • Low potential environmental impact. • Noise from the traffic will be an inconvenience to a certain extent for some existing farm properties adjacent to each site.
Visual	Visual and aesthetic elements of importance have been considered

Environmental Aspects	N4 Road Upgrade & Preferred/Proposed Machado Interchange
	with respect to the proposed development but will in general not be affected by the proposed activities of this development. This due to the fact that surrounding area is also visual disturbed by anthropogenic elements and is all part of a farming set up: • Agricultural practices; • Eskom powerline structures; • Other roads, whether provincial or municipal; and • Exotic and invasive plants seen on the fringes of the site. <u>Impacts:</u> • Moderate significant impact. • Waste, such as building rubble and empty cement bags can be a negative visual impact if not collected and disposed of correctly.
Sensitive Landscapes	Sensitive features include the streams, dams, and drainage lines with their associated wetlands. <u>Impacts:</u> • Removal of surface vegetation thereby depleting food sources. • Human presence resulting in emigration of animals. • The disturbances of the vegetation cover and natural habitat will have a limited impact on the wildlife. However, it should be viewed against the background of the disturbances by human movement and activities through the area. • The movement of water into wetlands could be altered by construction activities. • Erosion of stream- and riverbanks due to vegetation removal. • Increased runoff due to removal of vegetation and increased soil compaction can lead to siltation of the riverbed downstream.
Sites of Archaeological and Cultural Interest	Findings from the HIA are: SPECIFIC CATEGORIES INVESTIGATED AS PER SECTION 3 (1) AND (2) OF THE NATIONAL HERITAGE RESOURCES ACT, 1999 (ACT NO. 25 OF 1999) 1. Does the site/s provide the context for a wider number of places, buildings, structures and equipment of cultural significance?

Environmental Aspects	N4 Road Upgrade & Preferred/Proposed Machado Interchange
	The study area does not provide context for a wider number of places, buildings, structures and equipment of cultural significance. The reason being the low density of heritage items in the study area. 2. Does the site/s contain places to which oral traditions are attached or which are associated with living heritage? Places to which oral traditions are attached or associated with living heritage are usually found in conjunction with traditional settlements and villages which still practise age old traditions. None of these are evident near or on the proposed site. 3. Does the site/s contain historical settlements? No historical settlements are located on or near the proposed site. 4. Does the site/s contain landscapes and natural features of cultural significance? The site/s do not contain landscapes and natural features of cultural significance. 5. Does the site/s contain geological sites of cultural importance? Geological sites of cultural importance include meteorite sites (Tswaing Crater and Vredefort Dome), fossil sites (Karoo and Krugersdorp area), important mountain ranges or ridges (Magaliesburg, Drakensberg etc.). The proposed site is not located in an area known for sites of this importance. 6. Does the site/s contain a wide range of archaeological sites? The proposed site does not contain any surface archaeological deposits, a possible reason is previous agricultural and infrastructure development. The possibility of sub-surface findings always exists and should be taken into consideration in the Environmental Management Programme. If sub-surface archaeological material is discovered work must stop

Environmental Aspects	N4 Road Upgrade & Preferred/Proposed Machado Interchange
	and a heritage practitioner preferably an archaeologist contacted to assess the find and make recommendations. 7. Does the site/s contain any marked graves and burial grounds? The site does not contain marked graves or burial grounds. The possibility of graves not visible to the human eye always exists and this should be taken into consideration in the Environmental Management Plan. It is important to note that all graves and cemeteries are of high significance and are protected by various laws. Legislation with regard to graves includes the National Heritage Resources Act (Act 25 of 1999) whenever graves are 60 years and older. Other legislation with regard to graves includes those when graves are exhumed and relocated, namely the Ordinance on Exhumations (no 12 of 1980) and the Human Tissues Act (Act 65 of 1983 as amended). If sub-surface graves are discovered work should stop and a professional preferably an archaeologist contacted to assess the age of the grave/graves and to advice on the way forward. 8. Does the site/s contain aspects that relate to the history of slavery? No evidence of the above evident on the site earmarked for development. 9. Can the place be considered as a place that is important to the community or in the pattern of South African history? In primary and secondary sources the proposed site is not described as important to the community or in the pattern of South African history. 10. Does the site/s embody the quality of a place possessing uncommon or rare endangered aspects of South Africa's natural and cultural heritage? The proposed site does not possess uncommon, rare or endangered aspects of South Africa's natural and cultural heritage. These sites are usually regarded as Grade 1 or World Heritage Sites.

Environmental Aspects	N4 Road Upgrade & Preferred/Proposed Machado Interchange
	11. Does the site/s demonstrate the principal characteristics of South Africa's natural or cultural places? The proposed site does not demonstrate the principal characteristics of South Africa's natural or cultural places. These characteristics are usually associated with aesthetic significance. 12. Does the site/s exhibit particular aesthetic characteristics valued by the community or cultural groups? This part of the greater study area does not exhibit particular aesthetic characteristics valued by the community or cultural groups. The reason being the low density of heritage buildings and structures located in the greater study area. 13. Does the site/s contain elements, which are important in demonstrating a high degree of creative technical achievement? The site does not contain elements which are important in demonstrating a high degree of creative technical achievement. Reason being none of the above are evident on site. 14. Does the site/s have strong and special associations with particular communities and cultural groups for social, cultural and spiritual reasons? The proposed site does not have a strong or special association with particular communities and cultural groups for social, cultural and spiritual reasons. No comment in this regard was received during the Public Participation Process (PPP). 15. Does the site/s have a strong and special association with the life or work of a person, group or organisation? No indication of the above could be found in primary and secondary research sources. <u>Impacts:</u> • Low to No significant impact.
Socio-economic	The study area is characterized by various land use entities. The

Environmental Aspects	N4 Road Upgrade & Preferred/Proposed Machado Interchange
	proposed development falls within the Gert Sibande District Municipality (and in the Pixley ka Seme Local Municipality) and involve one municipal ward area. The ward involved include Ward 2. The agricultural land use is characterised by livestock and the production of various crops along the farmhouses and their infrastructure, and also large sections of open grassland and shallow valleys and hillside. Land use will be impacted by the proposed development, especially with regards to the additional agricultural land and natural veld that will be covered by the proposed development. Other socio-economic implications are: • Job creation. • Social upliftment. • Increase in farm expertise (Know-how, skills development). South Africa is much divided between a first and a second economy and this is also very evident in the case of the Govan Mbeki Municipality. The second economy has become an umbrella term for the impoverished section of the South African population. Impoverishment and the need for job creation are also evident in Govan Mbeki Municipality and this is highlighted in the points below. 1. Govan Mbeki Municipality had a workforce of just over 150 000 people in 2001 as per the 2001 SA Household Statistics of which 27% were unemployed and 33% were not economically active (not economically active is sometimes a euphemism for the totally disenfranchised; people whom, if they had the right education, would have more than likely elected to seek some form of employment.) Hence 40% of the Govan Mbeki Municipality labour force has formal employment. This indicates that economic development and job creation is a key challenge for Govan Mbeki Municipality, much like the case in the rest of South Africa.

Environmental Aspects	N4 Road Upgrade & Preferred/Proposed Machado Interchange
	2. Of the total households, 41% of Govan Mbeki Municipality's population does not live in any "formal" homes, showing the extent to which economic development is still required. A review of the informal housing and unemployment statistics shows that 44% of the households lived on or below the poverty line in 2001, a situation that is likely to persist today. [Note: Although the 2001 statistics are out-dated, it is generally used until the update of the Household Survey by Stats SA] This is very evident in Kinross. The socio-economic implications of this proposed development are the creation of more job opportunities and services in and around the town of Kinross, which is sorely lacking. <u>Impacts:</u> Positive impact on the regional socio-economic structure through its support to the community, like: ➢ Job opportunities during the construction phase. ➢ Local economic boost.
Interested and Affected Parties	Main concerns were: • None at this stage.
Cumulative	The cumulative impact of the development on the social environment is positive. There will be a positive impact in terms of social upliftment and job creation within the broader region. Seen at a wider scale the additional developments are physically connected, but the removal of vegetation cover, such that the soil surface is exposed, may lead to increased soil erosion in the area. Where the removal of natural vegetation is moderate in percentage to the whole activity it may add to a bigger combined loss of natural vegetation/habitat for the local area. Correct and efficient storm water drainage systems must be installed. Poorly designed storm water outlets will result in increased surface run-off volume and speed, which could lead to the creation of erosion gullies. All road and ploughed surfaces generate storm water, which

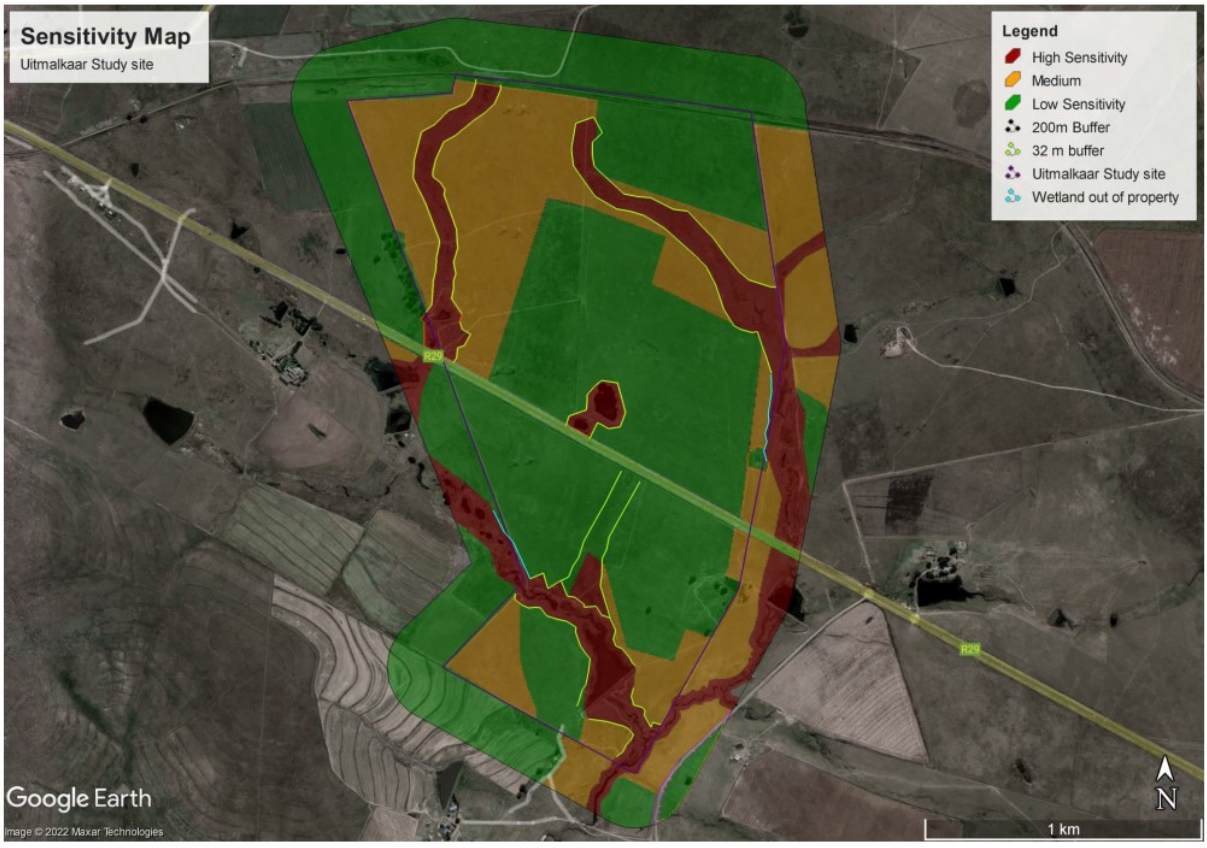
Environmental Aspects	N4 Road Upgrade & Preferred/Proposed Machado Interchange
	should be controlled by preventing the storm water from crossing the road. Storm water must be allowed to spread out gradually over a large surface area to protect the soil surface against erosion. The surrounding developments may contribute to more erosion due to more cleared and open surfaces found at these developments.

4. SENSITIVITY MAPS

Also refer to Appendix 3B of the EIA report.

The sensitivity maps were drawn up for the site to determine areas of high sensitivity. The maps correspond with the methods of determining the sensitivity of the site as described per specialist field from their studies:

Vegetation sensitivity map:



Wetland study:

Figure 9-1: Wetland and riparian delineation. The 32 m buffer zones are marked in green.

5. DESCRIPTION OF THE IMPACT MANAGEMENT OBJECTIVES FOR ALL PHASES OF THE DEVELOPMENT

5.1 Recommendations Applicable to the Planning and Design Phase

Time frame: In process. 2 months.

There are a number of potential impacts that can be mitigated through careful design of technical/physical project components. The following design components are relevant in this regard:

- Address the potential contamination of surface run-off and soil through storm water drainage from cropland;
- Potential contamination of soil and groundwater resources from Agri-chemical products;
- Visual and aesthetic impacts of the structures (farming equipment) on the surrounding environment;

- Waste management on site, including handling, storage and collection of solid waste.

Implementation responsibility: The site engineer will be responsible for the implementation of the above measures as an on-going process during construction phase.

5.1.1 Contamination of surface water/soil through storm water run-off from hard surfaces

It is recommended that the storm water management system, leading from the hard surfaces be designed in such a manner that no direct link or piping be established into the natural drainage course.

Other precautions to be implemented in order to prevent storm water pollution are:

- Cover any wastes that are likely to wash away or contaminate storm water;
- Build a bund around waste storage area to stop overflow into storm water;
- Storm water outflows will not enter directly into a drainage line;
- Energy dissipaters (gabions/grass bales etc.) must be installed at all potential large flow volume areas, especially during the construction phase where large areas will be open soil;
- Natural storm water must not be piped other than in areas where it runs perpendicularly cross a roadway;

Storm water design (as per civil engineers) for all hard surfaces will ensure the proper management and precautionary measures are taken into account.

5.1.2 Visual and aesthetic impacts of any structure

The proposed development will be relatively close to other farming entities, which should not be unattractive and undesirable to such an environment. The proposed development is situated in an agricultural setting. The character of the site and its location makes the proposed development acceptable and compatible with the aesthetics of the study area, even for the new tunnel structures built close to a farmhouse. Nevertheless, careful attention will be placed on various design elements associated with the proposed development, including attention to aspects that will enhance the aesthetic quality of this agricultural development, such as landscaping.

Poor maintenance of this agricultural development as a whole will affect the visual and aesthetic quality of the area. Therefore, general maintenance on a regular basis will form a crucial component of the operational phase of the proposed development. Therefore, to pay special attention to "blending" this agricultural development to the environment is a relevant exercise.

5.1.3 Waste management on site (during construction)

Poorly designed waste collection/storage facilities have a significantly negative impact in terms of surface pollution, possible water pollution and negative impacts on the visual quality of an area. Therefore, practical design and efficiency is essential in this regard. The location of the refuse areas/waste collection area must be carefully planned and located so as not to cause a visual nuisance, as wind-blown refuse is often a problem. It is suggested that large black bins/skips or a camped off area, which are secured in place, are distributed frequently at strategic locations across this agricultural development to discourage littering. The dustbins should be secured to prevent them from being knocked over or carried away. The lids should also be suspended permanently above the dustbins, to ensure that the waste disposed of is efficiently contained. The waste from these bins should be collected on a weekly basis and stored in a refuse collection yard (which should be contained within a walled fence), until such a time that a certified/registered contractor collects the waste - on a weekly basis – to be disposed of at a registered waste disposal site or when the farmer see fit to do it himself.

Implementation responsibility: The site engineer / applicant will be responsible for the implementation of the above measures as an on-going process during construction phase.

5.2 Impact Mitigation during the <u>Pre-Construction</u> & <u>Construction Phase</u>

Time frame: 4 months.

The following recommendations are proposed to assist as basic environmental management steps and to be implemented during the construction phase of the project:

The construction stage of the proposed development will cause impacts on the biophysical and social environment. Although these impacts are short-term, but significance in nature, it still is essential to address them as sufficiently as possible.

This stage represents the period immediately after site hand over. The contractor must be made aware of the contents of the EMPr, even if there are sections in the documentation which referred to environmental impact management measures to be budged for and implemented.

The following "rules" must be implemented to make the document relevant and handy on site:

- The EMPr shall not be removed from the site office.
- The EMPr shall be updated when necessary.
- The EMPr shall be readily available to the Resident Engineer/Project Manager, and the site manager.
- The ECO shall monitor the state/condition of the document and how it is kept on site. He will provide new printed copied when the EMPr is updated or adapted.
- The EMPr shall be available on site to any Interested and affected party but shall not be removed or copied to such a party or person.

The Environmental Policy that can be put forward for the construction of this agricultural development should be read as follow and should be pinned up at the Construction office.

The objective and aim of the final product of this road development is the creation of an environmentally sound transport facility that will be seen and function as an environmental asset in biophysical and socio-economic terms. The objective will be achieved through careful implementation of all measures pertaining to the protection of the environment during construction and operational stages of the project.

This policy will be conveyed to the appointed main contractor and his team by the Resident Engineer/project manager during the construction phase.

The following elements must be considered and addressed when the construction stage of the development commences:

- The locality of the construction camp and site offices. Limited accommodation will be provided for construction workers. Staff will be limited to security personnel after normal working hours.
- The locality of stockpile areas must be confirmed and discussed with the appointed contractor before construction activities commence.
- Specified areas of access and movement by construction vehicles during the construction period are essential.

5.2.1 Management of impacts on vegetation cover and faunal habitats

The clearing and removal of the existing vegetation (also consisting of cropland), for the construction of the activity, will be necessary. However, due to the existence of natural veld and wetland vegetation and the size of area affected, the significance of this impact is rated as high. The management of impact on natural vegetation cover is important to keep the overall impact on the natural environment and current ecological conditions as low as possible.

The propagation of exotic species and weeds will need to be controlled during the construction phase, as there are many activities on site that could lead to the establishment of weeds - including compaction of the soil by heavy machinery, construction waste, stockpile areas, fringes of the site office terrain, and fringes of temporary access roads, etc. Weed species should be removed on a four-week basis. It is recommended that only the same grass composition of the area be used in the landscaping/rehabilitation process and that trees/natural bushes/grasses are incorporated into the landscaping design where appropriate.

The crossing of natural drainage systems should be minimized and only done at the area marked out and the then the shortest possible route must be used, perpendicular to the natural drainage system. Rehabilitation of natural vegetation should proceed in accordance with a rehabilitation plan compiled by a specialist registered in terms of the Natural Scientific Professions Act (No. 27 of 2003) in the field of Ecological Science.

Innovative landscaping or re-vegetation of the site towards the end of the construction stage will contribute significantly to the visual and aesthetic attractiveness of the site and will also solve the problems associated with the removal of vegetation cover, including soil

erosion, dust generation and the flourishing of weeds and/or other unwanted exotic species in the long term.

Prior to construction, fences should be erected in such a manner to prevent access and damage to any sensitive areas identified in a sensitivity mapping exercise.

Disturbance to any wetlands during construction should be minimized. A plan for the immediate rehabilitation of damage caused to wetlands should be compiled by a specialist registered in accordance with the Natural Scientific Professions Act (No. 27 of 2003) in the field of Ecological Science. This rehabilitation plan should form part of the EMPr, and a record book should be maintained on site to monitor and report on the implementation of the plan. Engineering measures are recommended to lower the risk of spillages into any wetlands located within 200 m of this agricultural development.

Where possible, work should be restricted to one area at a time, as this will give the smaller birds, mammals, and reptiles a chance to weather the disturbance in an undisturbed zone close to their natural territories.

The ECO must be alerted to the fact that the snaring or hunting of wild animals often takes place in the vicinity of construction sites. This must be punished if there if proof that such a practice is conducted by members of the construction team. The contractor must ensure that no fauna is disturbed, trapped, hunted, or killed during the construction phase. Conservation-orientated clauses should be built into contracts for construction personnel, complete with penalty clauses for non-compliance. It is suggested that where work is to be done close to the drainage lines, these areas be fenced off during construction, to prevent heavy machines and trucks from trampling the plants, compacting the soil and dumping in the system. During the construction phase, noise must be kept to a minimum to reduce the impact of the development on the fauna residing on the site. Alien and invasive plants must be removed.

A comprehensive surface runoff and storm water management plan should be compiled, indicating how all surface runoff generated as a result of the development (during both the construction and operational phases) will be managed (e.g. artificial wetlands / storm water and flood retention ponds) prior to entering any natural drainage system or wetland

and how surface runoff will be retained outside of any demarcated buffer/flood zones and subsequently released to simulate natural hydrological conditions. This plan should form part of the EMPr.

Implementation responsibility: The RE and main contractor will be responsible for the implementation of the above measures as an on-going process during construction phase.

5.2.2 Management of impacts on soil (stability and erosion of disturbed surfaces)

Given the topography of the site, sheet, and gully erosion (which is typically experienced when construction takes place during the summer rainfall months) of the topsoil layer could occur. If surface erosion DOES become prevalent during the construction phase, it should be curbed through control measures such as placing sandbags at the highest point to stop the cutting back of rill/gully and at the lowest point of water run-off areas to halt the sediment transport and erosion that will otherwise occur.

Aspects that typically impact on soil conditions are blasting activities, excavations for the founding of foundations, establishment of stockpile areas, removal and/or clearance of vegetation, movement of construction vehicles, and maintenance of construction vehicles, construction camp establishment and sanitation provision to workers during the construction period. Therefore, the following recommendations pertaining to soil conservation practices are made:

- Topsoil should be stockpiled separately from subsoil. The height of the stockpiles may not exceed 2.5 m and the stockpiles should not be stored for more than a one-year period.
- Topsoil must be stripped from all areas, where construction activities are going to take place, to be re-used in landscaping the site.
- If any blasting activities occur on site, the blasted rocks and heavy rock material must be transported to an external venue. These rocks are not allowed to rest on site. If the rocks are left on site, the soil will be greatly compacted, which will promote the growth of weeds.
- Any excess overburden material that is generated may not be dumped in a random manner. Dumping sites should be predefined, agreed upon and adhered to.
- Any embankments created adjacent to the roads, or any drainage lines must be stabilised during construction and re-habilitated afterwards.

- Generally, surface water must be prevented from damming or creating gully erosion. This can be achieved by placing sandbags along the boundaries of steep working areas where higher intensity surface run-off may occur.
- All rills and erosion channels developing during the construction period or during the operational and maintenance period should be backfilled and consolidated immediately.
- The movement and maintenance of construction vehicles may only take place in pre-determined and delineated areas. Only planned and formal routes for hauling of material should be used.
- Soil contamination during construction vehicle maintenance or as a result of fuel storage on site is easily prevented, but in the event of such an accident, the spill should immediately be cleaned up by absorbing the worst of the fluid with saw dust and then disposing of the saw dust and the first bit of the soil layer.
- Fuel storage areas should be bounded effectively, and all applicable safety standards must be adhered to.

In terms of the stability of excavations, it is strongly recommended that all excavations exceeding 1.5 m should have proper sidewall protection to ensure the safety of workers. Seepage may result in the destabilising of the soils above the seepage and special precautions may be required. The contractor is responsible for the implementation of suitably designed support systems. Constructed embankments exceeding 1.5 m, or as deemed necessary by the design engineer, can be stabilised/protected by means of retaining walls. Embankments should be adequately compacted and protected from erosion.

The proposed development site is relatively flat to moderate sloping; however, abnormal transportation of sediment during construction activities is possible. The following management measures must be implemented during construction. Abnormal soil erosion plays an important role in the siltation of watercourses and the loss of valuable topsoil. The following suitable storm water management and mitigation measures may therefore be necessary:

- Storm water run-off must be guided through appropriate drainage structures where needed. The engineering design will address the proper run-off of storm

water and run-off must be handled in such a way that flooding of the access roads will not occur.

- Erosion control during construction is the responsibility of the contractor. The contractor will monitor the formation of erosion channels and repair as required to limit erosion damage to the works and the natural environment.
- The buildup of loose soil must be managed and limited, where possible, to reduce dust emissions. This can be achieved through the regular cleaning of road surfaces by sweeping these areas when necessary.
- Upon completion of construction at the site, all disturbed areas, not paved or landscaped, must be ripped and ploughed to enhance the establishment of natural grasses.

In addition to the above, the following restrictions will be enforced:

- No borrow pit or quarry will be opened on site (unlikely). All imported material will be obtained from commercial borrow pits or quarries.
- The footprint of the various structures will be staked out prior to commencement of construction activities.
- No moving or removal of stones, plants or any other natural specimens will be allowed outside the staked construction area.

The construction of engineering services including any water, sewerage and underground electricity lines will require trenching and backfilling as per the engineering design. Where possible, all excavations of trenches shall be done by hand to limit the impact of excavators on site.

The following will be applicable where excavation done by hand is conducted:

- Excavated material from the trenches along the access roads will be placed on the road surface area and will not be allowed to be stockpiled in a nearby veld or adjacent vegetation.
- Trenches will only be as deep as required and be backfilled as soon as possible.
- The contractor will check all open trenches every morning for trapped animals.

- All open trenches will be demarcated clearly with danger tape, or as otherwise instructed by the Engineer.

The top 150 mm of backfilling will not be compacted and will comprise topsoil stripped from the area prior to opening of the trench.

Implementation responsibility: The main contractor and project engineer will be responsible for the implementation of the above measures as an on-going process during construction phase.

5.2.3 Construction vehicle maintenance and fuel storage

Vehicles may not be serviced within 200 m of any stream or drainage course in general. Servicing must be limited to designated areas within the construction camp only. These designated areas must be identified as least sensitive. No temporary fuel storage tanks or containers will be erected closer than 200 m from a drainage course and refuelling have to be done by means of fuel bowers.

One workshop area should be established. This will be situated in the construction camp. The workshop area should be able to handle minor servicing, while major servicing will take place at the applicable agents. If major servicing of heavy equipment needs to take place on the site, personnel or contractors specializing in this field will service the vehicles on site. This action will be strictly monitored by the ECO.

The storage of fuel on the site must not exceed 80 000 litres in total to avoid a new application for authorization needed. Fuel storage areas must be bunded effectively and all applicable safety standards must be adhered to. Bunding must in containment volume be 110% of the total volume of the storage tanks. Bunding must be done by building a plastered double brick wall round the tanks.

In the unlikely event of soil being severely contaminated by oil, fuel or chemical leakages shall be removed and disposed of at a waste disposal site identified by the RE. All major servicing of plant and vehicles will be done off site, at the contractor's premises. All used oil shall be retained and disposed of by recycling at a recycling centre or disposal in any other manner approved by the ECO.

The contractor shall educate workers on the appropriate methods for workshop maintenance and fuel points to prevent fuel and oil being washed out of the containment areas. The ideal situation would be to have only one fuel point, but the size of the terrain makes it highly unpractical for this measure to be practically applicable. Approximately two refuelling points will be required, but this may change in future to three when the final phase is constructed. These will all be adequately bunded. Mobile or tanker refuelling must take place only where there are sufficient bunding structures in place.

- The contractor will provide a concave concrete floor slab to prevent erosion and infiltration of the ground water by petroleum products.
- The slab shall drain into the temporary oil skimming tank
- The contractor shall provide double layered brick bunded walls around the maintenance area. These walls must be kept well maintained to prevent storm water flow through the bunded areas.
- Where the drain passes through or across the bund wall the contractor shall provide a means of preventing flow so that in the event of a leak or overflow from the skimming tank all liquids can be contained by the bund walls.
- All major spillage of oil onto concrete surfaces shall be controlled by the use of an approved absorbent material.
- Toxins and oil recovered shall be collected in drums and disposed of in the same manner as for used vehicle oil.
- All servicing must take place at the contractor's premises. Minor services to take place at the permanent camp.
- Wash bays for construction vehicles must drain into catch pits, separation tanks and into a sealed compartment from where the treated water can be used for dust suppression. Al drainage systems associated with the wash bays must be cleaned every two weeks or when required.

Implementation responsibility: The main contractor and RE will be responsible for the implementation of the above measures as an on-going process during construction phase.

5.2.4 Stockpile areas and other storage facilities

- Temporary material storage areas and/or vehicle and equipment parking areas may not be established close to water courses – perennial or non-perennial.
- Stockpiles take up natural area space and it is therefore recommended that stockpile areas and building material storage facilities not be established in the areas where surface disturbance is to be limited.
- No equipment may lie in undesignated areas as this will contribute to soil compaction and even the spreading of weeds.
- Stockpiles of over burden material and topsoil must be protected during heavy rainfalls. Topsoil may not be allowed to be washed away. Topsoil as a growth medium for vegetation must be protected at all costs. This topsoil must be used during the rehabilitation of disturbed sections. Protection of topsoil can be enhanced by grass seeding of topsoil stockpiles. A grass cover over the topsoil stockpiles will stabilize the slopes and will put organic material and grass seed back into the soil prior to being used as topsoil on the terrain.
- All stockpile and equipment storage areas, if this is not part of the Site office and construction camp, must be fenced.

The "protection of stockpiled topsoil must be done as follows:

- Place sandbags along the toe lines of the stockpile areas close to drainage lines.
- Topsoil stripping in windy or rainy conditions must be avoided as far as possible.
- The handling of topsoil must be limited as far as possible. Although it is preferable for the topsoil to be handled as little as possible, it cannot be guaranteed that it will not be handled more than twice. Topsoil handling will be determined by practical considerations and actions on site as the project progresses.
- Although it would be preferable to make the height of topsoil stockpiles no more than 2 m, it is just not possible most of the time on site due to the huge volumes of topsoil and spoil that need to be stockpiled.
- Soils from different zones must be kept separate and distinguishable.
- Stockpiles will be cleared form alien vegetation before being re-introduced.

The storage of aggregate must comply with the following:

- Fine aggregate shall be stored on a compacted earth platform.

- The contractor shall ensure so that no excessive amount of fine aggregate is washed from the storage area onto the rest of the site with the use of barriers designed to the satisfaction of the RE. Coarse aggregate shall be stored, as a minimum, on a surface of compacted inert sub-base material.

In terms of fill and layer works material the following must be implemented:
The stockpiled area is to be ripped and re-vegetated upon removal of stockpiled material. Clearly defined borders for the stockpiling of material shall be stipulated by the Project Manager and the contractor shall contain stockpile within these boundaries.

Implementation responsibility: The main contractor & RE will be responsible for the implementation of the above measures as an on-going process during construction phase.

5.2.5 Community and traffic safety during the construction period

- The safety of the community along the road is of utmost importance throughout the construction period.
- Vehicular movement to and from the site must be adequately sign posted and adhered to.
- Adequate and correct signage and road marking.
- Monitoring of dust levels on those paths "off the link roads" which heavy vehicles will cross, will be essential. Increased dust levels will impair the vision of passing vehicles.
- Large construction vehicles might impact on road safety circumstances. It is the duty of the contractors to ensure that safety measures are implemented and adhered to, and the drivers are aware of the patterns of the traffic movement in the surrounding area.

Implementation responsibility: The main contractor & RE will be responsible for the implementation of the above measures as an on-going process during construction phase.

5.2.6 Waste disposal and management

- The uncontrolled disposal of construction waste and litter must strictly be prevented during the construction period.

- Waste related to construction includes the following. (This inventory must be expanded upon as the construction period progresses).

Solid waste:
Plastic and rubber packaging material, Plastic tubing, Concrete slabs, Concrete piping, Metal tubing, Metal brackets, Batteries of all types and sizes, Fence wires, Corrugated iron, Food packaging – paper, carton and polystyrene, Beverage tins and plastic bottles, Plastic containers of all sized and uses, Glass material e.g. glass sheets and glass bottles or other containers, Paper waste e.g. office waste paper, Paper packaging material – e.g. empty cement bags, Metal drums or other smaller containers, e.g. for paints and resins or other solvents, Bricks and mortar, waste or broken computer hardware and cables and wires.

Liquid waste:
Sewage waste from chemical toilets, wastewater for washing of equipment, sanitation water for general cleaning of facilities and workers, used lubricants and hydraulic fluids and grey water generated at the construction camp that will be contained in conservancy tanks may not be used be to undertake dust suppression activities on site.

- Uncontrolled disposal of waste near any site of construction activities must be communicated to all the workers to be unacceptable. Special attention must be paid to the occurrence of empty cement bags. These bags may not be left to lie around and litter the environment. The cement bags must be placed in a central collection point and removed from the site.
- Waste generated by the workers that reside on site may not be allowed to lie around. The construction workers must be instructed to keep their surroundings clean and to dispose of their litter in designated areas only. Contravention of such actions will result in a fine being issued along with disciplinary action. The person responsible for each contractor must be informed of the strict rules in this regard. The money collected from any fines issued to contractors is to be put towards the on-going rehabilitation and protection of the wetlands around the site.
- The collection of waste at a central collection facility(s) must be arranged. This must include collection points for solid as well as all liquid waste, which would include mechanical fluids disposed of during vehicle maintenance. Waste must be

disposed of at the nearest licensed municipal site. In the case of oils it is important to import the services of an oil recycling company to collect used oil.

- Waste must be collected regularly from these collection points and disposed of at municipal waste sites that are licensed to handle waste of this sort. All waste material associated with the construction period must be removed from the terrain. The frequency of waste removal depends on the varying intensity of waste generation. This matter will be monitored closely by the ECO.

The specific steps that will be imposed and implemented are:

- The placement of a sufficient number of large wastes skips at key points on the development terrain. The waste skips (not to be metal drums) must be provided by one of the reputable waste contractors.
- The waste skips must be removed from the site once their full capacity has been reached. The waste skips will typically contain a mixture of domestic and construction waste. No liquid waste will be placed in these skips.
- Separate waste containers to be provided by the waste contractor for liquid waste other than liquid sanitation waste e.g., oils, paints, lubricants etc.
- Full record must be kept of the collections and collection dates and frequency.
- Proof of all disposals at the municipal waste site, be it a general waste site or a hazardous waste site must be provided to the Resident engineer and filed for auditing.
- Chemical toilet/ sanitation systems for workers will be serviced by the provider of the service and proof of such service with all the necessary details will be provided to the Resident engineer and filed for auditing.
- Toxic and hazardous waste material (of which an inventory will be compiled as construction progresses) will be stored in separate drum containers in a covered and enclosed area to protect it from the elements and scavengers. Bins and containers must be reusable but should not be rinsed or washed on site.
- Typical toxic waste usually generated on a residential construction site will be:
    - Paints and solvents such as thinners and additives
    - Resins and fibre glass
    - Used batteries

- Waste containers must be transported from the site by the responsible waste contractor to be appointed by the contractor if the contractor is not in the position to remove waste form the site.
- Waste material of a fine/dusty nature or containing a fine/dusty component, to be transported on trucks must be covered.
- In terms of sanitation, a sufficient number of chemical toilets must be established by the contractor and no French drain systems must be installed. Eight workers per chemical toilet are recommended. These toilets have to be monitored for any leakages. No person is allowed to use any area other than the chemical toilets. Toilet systems must be located within walking distance from work areas. No chemical toilets must be placed closer than 60 m from any drainage way or places where storm water may accumulate.

Implementation responsibility: The resident engineer and contractor will be responsible for the implementation of the above measures as an on-going process during construction phase. Removal of waste from the terrain will be the responsibility of a certified waste contractor.

5.2.7 Management of impacts on air quality

Construction activities such as vegetation clearance, blasting activities, excavating soil, topsoil removal, trenching and storage as well as the movement of construction vehicles GENERATE DUST. The dust will influence the air quality in the immediate vicinity of the construction activities. If the air quality exceeds acceptable standards, residents as well as construction workers could experience health problems. Therefore, the following mitigation measures should be implemented:

- The management of dust generation to curb dust pollution during construction is of particular importance as a section of the construction site is closer to residential and commercial land uses. Therefore, dust suppression, as a normal daily practice, is important.
- Roads used for transport purposes for the construction vehicles, must be sprayed wet with water on a regular basis, as conditions allow. This practise must obviously be avoided with heavy rains, since excessive wetting of the surfaces will lead to greater erosion problems.

- Confining vehicular movement to designated routes only, will reduce dust levels substantially.
- It is not possible for the ECO to monitor on a daily basis this problem. This issue must be strictly and wilfully monitored and implemented by the Resident Engineer.
- The monitoring of dust will be done visually by the ECO. The actual dust fallout measures in gram per cubic meter will not be measured.

Implementation responsibility: The resident engineer and contractor will be responsible for the implementation of the above measures as an on-going process during construction phase.

5.2.8 Noise generation

The impact of the proposed development on the ambient noise levels during the construction period is rated to have a moderately significant impact on the social environment of the community. Therefore, noise mitigation measures are required in order to keep the noise generated by construction activities as low as possible. The following noise mitigation measures as a result of construction actions must be considered:

- Construction must take place during daylight hours. The management and control of construction noise must be implemented especially in areas closer to the residential plots. No construction work may take place from Saturdays 12:00 to Mondays 7:00.
    - Summer 7:00 – 17:00
    - Winter 7:30 – 17:00

Well-oiled and maintained machinery will impose a lesser sound intrusion to the surroundings than heavy machinery which is not regularly serviced. Silencers must be well maintained in the working machines as surrounding landowners may object to the increased noise levels.

Implementation responsibility: The resident engineer and contractor will be responsible for the implementation of the above measures as an on-going process during construction phase.

5.2.9 Construction camp establishment and decommissioning

Construction camp establishment can have a significant impact on the environment in terms of water and soil contamination – due to aspects like the storage and handling of hazardous substances (including fuels and lubricants); the storage, movement and possible maintenance of construction vehicles and other heavy machinery; domestic waste production and noise. Therefore, the placement and management of activities within construction camps is important.

- The location of the construction camp must be determined only after consultation between the RE and the project manager. The process of choosing the correct site must be done with great care taking environmental factors into consideration. Construction camp sites may only be erected in an area identified as least sensitive, but which is still very safely accessible.
- The lay out and locality of the construction camp must be planned by the applicant in conjunction with the project manager, the resident engineer and the appointed ECO. When looking at the terrain it is recommended that the site office and construction camp (including the workshop) may not be placed in a terrain where natural vegetation is still dominant. *The best option is always to choose a site where there is an existing homestead or farmstead with a disturbed yard.*
- The principles followed are that the construction camp must be located as centrally as possible on site in order to limit the movements of workers and vehicle movements, and where it will not be placed close to any sensitive area on terrain and particularly not close to any natural drainage way.
- Temporary accommodation for workers must as far as possible be by means of prefabricated units or containers to reduce surface impact and easing the rehabilitation and clean-up after construction.
- The number of workers who may reside on-site must be kept to a minimum. Those workers present at night should be on site only to look after construction equipment and register taken of those workers present to eliminate crime in the area.
- A control system of workers residing on the site will have to be kept in place to prevent workers squatting on the land.

  - The construction camp must be fenced.
  - Fires for cooking purposes must be in cooking screens and gas stoves as energy source must be promoted.
- The making of open fires on the construction site cannot be fully prohibited. But it needs to be stressed that may cause veldt fires in the drier months.

The rules for this must be as follows:

- An open fire must be made on a piece of corrugated iron sheet.
- All fires must be extinguished once the food preparation or heating is completed.
- Hot ash must not be disposed of among vegetation or any flammable substance.

Other General measures associated with the camp and site office area:

- All aboveground petroleum product (diesel, oil and petrol) storage tanks shall be placed in bunds with sumps. The minimum bund capacity will be at least 110% of the storage capacity.
- In the event of a spill, pumping of the product, either for recovery or for disposal must be done as quickly as possible to reduce the number of vapours being released into the environment.
- All drainage from fuel storage areas shall be diverted to the separating facilities and settling ponds.
- Oils shall be stored in sealed drums in a bunded area.
- Used oils shall be stored similarly and shall be recycled by private dealers identified by the developer or disposed of in a manner approved by the ECO.
- Cement shall be delivered in sound and properly secured bags or in approved bulk containers.
- Cement products in bags shall be stored in an enclosed storage area underlain by a concrete platform with the bags themselves raised off the ground with the use of pallets.
- The storage facility and surrounding area shall be swept and cleaned regularly as required to ensure that cement products do not enter the surrounding environment.

All temporary erected structures, including the construction camp(s) and or construction office(s) must be demolished and removed after completion of the construction phase.

This includes all fencing, piping, drains and sumps as well as tanks or other containers that were utilised during the construction period.

Implementation responsibility: The main contractor will be responsible for the implementation of the above measures as an on-going process during construction phase.

5.2.10 General rehabilitation of the construction site

It is important that rehabilitation will commence as soon as feasible on each of the construction areas to run concurrent with the construction phase and not to be left until completion of the works. This will increase the chances of successful rehabilitation.

All areas disturbed by development activities will be rehabilitated on completion of the construction phase. The following general procedure will be followed:

- Removal of all construction facilities and materials from site, cleaning up of any remaining oil or other spills and removal of all construction waste from site;
- Shaping of the disturbed areas to blend with the surrounding landscape;
- Placing of topsoil on all disturbed areas (minimum depth 150 mm);
- Organic fertilizers must be added to the topsoil prior to seeding (if required).
- Re-vegetation of all areas where topsoil is placed using a mixture of indigenous grasses and bushes;
- Maintenance of these areas until an acceptable cover has been established. Acceptable cover shall mean 75% ground cover with no gaps exceeding 500 mm. Maintenance may include watering, mowing and weeding as well as preventing the development of erosion channels or, backfilling where they have occurred.

Stockpile Areas

Once stockpiles have been removed the ground surface is to be inspected for compaction. Should it be required, the surface is then to be ripped and the prescribed re-vegetation process followed.

Rehabilitation of Construction Camps

Rehabilitation will be necessary in the following areas:

- Concrete and compacted earth platforms;

- Removal of fuel storage tanks;
- Removal of chemical toilets; and
- Access roads running into and through the camps.

Concrete platforms will need to be broken up and rubble removed. The prescribed re-vegetation process must then be followed. No new borrow pit will have to be established for the project. The exposed surface must be checked for contaminants and if any is found, the contaminated soil is to be removed along with the concrete to a site acceptable to the ECO and the RE. The re-vegetation process described below must then be followed.

Re-vegetation Process

The basic re-vegetation steps which will be implemented where and if required are detailed below:

Step 1: Prepare the area to be re-vegetated for top-soiling - this may require soil ripping, scarifying and/or digging of steps or terraces. The scarification should take place to a minimum depth of 150 mm. If ridges are formed, they should be approximately 100 mm high and 400 mm wide.

Step 2: Stockpiled topsoil must be placed on areas to be re-vegetated to a minimum depth of 100 mm, spread when dry by means of hand raking or mechanical means to a uniform thickness.

Step 3: If required when sodding or hydro seeding, appropriate organic fertilisers must be applied and worked into the soil to a minimum depth of 150 mm.

Step 4: Fresh, good quality seed - which is certified by the supplier and free from contamination by seeds of other species - can be used for the re-vegetation process, although seed harvested from site is preferable. The rehabilitation grass seed mix will be seeded at a minimum density of 30 kg/ha, utilising a mixture of suitable species. The mixture must also always include at least one legume species.

Step 5: Mulch should be applied to protect the seeded area from erosion. The mulch should be composed of straw or other cellulose-rich material and free of undesirable

seeds. The mulch must not be excessively fresh and green or in an advanced state of decomposition as it could smother growth. It must be applied to a depth and density that will prevent erosion by wind and water, but not completely block out the access of sunlight to the soil or prevent penetration by young plants.

Step 6: Re-vegetated areas are to be enclosed within an erected safety barrier to prevent excessive trampling and any other factors that might cause erosion or compaction. No road building equipment, trucks or other heavy equipment will be permitted onto re-vegetated areas.

Step 7: Re-vegetated areas must be irrigated on a regular basis, or as required.

Step 8: An appropriate maintenance and monitoring program must be implemented. This program will include monitoring of the success of seed germination, growth of the plants, removal of invasive weeds, replanting of areas where re-vegetation has not been successful once the cause of the inhibiting factor has been identified and remedied, and repair of any funnels or erosion channels.

5.2.11 Archaeology and Cultural Sites

- Should archaeological objects of any nature (including fossils, graves or remains of structures) be found, the developer will stop all construction activity, and notify REC immediately. The Provincial Heritage Resources Agency (PHRA) will be consulted for further investigation and clarification.
- All finds of human remains must be reported to the nearest police station.
- Human remains or any burial ground or part thereof that are deemed to be of cultural significance may not be destroyed, damaged, altered, exhumed or removed from their original positions without a permit from PHRA-G.
- Work in areas where artefacts are found must cease immediately.
- Under no circumstances must the Contractor, his/her employees, his/her sub-contractors or his/her sub-contractors' employees remove, destroy or interfere with archaeological artefacts. Any person who causes intentional damage to archaeological or historical sites and/or artefacts could be penalised or legally prosecuted in terms of the National Heritage Resources Act, 25 of 1999.

- A fence at least 2m outside the extremities of the site must be erected to protect archaeological sites.
- All known and identified archaeological and historical sites must be left untouched.
- Work in the area can only be resumed once the site has been completely investigated. The Project Manager will inform the Contractor when work can resume.

Implementation responsibility: The main contractor will be responsible for the implementation of the above measures as an on-going process during construction phase.

5.3 Impact Mitigation During the Operational Phase

Time frames: 30 years plus
Responsibility: The applicant will be responsible for the implementation of the measures as an on-going process during operational phase.

Mitigation of impacts during the operational phase is of great importance, as there are long-term issues that are of relevance.

5.3.1 Waste Management of domestic solid waste

- General waste generated during the operation of the development must be collected in waste bins that are emptied on a regular basis into a central waste collection facility.
- General waste is to be collected on a regular basis to be emptied at the nearest municipal solid waste disposal site. The products that will typically be generated are general refuse such as empty food cans, leftover foods, paper, plastic and bottles.
- Recycling is always desirable and if the separation of waste can be encouraged and implemented, this would be highly beneficial.

5.3.2 Surface water contamination & usage

The protection of surface and groundwater must be implemented as a standard measure required by the Department of Water Affairs. Leakages should be identified through the normal monitoring control procedures, monthly.

The water used that is supplied from the new dams should be carefully managed to ensure that water extraction does not exceed the maximum amount allowable as indicated on the water licence application.

The water to the croplands and irrigation areas should be under regular inspections to ensure sufficient water supply and to prevent any loss of water.

5.3.3 Noise

No additional noise than the normal farming activities should be experienced. The significance of the noise impact associated with the proposed development during the operational phase is low negative. Noise will be generated by the movement of farm vehicles.

5.3.4 Erosion

All cropland boundaries, road fill and drainage structures have to be checked and maintained on regular intervals to ensure that no erosion takes place along these surfaces. Sedimentation needs to be prevented from entering the river and wetland areas.

5.3.5 General

- The road surfaces should be checked regularly and maintained.
- Roads and cropland boundaries should not be allowed to deteriorate to a point where it is not repairable.

5.3.4 Waste Management (solid waste)

Section 20 of the Environment Conservation Act (Act 73 of 1989) states that no person shall dispose waste in any manner other than at a disposal site, for which a permit has been issued by the Minister of Water Affairs and Sanitation.

Therefore, as mentioned, any possible waste generated, by public transport through the area, must be collected/cleaned-up on a regular basis, which in turn is to be collected and emptied at the nearest municipal solid waste disposal site. The products that will typically be generated by maintenance workers and the traveling public include empty food cans, leftover foods, paper, plastic and bottles. Recycling is always desirable and if the separation of waste can be encouraged and implemented, this would be highly beneficial.

Implementation responsibility: The applicant will be responsible for the implementation of the above measures as an on-going process during operational phase.

5.4 Closure Phase

Timeframe: 5 months

- The physical and chemical stability of the remaining structures on site should be appropriately secured.
- The site should be securely fenced off and all remaining structures securely locked up.
- The physical integrity of the remaining structures on site should under no circumstances be allowed to deteriorate to an extent that makes the site visually unpleasant.

6. PROPOSED MECHANISMS FOR MONITORING

It is recommended by the Environmental Practitioner that an Environmental Control Officer (ECO) be appointed by the applicant. The ECO will be the person involved with the development of the project and also be responsible for the monitoring of the implementation of the EMPr. It may be different parties during the different phases of the project.

- This person may be appointed by the appointed engineer or indirectly by the applicant/client. It must, however, be a person with adequate technical and environmental knowledge to understand and implement this management programme.
- The ECO may not be someone appointed by the contractor.
- The ECO must report to the applicant on a regular basis or frequency.
- The ECO has the authority to stop works during construction if in his opinion there is a serious threat to, or impact on the environment caused directly from the construction operations. This authority is to be limited to emergency situations (see definitions) where consultation with the engineer or developer is not immediately possible. In all such work stoppage situations the ECO is to inform the engineer and developer of the reasons for the stoppage as soon as possible.

- Upon failure by the contractor or his employees to show adequate consideration to the environmental aspects of this contract, the ECO may recommend to the engineer to have the contractor's representative, or any employee(s) removed from the site or work suspended until the matter is remedied. No extension of time will be considered in the case of such suspensions and all costs will be borne by the contractor.

A monitoring report will be written each month, after 1-2 site visits have taken place and giving to the appropriate authority. This report will give a point scale of implementation measures. This may be the construction site manager, contractor, safety officer, and engineer.

CONSTRUCTION/OPERATIONAL PHASE:

MONITORING TYPE	FREQUENCY			
	DAILY	WEEKLY	MONTHLY	QUARTERLY
WEED ERADICATION			X	
EROSION CONTROL			X	
WASTE MANAGEMENT		X		
DUST CONTROL	X			
NOISE MONITORING	X			
SAFETY	X			
HAZARDOUS SUBSTANCE		X		

Compliance with the EMPr was rated according to the system detailed below:

SCORE	COMPLIANCE RATING	DEFINITION
5	Full Compliance	All requirements and conditions have been addressed or met.
4	Substantial Compliance	Between 75 and 100% met
3	Broad Compliance	Between 50 and 75% met
2	Partial Non-Compliance	Between 25 and 50% met

1	Non-Compliance	Less than 25% met
0	Major Non-Compliance	None of the requirements and conditions has been addressed or met.

Outlined below are a number of steps, relating to increasing severity of environmental problems, which will be implemented. The principle is to keep as many issues within the first few steps as possible.

Step 1: The ECO discusses the problem with the contractor or guilty party, and they work out a solution together. The ECO records the discussion and the solution implemented. This detection together with the solution will be included in the monthly monitoring report.

Step 2: The ECO observes a more serious infringement, and notifies the guilty party in writing, with a deadline by which the problem must be rectified. All costs will be borne by the contractor. This incident will be included in the monthly monitoring report.

Step 3: The ECO shall order the contractor to suspend part, or all, the works. The suspension will be enforced until such time as the offending party (ies), procedure or equipment is corrected and/or remedial measures put in place if required. No extension of time will be granted for such delays and all cost will be borne by the contractor. The Department of Environmental Affairs shall be involved, and penalties will be allocated. In this time the department can decide to submit a pre compliance notice and has authority to withdraw the Record of Decision.

6.1 Environmental Awareness Plan

6.1.1 Training programmes:

1. Occupational Health and Safety (OHS) – Done internally by Health of Officer.
2. Personal Protection Equipment (PPE) – Done internally by Safety Officer.
3. Environmental training
    a. program 1 – Introduction to Environment, Ecosystems and Habitats. Including symbiotic interactions.
    b. program 2 – Environmental Degradation, Soil, Air, Noise, Water and Ground water Pollution. Erosion.

Programmes 1 and 2, the OHS and PPE training is something that is done either annually or bi-annually depending on the need identified by management of the road development. Program 3 regarding the environmental training and awareness will be implemented a.s.a.p. before the construction phase begins. Management will also arrange for training bi-annually for 2-to-4-hour sessions at a time. Training will either be done internally or externally. Internal training will be done by the Environmental Management Department and externally training providers will have to be sourced.

6.1.2 Monitoring of awareness

Bi-monthly Health and Safety meetings are held where relevant issues regarding health, safety and environment are discussed, and feedback is given. Environmental awareness should be incorporated into the compulsory 'Toolbox talks' that include health and safety issues. These should be done on a monthly basis.

7. A TABULAR VERSION OF ENVIRONMENTAL ASPECTS, IMPACTS, MITIGATION AND PERSONS RESPONSIBLE FOR THE PROPOSED ROAD UPGRADE AND NEW INTERCHANGE

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
Vegetation clearance for the footprint/foundation of the development(C).	Soil layers, soil surface, cover.	The removal of vegetation cover, such that the soil surface is exposed, may lead to increased soil erosion in certain areas. The existing vegetation will be permanently removed to accommodate the footprint of the development. Where the removal of surface vegetation is of a temporary nature only, the	Weed species should be removed on a four-week basis. It is recommended that only indigenous species be used in the landscaping process, and that trees are incorporated into the landscaping design. Innovative landscaping of the site towards the end of the construction stage will contribute significantly to

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
		establishment of weeds is a threat. The topsoil layer is required to rehabilitate the unused areas (i.e., for re-vegetating the area).	the visual and aesthetic attractiveness of the site and will also solve the problems associated with the removal of vegetation cover, including soil erosion, dust generation and the flourishing of weeds and/or other unwanted exotic species in the long term. The topsoil layer is required to rehabilitate the unused areas (i.e., for re-vegetating the area). The main contractor will be responsible for the implementation of the above measures as an on-going process during construction phase.
Excavations for the foundations of the development, as listed above (C).	Soil layers, vegetation and faunal habitats.	The existing vegetation will be permanently removed to accommodate the foundations of the necessary structures. Stockpiles will be created due to this and needs to be situated at an appropriated location to prevent unnecessary compaction or natural vegetation	All stockpile areas, if situated outside the eventual paved area, should be ripped and ploughed at the end of the construction period to loosen soil surfaces for the natural propagation of vegetation and/or to allow for landscaping of the area. The same applies to other

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
		removal.	temporarily disturbed areas on site, which are vulnerable to the propagation of unwanted species (weeds). It is important that the contractor implements weed control through physical and/or approved chemical eradication methods. Only registered herbicides should be used to curb this problem. The main contractor will be responsible for the implementation of the above measures as an on-going process during construction phase.
Stockpiling of excavated material (C)	Soil and vegetation cover.	Stockpiles cause compaction of the soil, which promotes the establishment of weed species. The establishment of weeds greatly reduces the quality of the natural vegetation on site. Stockpiles should not be situated within 200 m from any water bodies or water courses, as sedimentation transport	All stockpile areas, if situated outside the eventual paved area, should be ripped and ploughed at the end of the construction period to loosen soil surfaces for the natural propagation of vegetation and/or to allow for landscaping of the area. The same applies to other temporarily disturbed areas on site, which are

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
		into such systems is undesirable. Furthermore, stockpiles should not be situated in any sensitive environment.	vulnerable to the propagation of unwanted species (weeds). It is important that the contractor implements weed control through physical and/or approved chemical eradication methods. Only registered herbicides should be used to curb this problem. Weed species should be removed on a four-week basis. It is recommended that only indigenous species be used in the landscaping process, and that trees are incorporated into the landscaping design. The temporary storage of construction material and especially fuel must be carefully monitored by the site engineer to prevent the risk of accidental spillage or disposal of any such material that will contaminate soil surfaces, surface and subsurface water. All liquid material must, where applicable, be stored on solid concrete surfaces and must be

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			surrounded by bunds. Bunding is also applicable to fuel and mechanical oil storage areas (although it is not anticipated that fuel storage on site will be necessary). Bunding walls should not be less than 30 cm high. Storage containers must be inspected regularly to prevent leaks that could contaminate the site. Innovative landscaping of the site towards the end of the construction stage will contribute significantly to the visual and aesthetic attractiveness of the site and will also solve the problems associated with the removal of vegetation cover, including soil erosion, dust generation and the flourishing of weeds and/or other unwanted exotic species in the long term. The topsoil layer is required to rehabilitate the unused areas (i.e. for re-vegetating the area). The main contractor will be

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			responsible for the implementation of the above measures as an on-going process during construction phase.
Stockpiling building materials (C)	Soil and vegetation cover.	Stockpiles will need to be established for the storage of aggregate, bricks, and cement, etc. As mentioned, stockpiles cause compaction of the soil surface, which leads to the growth of unwanted weed species.	All stockpile areas, if situated outside the eventual paved area, should be ripped and ploughed at the end of the construction period to loosen soil surfaces for the natural propagation of vegetation and/or to allow for landscaping of the area. The same applies to other temporarily disturbed areas on site, which are vulnerable to the propagation of unwanted species (weeds). It is important that the contractor implements weed control through physical and/or approved chemical eradication methods. Only registered herbicides should be used to curb this problem. Weed species should be removed on a four-week basis. It is recommended that only indigenous species be used

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			in the landscaping process, and that trees are incorporated into the landscaping design. The temporary storage of construction material and especially fuel must be carefully monitored by the site engineer to prevent the risk of accidental spillage or disposal of any such material that will contaminate soil surfaces, surface and subsurface water. All liquid material must, where applicable, be stored on solid concrete surfaces and must be surrounded by bunds. Bunding is also applicable to fuel and mechanical oil storage areas (although it is not anticipated that fuel storage on site will be necessary). Bunding walls should not be less than 30 cm high. Storage containers must be inspected regularly to prevent leaks that could contaminate the site. Innovative landscaping of the site towards the end of

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			the construction stage will contribute significantly to the visual and aesthetic attractiveness of the site and will also solve the problems associated with the removal of vegetation cover, including soil erosion, dust generation and the flourishing of weeds and/or other unwanted exotic species in the long term. The topsoil layer is required to rehabilitate the unused areas (i.e. for re-vegetating the area). The main contractor will be responsible for the implementation of the above measures as an on-going process during construction phase.
Provisions for storm water i.e., storm water drainage (C)	Soil surfaces, vegetation cover and drainage patterns.	Correct and efficient storm water drainage systems must be installed. Poorly designed storm water outlets will result in increased surface run-off volume and speed, which could lead to the creation of erosion gullies. All road	If surface erosion DOES become prevalent during the construction phase, it should be curbed through control measures such as placing sandbags at the highest point to stop the cutting back of rill/gully and at the lowest point of water

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
		surfaces generate storm water, which should be controlled by preventing the storm water from crossing the road. Storm water must be allowed to spread out gradually over a large surface area to protect the soil surface against erosion.	run-off areas to halt the sediment transport and erosion that will otherwise occur. The main contractor will be responsible for the implementation of the above measures as an on-going process during construction phase.
Maintenance of storm water management systems (where applicable) (O)	Soil surfaces, drainage patterns and surface water.	Maintenance of storm water outlets is required to ensure that they do not get blocked (i.e., no longer fulfil their function) or result in erosion.	To prevent storm water outlets blocking a regular schedule of cleaning out the outlets must be in place. This will be determined by the nature of the environment. The owner and maintenance staff will be responsible for the implementation of the above measures as an on-going process during operational phase.
Generation of construction waste (C)	Soil, vegetation, aesthetic quality of the site and surface water run-off, water, and ground water resources.	Waste, such as building rubble and empty cement bags can be a negative visual impact if not collected and disposed of correctly. Further to littering the site and adjacent areas, poor	No littering by any personnel is permissible. The site manager/contractor should conduct regular site clean-ups to keep the site litter free – as litter is not only aesthetically displeasing,

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
		control and illegal dumping of construction waste can pollute surface water run-off, as well as lead to the promulgation of weed species.	but it is also harmful to the environment. All domestic solid waste produced must be disposed of in waste bins situated on site. The bins should be emptied into a covered skip (for storage) on a regular basis, until its collection and removal to a municipal waste disposal site (preferably on a weekly or bi-weekly basis). Proof of disposal of waste material at a registered waste disposal site must be shown after off-loading of each waste load, which should then be logged or registered for control purposes. Control measures in terms of the National Building Regulations and standard requirements laid down by the local authority, with regards to spillage and waste disposal, must strictly be adhered to. General waste disposal management involves the collection of construction waste at a central collection facility, which should be pre-arranged and

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			implemented. This should include making points available for solid as well as liquid waste. The resident engineer and contractor will be responsible for the implementation of the above measures as an on-going process during construction phase. Removal of waste from the terrain will be the responsibility of a certified waste contractor.
General structure maintenance (O)	Visual quality, also surface water quality and vegetation cover.	The design and nature of development will determine the impact of the proposed development on the visual quality of the study area. Maintenance of the development will prevent a further negative impact on the visual quality of the study area. The disposal of construction rubble (both during construction and maintenance) causes impacts on the natural environment (including faunal ecology, surface	Although the current visual character of the site will be changed, landscaping can play an important role in enhancing the visual character of the area. Neat, well-maintained panels and fencing will not negatively impact on the visual and aesthetic quality of the site, although the site consists mainly of natural vegetation. Poor maintenance of the development will have a small effect on the visual

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
		water and vegetation) if disposed of illegally. Compaction of soil surfaces and the propagation of weeds are typical impacts.	and aesthetic quality of the area. Therefore, general maintenance on a regular basis will form an important component of the operational phase of the proposed development. No high floodlights should be installed on the developed site. The site engineer will be responsible for the implementation of the above measures as an on-going process during construction/operational phase.
Collection and disposal of solid domestic waste (C)	Aesthetic quality, surface water run-off, subsurface and groundwater quality, vegetation, and fauna.	Poor waste collection and handling will pollute the environment (affecting fauna, groundwater, surface water and aesthetic environment). No illegal dumping of domestic waste will be tolerated. Untidy collection points and windblown refuse can cause human / animal conflicts, as foul odours from such areas will attract wild animals and	No littering by any personnel is permissible. The site manager / contractor should conduct regular site clean-ups to keep the site litter free – as litter is not only aesthetically displeasing, but it is also harmful to the environment. All domestic solid waste produced must be disposed of in waste bins situated on site. The bins should be emptied into a covered skip (for storage) on

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
		cause other problems (pests / diseases), as well as water pollution.	a regular basis, until its collection and removal to a municipal waste disposal site (preferably on a weekly or bi-weekly basis). Proof of disposal of waste material at a registered waste disposal site must be shown after off-loading of each waste load, which should then be logged or registered for control purposes. The resident engineer and contractor will be responsible for the implementation of the above measures as an on-going process during construction phase. Removal of waste from the terrain will be the responsibility of a certified waste contractor.
Collection and disposal of construction waste (C)	Aesthetic quality, subsurface and ground water quality, vegetation, and fauna.	No construction waste may be illegally dumped into the surrounding areas, as the effects of illegal dumping on the environment are devastating. Poor waste	The generation of construction waste occurs at every site under development and construction. Due to the costs involved in the disposal of this material at

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
		collection and handling will have a negative impact on several environmental aspects. A waste collection agreement between the applicant and the local authority will be essential.	municipal or other licensed waste sites, the contractor or sub-contractor may be tempted to illegally dump waste at concealed locations to save on costs. Therefore, strict control is required from the main contractor on site to control this issue. Proof of disposal of waste material at a registered waste disposal site must be shown after off-loading of each waste load, which should then be logged or registered for control purposes. Control measures in terms of the National Building Regulations and standard requirements laid down by the local authority, with regards to spillage and waste disposal, must strictly be adhered to. General waste disposal management involves the collection of construction waste at a central collection facility, which should be pre-arranged and implemented. This should include making points

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			available for solid as well as liquid waste – including mechanical fluids disposed of during vehicle maintenance. The engineer and contractor will be responsible for the implementation of the above measures as an on-going process during construction phase. Removal of waste from the terrain will be the responsibility of a certified waste contractor.
Temporary employment created during the construction phases of the proposed development(C)	Social aspects	There will be positive impacts in terms of social upliftment and job creation within the broader region.	The HR manager of the client and contractor will be responsible for the employment as an on-going process during construction phase.
Long term employment opportunities and wealth to be generated by the proposed development (O)	Social aspects	There will be positive impacts in terms of social upliftment and job creation within the broader region. A moderate amount of manpower is needed during operation.	The HR manager of the client will be responsible for the employment as an on-going process during operational phase.
Transportation of workers to and from the development site (C)	Air quality, soil surface and social aspects (including traffic and	Vehicles used to transport workers must never be overloaded; worker safety	The dust will influence the air quality in the immediate vicinity of the construction

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
	worker safety).	is of utmost importance. Vehicles used to transport workers must not exceed the speed limit and no vehicle may deviate from the existing routes on the site, to ensure safety of the workers and conservation of the area. Poorly maintained vehicles will have a large negative impact on air quality.	activities. If the air quality exceeds acceptable standards, residents as well as construction workers could experience health problems. Therefore, the following mitigation measures should be implemented: ▫ The emissions from run down, old machinery will greatly pollute the air. Therefore, well serviced machinery and heavy vehicles that are maintained in a good working order should be used. ▫ Regular wetting of exposed soil surfaces along routes that will be utilised by heavy vehicles is required at least twice a day to minimise the amount of dust generated by vehicles – this is especially important at the two access points to the site. Noise mitigation measures are required to keep the noise generated by construction activities as

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			low as possible – given the site's relatively close proximity to adjacent industries. This can be achieved by ensuring that only well-oiled, well-maintained machinery is used, as such machinery will produce less noise than poorly serviced machinery. For example, poor maintenance of exhaust systems will produce unnecessary noise pollution. Furthermore, working hours for construction should be limited to between 07h00 and 17h00 on weekdays, as construction outside of these time frames will be a nuisance to adjacent dwellers (in the adjacent residential area). Construction times should be limited to between 08h00 and 12h00 on Saturdays and no construction activities should be allowed on Sundays. The main contractor will be responsible for the implementation of the above measures as an on-

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			going process during construction phase.
Construction camp establishment (c)	Aesthetic impacts, social aspects, subsurface and groundwater quality, generation of domestic waste, vegetation removal, soil surface compaction and faunal impacts.	The generation of domestic waste, as well as the provision of sewage facilities, within the construction camp could potentially impact on the aesthetics of the site as well as the quality of subsurface and groundwater if not effectively managed and implemented. The removal of sections of natural vegetation would most likely be needed for the establishment of the camp, and soil surfaces would become compacted because of activities within the camp.	Same as above. No liquid waste material should be disposed of on or near the site during construction, or in any non-designated areas. A firm arrangement must be made to place chemical toilets on the construction site (within the construction camp to be erected). Enough chemical toilets need to be provided; in the range of 1 per every 8 workers. These toilets must be well maintained and inspected daily to ensure that they are clean and functioning properly. The toilets must be within walking distance from the work areas. No person can use any area, other than the chemical toilets provided, as a toilet. No washing of people and/or goods should take place on cleared surfaces, as this water should not be allowed to drain into the adjacent storm water canal.

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			In the event of accidental spillage of liquid substances, like paints and resins, it is important to implement the correct emergency procedures and clean-up operations. Pollution of surfaces should be limited at all costs. All hazardous waste should be kept separate in a lined skips or drums and stored in a bunded area. The main contractor will be responsible for the implementation of the above measures as an on-going process during construction phase.
Sanitation provision to workers during the working day (C)	Subsurface soil, surface water and subsurface water quality.	Subsurface soil contamination and contamination of surface/subsurface water quality could occur if the ablution facilities provided are not according to standard. A temporary impact is possible; however, it can easily be prevented.	Same as above. No liquid waste material should be disposed of on or near the site during construction, or in any non-designated areas. A firm arrangement must be made to place chemical toilets on the construction site (within the construction camp to be erected). Enough chemical

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			toilets need to be provided; in the range of 1 per every 8 workers. These toilets must be well maintained and inspected daily to ensure that they are clean and functioning properly. The toilets must be within walking distance from the work areas. No person is allowed to use any area, other than the chemical toilets provided, as a toilet. No washing of people and/or goods should take place on cleared surfaces, as this water should not be allowed to drain into the adjacent storm water canal. In the event of accidental spillage of liquid substances, like paints and resins, it is important to implement the correct emergency procedures and clean-up operations. Pollution of surfaces should be limited at all costs. All hazardous waste should be kept separate in a lined skips or drums and stored in a bunded area.

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			The main contractor will be responsible for the implementation of the above measures as an on-going process during construction phase.
Movement of construction vehicles on site (C)	Air quality, soil, and vegetation cover.	Movement will cause limited or localised disturbances and temporary soil compaction, which promotes the establishment of weed species. Dust will be generated by vehicular movements on site.	The dust will influence the air quality in the immediate vicinity of the construction activities. If the air quality exceeds acceptable standards, residents as well as construction workers could experience health problems. Therefore, the following mitigation measures should be implemented: ▫ The emissions from run down, old machinery will greatly pollute the air. Therefore, well serviced machinery and heavy vehicles that are maintained in a good working order should be used. ▫ Regular wetting of exposed soil surfaces along routes that will be utilised by heavy vehicles is required at least twice a day to

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			minimise the amount of dust generated by vehicles – this is especially important at the two access points to the site. Noise mitigation measures are required in order to keep the noise generated by construction activities as low as possible – given the site's relatively close proximity to the adjacent landowners. This can be achieved by ensuring that only well-oiled, well-maintained machinery is used, as such machinery will produce less noise than poorly serviced machinery. For example, poor maintenance of exhaust systems will produce unnecessary noise pollution. Furthermore, working hours for construction should be limited to between 07h00 and 17h00 on week days, as construction outside of these time frames will be a nuisance to adjacent dwellers (in the adjacent residential area).

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			Construction times should be limited to between 08h00 and 12h00 on Saturdays and no construction activities should be allowed on Sundays. The main contractor will be responsible for the implementation of the above measures as an on-going process during construction phase.
Maintenance of construction vehicles (C)	Soil, vegetation, and surface water.	In the event of on-site repairs and servicing, soil surfaces, vegetation, and run-off may be locally contaminated. Spillage of fuel through faulty bowsers is a possibility, if not controlled. It is anticipated that no fuel storage facilities will occur on the site other than temporary storage of diesel in drums.	General waste disposal management involves the collection of construction waste at a central collection facility, which should be pre-arranged and implemented. This should include making points available for solid as well as liquid waste – including mechanical fluids disposed of during vehicle maintenance. All hazardous waste must be stored in sealed and suitably marked containers and placed in bunded area for removal to a hazardous waste landfill site by the contractor.

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			Hazardous waste could include used oils and fluorescent light tubes, as examples. The contractor should refer to the relevant Department of Water Affairs (DWA) guidelines for the classification of hazardous waste. The main contractor will be responsible for the implementation of the above measures as an on-going process during construction phase.
Noise generation by operating air compressors, excavators, and other heavy machinery. Noise is also generated by the construction workers (C)	Impacts on faunal species and surrounding landowners.	Excessive noise levels on site may negatively impact upon the behaviour and movements of site fauna. The significance rating and mitigation of this potential impact will need to be dealt with effectively in the EIA report. Surrounding landowners may also potentially be negatively impacted upon by excessive noise levels on site during construction.	The impact of the proposed development on the ambient noise levels during the construction period is rated to have a moderately significant impact on the social environment of the community. Therefore, noise mitigation measures are required to keep the noise generated by construction activities as low as possible – given the site's relatively close proximity to the adjacent landowners. This can be achieved by ensuring that

ENVIRONMENTAL ASPECT C: construction stage O: operational phase	ENVIRONMENTAL COMPONENT THAT MAY BE AFFECTED	NATURE AND DESCRIPTION OF THE POTENTIAL IMPACT/ISSUE	MITIGATION MEASURES AND PERSON/S RESPONSIBLE
			only well-oiled, well-maintained machinery is used, as such machinery will produce less noise than poorly serviced machinery. For example, poor maintenance of exhaust systems will produce unnecessary noise pollution. Furthermore, working hours for construction should be limited to between 07h00 and 17h00 on weekdays, as construction outside of these time frames will be a nuisance to adjacent dwellers (in the adjacent residential area). Construction times should be limited to between 08h00 and 12h00 on Saturdays and no construction activities should be allowed on Sundays. The main contractor will be responsible for the implementation of the above measures as an on-going process during construction phase.

8. RECOMMENDATIONS AND MITIGATION MEASURES FROM SPECIALISTS

8.1 Heritage and Cultural specialist (see original report for more detail):

The following recommendations are proposed by the specialist:

- There are no visible restrictions or negative impacts in terms of heritage associated with the site.
- In terms of heritage the proposed project may continue.
- The discovery of subsurface archaeological and/or historical material as well as graves must be taken into account in the Environmental Management Programme. See 3.2.6 and 3.2.7.
- Submit this report as a Section 38 application to the relevant heritage authority for approval/comment.

8.2 Ecological Assessments - Specialists (see original report for more detail):

8.2.1 Wetland/Aquatic:

Conclusions and recommendations:

The property has water courses and a wetland, and these should be avoided when planning developments. The average gradient of the site is relatively high and so the area is susceptible to erosion if measures are not put in place to prevent this from happening.

The risks identified, as listed in the Annexure, may all be mitigated provided that the ongoing management of the measures taken is maintained.

Care should be taken to undertake all developments on the property in such a way that soil erosion is avoided. The planned use would need workers on the site for much of the time. It is, therefore, necessary that there are adequate ablution facilities on the site and that these are serviced regularly.

8.2.3 Flora:

The following recommendations are made with regards to the proposed development:

- (i) An Environmental Control Officer must be appointed to oversee mitigation measures during construction and will be responsible for the monitoring and auditing of the contractor's compliance with the conditions of the Environmental Impact Management Plan/ Programme.

- (ii) Clearance of areas deemed of high significance must be avoided as these areas include wetland pan areas and streams.
- (iii) A wetland delineation was undertaken by KEMS, and all buffer areas must be adhered to.
- (iv) Areas to be disturbed by construction activity as well as areas for ancillary activities such as stock piles must be clearly demarcated in already disturbed areas or areas where they will cause minimal disturbance.
- (v) Alien invasive species must be controlled before and after construction commences for the 3 recorded alien and invasive plant species recorded on site.
- (vi) Care needs to be taken to avoid the establishment and spread of pioneer and alien invasive species.
- (vii) Measures should be implemented to stop potential erosion.
- (viii) All mitigation measures described in this report must be adopted into a legal Environmental Management Programme to be used during construction of the planned project.

Mitigation measures for Impact on Natural vegetation:

- Unnecessary impacts on surrounding natural vegetation must be avoided.
- The wetlands and rivers were delineated by a wetland specialist. Wetland and river buffers must be imposed around these sites as indicated within a High sensitivity.
- The construction impacts must be contained within the footprint of the proposed areas. Wetland areas must be avoided, and the site must be shifted to exclude wetland areas and buffers.
- Areas containing indigenous vegetation of the Soweto Highveld grassland is marked as Medium in the sensitivity assessment. These areas are isolated and impacted on in terms of the Mpumalanga sector plans.
- Disturbed areas beyond the footprint of the infrastructure must be rehabilitated as quickly as possible.

Mitigation measures for Loss of individual or threatened plants:

- Unnecessary impacts on surrounding natural vegetation must be avoided.
- The construction impacts must be contained within the footprint of the development. Disturbed areas beyond the footprint of the development must be rehabilitated as quickly as possible.

Mitigation measures for establishment and spread of declared weeds and alien invader plants:

- Soil stockpiles should not be translocated from areas with alien plants into the site and within the site alien plants on stockpiles must be controlled to avoid the development of a soil seed bank of alien plants within the stock-piled soil.
- Any alien plants must be immediately controlled.
- An on-going monitoring program should be implemented to detect and quantify any aliens that may become established and provide information for the management of aliens.

Mitigation measures for erosion

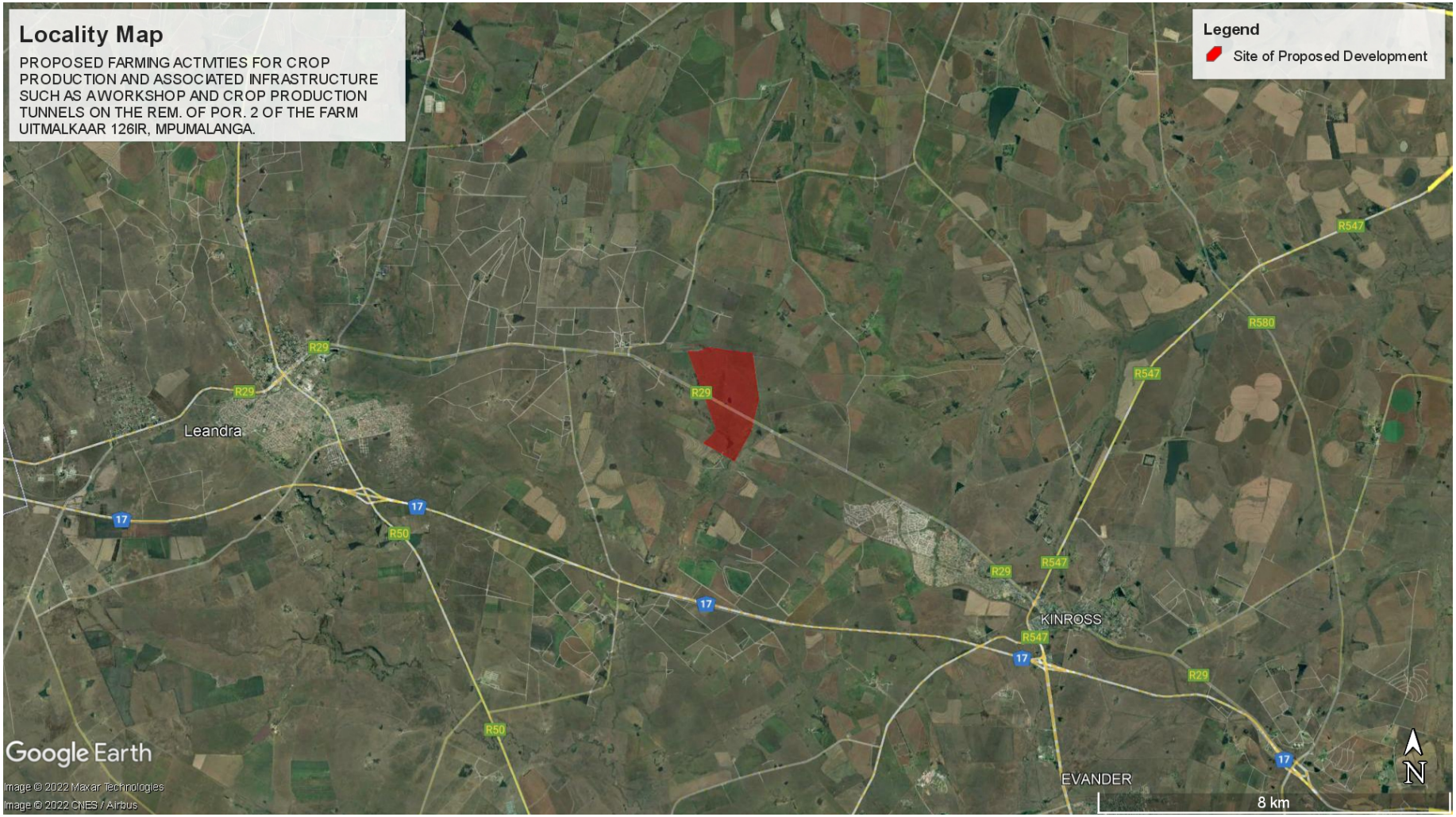
- All cleared areas to be reseeded immediately to stabilize the soil.
- Any removed topsoil must be replaced as soon as possible for reseeding and resprouting of seeds to take place.

9. COMPLYING, REMEDYING, AND CONTROLLING ENVIRONMENTAL POLLUTION INCIDENTS AND CAUSES

If there is an environmental incident, like oil or diesel spills, or any other form of pollution during the construction phase then the applicant/contractor/engineer should consult with the appointed ECO for the project. The ECO should then respond immediately on the incident at hand with the appropriate mitigation measure as practically as possible.

An environmental awareness plan should be communicated to the workers and contractors via a training session before the construction phase starts. All risks should be put forward in terms of pollution and environmental degradation. The environmental awareness plan can be compiled by the ECO or environmental practitioner for the training session before the construction phase.

Site Map and Layout:




Locality Map
PROPOSED FARMING ACTIVITIES FOR CROP PRODUCTION AND ASSOCIATED INFRASTRUCTURE SUCH AS A WORKSHOP AND CROP PRODUCTION TUNNELS ON THE REM. OF POR. 2 OF THE FARM UITMALKAAR 126IR, MPUMALANGA.
Legend
Site of Proposed Development
R29
R29
Google Earth
Image © 2022 Maxar Technologies
N
1 km

The following Land Areas have been determined for Primary Agriculture and related Operations:

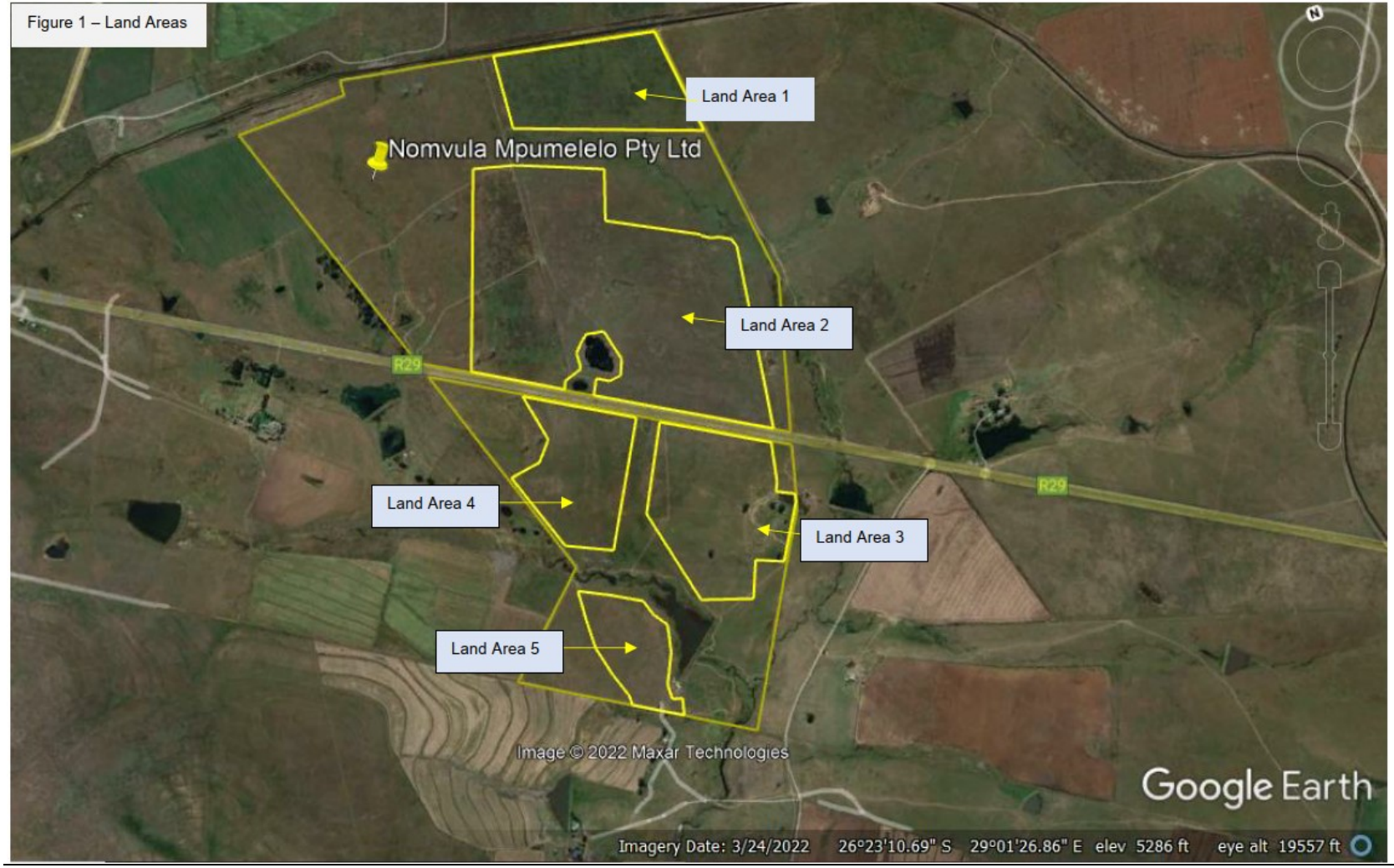
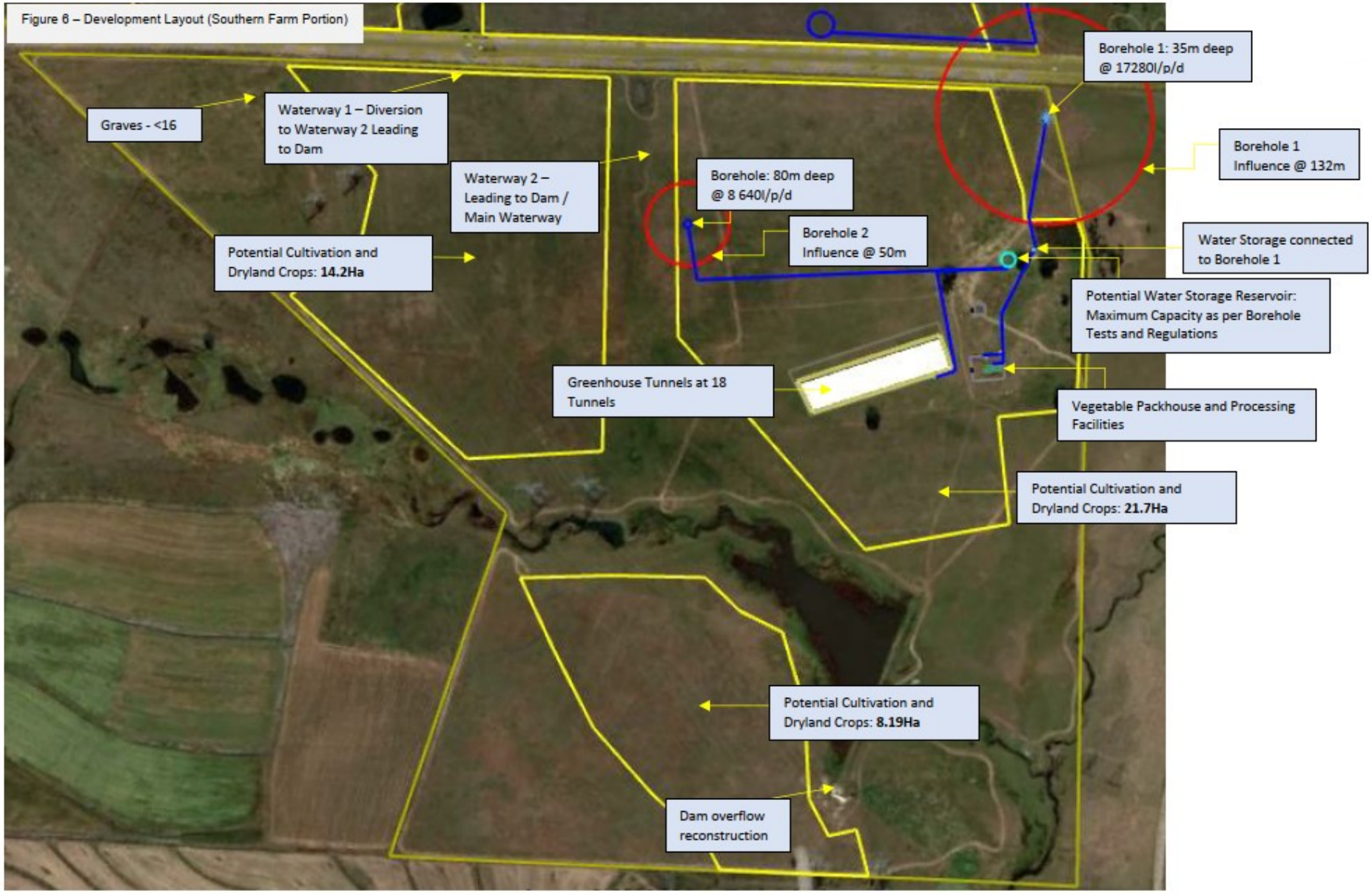


Figure 5 – Development Layout (Northern Farm Portion)

Figure 6 – Development Layout (Southern Farm Portion)



APPENDIX 2

APPLICATION FORM SUBMITTED TO DARDLEA

& Screening Report

2nd Floor, Rubenstein Office Park
566 Rubenstein Drive
Moreleta Park, 0181

PO Box 40541
Moreleta Park, 0044

www.recservices.co.za

REC SERVICES
ENVIRONMENTAL CONSULTANTS

ENVIRONMENTAL IMPACT ASSESSMENT (EIA) PROCESS

PROPOSED FARMING ACTIVITIES FOR CROP PRODUCTION AND ASSOCIATED INFRASTRUCTURE SUCH AS A WORKSHOP AND CROP PRODUCTION TUNNELS ON THE REM. OF POR. 2 OF THE FARM UITMALKAAR 126IR, MPUMALANGA.

Application Form

Prepared for:
MS. SINDISIWE MBUYANE
MPUMALANGA PROVINCE DEPARTMENT OF AGRICULTURE, RURAL DEVELOPMENT, LAND AND ENVIRONMENTAL AFFAIRS
GERT SIBANDE DISTRICT - EIM
13 DE JAGER ST.
ERMELO
2351

On behalf of:
NOMVULA MPUMELELO (PTY) LTD.
MR EWERT SNYMAN
PORTION 2 OF THE FARM UITMALKAAR NO 126
KINROSS
2270
CELL: 084 511 5811
E-MAIL: E.SNYMAN@MAKWENZEKE.COM

Author:
ROWAN VAN TONDER & PIETER VAN DER MERWE
REC SERVICES (PTY) LTD

Date: 18 August 2022

agriculture, rural development, land & environmental affairs
MPUMALANGA PROVINCE
REPUBLIC OF SOUTH AFRICA

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

	(For official use only)
File Reference Number:	
NEAS Reference Number:	
Date Received:	
Responsible Official:	

PROJECT TITLE

PROPOSED FARMING ACTIVITIES FOR CROP PRODUCTION AND ASSOCIATED INFRASTRUCTURE SUCH AS A WORKSHOP AND CROP PRODUCTION TUNNELS ON THE REM. OF POR. 2 OF THE FARM UITMALKAAR 126IR, MPUMALANGA.

IMPORTANT INFORMATION

1. This application form is current as of 1 May 2022. It is the responsibility of the proponent to ascertain whether subsequent versions of the form have been published or produced by the competent authority.
2. It is the responsibility of the proponent to confirm that DARDLEA is the competent authority to which this application must be submitted (refer to NEMA section 24C).
3. The required information must be typed within the spaces provided in the form. The sizes of the spaces provided are not necessarily indicative of the amount of information to be provided.
4. Where applicable **black out** the boxes that are not applicable in the form.
5. The use of the phrase "not applicable" in the form must be done with circumspection.
6. This application form **must** be accompanied by a screening report generated through the national web-based environmental screening tool at https://screening.environment.gov.za/screeningtool.
7. No faxed or e-mailed applications will be accepted.
8. **Proof of payment of the applicable fee for consideration and processing of applications must accompany the submission of this form, unless an exclusion applies.** If an exclusion applies, a **written motivation** must be attached to this application form.
9. If the proponent is not the owner or person in control of the land on which the activity is to be undertaken, written consent from the landowner or person in control of the land must be obtained and must be attached to this application form, unless Regulation 39(2) applies.
10. The original signed declarations by the applicant and by the EAP and any specialist, which EAP and specialist meet all the requirements contemplated in Regulation 13, must accompany this application form. Where specialists and review EAPs/specialists are appointed after the submission of this form, the relevant declaration forms in Section 10 must be completed, and the original signed forms must accompany the draft basic assessment or the draft environmental impact assessment reports, as well as final reports to be submitted to this Department.
11. Unless protected by law, all information contained in this application will become public information on receipt by the Department. Upon request, the applicant/EAP must provide any interested and affected party with the information contained in or submitted with this application form.
12. Where exemption is intended to be applied for, such application must be made in terms of the National Exemption Regulations, 2014, and must be finalised before lodging an application for environmental authorisation.
13. If, in addition to this application, you must also apply for a Waste Management Licence in terms of the National Environmental Management: Waste Act, 2008 (Act No. 59 of 2008) and/or an Atmospheric Emission Licence in terms of the National Environmental: Air Quality Act, 2004 (Act No. 39 of 2004, then separate application forms in terms of the applicable legislation must be completed and submitted to the relevant licensing authorities.

MPUMALANGA
THE PLACE OF THE RISING SUN

14. An application for environmental authorisation lapses if the applicant fails to meet any of the timeframes prescribed in terms of the 2014 EIA Regulations (as amended).

15. **DARDLEA has not prescribed a format for Basic Assessment, Scoping or Environmental Impact Assessment Reports, or Environmental Management Programmes.** Said reports must however contain all the information set out in Appendices 1, 2, 3 and 4 of the EIA Regulations respectively.

16. This form, and all subsequent reports, **MUST BE SUBMITTED TO THE DEPARTMENT AT THE RELEVANT DISTRICT OFFICE** given below. Should the application form not be submitted at the relevant district office, it will not be considered:

EHLANZENI DISTRICT	NKANGALA DISTRICT	GERT SIBANDE DISTRICT
Environmental Impact Management Riverside Office Park Aqua Street (opposite Audi) Building 4, East Tower Nelspruit 1200 Tel: 013 759 4000	Environmental Impact Management Corner Rosemead and Ryan Road Witbank 1035 Tel: 013 692 5843 Note: This address to expected to change in the near future.	Environmental Impact Management 13 De Jager Street Ermelo 2351 Tel: 017 811 4830
Please note that the addresses provide above are subject to change. It is the responsibility of the applicant / EAP to verify the abovementioned details with the relevant District Offices prior to submission of all application forms and reports.		

PROOF OF PAYMENT

Tick the appropriate box below to indicate that either proof of payment is attached or that, in the applicant's view, an exclusion applies. Proof and motivations for exclusions must be attached to this application form.

Proof of payment attached:	X
Exclusion applies:	

An applicant is excluded from paying fees if:

- The activity is a community based project funded by a government grant; or
- The applicant is an organ of state

TYPE OF EXCLUSION	Tick which is applicable and attach proof / motivation
The activity is a community based project funded by a government grant	
The applicant is an organ of state	

FEE AMOUNT		
APPLICATION TYPE	**FEE**	**Tick which is applicable**
Application for an environmental authorisation for which basic assessment is required	**R2000**	
Application for an environmental authorisation for which S&EIR is required	**R10 000**	**X**

Details for the payment of application fees

Banking Details:
Account name: Department of Agriculture, Rural Development, Land and Environmental Affairs
Bank: ABSA Bank
Account Type: Current Account
Account number: 4103095253
Branch Name: Business Bank
Branch Code: 632005

Beneficiary reference number: **EIM + ABBREVIATED PROJECT DESCRIPTION**

Proof of payment must be attached to this application form.
"Proof of payment" includes a receipt, a stamped deposit slip, electronic fund transfer copy or a payment advice.

NB: PAYMENT MUST BE MADE IN THE SAME MONTH THAT AN APPLICATION FORM IS TO BE SUBMITTED.

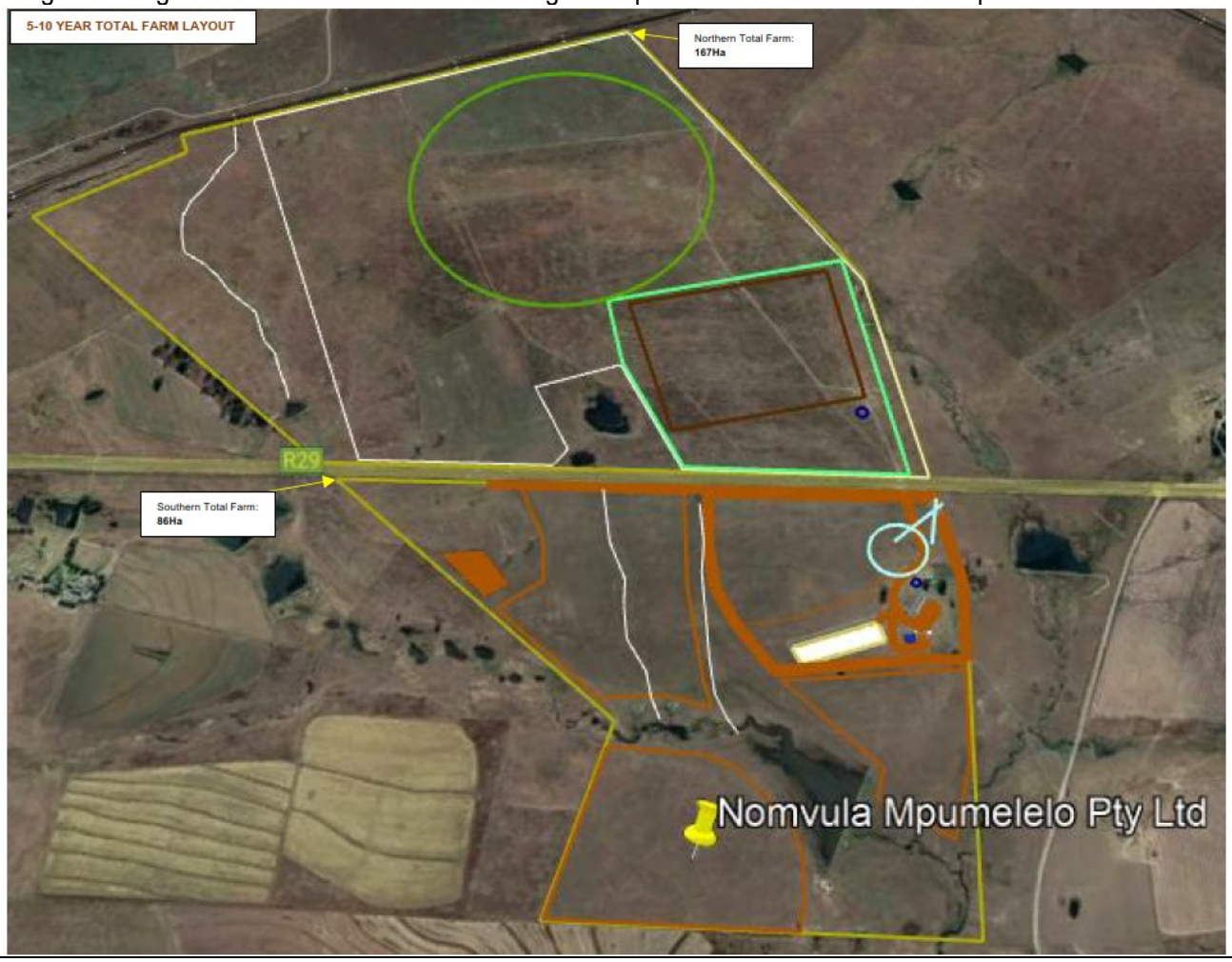
MPUMALANGA
THE PLACE OF THE RISING SUN

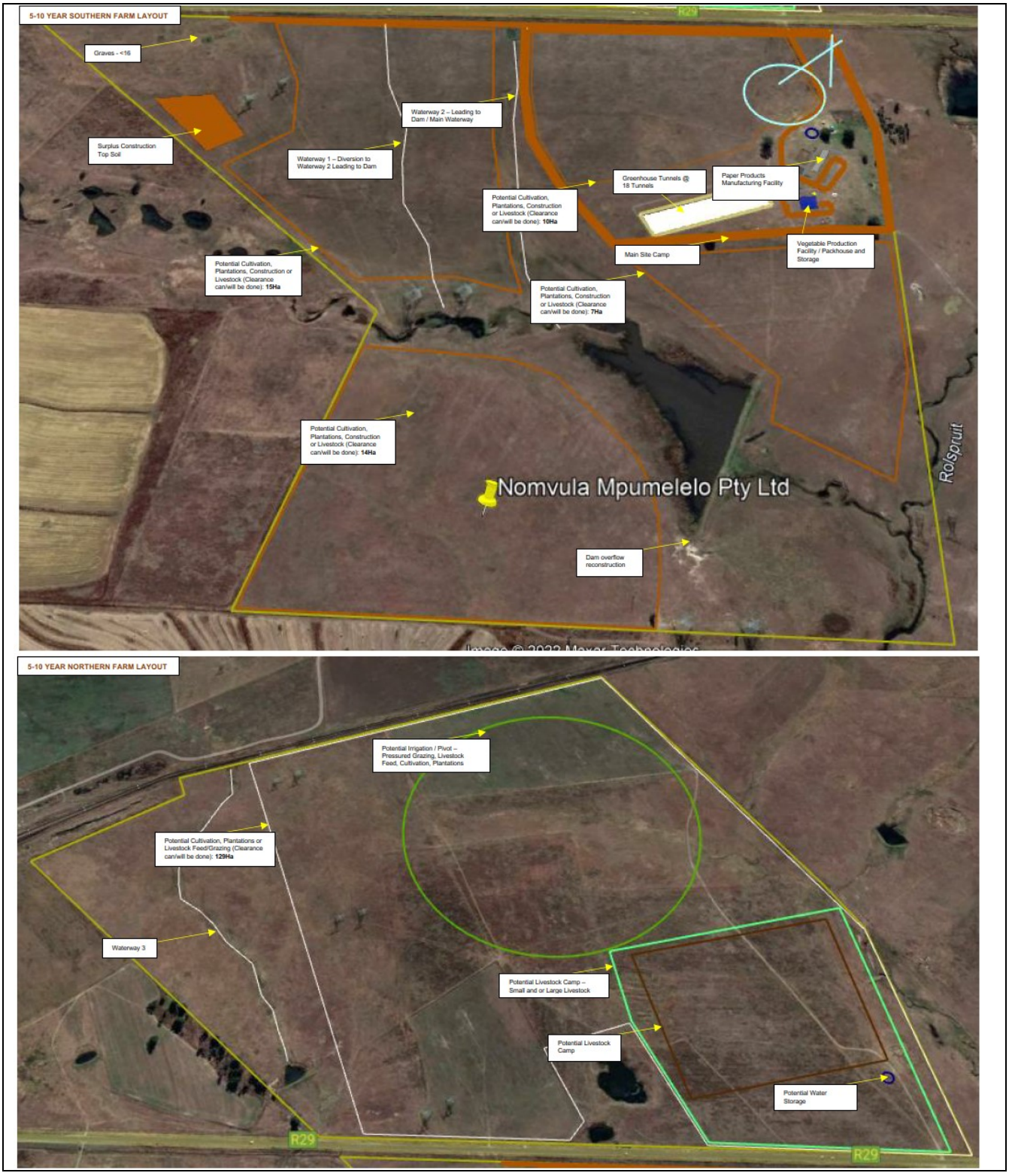
1. PROJECT TITLE

PROPOSED FARMING ACTIVITIES FOR CROP PRODUCTION AND ASSOCIATED INFRASTRUCTURE SUCH AS A WORKSHOP AND CROP PRODUCTION TUNNELS ON THE REM. OF POR. 2 OF THE FARM UITMALKAAR 126IR, MPUMALANGA

Provide a clear, accurate and detailed description of the development project and its associated infrastructure.

It is determined that the project will cover more than 20 ha of land which will be disturbed by the clearing of indigenous vegetation for the establishment of vegetable production in a tunnel and on open land.





MPUMALANGA
THE PLACE OF THE RISING SUN

2. GENERAL INFORMATION

Applicant:	Nomvula Mpumelelo (Pty) Ltd.		
Contact person:	Mr Ewert Snyman		
Physical address:	Portion 2 of the Farm Uitmalkaar No 126, Kinross, 2270		
Postal address:	N/A		
Postal code:	N/A	**Cell:**	084 511 5811
Telephone:	084 511 5811	**Fax:**	N/A
E-mail:	e.snyman@makwenzeke.com		

In instances where there is more than one applicant, this section must be duplicated

Company name of EAP:	REC Services (Pty) Ltd.		
EAP name and surname:	Rowan van Tonder		
Postal address:	P.O. Box 40541, Moreleta Park		
Postal code:	0044	**Cell:**	082 412 7571
Telephone:	0129974742	**Fax:**	0129970415
E-mail:	rowan@recservices.co.za		
Are you a Registered EAP in terms of 24H(3)(a) of NEMA (provide EAP Registration number):	14 Years' Experience; B. Sc. Environmental Science; B.Sc.(Hons) Physical Geography; M.Sc. Botany SACNASP (Pri.Sci.Nat) (Environmental Sciences) Reg. No.: 19204 EAPASA Reg. No. 2020/2579		

Landowner:	Nomvula Mpumelelo (Pty) Ltd.		
Contact person:	Mr Ewert Snyman		
Postal address:	Portion 2 of the Farm Uitmalkaar No 126, Kinross		
Postal code:	2270	**Cell:**	084 511 5811
Telephone:	084 511 5811	**Fax:**	N/A
E-mail:	e.snyman@makwenzeke.com		

In instances where there is more than one landowner, this section must be duplicated.

District Municipality in whose jurisdiction the proposed activity will fall (Delete which is not applicable):			**Gert Sibande**
Local authority in whose jurisdiction the proposed activity will fall:	Govan Mbeki		
Nearest town:	Kinross		

In instances where there is more than one local authority involved, this section must be duplicated.

3. SITE DESCRIPTION

Property description:	Remainder of Por. 2 of the farm Uitmalkaar 126IR

(Farm name, portion, number and registration division or Erf number etc.) Where a large number of properties are involved (e.g., linear activities), please attach a full list to this application.

Current land-use zoning:	Agriculture

In instances where there is more than one current land-use zoning, please attach a list of current land use zonings that also indicate which portions each use pertains to, to this application.

Property size (m^2) of all proposed sites:	2 520 000
Development footprint size (m^2):	1 761 500

Project map:	A project map must be attached to this document. The map must accurately provide an indication of the project site position as well as the positions of the alternative sites, if any, and • road names or numbers of all major roads as well as the roads that provide access to the site(s); • a north arrow; • any sensitive geographic features (e.g., watercourses)

Site co-ordinates:

Indicate the position of the activity using the latitude and longitude of the centre point of the preferred site alternative. The co-ordinates must be in degrees, minutes and seconds using the Hartebeesthoek94 WGS84 co-ordinate system.

Latitude (S):			Longitude (E):		
26º	23‘	01.85“	29º	01‘	22.04“

In the case of linear activities:

	Latitude (S):			Longitude (E):		
• Starting point of the activity	º	’	“	º	‘	“
• Middle point of the activity	º	‘	“	º	‘	“
• End point of the activity	º	‘	“	º	‘	“

SG 21 Digit Code(s):

Indicate all the Surveyor-General 21-digit codes for all sites (including portions of sites) that are part of the application. If there are more than 4, attach a list with the rest of the codes.

T	0	I	R	0	0	0	0	0	0	0	0	0	1	2	6	0	0	0	2

4. TYPE OF APPLICATION

4.1 Application for Basic Assessment

Is this an application for conducting a basic assessment (as defined in the Regulations)?		**NO**

Please indicate when the final basic assessment report will be submitted:

4.2 Application for Scoping and Environmental Impact Assessment (S&EIR)

Is this an application for Scoping and EIR (as defined in the Regulations)?	**YES**	

Please indicate when the final Scoping Report (including the Plan of Study for EIA) will be submitted:

JUST OVER A MONTH AFTER SUBMITTING THE APPLICATION FORM AND DRAFT SCOPING REPORT.

5. ACTIVITIES APPLIED FOR TO BE AUTHORISED

For an application for authorisation that involves more than one listed or specified activity that, together, make up one development proposal, all the listed activities pertaining to this application must be indicated.

Government Notice R983/327 (as amended) Activity No.	**Describe the relevant Basic Assessment Activity in writing as per Listing Notice 1 (GN No. R983, as amended)**	**Describe the extent to which the activity applied for requires authorisation (specify the threshold where applicable)**
1		
Government Notice R985/324 (as amended) Activity No:	**Describe the relevant Basic Assessment Activity in writing as per Listing Notice 3 (GN No. R985, as amended)**	**Describe the extent to which the activity applied for requires authorisation (specify the threshold where applicable)**
Government Notice R984/325 Activity No:	**Describe the relevant Scoping and EIA Activity in writing as per Listing Notice 2 (GN No. R984)**	**Describe the extent to which the activity applied for requires authorisation (specify the threshold where applicable)**
15	The clearance of an area of 20 hectares or more of indigenous vegetation, excluding 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.	It is determined that the project will cover more than 20 ha of land (approx. 176 Ha) which will be disturbed by the clearing of indigenous vegetation for the establishment of vegetable production in a tunnel and on open land.

Please note:
Only those activities listed above shall be considered for authorisation. The onus is on the applicant to ensure that all applicable listed activities are included in the application. Environmental Authorisation must be obtained prior to commencement with each applicable listed activity. If a specific listed activity is not included in an Environmental Authorisation, a new/separate application for Environmental Authorisation for such activity will have to be submitted.

6. PUBLIC PARTICIPATION

6.1 Public Participation undertaken to date

Where public participation in terms of Regulations 40, 41 and 42 was undertaken prior to submission of this application, please provide a summary of the steps followed to date. Please remember that in terms of Regulation 40(3), all potential or registered I&AP's **must** be provided with an opportunity to comment on draft reports once an application has been submitted to the CA.

The Public Participation Process was conducted on 6 July 2022.

- Background Information Documents (BIDs) were distributed/emailed to adjacent landowners as well as other Interested and Affected Parties (I&APs) on the 6th and 7th of July 2022.
- A Site notice were erected/placed on site on the 6th of July 2022 next to the sites' access road.
- A press advert was placed in the 'Ridge Times' newspaper on the 8th of July 2022.

The ward councillor (Ward 2), local and district municipality, DWS, and the provincial heritage resources agency was informed by means of Background Information Documents (written notifications) via email.

6.2 State Departments identified in terms of S24O

Provide a list of all State Departments / Organs of State that will be / have been consulted, and to whom draft reports will be submitted for comment. **Proof of submission / delivery of the draft report to all State Departments / Organs of State must be attached to the final BAR / S&EIR.**

Name of Department	Contact person	Address	Email Address	Phone number
Department of Water Affairs and Sanitation	Selo Kheva	Department of Water Affairs Private Bag X11259 NELSPRUIT 1200	'khevas@dwas.gov.za' 'GumaF@dwa.gov.za'	0137597309
Govan Mbeki Local Municipality	Thokozile Zulu	Private Bag X1017 Secunda Mpumalanga 2302	thokozile.z@govanmbeki.gov.za 'office.mayor@govanmbeki.gov.za'; 'office.speaker@govanmbeki.gov.za'	0176206000
Ward 2	Cllr Joseph M Maseko	-	'cllrtmorajane@govanmbeki.gov.za'	0726783369
MP Heritage Resources Agency	b. Moduka	1st Floor Building 5 Government Complex 7 Government Blvd. Riverside Park Nelspruit 1200	bmoduka@mpg.gov.za	0137665196
Transnet Freight Rail	Masechaba Bookholane	21 Wellington Road Inyanda House 1 Parktow+	masechaba.bookholane@transnet.net	0115449651

Please note: In terms of Regulation (7)2, the EAP is responsible for consulting with all relevant State Departments / Organs of State in respect of the application (unless agreement to the contrary has been reached with the Department), and such State Departments must be provided with a 30 day comment period.

7. OTHER AUTHORISATIONS

7.1 Do you need any authorisations in terms of the following legislation?

National Environmental Management: Waste Act (NEMWA)	**NO**
National Environmental Management: Air Quality Act (NEMAQA)	**NO**
Have such applications been lodged already?	**NO**

If Yes, please attach proof of submission and provide a status update below. If no, then indicate when such applications will be submitted.

N/A

8. NATIONAL SECTOR CLASSIFICATION

Please indicate, by marking the appropriate box below, **the ONE sector** most applicable to the main development which forms the subject of this application

Infrastructure /Transport Services/Roads - Public		Services/Waste Management Services/Disposal facilities - Hazardous	
Infrastructure /Transport Services/Roads - Private		Services/Waste Management Services/Disposal facilities - Nuclear	
Infrastructure /Transport Services/Rail - Public		Services/Waste Management Services/Disposal facilities - General	
Infrastructure /Transport Services/Rail - Private		Services/Waste Management Services/Treatment facilities - Hazardous	
Infrastructure /Transport Services/Airport/Runways/Landing Strip/Helipad - Commercial		Services/Waste Management Services/Treatment facilities - General	
Infrastructure /Transport Services/Airport/Runways/Landing Strip/Helipad -		Services/Waste Management Services/Storage Facilities - General	

Private			
Infrastructure /Transport Services/Airport/Runways/Landing Strip/Helipad - Public Services		Services/Waste Management Services/Storage Facilities - Hazardous	
Infrastructure /Transport Services - Ports		Services/Waste Management Services/Storage Facilities - Nuclear	
Infrastructure /Transport Services - Inland Waterways		Services/Burial and cemeteries - Cemeteries	
Infrastructure /Transport Services - Marina		Services/Burial and cemeteries - Cremators	
Infrastructure /Transport Services - Canal		Services/Water services/Storage - Dams	
Infrastructure /Localised infrastructure - Infrastructure in the Sea/Estuary/Littoral Active Zone/Development Setback/100M Inland/or coastal public property.		Services/Water services/Storage - Reservoirs	
Infrastructure /Localised infrastructure - Zip Lines & Foefie Slides		Services/Water services - Desalination	
Infrastructure /Localised infrastructure - Cableway or Funiculars		Services/Water services - Treatment & Waste Water	
Infrastructure /Localised infrastructure - Billboards		Services - Hospitality	
Infrastructure /Localised infrastructure - Depot for dangerous goods		Mining - Prospecting rights	
Infrastructure /Localised infrastructure - Filling station or Tanks for dangerous goods		Mining - Mining Permit	
Utilities Infrastructure/Pipelines - Fresh/Storm Water Urban		Mining - Mining Right	
Utilities Infrastructure/Pipelines - Fresh/ Storm Water Rural		Mining/Exploration Right - Gas or Oil Marine	
Utilities Infrastructure/Pipelines - Waste Water		Mining/Exploration Right - Gas or Oil Terrestrial	
Utilities Infrastructure/Pipelines - Dangerous Goods Urban		Mining/Production Right - Gas or Oil Marine	
Utilities Infrastructure/Pipelines - Dangerous Goods Rural		Mining/Production Right - Gas or Oil Terrestrial	
Utilities Infrastructure/Telecommunications/ Radio Broadcasting - Tower		Mining/Underground gasification of coal - Oil	
Utilities Infrastructure/Telecommunications/ Radio Broadcasting - Mast		Mining/Beneficiation - Hydrocarbon	
Utilities Infrastructure/Telecommunications/ Radio Broadcasting - Receivers		Mining/Beneficiation - Mineral	
Utilities Infrastructure - Marine Cables		Agriculture/Forestry/ Fisheries - Crop Production	X
Utilities Infrastructure/Electricity /Generation/Non Renewable/Hydrocarbon - Petroleum		Agriculture/Forestry/ Fisheries - Animal Production	
Utilities Infrastructure/Electricity /Generation/Non Renewable/Hydrocarbon - Coal		Agriculture/Forestry/ Fisheries - Afforestation	
Utilities Infrastructure/Electricity /Generation/Non Renewable - Nuclear		Agriculture/Forestry/ Fisheries - Aquaculture	
Utilities Infrastructure/Electricity /Generation/Renewable - Hydro		Agriculture/Forestry/ Fisheries - Agro-Processing	
Utilities Infrastructure/Electricity /Generation/Renewable/Solar - PV		Transformation of land - Indigenous vegetation	X
Utilities Infrastructure/Electricity /Generation/Renewable/Solar - CSP		Transformation of land - From open space or Conservation	
Utilities Infrastructure/Electricity /Generation/Renewable - Wind		Transformation of land - From agriculture or afforestation	
Utilities Infrastructure/Electricity /Generation/Renewable - Biomass/ biofuels		Transformation of land - From mining or heavy industrial areas	
Utilities Infrastructure/Electricity /Generation/Renewable - Wave		Any activities within or close to a watercourse	
Utilities Infrastructure/Electricity /Distribution and Transmission - Power line		Any activity in an estuary, on the seashore, in the littoral active zone, or in the sea.	
Utilities Infrastructure/Electricity /Distribution and Transmission/Substation -		Activity requiring permit or licence in terms of National or Provincial legislation governing the release or generation of emissions - Emissions	
Release of Genetically Modified Organisms		Activity requiring permit or licence - Marine Effluent	
		Activity requiring permit or licence - Fresh Water Effluent	

8. CAPITAL VALUE AND JOB CREATION ESTIMATES (if applicable)

Capital value	Job estimates
± R8 million	Manufacturing (10 Permanent) Vegetables Cultivation (5 Permanent & > 10 Casual)

MPUMALANGA
THE PLACE OF THE RISING SUN

9. LIST OF APPENDICES

		Submitted	
Appendix 1	Proof of payment, or	YES	
	Written motivation where exclusion of payment applies		N/A
Appendix 2	Landowner consent		N/A
Appendix 3	Project map / plan	YES	
Appendix 4	Screening Report	YES	

10. DECLARATIONS

10.1 The Applicant

Note: Duplicate this section where there is more than one applicant.

I **Ewert Snyman**, in my personal capacity or duly authorised thereto hereby declare/affirm all the information submitted or to be submitted as part of the application is true and correct, and that I:

- am fully aware of my responsibilities in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) ("NEMA"), the Environmental Impact Assessment Regulations ("EIA Regulations") in terms of NEMA (Government Notice No. R. 982 refers) and any relevant specific environmental management act and that failure to comply with these requirements may constitute an offence in terms of relevant environmental legislation;
- appointed the environmental assessment practitioner and/or specialists, where applicable, which EAP and/or specialists meet all the requirements in terms of regulation 13 of GN No. R 982 to act as independent environmental assessment practitioner for this application;
- will provide the EAP, specialists and the competent authority with access to all information at my disposal that is relevant to the application;
- will be responsible for the costs incurred in complying with the NEMA EIA Regulations, 2014 and other environmental legislation including but not limited to –
  - costs incurred in connection with the appointment of the environmental assessment practitioner or any person contracted by the environmental assessment practitioner;
  - costs incurred in respect of independent reviews in terms of regulation 13(2) of GN No. R982;
  - costs incurred in respect of the undertaking of any process required in terms of the regulations;
  - costs in respect of any fee prescribed by the Minister or MEC in respect of the regulations;
  - costs in respect of specialist reviews, if the competent authority decides to recover costs; and
  - the provision of security to ensure compliance with applicable management and mitigation measures;
- am responsible for complying with conditions that may be attached to any decision(s) issued by the competent authority;
- will ensure that the environmental assessment practitioner is competent to comply with the requirements of the EIA Regulations, 2014;
- hereby indemnify the government of the Republic, the competent authority and all its officers, agents and employees, from any liability arising out of the content of any report, any procedure or any action for which the applicant or environmental assessment practitioner is responsible in terms of the NEMA EIA Regulations, 2014 and any specific environmental management act; and
- will not hold the competent authority responsible for any costs that may be incurred by the applicant in proceeding with an activity prior to an appeal being decided in terms of the NEMA Regulations, 2014.

Note: If acting in a representative capacity, a certified copy of the resolution or power of attorney must be attached.

Signature of the applicant

Nomvula Mpumelelo (Pty) Ltd.
Name of company

16/08/22
Date

10.2 The Environmental Assessment Practitioner (EAP)

I **Rowan van Tonder**, as the appointed environmental assessment practitioner ("EAP") hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- in terms of the general requirement to be independent (tick which is applicable):

X	other than fair remuneration for work performed/to be performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or

	am not independent, but another EAP that is independent and meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review EAP must be submitted);

- have expertise in conducting environmental impact assessments, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- will ensure compliance with the EIA Regulations 2014;
- 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 application;
- will take into account, to the extent possible, the matters listed in regulation **18** of the regulations when preparing the application and any report, plan or document relating to the application;
- will disclose to the proponent or applicant, registered interested and affected parties 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 or the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority (unless access to that information is protected by law, in which case I will indicate that such protected information exists and is only provided to the competent authority);
- 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;
- declare that all the particulars furnished by me in this form are true and correct;
- am aware that it is an offence in terms of Regulation 48 to provide incorrect or misleading information and that a person convicted of such an offence is liable to the penalties as contemplated in section 49B(2) of the National Environmental Management Act, 1998 (Act 107 of 1998).

Signature of the environmental assessment practitioner

REC Services (Pty) Ltd.
Name of company

16/08/2022
Date

10.3 The Review Environmental Assessment Practitioner (REAP)

I **Pieter van der Merwe**, as the appointed review environmental assessment practitioner ("REAP") hereby declare/affirm the correctness of the information provided as part of the application, and that I:

- am independent, and other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity;
- am fully aware of and meet all of the requirements of Regulation 13, and that failure to comply with any the requirements may result in disqualification;
- have reviewed/will review all the work undertaken by the EAP;
- have disclosed/will disclose, to the applicant, the EAP, the specialist (if any), the Department and interested and affected parties, all material information that have or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of regulation 48 of the 2014 NEMA EIA Regulations.

Signature of the review environmental assessment practitioner

REC Services (Pty) Ltd.
Name of company

16/08/2022
Date

10.4 The Specialist N/A

Note: Duplicate this section where there is more than one specialist.

I ……, as the appointed specialist hereby declare/affirm the correctness of the information provided as part of the application, and that I:

- in terms of the general requirement to be independent (tick which is applicable):

	other than fair remuneration for work performed/to be performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity; or

	am not independent, but another EAP that is independent and meets the general requirements set out in Regulation 13 has been appointed to review my work (Note: a declaration by the review specialist must be submitted);

- have expertise in conducting specialist work as required, including knowledge of the Act, regulations and any guidelines that have relevance to the proposed activity;
- will ensure compliance with the EIA Regulations 2014;
- 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 application;
- will take into account, to the extent possible, the matters listed in regulation **18** of the regulations when preparing the application and any report, plan or document relating to the application;
- will disclose to the proponent or applicant, registered interested and affected parties 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 or the objectivity of any report, plan or document to be prepared by myself for submission to the competent authority (unless access to that information is protected by law, in which case I will indicate that such protected information exists and is only provided to the competent authority);
- declare that all the particulars furnished by me in this form are true and correct;
- am aware that it is an offence in terms of Regulation 48 to provide incorrect or misleading information and that a person convicted of such an offence is liable to the penalties as contemplated in section 49B(2) of the National Environmental Management Act, 1998 (Act 107 of 1998).

Signature of the specialist

Name of company

Date

10.5 The Review Specialist N/A

I ……, as the appointed review specialist hereby declare/affirm the correctness of the information provided or to be provided as part of the application, and that I:

- am independent, and other than fair remuneration for work performed in terms of this application, have no business, financial, personal or other interest in the activity or application and that there are no circumstances that may compromise my objectivity;
- am fully aware of and meet all of the requirements of Regulation 13, and that failure to comply with any the requirements may result in disqualification;
- have reviewed/will review all the work undertaken by the specialist;
- have disclosed/will disclose, to the applicant, the EAP, other specialist (if any), the Department and interested and affected parties, all material information that have or may have the potential to influence the decision of the Department or the objectivity of any report, plan or document prepared or to be prepared as part of the application; and
- am aware that a false declaration is an offence in terms of regulation 48 of the 2014 NEMA EIA Regulations.

Signature of the review specialist

Name of company

Date

Appendix 1
Proof of payment

Absa Online: Notice of Payment

15 August 2022

Dear VEZ TECHNOLOGY (PTY) LTD

Subject: Notice Of Payment: DARDLEA

Please be advised that you made a payment to DARDLEA as indicated below.

Transaction number:	**807874A9B0-1**
Payment date:	**20220815**
Payment made from:	**PETTY CASH**
Payment made to:	**DARDLEA**
Bank branch code:	**0142888**
For the amount of:	**10,000.00**
Reference on beneficiary statement:	**EIM UITMALKAAR**
Additional comments by payer:	**-**

If you need more information or assistance, please call us on 08600 08600 or +27 11 501 5110 (International calls).

If you have made an incorrect internet banking payment, please send an email to digital@absa.co.za

Yours sincerely

General Manager: Digital Channels

This document is intended for use by the addressee and is privileged and confidential. If the transmission has been misdirected to you, please contact us immediately. Thank you.

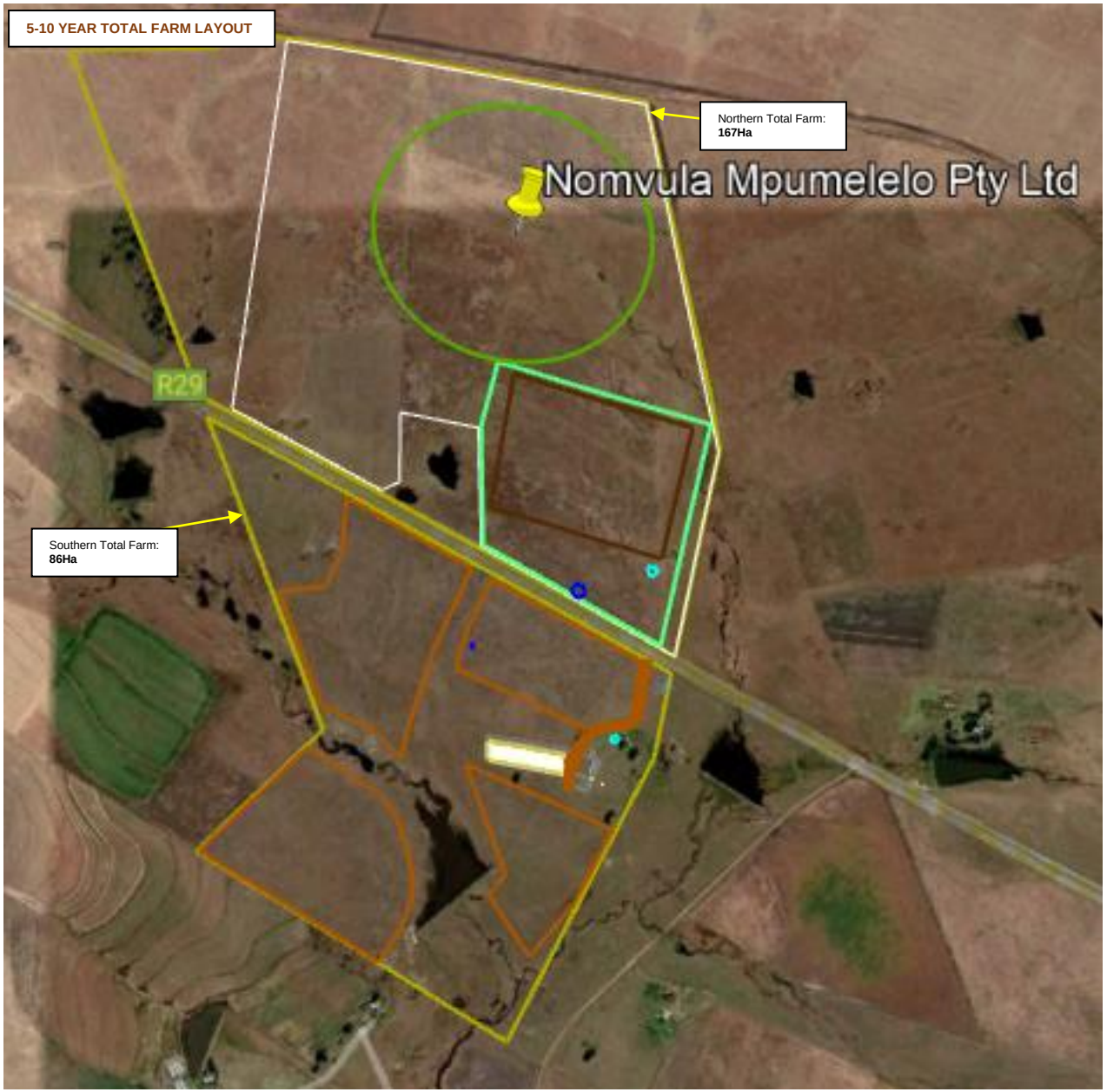
Appendix 2
Landowner consent

N/A

Appendix 3
Project map / plan

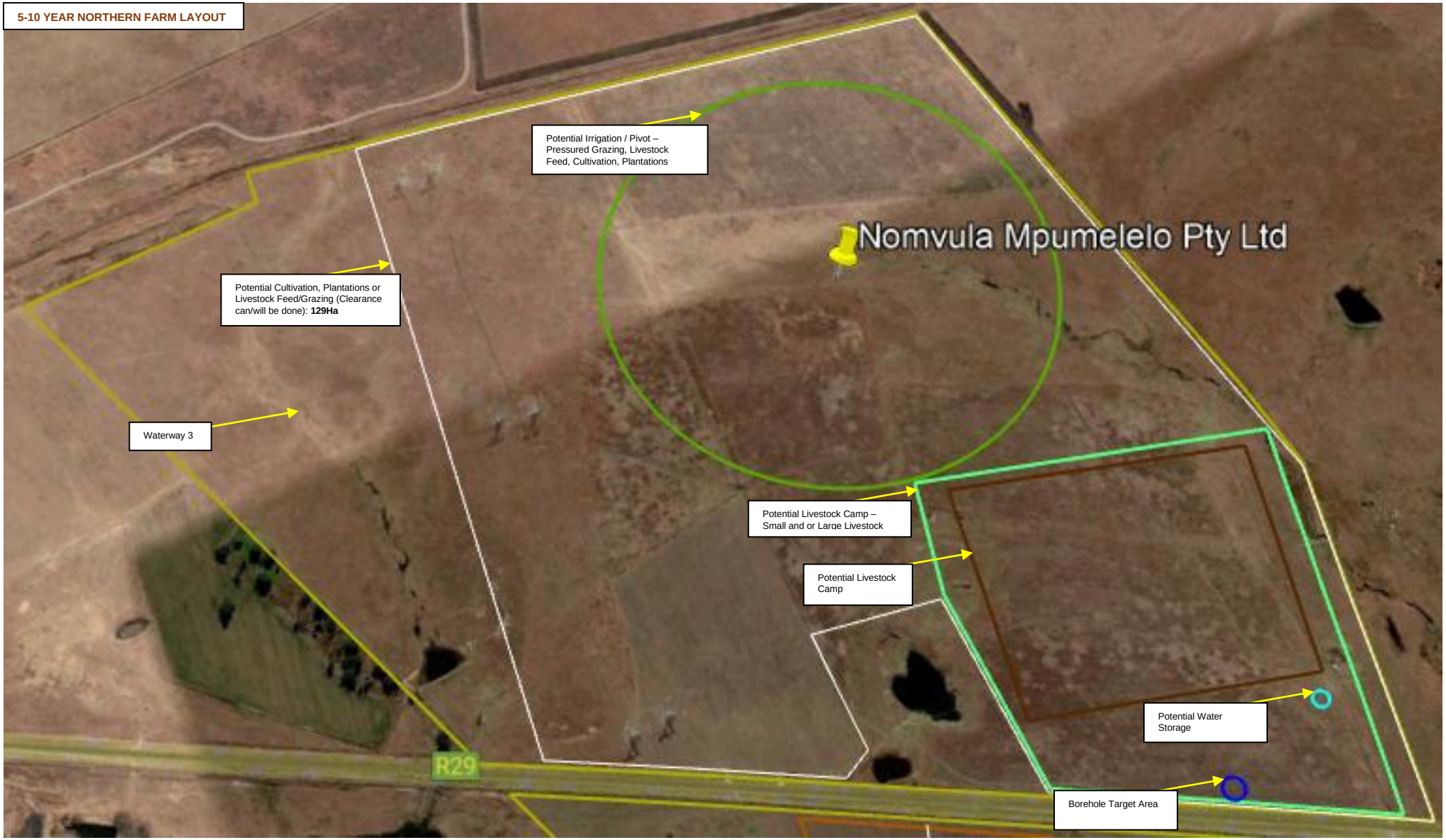
PROJECT PLAN FOR FARM: UITMALKAAR, PNT 2

5-10 Year Planning / 1-2 Year Planning (The positioning of the areas and facilities were indicated ‘purely’ on our current understanding and general expectations but will ultimately be subjected to the outcome of technical assessments, architectural drawings and or cost/impact analysis. Therefore the layout is open for scrutiny)

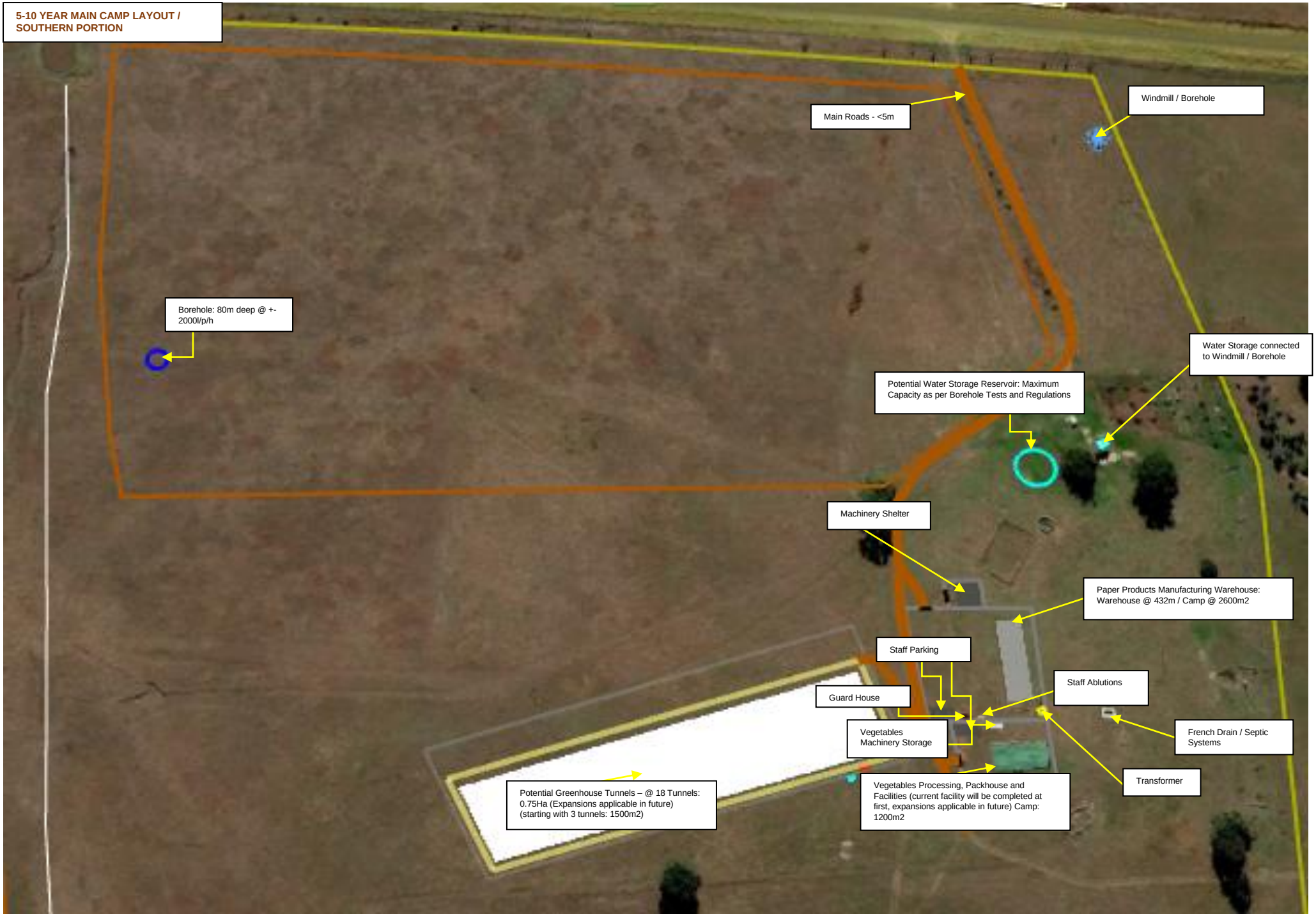



5-10 YEAR SOUTHERN FARM LAYOUT
Graves - <16
Waterway 1 – Diversion to Waterway 2 Leading to Dam
Waterway 2 – Leading to Dam / Main Waterway
Borehole: 80m deep @ +- 2000l/p/h
Surplus Construction Top Soil
Potential Cultivation, Plantations, Construction or Livestock (Clearance can/will be done): 10Ha
Paper Products Manufacturing Facility
Greenhouse Tunnels @ 18 Tunnels
Potential Cultivation, Plantations, Construction or Livestock (Clearance can/will be done): 15Ha
Vegetable Production Facility / Packhouse and Storage
Potential Cultivation, Plantations, Construction or Livestock (Clearance can/will be done): 7Ha
Potential Cultivation, Plantations, Construction or Livestock (Clearance can/will be done): 14Ha
Dam overflow reconstruction

5-10 YEAR NORTHERN FARM LAYOUT



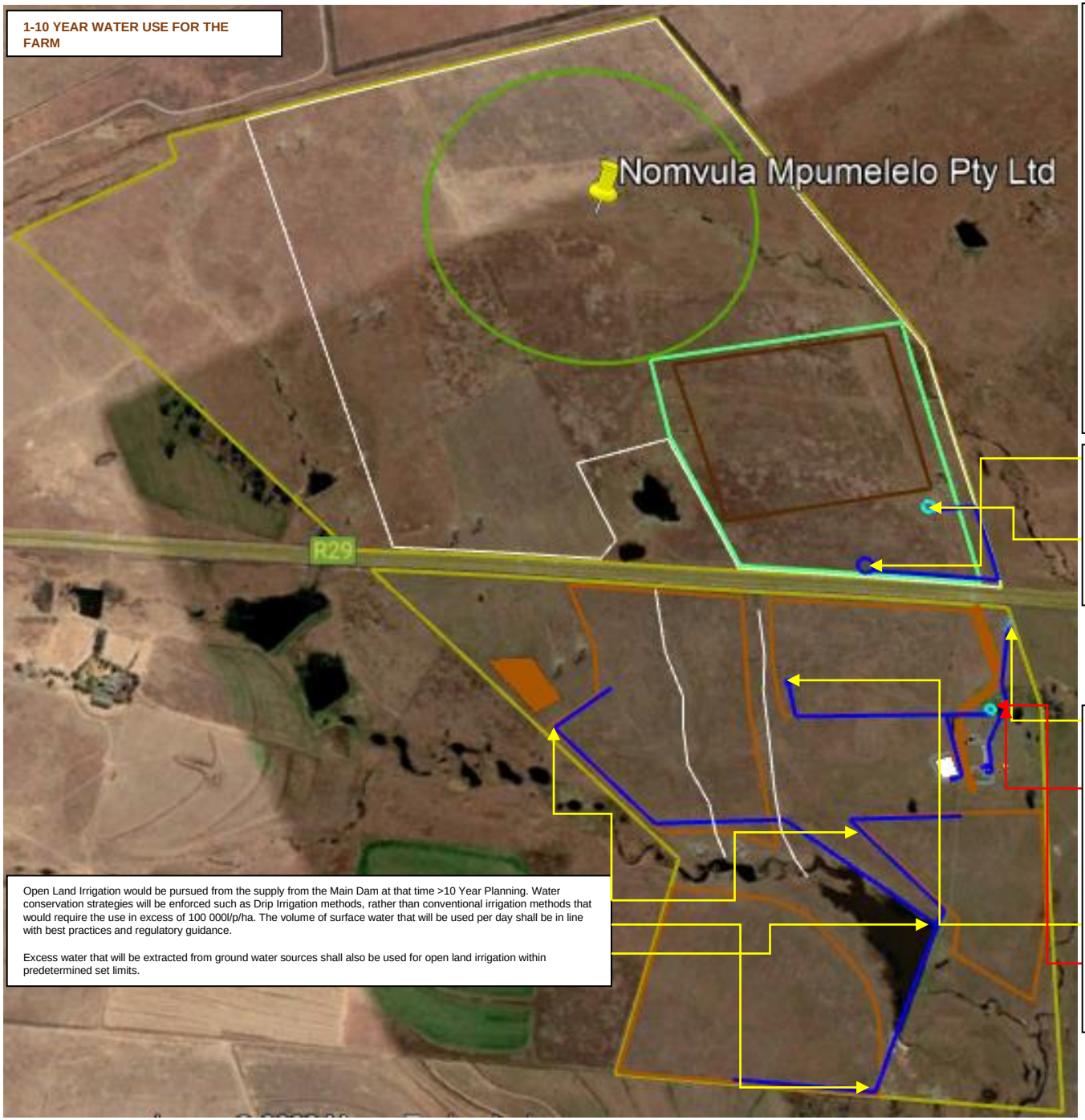
5-10 YEAR MAIN CAMP LAYOUT / SOUTHERN PORTION



1-2 YEAR MAIN CAMP LAYOUT /
SOUTHERN PORTION


1-2 YEAR MAIN CAMP LAYOUT / SOUTHERN PORTION
Main Roads - <5m
Windmill / Borehole Tested @ 12 hours – 1600l/h
Borehole: 80m deep @ +- 2000l/p/h
Potential Water Storage Reservoir: Maximum Capacity as per Borehole Tests and Regulations
Water Storage: 15000l/day needed for daily operations
Machinery Shelter
Staff Parking
Paper Products Manufacturing Warehouse: Warehouse @ 432m / Camp @ 2600m2
Guard House
Vegetables Machinery Storage
Staff Ablutions
French Drain / Septic Systems
Transformer
Vegetables Processing, Packhouse and Facilities (current facility will be completed at first, expansions applicable in future) Camp: 1200m2
Greenhouse Tunnels – @ 3 Tunnels: 0.25Ha (starting with 3 tunnels: 1500m2)
Water Storage / Heating System for Tunnels / Coal Storage Platform

1-10 YEAR WATER USE FOR THE FARM



NORTHERN PORTION (5-10 YEAR):

Usage:

- 7000 l/p/d - 217 000 l/p/m - 2 604 000 l/p/a

Storage:

- 50 000L (weekly use)

SOUTHERN PORTION (1-5 YEAR):

Usage:

- 15 000 l/p/d - 465 000 l/p/m - 5 580 000 l/p/a

Storage:

- 75 000L (weekly use)

SOUTHERN PORTION (>10 YEAR):

Usage:

- 58 000 l/p/d - 1 798 000 l/p/m - 21 576 000 l/p/a

Storage:

- 455 000L (total weekly use + reserve)

The Borehole Target (78) will be pursued at that stage of establishment of the Northern Portion. The average carrying capacity of the natural veldt in this vicinity is ±4 ha/LSU and ±2 ha/LSU on the permanent established pastures. With 25 ha established pastures available a total of <46 LSU's will graze this land as per sustainable principles of cattle farming. Water consumption amounts to 7000 l/p/d which will be extracted from the borehole and stored within Water Storage Tanks with the capacity of 50 000L and water troughs will be filled by these tanks.

As per the Geophysical Survey (below), other borehole Targets (92,99,120) will also be pursued should additional water be required for 'possible' expansion of the Crops Cultivation operations conducted on the Southern Portion, which will result in the need for additional Water Storage. With this said, the water use limits will be honored to ensure sustainability and compliance with the Water Use requirements, the overall possibilities for operations and also the scale of such operations will be limited to the water availability within the said area.

The Borehole (Windmill) was recently tested with a supply of 1600l/h. An additional submersible pump will be installed to enable constant water supply to the Water Storage Tanks. These Water Storage Tanks will supply water to the Warehouse and Facilities, Packhouse and Facilities and Initial Cultivation Tunnels. The Water Storage Tanks and Water Supply / Use per area shall be as follows:

- 6 x 10 000L Storage Tanks supplying the Tunnels, of which 9000L will be actively used each day.
- An additional 5000L Tank will be installed at the tunnels that will be filled by the 6 x 10 000L tanks;
- 1 x 10 000L Tank supplying the Warehouse facility, of which a maximum of 2000L will be actively used each day. The same Tank will be supplying the Packhouse and Facilities, of which a maximum of 2000L will actively be used each day;
- 1 x 5000L Tank which will be used as spare / fire emergency.

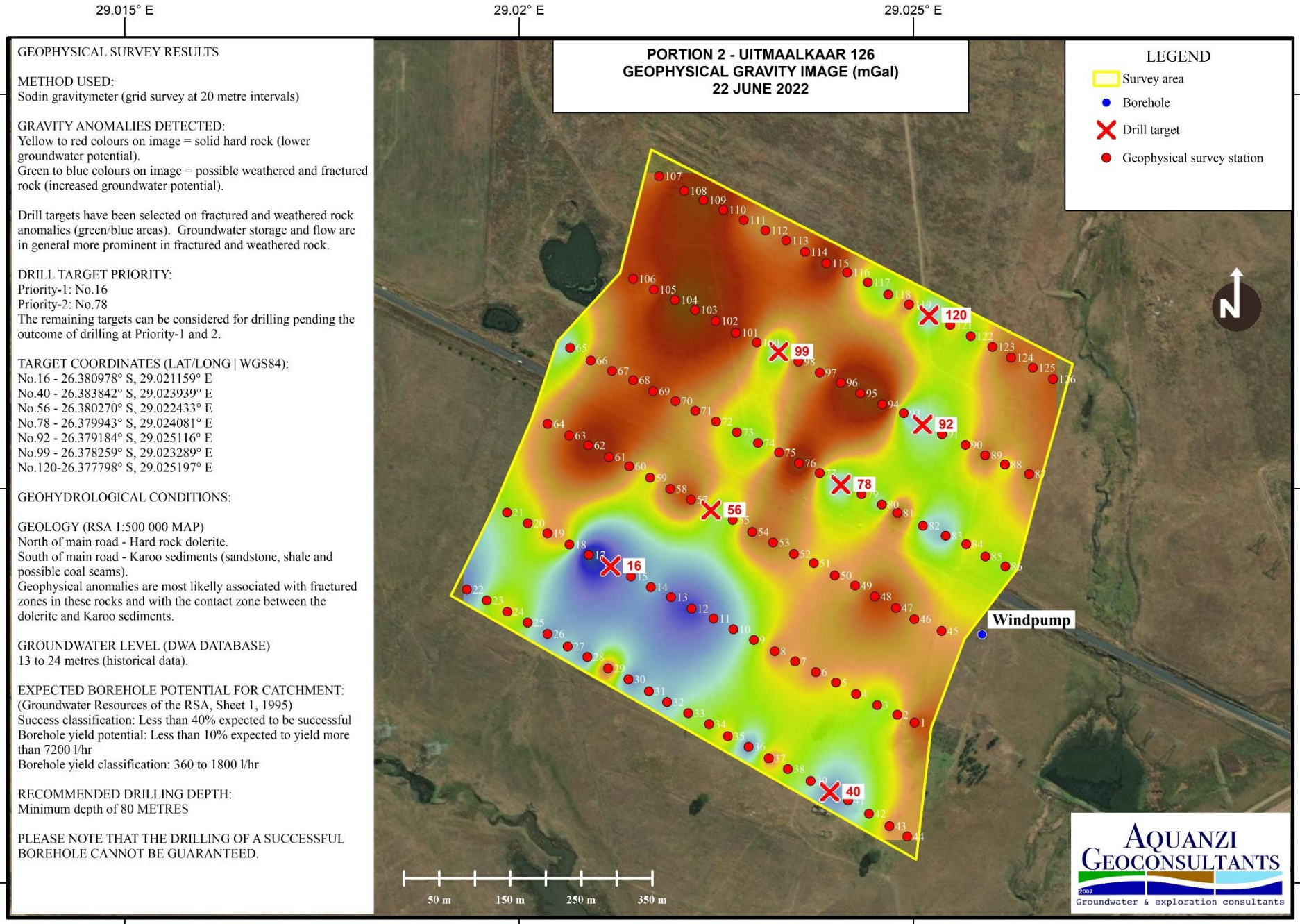
This amounts to 75 000L Water Storage and 13 000 – 15 000 max Liters of Water use per day 1-<5 Year Planning. On average, 20 000L of water will be extracted from this borehole p/d.

Should the Borehole (Windmill) not support the initial supply demand 1-<5 Year Planning, Borehole (16) will be utilized to support the supply to the Water Storage Tanks. The borehole has not been tested as yet but should supply >2000l/h.

At 3000L of water needed per tunnel, future expansions @ 18 Tunnels >10 Year Planning, will require a water use of 54 000 l/p/d. This will require a water Storage (reservoir) at the capacity of minimum 380 000L. Borehole Targets (40,56) will be pursued for additional water abstraction supply to this reservoir. Should the additional borehole(s) supply capacities not support the needed water supply to the reservoir, additional areas will be surveyed for other potential borehole targets. Assumption is that these boreholes should also supply >2000l/h.

Open Land Irrigation would be pursued from the supply from the Main Dam at that time >10 Year Planning. Water conservation strategies will be enforced such as Drip Irrigation methods, rather than conventional irrigation methods that would require the use in excess of 100 000l/p/ha. The volume of surface water that will be used per day shall be in line with best practices and regulatory guidance.

Excess water that will be extracted from ground water sources shall also be used for open land irrigation within predetermined set limits.



GEOPHYSICAL SURVEY RESULTS

METHOD USED:
Sodin gravitymeter (grid survey at 20 metre intervals)

GRAVITY ANOMALIES DETECTED:
Yellow to red colours on image = solid hard rock (lower groundwater potential).
Green to blue colours on image = possible weathered and fractured rock (increased groundwater potential).

Drill targets have been selected on fractured and weathered rock anomalies (green/blue areas). Groundwater storage and flow are in general more prominent in fractured and weathered rock.

DRILL TARGET PRIORITY:
Priority-1: No.16
Priority-2: No.78
The remaining targets can be considered for drilling pending the outcome of drilling at Priority-1 and 2.

TARGET COORDINATES (LAT/LONG | WGS84):
No.16 - 26.380978° S, 29.021159° E
No.40 - 26.383842° S, 29.023939° E
No.56 - 26.380270° S, 29.022433° E
No.78 - 26.379943° S, 29.024081° E
No.92 - 26.379184° S, 29.025116° E
No.99 - 26.378259° S, 29.023289° E
No.120-26.377798° S, 29.025197° E

GEOHYDROLOGICAL CONDITIONS:

GEOLOGY (RSA 1:500 000 MAP)
North of main road - Hard rock dolerite.
South of main road - Karoo sediments (sandstone, shale and possible coal seams).
Geophysical anomalies are most likelly associated with fractured zones in these rocks and with the contact zone between the dolerite and Karoo sediments.

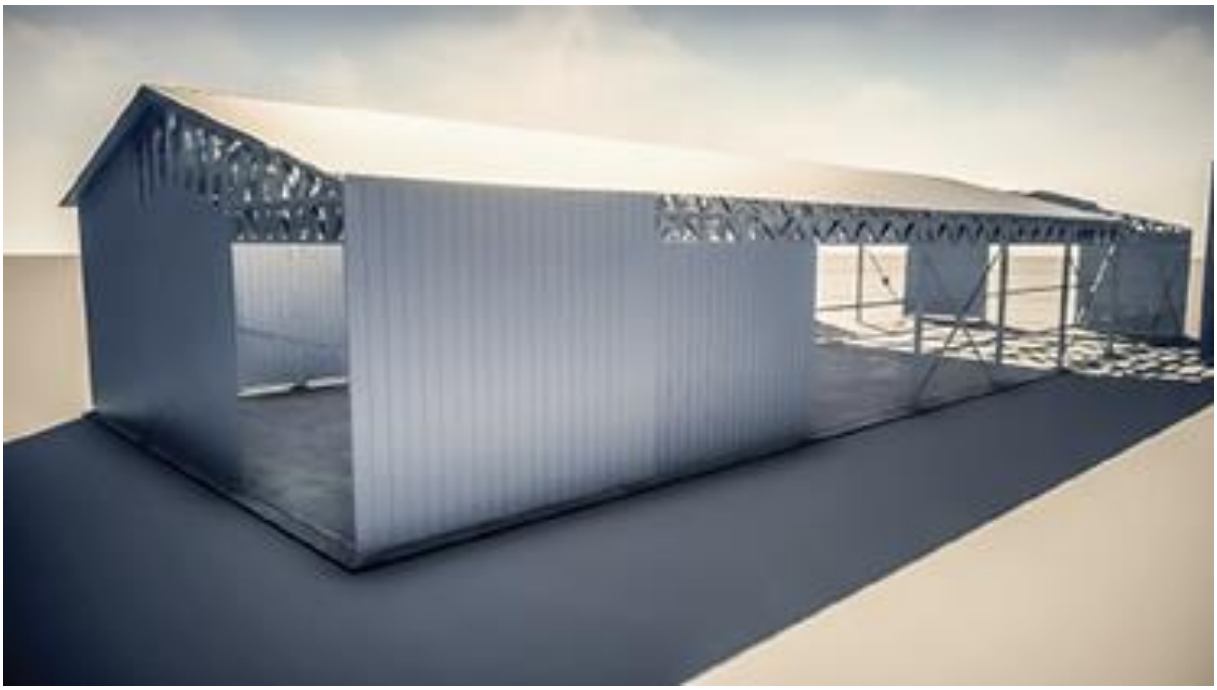
GROUNDWATER LEVEL (DWA DATABASE)
13 to 24 metres (historical data).

EXPECTED BOREHOLE POTENTIAL FOR CATCHMENT:
(Groundwater Resources of the RSA, Sheet 1, 1995)
Success classification: Less than 40% expected to be successful
Borehole yield potential: Less than 10% expected to yield more than 7200 l/hr
Borehole yield classification: 360 to 1800 l/hr

RECOMMENDED DRILLING DEPTH:
Minimum depth of 80 METRES

PLEASE NOTE THAT THE DRILLING OF A SUCCESSFUL BOREHOLE CANNOT BE GUARANTEED.

WAREHOUSE STRUCTURE 36m X 12m X 4.5m CONCEPT



PAPER PRODUCTS MANUFACTURING OPERATIONS EXAMPLE

PAPER PRODUCTS STORAGE CONCEPT

TUNNELS / MULTISPAN TUNNELS CONCEPT

TUNNELS LAYOUT CONCEPT

TUNNELS CULTIVATION / DRIP IRRIGATION CONCEPT

OPEN LAND VEGETABLE CULTIVATION CONCEPT

OPEN LAND VEGETABLE CULTIVATION / DRIP IRRIGATION EXAMPLE

PACKHOUSE EXAMPLE 240m2

PACKHOUSE OPERATIONS / WASHING / SORTING / PACKAGING

PACKHOUSE: FINISHED PRODUCT STORAGE

Appendix 4
Screening Report

SCREENING REPORT FOR AN ENVIRONMENTAL AUTHORIZATION AS REQUIRED BY THE 2014 EIA REGULATIONS – PROPOSED SITE ENVIRONMENTAL SENSITIVITY

EIA Reference number: TBA

Project name: Uitmalkaar Agri

Project title: PROPOSED FARMING ACTIVITIES FOR CROP PRODUCTION AND ASSOCIATED INFRASTRUCTURE SUCH AS A WORKSHOP AND CROP PRODUCTION TUNNELS ON THE REM. OF POR. 2 OF THE FARM UITMALKAAR 126IR, MPUMALANGA

Date screening report generated: 02/08/2022 11:53:51

Applicant: Nomvula Mpumelelo (Pty) Ltd.

Compiler: REC Services (Pty) Ltd.

Compiler signature: .....

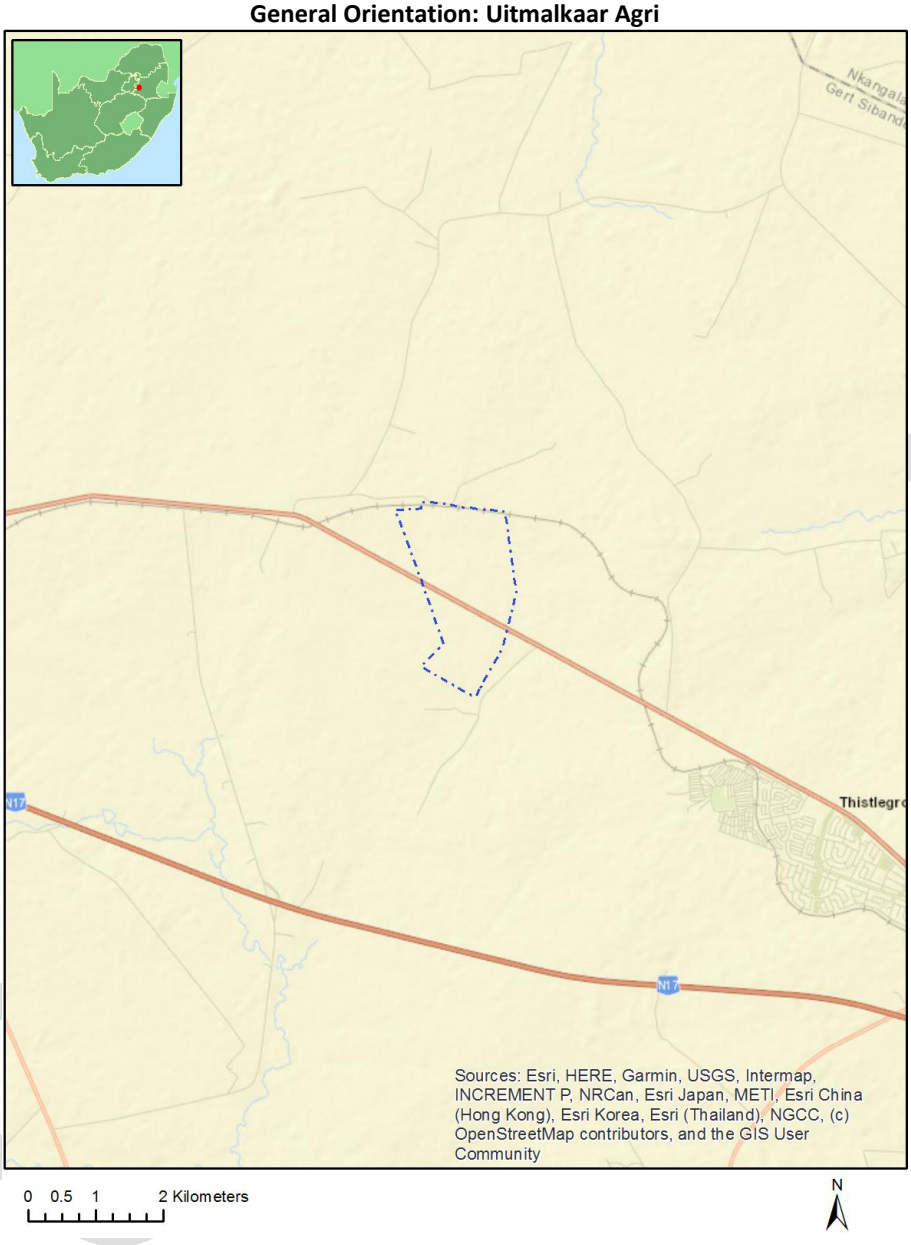
Application Category: Agriculture_Forestry_Fisheries|Crop Production

Table of Contents

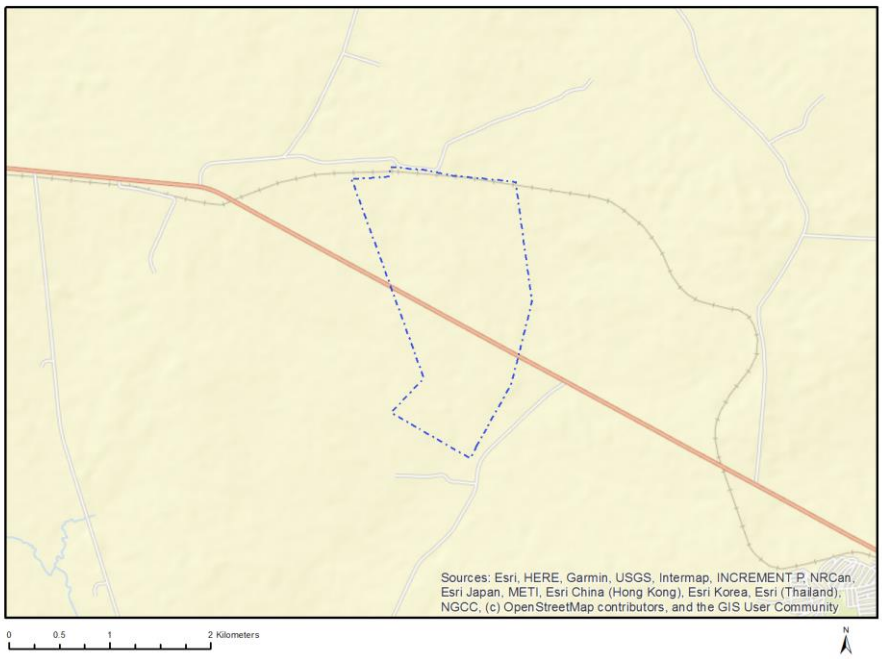
Proposed Project Location

Orientation map 1: General location

General Orientation: Uitmalkaar Agri



Map of proposed site and relevant area(s)



Cadastral details of the proposed site

Property details:

No	Farm Name	Farm/ Erf No	Portion	Latitude	Longitude	Property Type
1	UITMALMAAR -	126	0	26°22'46.1S	29°1'29.35E	Farm
2	ROLSPRUIT	127	0	26°24'33.28S	29°0'33.18E	Farm
3	UITMALMAAR -	126	5	26°21'57.84S	29°1'19.81E	Farm Portion
4	UITMALMAAR -	126	16	26°23'29.9S	29°1'54.25E	Farm Portion
5	UITMALMAAR -	126	13	26°22'35.22S	29°1'54.4E	Farm Portion
6	UITMALMAAR -	126	2	26°22'34.33S	29°1'12.88E	Farm Portion
7	ROLSPRUIT	127	2	26°23'24.95S	29°0'55.01E	Farm Portion
8	UITMALMAAR -	126	8	26°21'59.57S	29°0'45.96E	Farm Portion

Development footprint[1] vertices:
No development footprint(s) specified.

Wind and Solar developments with an approved Environmental Authorisation or applications under consideration within 30 km of the proposed area

No nearby wind or solar developments found.

[1] "development footprint", means the area within the site on which the development will take place and incudes all ancillary developments for example roads, power lines, boundary walls, paving etc. which require vegetation clearance or which will be disturbed and for which the application has been submitted.

Environmental Management Frameworks relevant to the application

No intersections with EMF areas found.

Environmental screening results and assessment outcomes

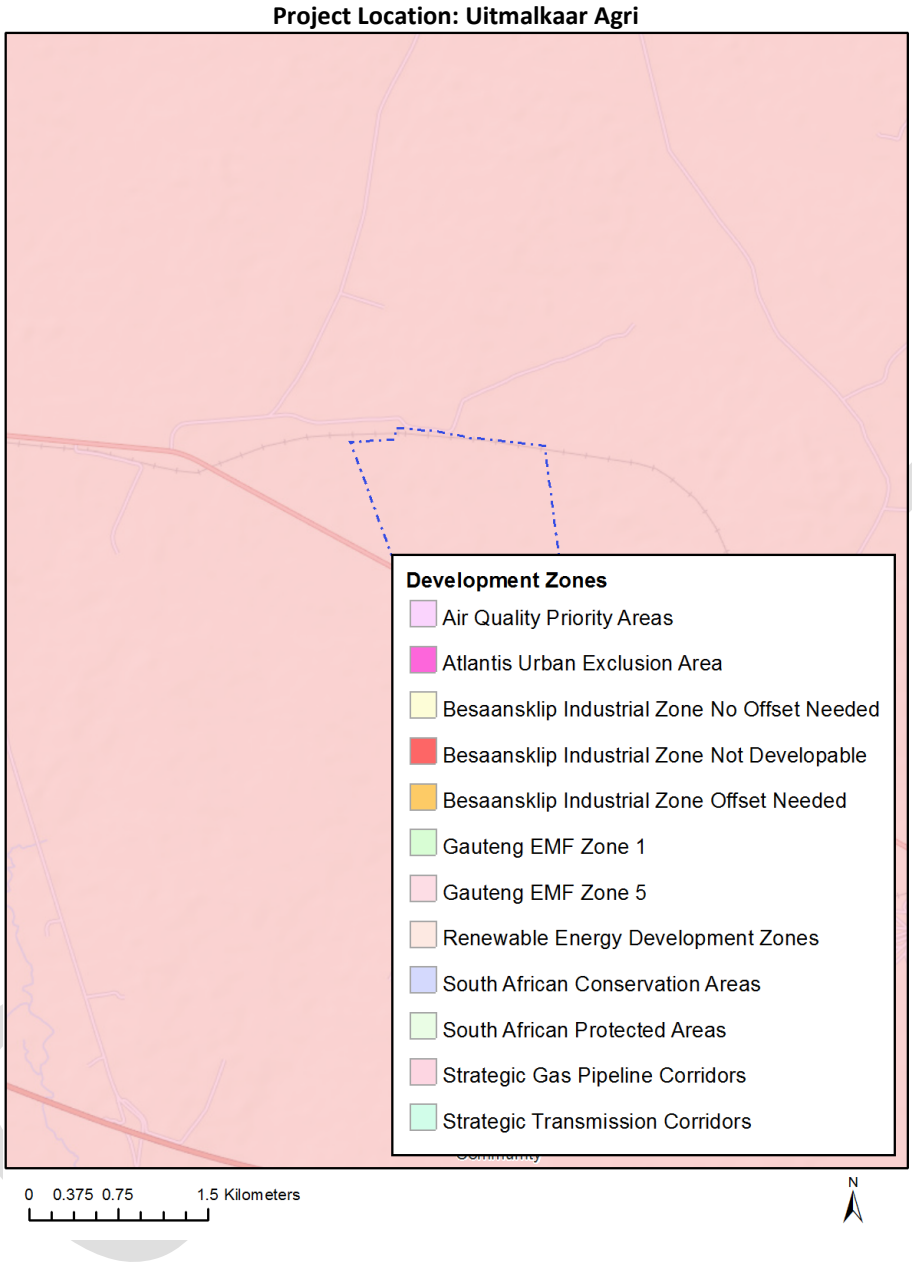
The following sections contain a summary of any development incentives, restrictions, exclusions or prohibitions that apply to the proposed development site as well as the most environmental sensitive features on the site based on the site sensitivity screening results for the application classification that was selected. The application classification selected for this report is: **Agriculture_Forestry_Fisheries|Crop Production**.

Relevant development incentives, restrictions, exclusions or prohibitions

The following development incentives, restrictions, exclusions or prohibitions and their implications that apply to this site are indicated below.

Incentive, restriction or prohibition	Implication
Air Quality-Highveld Priority Area	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/HIGHVELD_PRIORITY_AREA_AQMP.pdf
Strategic Gas Pipeline Corridors -Phase 8: Rompco Pipeline Corridor	https://screening.environment.gov.za/ScreeningDownloads/DevelopmentZones/Combined_GAS.pdf

Map indicating proposed development footprint within applicable development incentive, restriction, exclusion or prohibition zones



Proposed Development Area Environmental Sensitivity

The following summary of the development site environmental sensitivities is identified. Only the highest environmental sensitivity is indicated. The footprint environmental sensitivities for the proposed development footprint as identified, are indicative only and must be verified on site by a suitably qualified person before the specialist assessments identified below can be confirmed.

Theme	Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
Agriculture Theme		X		
Animal Species Theme			X	

Aquatic Biodiversity Theme	X			
Archaeological and Cultural Heritage Theme				X
Civil Aviation Theme			X	
Defence Theme				X
Paleontology Theme	X			
Plant Species Theme			X	
Terrestrial Biodiversity Theme	X			

Specialist assessments identified

Based on the selected classification, and the environmental sensitivities of the proposed development footprint, the following list of specialist assessments have been identified for inclusion in the assessment report. It is the responsibility of the EAP to confirm this list and to motivate in the assessment report, the reason for not including any of the identified specialist study including the provision of photographic evidence of the site situation.

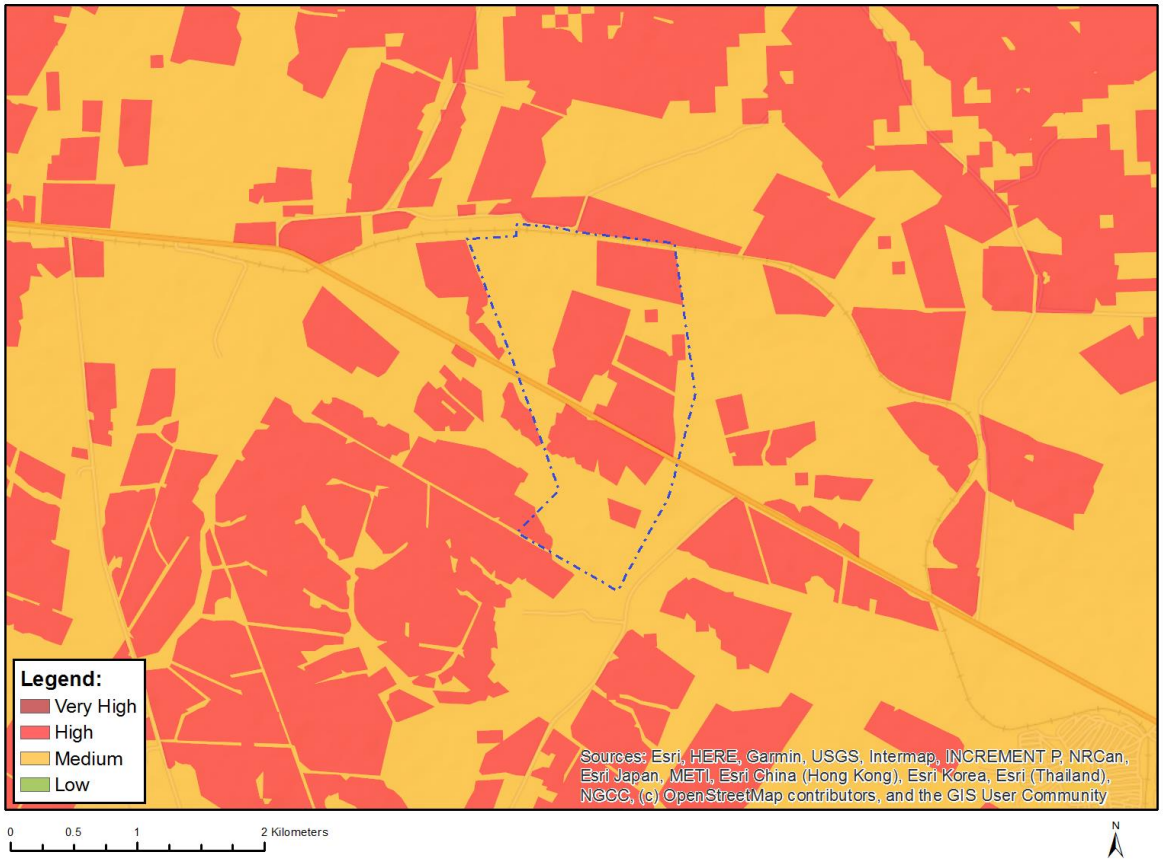
No	Specialist assessment	Assessment Protocol
1	Agricultural Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Agriculture_Assessment_Protocols.pdf
2	Landscape/Visual Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
3	Archaeological and Cultural Heritage Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
4	Palaeontology Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
5	Terrestrial Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Terrestrial_Biodiversity_Assessment_Protocols.pdf
6	Aquatic Biodiversity Impact Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Aquatic_Biodiversity_Assessment_Protocols.pdf
7	Hydrology	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols

	Assessment	/Gazetted_General_Requirement_Assessment_Protocols.pdf
8	Socio-Economic Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_General_Requirement_Assessment_Protocols.pdf
9	Plant Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Plant_Species_Assessment_Protocols.pdf
10	Animal Species Assessment	https://screening.environment.gov.za/ScreeningDownloads/AssessmentProtocols/Gazetted_Animal_Species_Assessment_Protocols.pdf

Results of the environmental sensitivity of the proposed area.

The following section represents the results of the screening for environmental sensitivity of the proposed site for relevant environmental themes associated with the project classification. It is the duty of the EAP to ensure that the environmental themes provided by the screening tool are comprehensive and complete for the project. Refer to the disclaimer.

MAP OF RELATIVE AGRICULTURE THEME SENSITIVITY

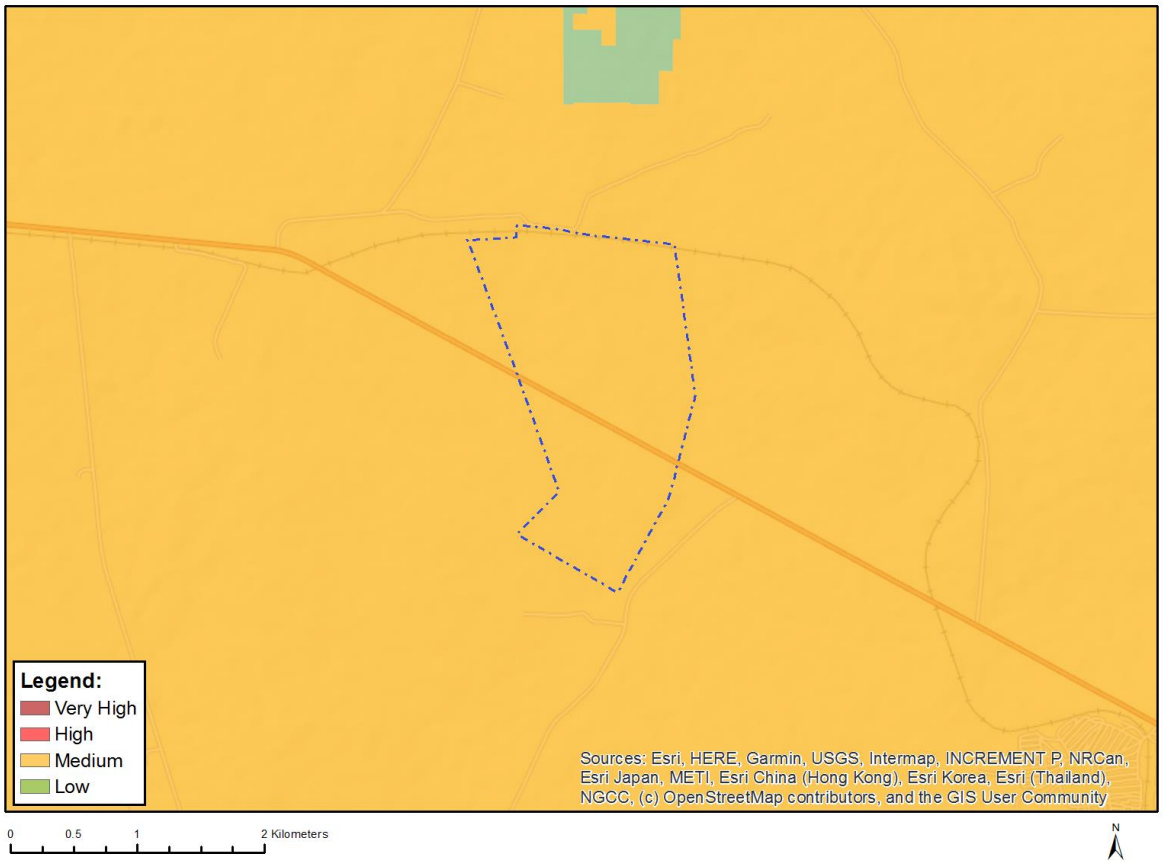


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
	X		

Sensitivity Features:

Sensitivity	Feature(s)
High	Land capability;09. Moderate-High/10. Moderate-High
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate
High	Annual Crop Cultivation / Planted Pastures Rotation;Land capability;09. Moderate-High/10. Moderate-High
Medium	Land capability;06. Low-Moderate/07. Low-Moderate/08. Moderate

MAP OF RELATIVE ANIMAL SPECIES THEME SENSITIVITY



Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Aves-Hydroprogne caspia
Medium	Aves-Eupodotis senegalensis
Medium	Aves-Tyto capensis
Medium	Insecta-Lepidochrysops procera
Medium	Mammalia-Chrysospalax villosus
Medium	Mammalia-Crocidura maquassiensis
Medium	Mammalia-Dasymys robertsii
Medium	Mammalia-Hydrictis maculicollis

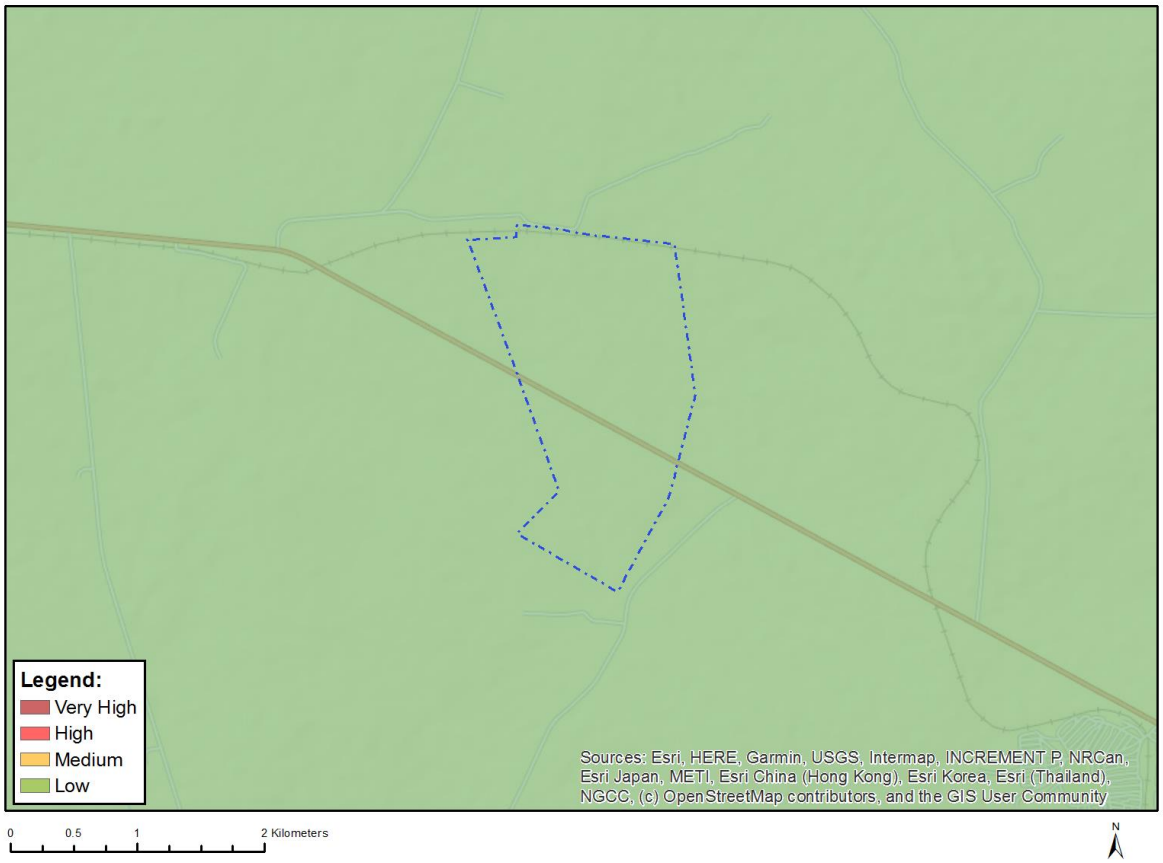
MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity
Very High	Wetlands and Estuaries

MAP OF RELATIVE ARCHAEOLOGICAL AND CULTURAL HERITAGE THEME SENSITIVITY

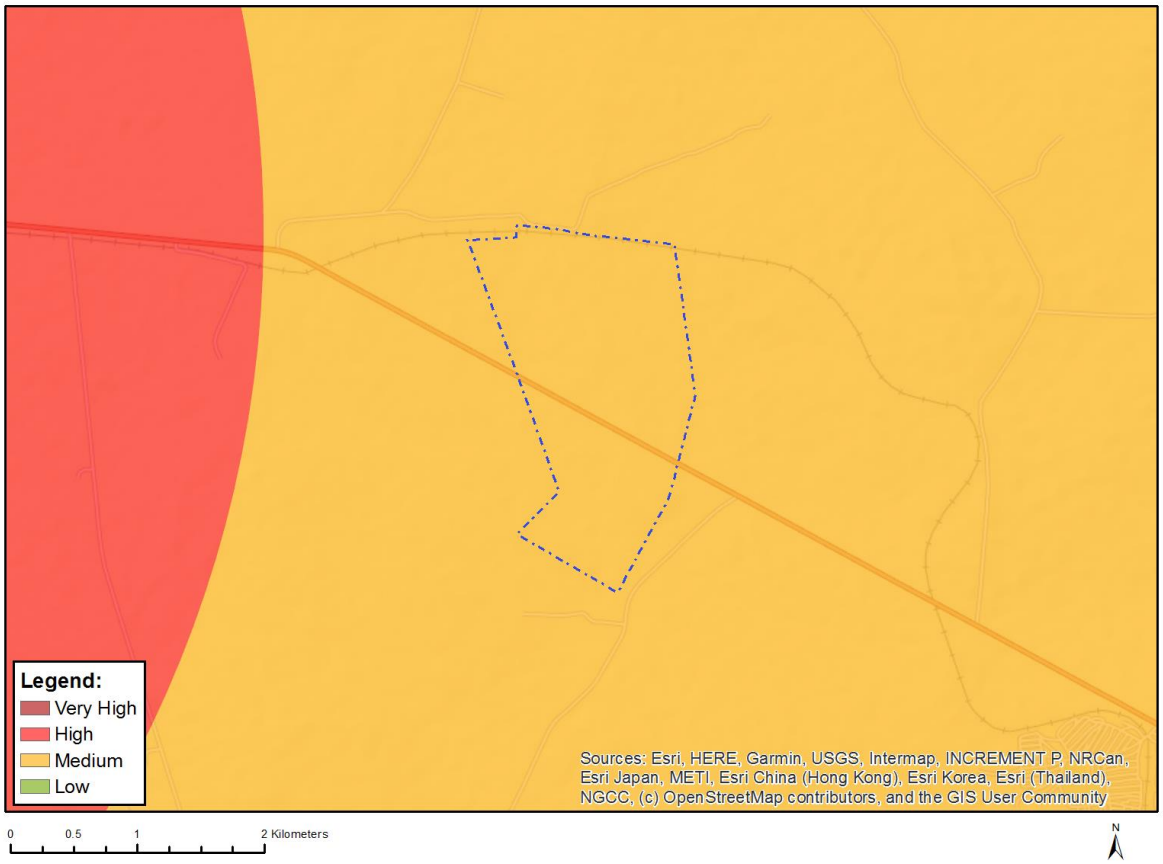


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low sensitivity

MAP OF RELATIVE CIVIL AVIATION THEME SENSITIVITY

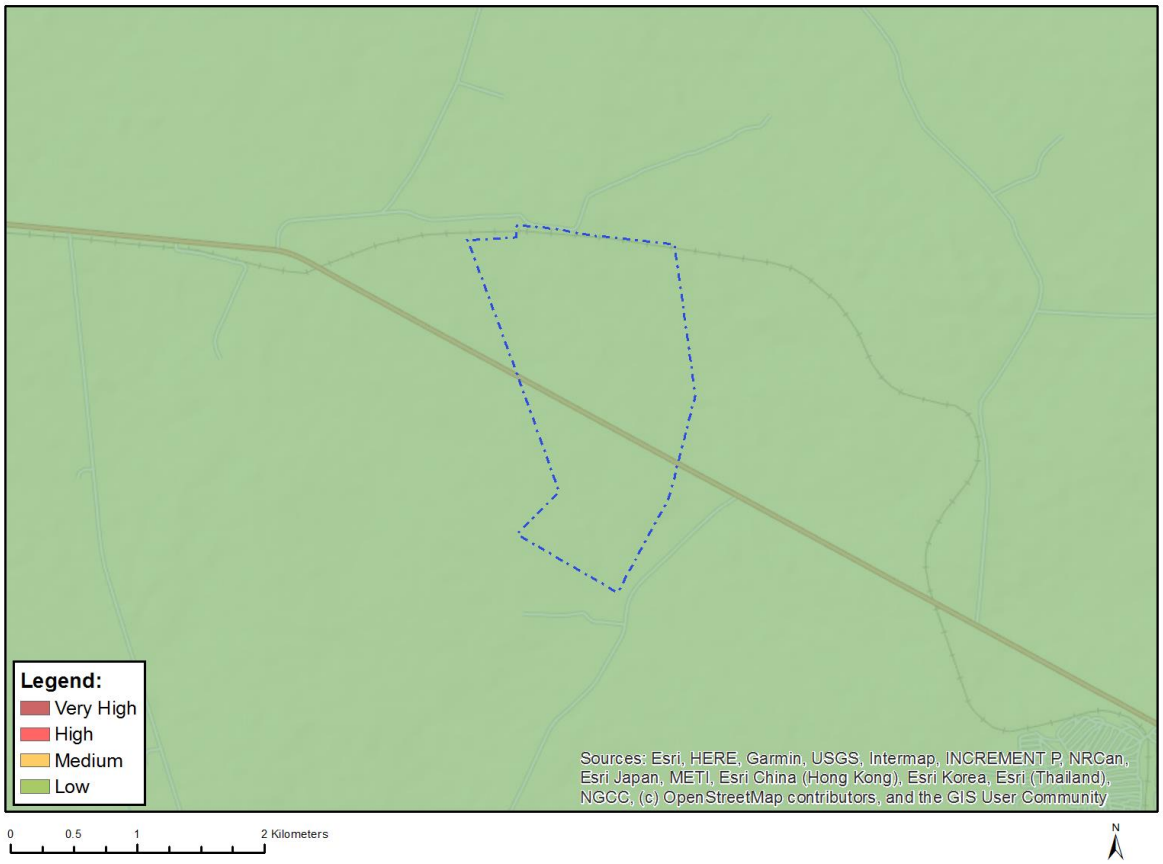


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Between 8 and 15 km of other civil aviation aerodrome

MAP OF RELATIVE DEFENCE THEME SENSITIVITY

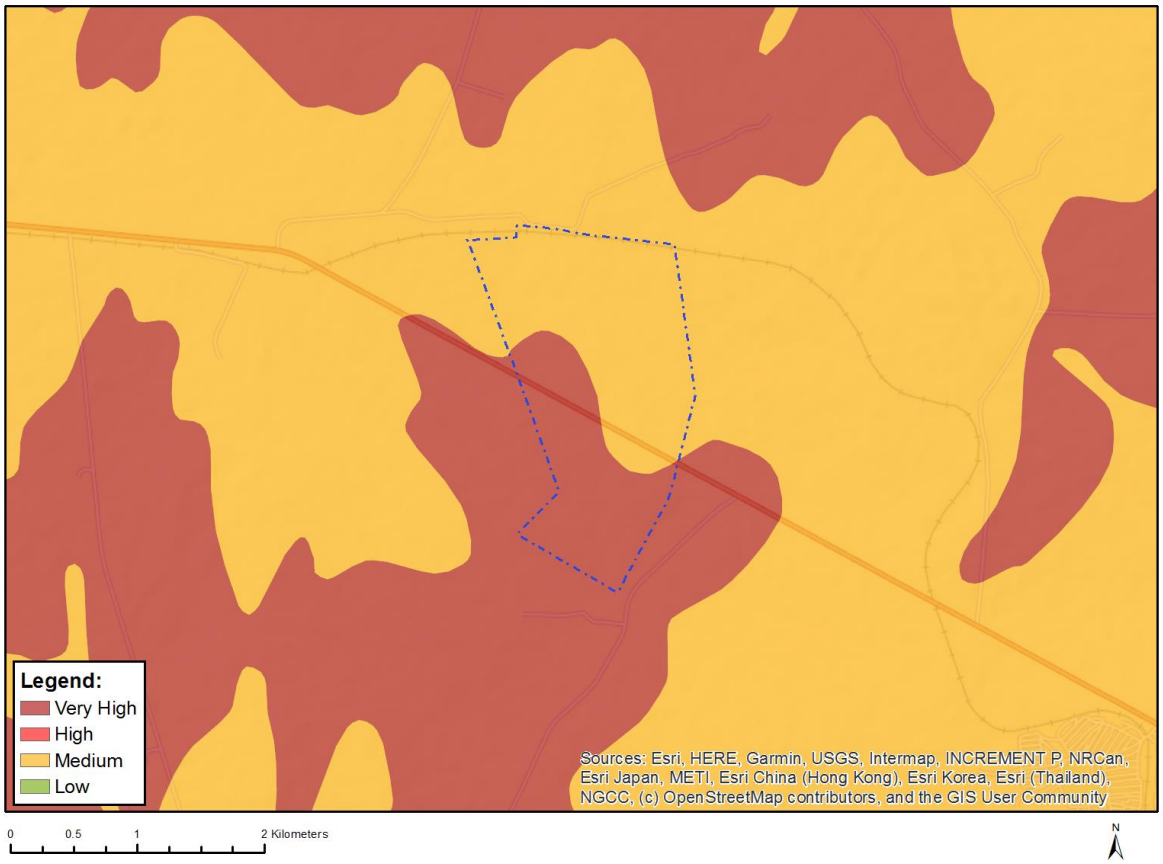


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
			X

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity

MAP OF RELATIVE PALEONTOLOGY THEME SENSITIVITY

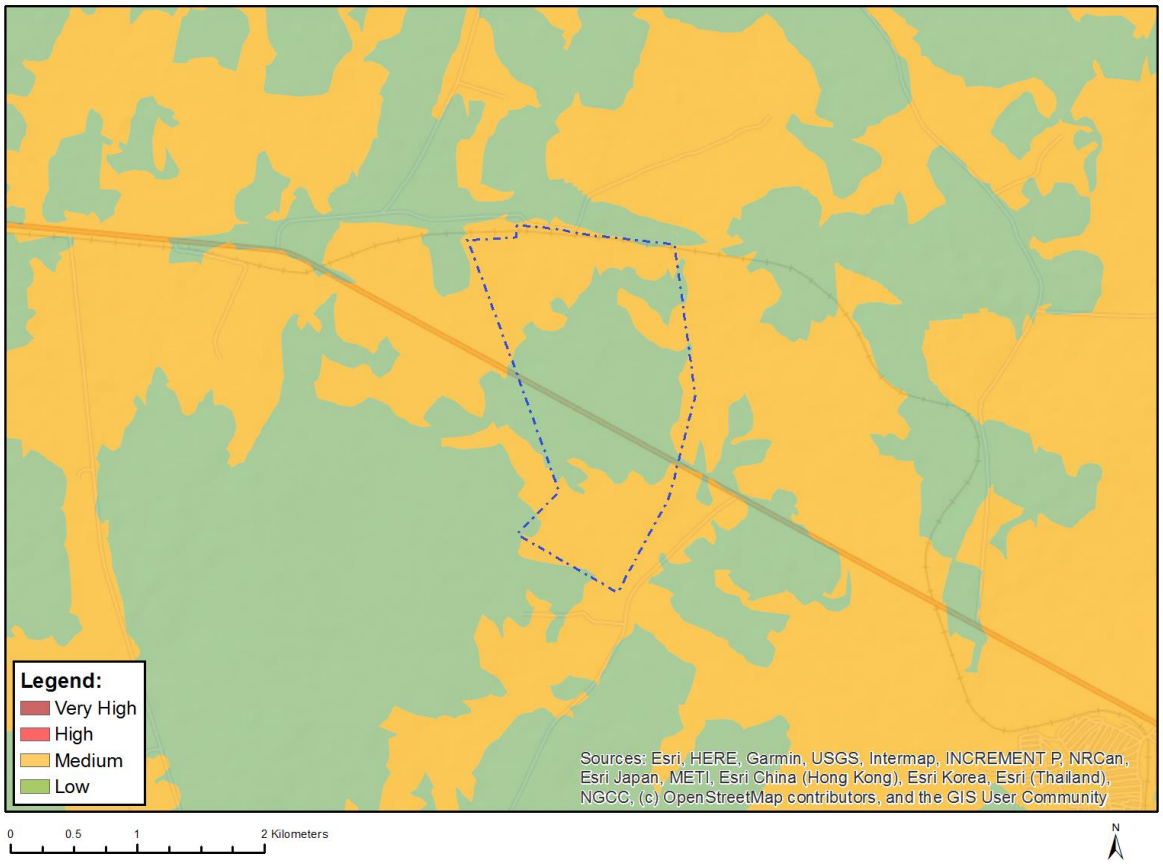


Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Medium	Features with a Medium paleontological sensitivity
Very High	Features with a Very High paleontological sensitivity

MAP OF RELATIVE PLANT SPECIES THEME SENSITIVITY



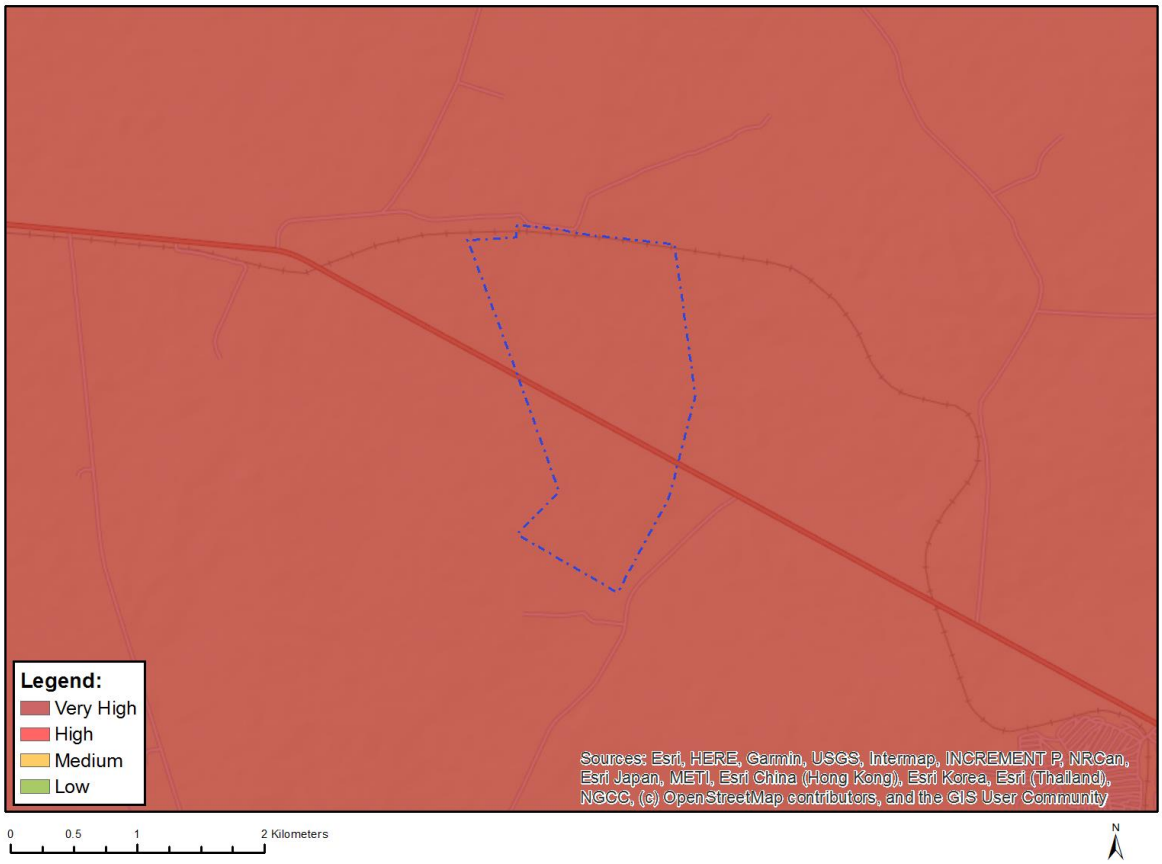
Where only a sensitive plant unique number or sensitive animal unique number is provided in the screening report and an assessment is required, the environmental assessment practitioner (EAP) or specialist is required to email SANBI at eiadatarequests@sanbi.org.za listing all sensitive species with their unique identifiers for which information is required. The name has been withheld as the species may be prone to illegal harvesting and must be protected. SANBI will release the actual species name after the details of the EAP or specialist have been documented.

Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
		X	

Sensitivity Features:

Sensitivity	Feature(s)
Low	Low Sensitivity
Medium	Sensitive species 1252
Medium	Sensitive species 691
Medium	Pachycarpus suaveolens

MAP OF RELATIVE TERRESTRIAL BIODIVERSITY THEME SENSITIVITY



Very High sensitivity	High sensitivity	Medium sensitivity	Low sensitivity
X			

Sensitivity Features:

Sensitivity	Feature(s)
Very High	Vulnerable ecosystem

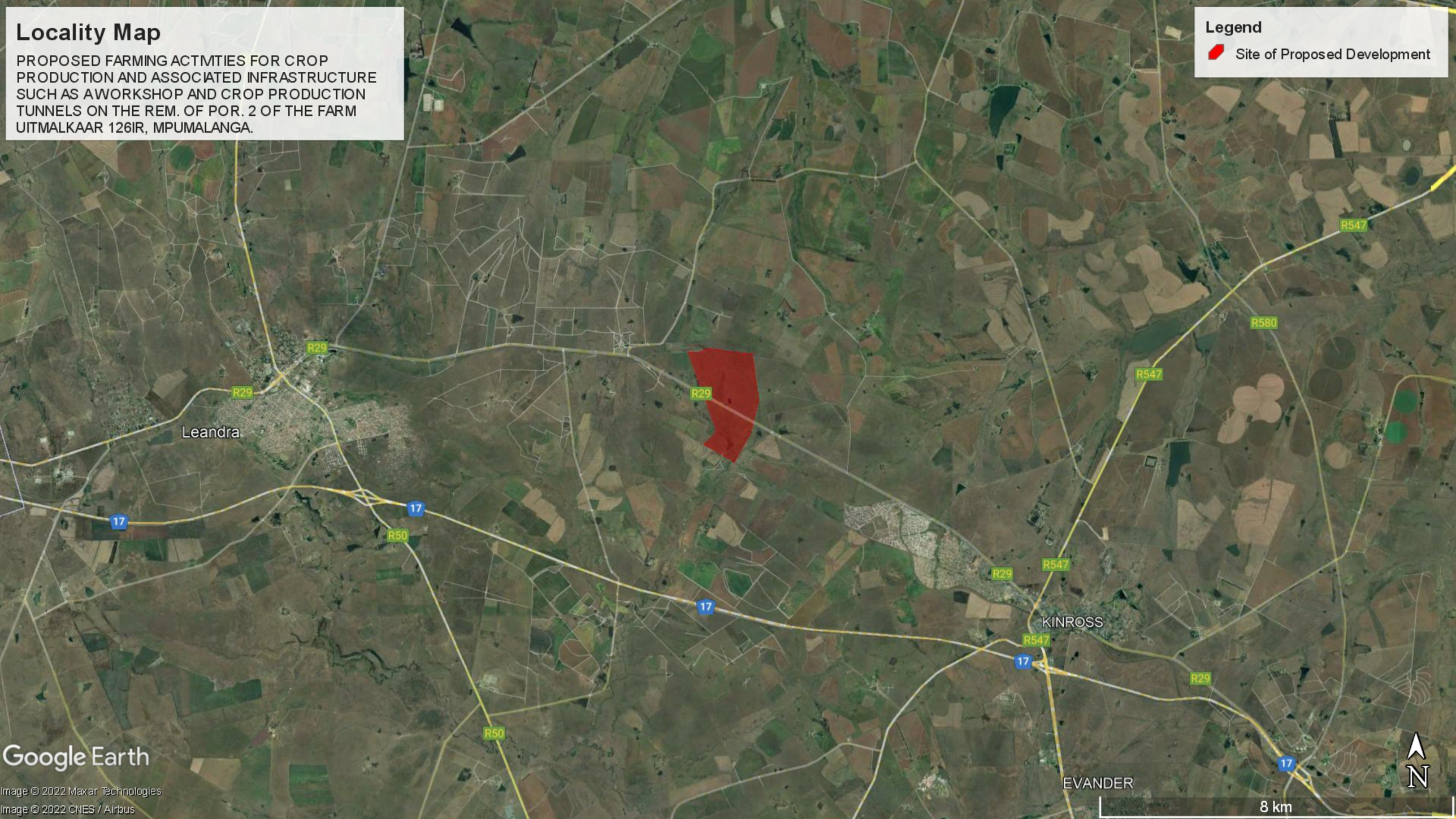
APPENDIX 3

LOCALITY MAP AND C-PLAN MAP

REC SERVICES
ENVIRONMENTAL CONSULTANTS

Locality Map

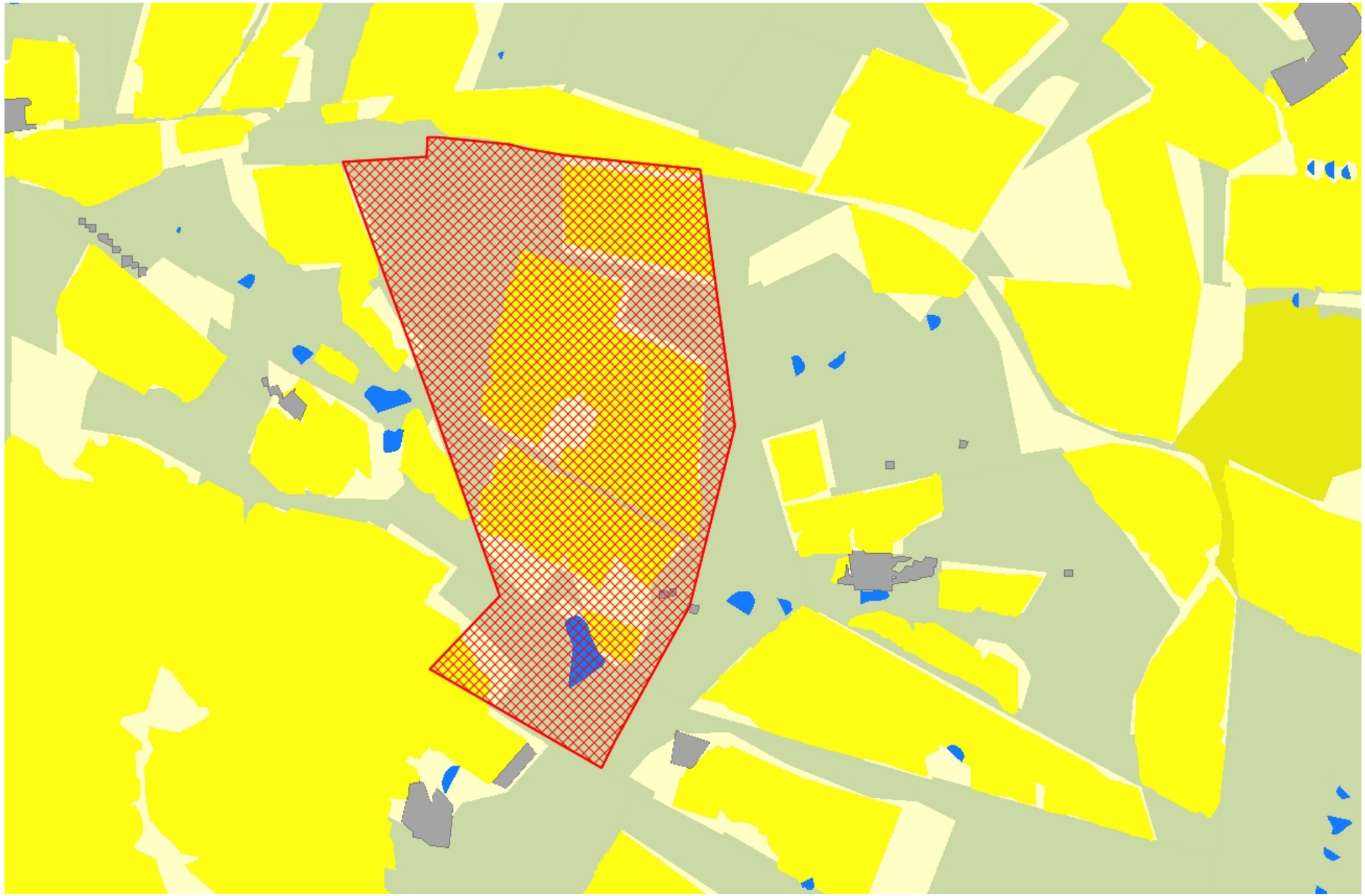
PROPOSED FARMING ACTIVITIES FOR CROP PRODUCTION AND ASSOCIATED INFRASTRUCTURE SUCH AS A WORKSHOP AND CROP PRODUCTION TUNNELS ON THE REM. OF POR. 2 OF THE FARM UITMALKAAR 126IR, MPUMALANGA.



SANBI Biodiversity for Life

BGIS Land Use Decision Support (LUDS) Tool

C-Plan Map



Description

PROPOSED FARMING ACTIVITIES FOR CROP PRODUCTION AND ASSOCIATED INFRASTRUCTURE SUCH AS A WORKSHOP AND CROP PRODUCTION TUNNELS ON THE REM. OF POR. 2 OF THE FARM UITMALKAAR 126IR, MPUMALANGA

Legend

Landcover 2010

- Afforested
- Cultivated
- Old lands
- Mining
- Old mining
- Dams
- Urban & Homesteads
- Erosion Donga

Terrestrial CBAs

- PA National Parks & Nature Reserves
- PA Protected Environment: Natural
- PA Protected Environment: Modified
- CBA Irreplaceable
- CBA Optimal
- ESA Landscape corridor
- ESA Local corridor
- ESA Species Specific
- ESA Protected Area buffer
- Other Natural Areas
- Moderately modified- Old lands
- Heavily modified
- Mpumalanga Biodiv. Conserv. Plan boundar
- South African parent farm cadaster

1: 18 056

0,9 0 0,46 0,9 Kilometers

WGS_1984_Web_Mercator_Auxiliary_Sphere

APPENDIX 4A

CONCEPTUAL LAYOUT PLAN

REC SERVICES
ENVIRONMENTAL CONSULTANTS

Reg. No.: 2020/475980/07

Zonke A Nhleko
(Owner and CEO)
Cell: 072 977 7633
Email: zonke@makwenzeke.com

Ewert Snyman
(Farm Manager)
Cell: 084 511 5811
Email: e.snyman@makwenzeke.com

November 2022

DEVELOPMENT LAYOUT AND GENERAL LAND USE PLANNING:

For the Remainder of Portion 2 of the Farm Uitmalkaar 126 IR, Kinross, Mpumalanga, 2270

SCOPE

The main scope of the project is to use the areas for crop production and other agricultural uses. The project will also include the construction of operational facilities for crop and vegetable production activities.

REFERENCE

The overall development Layout and Operational Planning for the Farm were determined with due respect to the outcome(s) of the specialist studies conducted as required and which forms part of the WULA Application.

Reference to Specialist Studies:

- *Terrestrial Biodiversity and Plant Species Assessment*
- *Wetland Assessment & Wetland Riparian Delineation*
- *Heritage and Archaeological Impact Assessment*
- *Geophysical Borehole Survey*
- *Borehole Test Results*
- *Geohydrological Assessment – Pending (Dec 2022)*

PURPOSE

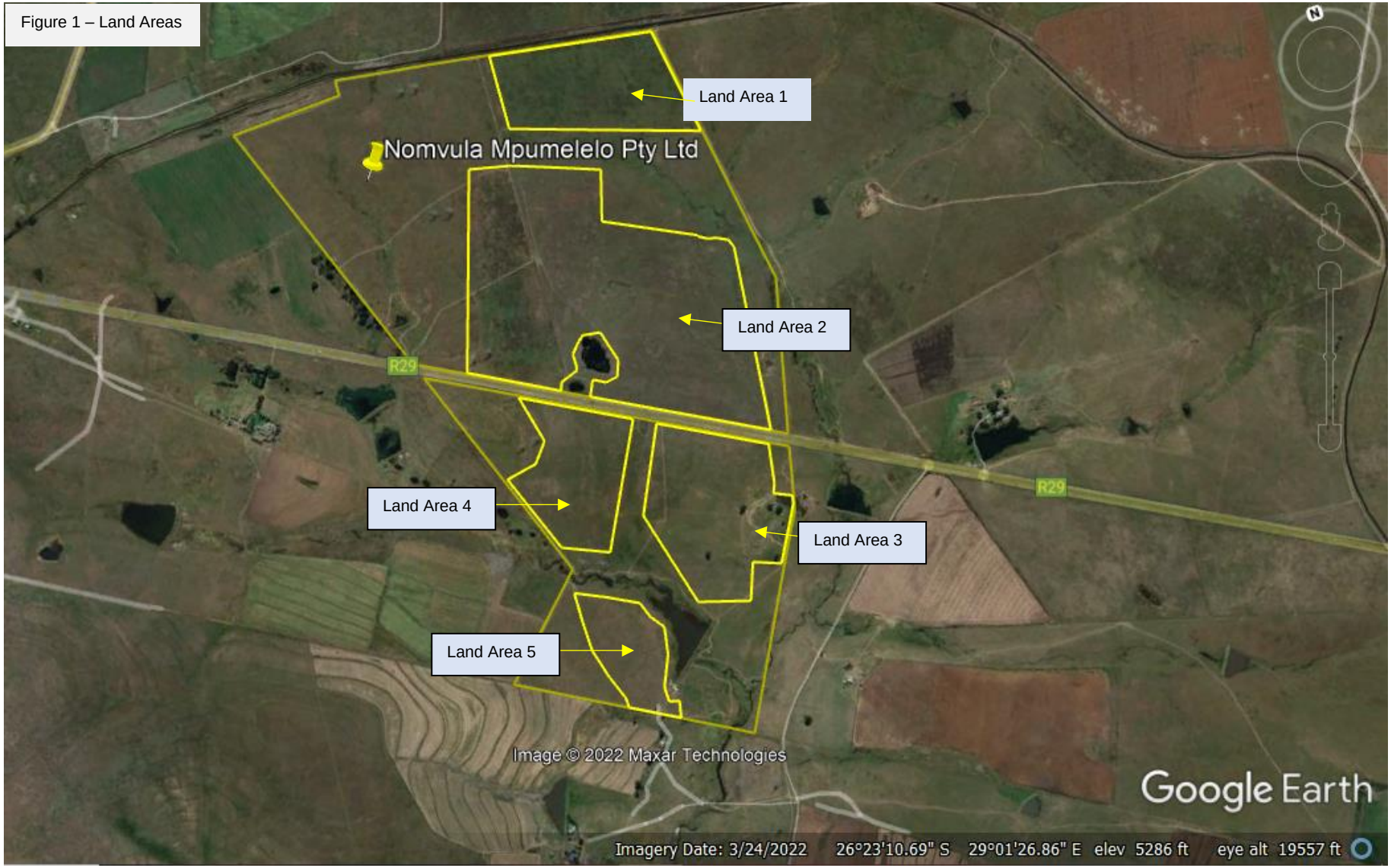
The purpose of this document is to define the areas for development and operations on the Farm.

With reference to the below 'Figures':

Figure 1 – Land Areas
Figure 2 – Land Areas vs Habitat Map
Figure 3 – Land Areas vs Sensitivity Map
Figure 4 – Development Layout (Total Farm)
Figure 5 – Development Layout (Northern Farm Portion)
Figure 6 – Development Layout (Southern Farm Portion)
Figure 7 – Development Layout (Southern F P Detailed)
Figure 8 – Development Layout (Water Use)

The following Land Areas have been determined for Primary Agriculture and related Operations:

Figure 1 – Land Areas



Reference to ''Terrestrial biodiversity and Plant species Assessment for Uitmalkaar''

The proposed Land Areas incorporated with the Habitat Map below, indicates that all agricultural and operational developments will be kept within the boundaries not to disturb Primary Vegetation, Wetlands and or Rivers. The Land Areas shall be developed in relation to its purpose and not exceeding its resource capacity i.e Agricultural Land shall be used for Agriculture respectively and Developed Areas shall be used for Operations mainly.

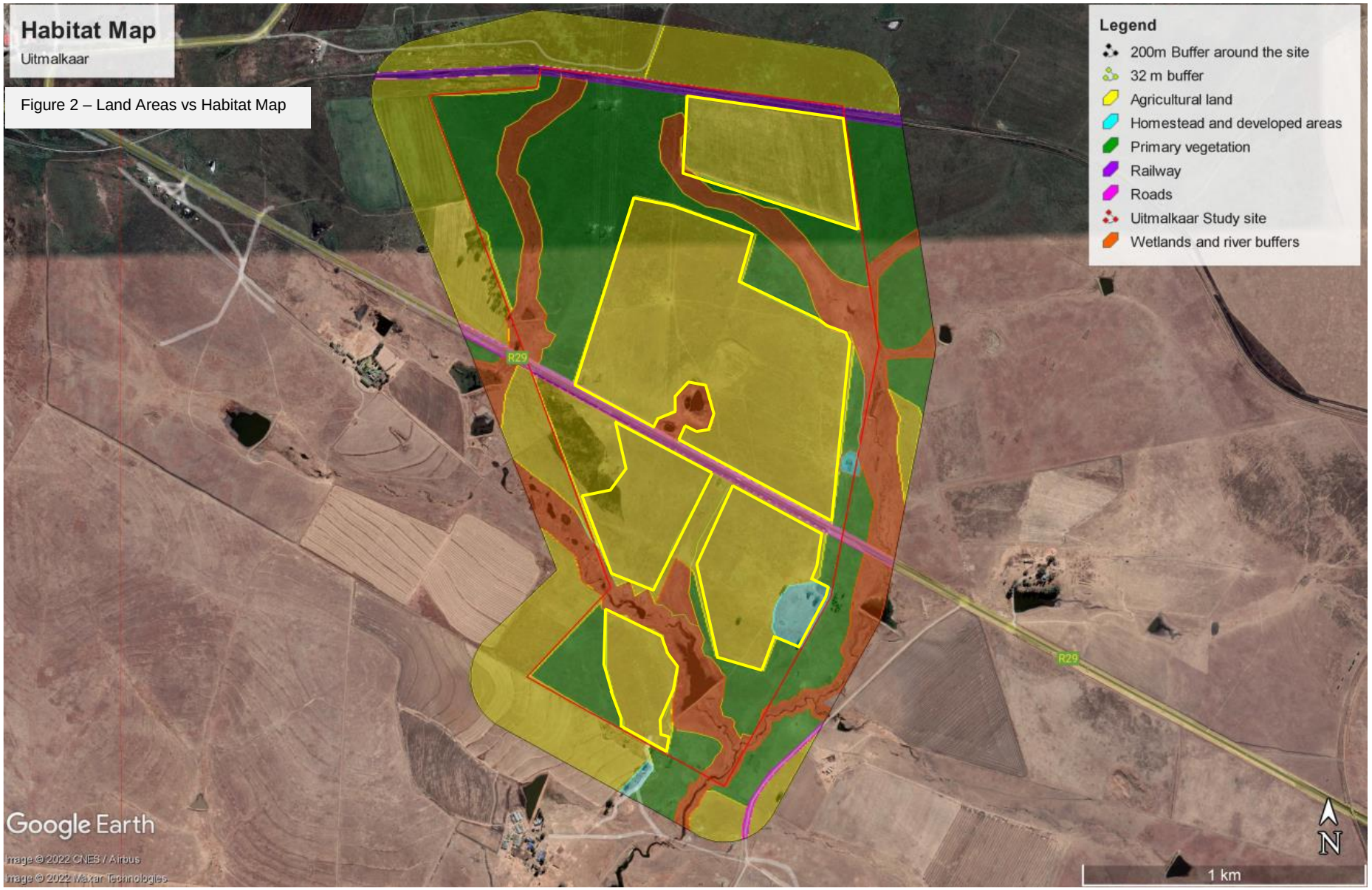


Figure 2 – Land Areas vs Habitat Map

Reference to ''Terrestrial biodiversity and Plant species Assessment for Uitmalkaar''

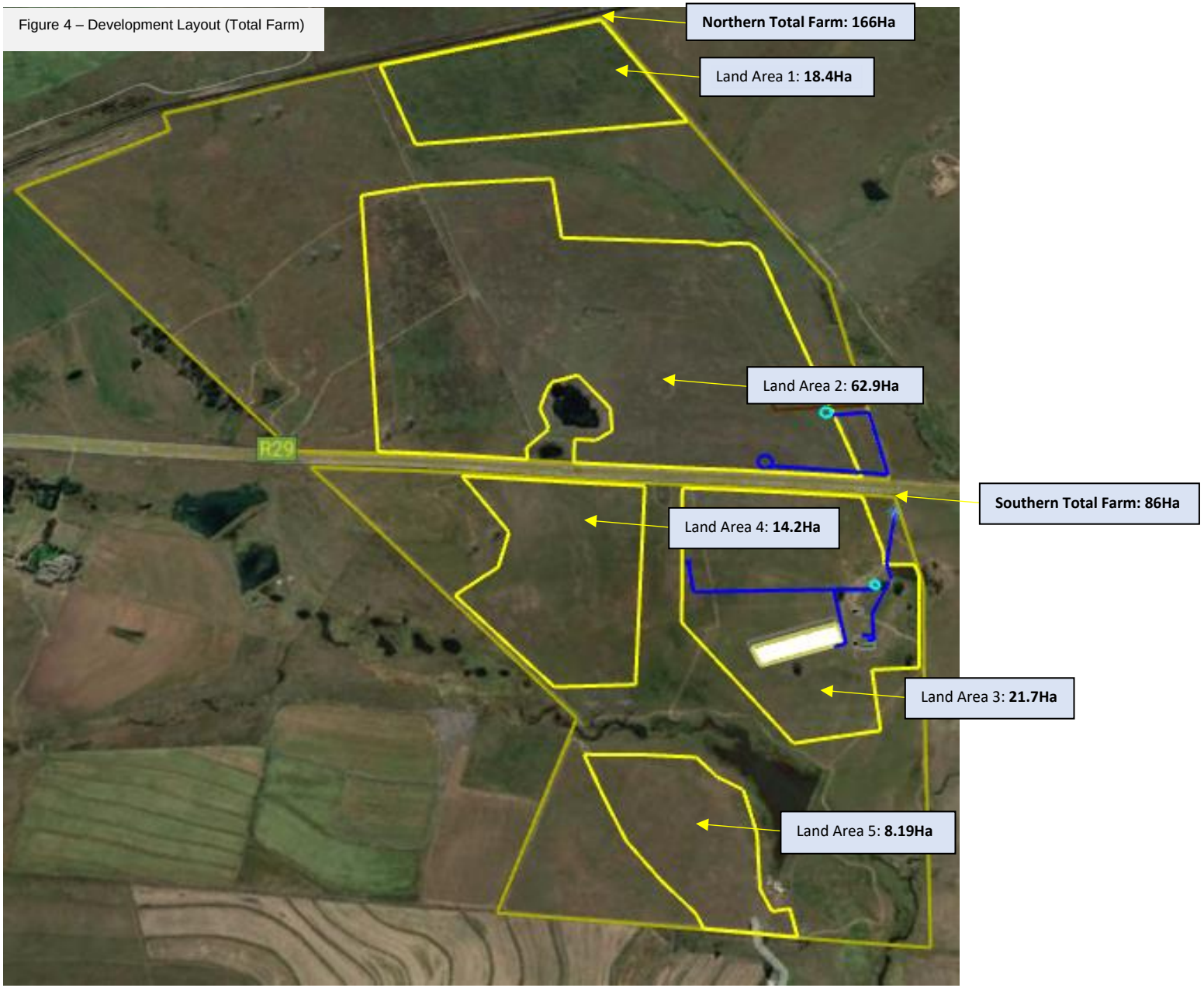
The proposed Land Areas incorporated with the Sensitivity Map below, indicates that all agricultural and operational developments will be kept within the boundaries not to affect indigenous vegetation.

Figure 3 – Land Areas vs Sensitivity Map

Development Layout (Total Farm)

The Land Areas for the proposed development on the Northern Portion of the Farm is dedicated to 81.3Ha, of which a total of 84.7Ha have been restricted from development. The Southern Farm Portion has 44.09Ha dedicated to development and a total of 41.91 has been restricted.

Figure 4 – Development Layout (Total Farm)



Development Layout ''Northern Farm Portion''

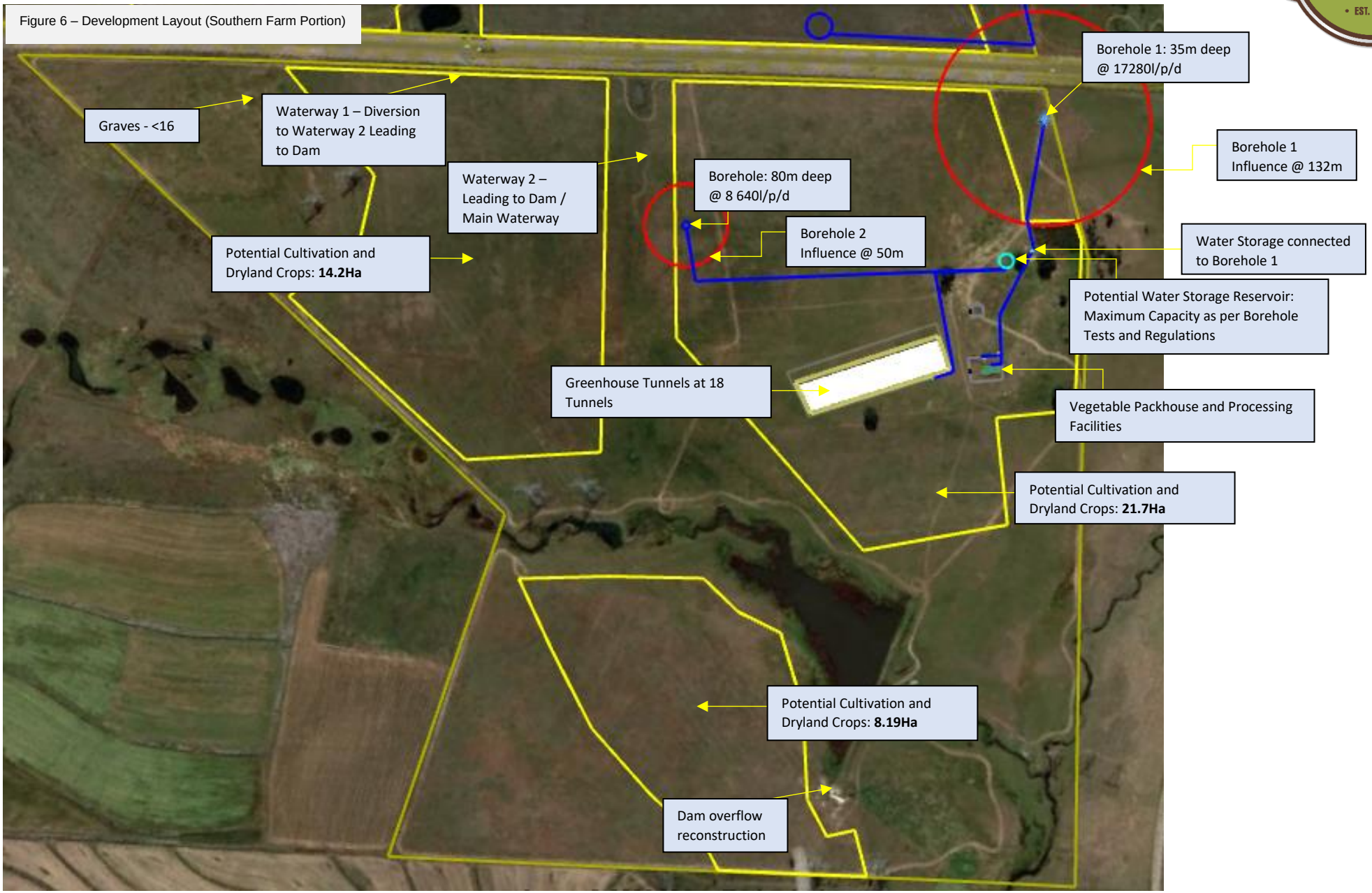
The Northern Portion shall be developed primarily for Agriculture, Livestock and Grazing. Potential Cultivation and other Agricultural Activities shall also be pursued at that stage.

Figure 5 – Development Layout (Northern Farm Portion)

Development Layout ''Southern Farm Portion''

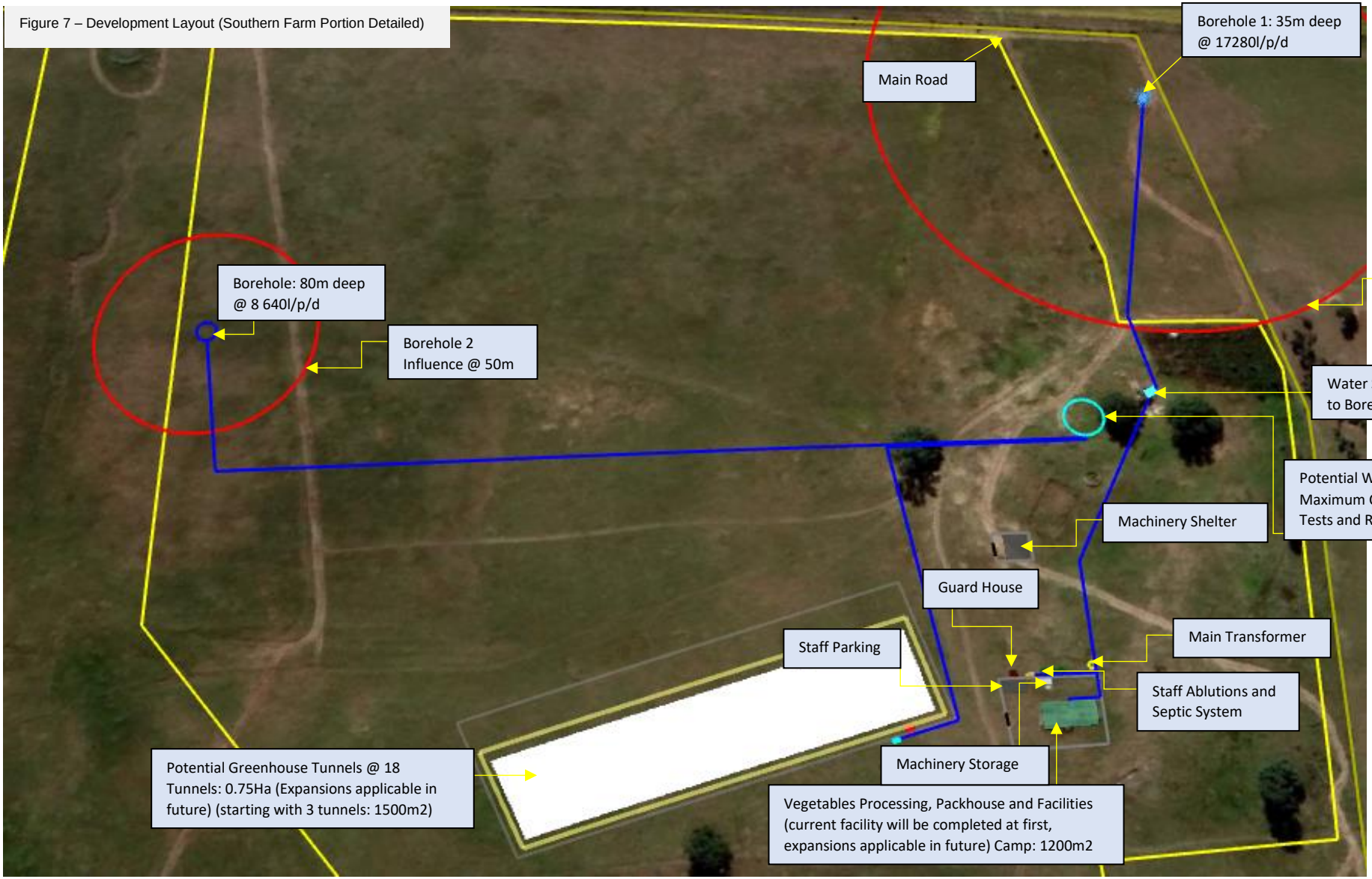
The Southern Portion shall be developed and used for Agriculture, Crops and Vegetable Cultivation. The Primary Operational Facilities shall also be constructed on the defined locations.

Figure 6 – Development Layout (Southern Farm Portion)



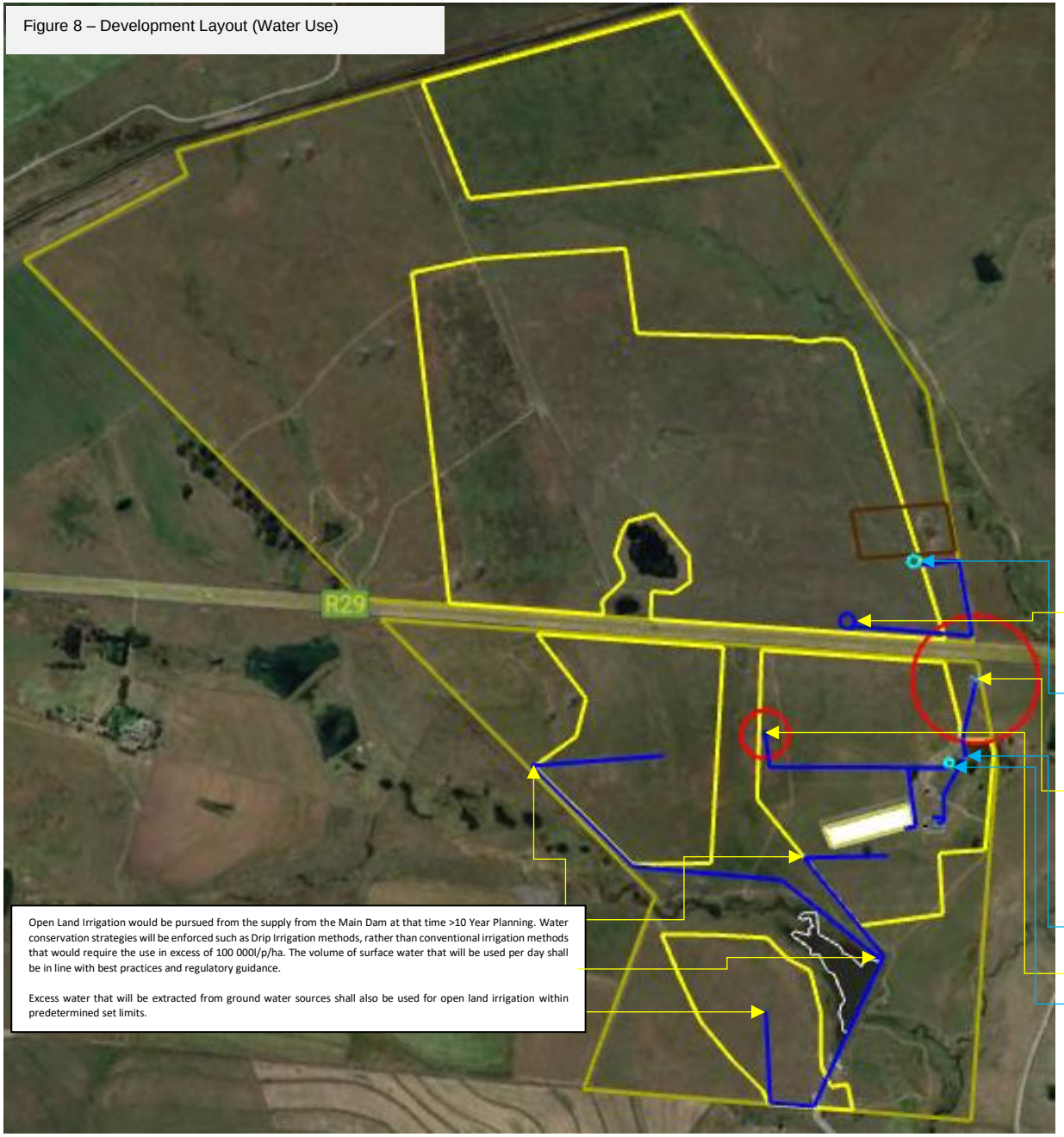
Development Layout ''Southern Farm Portion Operations - Detailed''

Figure 7 – Development Layout (Southern Farm Portion Detailed)



Development Layout ''Water Use''

Figure 8 – Development Layout (Water Use)



Open Land Irrigation would be pursued from the supply from the Main Dam at that time >10 Year Planning. Water conservation strategies will be enforced such as Drip Irrigation methods, rather than conventional irrigation methods that would require the use in excess of 100 000l/p/ha. The volume of surface water that will be used per day shall be in line with best practices and regulatory guidance.

Excess water that will be extracted from ground water sources shall also be used for open land irrigation within predetermined set limits.

NORTHERN PORTION (5-10 YEAR):

Usage:

- 7000 l/p/d - 217 000 l/p/m - 2 600 000 l/p/a

Storage:

- 50 000L (weekly use)

SOUTHERN PORTION (1-5 YEAR):

Usage:

- 15 000 l/p/d - 465 000 l/p/m - 5 500 000 l/p/a

Storage:

- 100 000L (weekly use)

SOUTHERN PORTION (<10 YEAR):

Usage:

- 66 000 l/p/d - 2 050 000 l/p/m - 24 100 000 l/p/a

Storage:

- 465 000L (total weekly use + reserve)

SOUTHERN PORTION (>10 YEAR):

Usage:

- 100 000 l/p/d - 3 100 000 l/p/m - 36 500 000 l/p/a

Storage:

- 700 000L (total weekly use)

The Borehole Target (78) will be pursued at that stage of establishment of the Northern Portion. The average carrying capacity of the natural veldt in this vicinity is ±4 ha/LSU and ±2 ha/LSU on the permanent established pastures. With 25 ha established pastures available a total of <46 LSU's will graze this land as per sustainable principles of cattle farming. Water consumption amounts to 7000 l/p/d which will be extracted from the borehole and stored within Water Storage Tanks with the capacity of 50 000L and water troughs will be filled by these tanks.

As per the Geophysical Survey (below), other borehole Targets (92,99,120) will also be pursued should additional water be required for 'possible' expansion of the Crops Cultivation operations conducted on the Southern Portion, which will result in the need for additional Water Storage. With this said, the water use limits will be honored to ensure sustainability and compliance with the Water Use requirements, the overall possibilities for operations and also the scale of such operations will be limited to the water availability within the said area.

The Borehole (Windmill) was recently tested with a supply of 1440l/h. An additional submersible pump will be installed to enable constant water supply to the Water Storage Tanks. These Water Storage Tanks will supply water to the Facilities, Packhouse and Facilities and Initial Cultivation Tunnels. The Water Storage Tanks and Water Supply / Use per area shall be as follows:

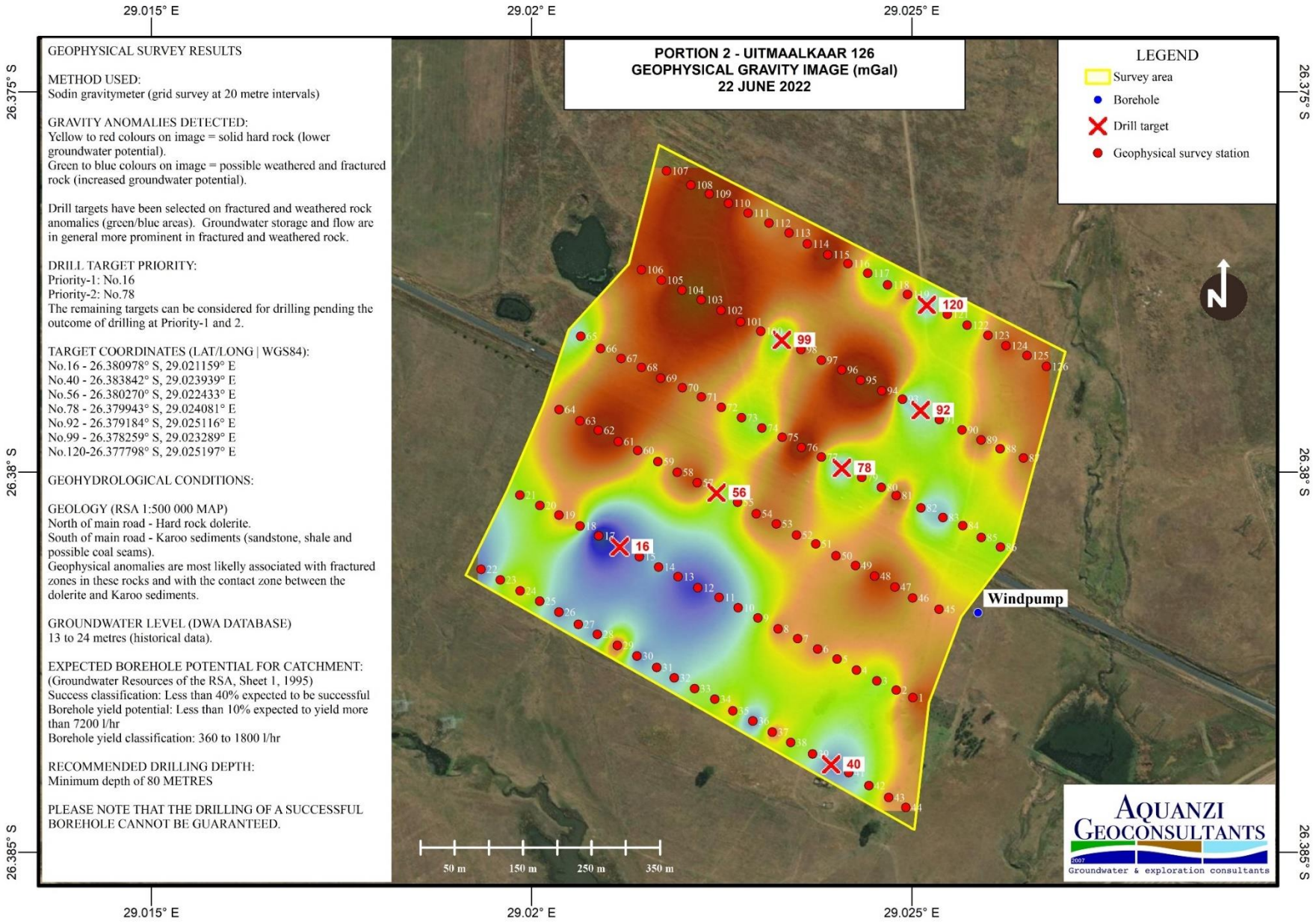
- 10 x 10 000L Storage Tanks supplying the Tunnels, of which 9000L will be actively used each day.
- An additional 5000L Tank will be installed at the tunnels that will be filled by the 10 x 10 000L tanks;
- 1 x 10 000L Tank supplying the Packhouse facility, of which a maximum of 2000L will be actively used each day.
- 1 x 5000L Tank which will be used as spare / fire emergency.

This amounts to 100 000L Water Storage and 11 000 – 15 000 max Liters of Water use per day 1-<5 Year Planning. At maximum, 15 000L of water will be extracted from this borehole p/d.

Borehole 16 shall support the initial supply demand 1-<5 Year Planning. The borehole was recently tested and supplies 720l/h / 8 640l/p/d.

At 3000L of water needed per tunnel, future expansions @ 18 Tunnels >10 Year Planning, will require a water use of 54 000 l/p/d. This will require a water Storage (reservoir) at the capacity of minimum 465 000L. Borehole Targets (40,56) will be pursued for additional water abstraction supply to this reservoir. Should the additional borehole(s) supply capacities not support the needed water supply to the reservoir, additional areas will be surveyed for other potential borehole targets. Assumption is that these boreholes should also supply +- 1000 l/p/h.

Reference to ''Geophysical Survey''



Development Concept

TUNNELS / MULTISPAN TUNNELS CONCEPT

TUNNELS LAYOUT CONCEPT

TUNNELS CULTIVATION / DRIP IRRIGATION CONCEPT

OPEN LAND VEGETABLE CULTIVATION CONCEPT

OPEN LAND VEGETABLE CULTIVATION / DRIP IRRIGATION EXAMPLE

PACKHOUSE EXAMPLE 240m2

PACKHOUSE OPERATIONS / WASHING / SORTING / PACKAGING AND STORAGE

APPENDIX 4B

SITE PHOTOS

REC SERVICES
ENVIRONMENTAL CONSULTANTS

SITE PHOTOS OF SITE AND ITS SURROUNDS

Map where photos were taken:

Site photos were taken in the southern part of the property. Site photos of the northern half of the property will be included in the final Scoping Report.

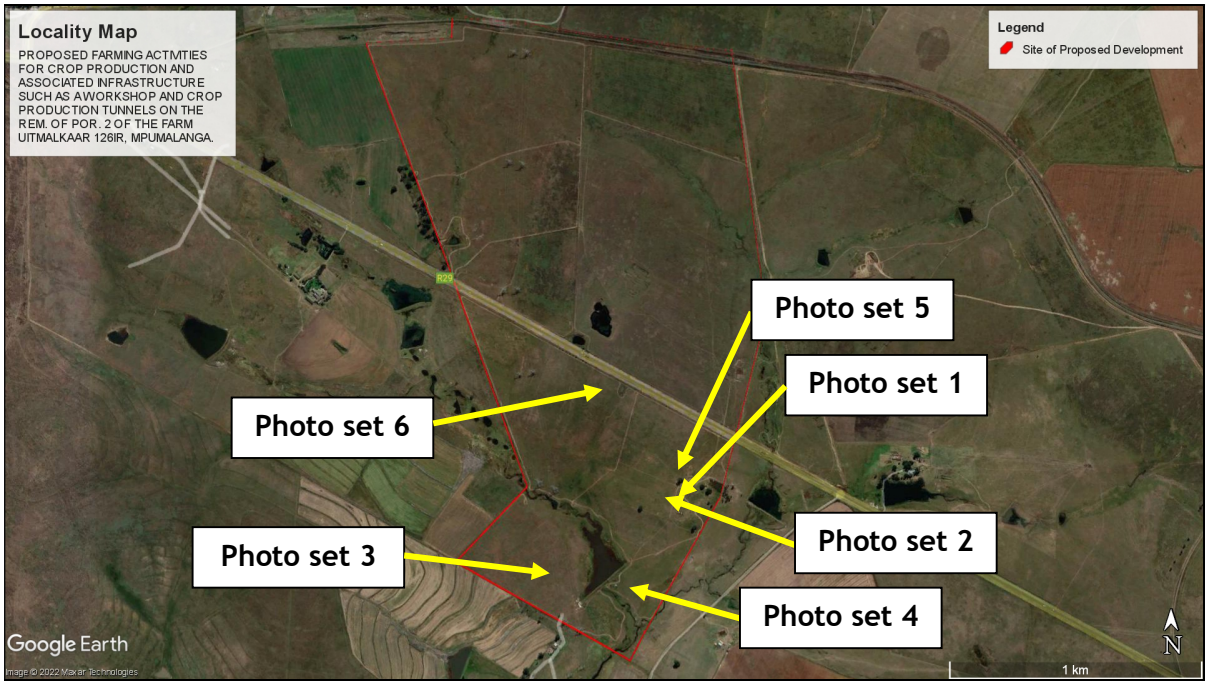


Photo set 1:

View to the Northeast

View to the East