

**DRAFT SCOPING REPORT**

**PROPOSED AGRICULTURAL  
CULTIVATION**



**ON THE REMAINDER OF THE FARM  
DOORNHOEK 451-KT,  
GREATER TUBATSE FETAKGOMO  
LOCAL MUNICIPALITY**

**ENVIRONMENTAL INVESTIGATION IN TERMS OF THE  
NATIONAL ENVIRONMENTAL MANAGEMENT ACT  
1998**

**SUBMITTED TO THE DEPARTMENT OF ECONOMIC  
DEVELOPMENT ENVIRONMENT & TOURISM  
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**OCTOBER 2021**

**DRAFT SCOPING REPORT FOR  
THE PROPOSED CULTIVATION  
ON THE REMAINDER OF THE FARM DOORNHOEK 451-KT  
GREATER TUBATSE FETAKGOMO LOCAL MUNICIPALITY**

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## (i) ACRONYMS & DEFINITIONS

The following definitions apply to this report in line with the relevant Acts and Regulations.

Phrase	Definition Description	Ref
Activity	An activity identified in any notice published by the Minister or MEC in terms of section 24D(1)(a) of the Act as a listed activity or specified activity.	NEMA
Baseline information/data	Information derived from data which; records the existing elements and trends in a given environment; records the characteristics of a given project proposal.	IEMGS
Biophysical environment	That part of the environment that did not originate with and is not dependent on human activities (e.g. biological, physical and chemical objects and processes).	IEMGS
Buffer area	means, unless specifically defined, an area extending 10 kilometres from the proclaimed boundary of a world heritage site or national park and 5 kilometres from the proclaimed boundary of a nature reserve, respectively, or that defined as such for a biosphere.	NEMA
Channel	An excavated hollow bed for running water.	NEMA
Climate Change	This means a change of climate that is attributed directly or indirectly to human activity that alters the composition of the global atmosphere and that is in addition to natural climate variability observed over comparable time periods.	DEA
Climate Change Vulnerability Assessment	<i>"Vulnerability to climate change is the degree to which geophysical, biological and socio-economic systems are susceptible to and unable to cope with, adverse impacts of climate change".</i> A vulnerability assessment lets you identify these adverse impacts of climate change that are most important to an area.	SDM CCVRP
Construction	According to the regulations this term is defined as – “the building, erection or expansion of a facility, structure or infrastructure that is necessary for the undertaking of activity but excludes any modification, alteration or upgrading of such facility, structure or infrastructure which does not result in a change to the nature of the activity being undertaken or an increase of the production, storage or transportation capacity of that facility, structure or infrastructure.	NEMA
Cumulative impact	In relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities.	NEMA
Development	Means the building, erection, construction or establishment of a facility, structure or infrastructure, including associated earthworks or borrow pits, that is necessary for the undertaking of a listed or specified activity but excludes any modification, alteration or expansion of such a facility, structure or infrastructure, including associated earthworks or borrow pits, and excluding the redevelopment of the same facility in the same location, with the same capacity and footprint.	NEMA
Development footprint (“Site”)	This means any evidence of physical alteration as a result of the undertaking of any listed activity.	NEMA
Ecosystem	Means a system of relationships between animals and plants and their environment.	DEA
Environment	The external circumstances, conditions and objects affect the existence and development of an individual, organism or group. These circumstances include biophysical, social, economic, historic, cultural and political aspects.	IEMGS
General waste	Is waste that does not pose an immediate threat to man or the environment, i.e. household and garden waste, builders’ rubble and some dry industrial and business waste? It may, however, with decomposition and rain infiltration, produce leachate, which is unacceptable.	NEMWA
Hazardous waste	Is waste containing or contaminated by poison, corrosive agents, flammable or explosive substances, chemicals or any other substance which may pose detrimental or chronic impacts on human health and the environment.	NEMWA
Land	Any erf, agricultural holding or farm portion, and includes any improvement or building on the land and any real right in land.	SPLUMA
Land development	The erection of buildings or structures on land, or the change of use of land, including township establishment, the subdivision or consolidation of land or any deviation from the	SPLUMA

	land use or uses permitted in terms of an applicable land use scheme.	
Land use	The purpose for which land is or may be used lawfully in terms of a land use scheme, existing scheme or in terms of any other authorisation, permit or consent issued by a competent authority, and includes any conditions related to such land use purposes.	SPLUMA
Land use management system	The system of regulating and managing land use and conferring land use rights through the use of schemes and land development procedures.	SPLUMA
Linear activity	An activity that is arranged in or extending along with one or more properties and which affects the environment or any aspect of the environment along the course of the activity, and includes railways, roads, canals, channels, funiculars, pipelines, conveyor belts, cableways, power lines, fences, runways, aircraft landing strips, firebreaks and telecommunication lines.	NEMA
Mitigate	The implementation of practical measures to reduce adverse impacts or enhance beneficial impacts of an action.	IEMGS
Project area	Refers to the application property and the combined area or development footprint of the selected sites.	SPLUMA
Riparian habitat	The physical structure and associated vegetation of the areas associated with a watercourse are commonly characterised by alluvial soils, and which are inundated or flooded to an extent and with a frequency sufficient to support vegetation of species with composition and physical structure distinct from those of adjacent land areas.	NWA
Run-off water	Excess surface water resulting from rain.	CARA
Servitude	Means a servitude registered against a title deed of land.	SPLUMA
Significant impact	An impact that may have a notable effect on one or more aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence.	NEMA
Sustainable development	NEMA defines it as "Sustainable development means the integration of social, economic and environmental factors into planning, implementation and decision-making to ensure that development serves present and future generations." According to the NEMP "Sustainable development requires the consideration of all relevant factors including the following: (i) That the disturbance of ecosystems and loss of biological diversity are avoided, or where they cannot be altogether avoided, are minimised and remedied; (ii) that pollution and degradation of the environment are avoided, or, where they cannot be altogether avoided, are minimised and remedied; (iii) that the disturbance of landscapes and sites that constitute the nation's cultural heritage is avoided, or where it cannot be altogether avoided, is minimised and remedied; (iv) that waste is avoided, or where it cannot be altogether avoided, minimised and reused or recycled where possible and otherwise disposed of in a responsible manner; (v) that the use and exploitation of non-renewable natural resources is responsible and equitable, and takes into account the consequences of the depletion of the resource; (vi) that the development, use and exploitation of renewable resources and the ecosystems of which they are part do not exceed the level beyond which their integrity is jeopardised; (vii) that a risk-averse and cautious approach is applied, which takes into account the limits of current knowledge about the consequences of decisions and actions; and of current knowledge about the consequences of decisions and actions; and (viii) that negative impacts on the environment and on people's environmental rights be anticipated and prevented, and where they cannot be altogether prevented, are minimised and remedied".	NEMA
Waste	Any undesirable or superfluous by-product, emission, residue or remainder of any process or activity, any matter, gaseous, liquid or solid, or any combination thereof." The formal classification of waste is made according to the human health or environmental risk that it may pose, and consequently requirements for safe handling and disposal.	NEMWA
Wastewater	Any water whose pristine or potable quality has been altered by domestic, industrial or other use or process.	DWA
Watercourse	Is a) a river or spring; (b) a natural channel in which water flows regularly or intermittently; (c)	NWA

	a wetland, pan, lake or dam into which, or from which, water flows; and any collection of water which the Minister may, by notice in the Gazette, declare to be a watercourse as defined in the National Water Act, 1998.	
Waterway	An artificial flow path is constructed on land to carry away run-off water without causing excessive soil loss.	CARA
Zone	A defined category of land use is shown on the zoning map of a land use scheme.	SPLUMA

The following Acronyms apply to this report in line with the relevant Acts and Regulations.

Acronym	Description
APAP	Agricultural Policy Action Plan
APVC	Annual Precipitation Variation Coefficient
ASTER GDEM	A Global Digital Elevation Model (GDEM), acquired by a satellite-borne sensor "ASTER".
CARA	Conservation of Agricultural Resources Act, 1983 (Act 43 of 1983)
CBA	Critical Biodiversity Area (a biodiversity classification)
CBR	Critical Biodiversity River
CBW	Critical Biodiversity Wetlands
CSIR	The Council for Scientific and Industrial Research
DAFF	Department of Agriculture, Forestry and Fisheries
DE	Department of Energy
DEA	Department of Environmental Affairs
DTI	Department of Trade and Industry
DWA	Department of Water Affairs
DWS	Department of Water & Sanitation
EAP	Environmental Assessment Practitioner
ECO	Environmental Control Officer
EIA	Environmental Impact Assessment
EIR	Environmental Impact Report
EMF	Environmental Management Framework
EMPr	Environmental Management Program report
ERSDAC	Earth Remote Sensing Data Analysis Centre is an implementing agency for the ASTER Science Project.
ESA	Ecological Support Area (a biodiversity classification)
FEPA	Freshwater Ecosystem Priority Assessment
FTLM	Fetakgomo Tubatse Local Municipality
GIS	Geographic Information System
GIS	Geographic Information Systems
GN R	Government Notice Regulation
GVAP	Gross Value Added Product
IDP	Integrated Development Plan
IEMGS	Integrated Environmental Management Guideline Series
IPAP	Industrial Policy Action Plan
LEDET	Limpopo Economic Development, Environment and Tourism
LNCA	Limpopo Nature Conservation Act, 1998 (Act 117 of 1998)
LTA	Limpopo Tourism Agency
LUMS	Land Use Management Scheme (municipal)
MAP	<i>Mean Annual Precipitation</i>
MASMS	Mean Annual Soil Moisture Stress
MAT	Mean Annual Temperature
MFD	Mean Annual Frost Days
NDP	National Development Plan
NEMA	National Environmental Management Act, 1998 (Act 107 of 1998)
NEMAQA	National Environment Management: Air Quality Act, 2004 (Act 39 of 2004)
NEMBA	National Environmental Management: Biodiversity Act, 2004 (Act 10 of 2004)

NEMPAA	National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003)
NEMWA	National Environmental Management: Protected Areas Act, 2003 (Act 57 of 2003)
NFA	National Forests Act, 1998 (Act 84 of 1998)
NFEPA	National Freshwater Ecosystem Priority Assessment
NGP	New Growth Path
NHRA	National Heritage Resource Act, 1999 (Act 25 of 1999)
NNR	No Natural Habitat Remaining
NPAES	National Protected Area Expansion Strategy
NWA	National Water Act, 1998 (Act 36 of 1998)
OLRCA	Olifants and Letaba Rivers Catchment Areas
ONA	Other Natural Areas (a biodiversity classification)
PA	Protected Area
PES	Present Ecological State
PyA	Property Alternative
RCIA	Rapid Cumulative Impact Assessment
SA	South Africa
SAACA	South African Atlas for Climatology and Agro-hydrology
SAHRA	South African Heritage Resources Agency
SANS	South African National Standard
SDF	Spatial Development Framework (municipal)
SDM	Sekhukhune District Municipality
SPLUMA	Spatial Planning Land Use Management Application
SSA	Statistics South Africa
VAC	Visual Absorption Capacity
VESC	Valued Environmental and Social Components
VU	Vulnerable Ecosystem

## (ii) SCOPING OBJECTIVES, PROCESS & PRELIMINARY FINDINGS

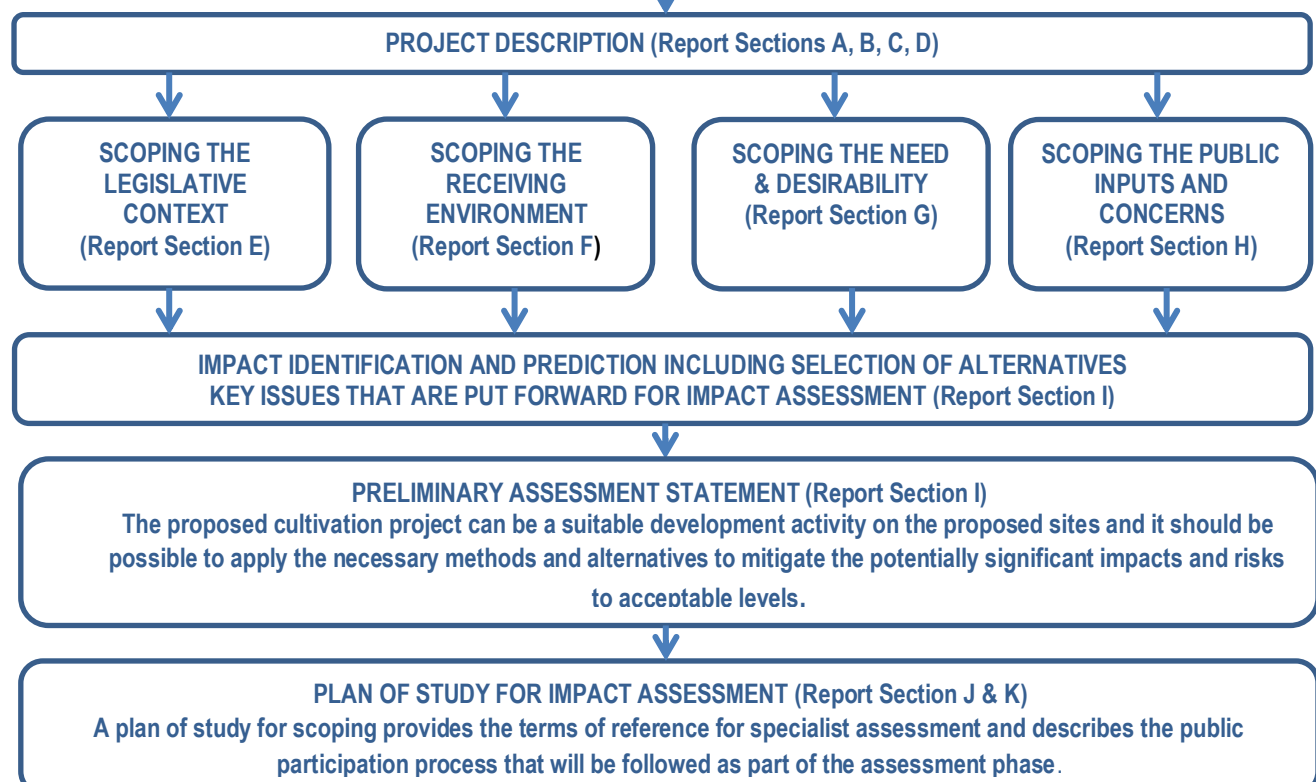
An environmental scoping and environmental impact assessment process has been initiated in terms of EIA Regulation GNR 326 of 7 April 2017 for the proposed agricultural cultivation development on the Remainder of the farm Doornhoek 415-KT in the Fetakgomo Tubatse Local Municipal Area.

### OBJECTIVES OF ENVIRONMENTAL SCOPING

The objective of the scoping process is to, through a consultative process—

- (a) identify the relevant policies and legislation relevant to the activity;
- (b) motivate the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the preferred location;
- (c) identify and confirm the preferred activity and technology alternative through an identification of impacts and risks and ranking process of such impacts and risks;
- (d) identify and confirm the preferred site, through a detailed site selection process, which includes an identification of impacts and risks inclusive of identification of cumulative impacts and a ranking process of all the identified alternatives focusing on the geographical, physical, biological, social, economic, and cultural aspects of the environment; and
- (e) identify the key issues to be addressed in the assessment phase:
  - agree on the level of assessment to be undertaken, including the methodology to be applied, the expertise required as well as the extent of further consultation to be undertaken to determine the impacts and risks the activity will impose on the preferred site through the life of the activity, including the nature, significance, consequence, extent, duration and probability of the impacts to inform the location of the development footprint within the preferred site.
  - identify suitable measures to avoid, manage or mitigate identified impacts and to determine the extent of the residual risks that need to be managed and monitored.

### ENVIRONMENTAL SCOPING PROCESS AND REPORT CONTENTS





## APPLICANT & EAP DETAILS

This section complies with GN R326 of 17 April 2017, Appendix 2, Section 2(1)(a).

### A.1 APPLICATION REGISTRATION

File Reference Number:	
Project Title:	<b>REMAINDER OF DOORNHOEK CITRUS CULTIVATION</b>
Responsible Official:	

### A.2 APPLICANT

Project applicant:	<i>Kaspersnek Fruits (Pty) Ltd</i>		
ID / Reg No:	<i>2016/348829/07</i>		
Contact person:	<i>Mr. Cobus Redelinghuys</i>		
Physical address:	<i>The farm Kaspersnek along District Road 2538</i>		
Postal address:	<i>P.O.Box 398, Hoedspruit</i>	Postal code:	<i>1380</i>
Telephone:		Cell:	<i>- 082 457 1738</i>
E-mail:	<i>cobus@rederberg.co.za</i>	Fax:	<i>- (086) 580 4156</i>

### A.3 ENVIRONMENTAL ASSESSMENT PRACTITIONER WHO PREPARED THE SCOPING REPORT

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E-mail:	<i>eco8@vodamail.co.za</i>	Fax:	<i>086 66 44 070</i>
Qualifications:	<i>B(TRP), M(EM) Environmental Management</i>		
Professional affiliations:	<i>EAP: EAPASA IAIA<sub>SA</sub></i>	Years experience:	<i>22 years experience in environmental management</i>
Curriculum vitae: Refer to Appendix L			

### A.4 CURRENT INFORMATION IN SUPPORT OF THE SCOPING ASSESSMENT

The following information documents pertaining to the property and intended cultivation was already available and the findings thereof were incorporated in the Scoping Report:			
Firm Name	Document	Reference	Date
<i>Insitu Consulting</i>	<i>Hydro-geological Report on groundwater use for irrigation</i>	<i>Appendix A</i>	<i>2018-11-13</i>
<i>Insitu Consulting</i>	<i>Additional groundwater source evaluation on the Remainder of the farm Kaspersnek 481 KT and the Remainder of the farm Doornhoek 451 KT addendum Hydrogeological report</i>	<i>Appendix B</i>	<i>2021-02-19</i>

## SCOPING: PROJECT LOCALITY

The aim of this Section is to indicate the locality of the land / site as required in terms of GN R326 App.2, Sec.2(1)(b)(i)-(iii)

### B.1 SURVEYOR-GENERAL REFERENCE NUMBER

The 21 digit land identification number of the property.

T	0	K	T	0	0	0	0	0	0	0	0	0	0	4	5	1	0	0	0	0	0
---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---	---

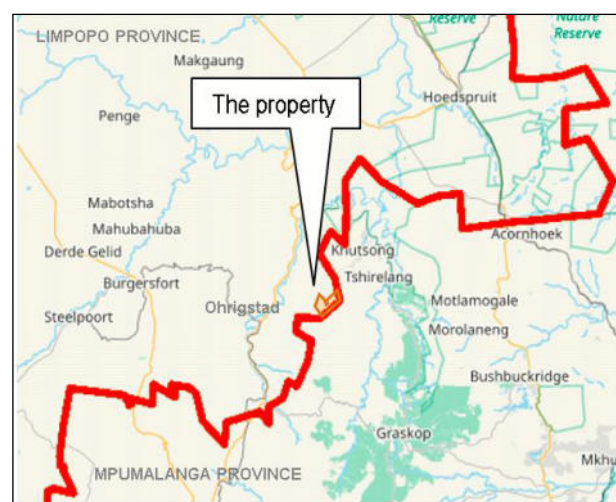
### B.2 REGISTERED LAND DESCRIPTION

Portion Number	Remainder of 451
Farm Name	Doornhoek
Registration division	KT

### B.3 PHYSICAL ADDRESS OF THE LAND

Street / Road name & number	The farm Doornhoek along District Road 2538
Town / distance from town	The farm is located in the Kaspersnek Valley $\pm 15\text{km}$ directly east of Ohrigstad and $\pm 12\text{km}$ directly south-west of Bourkes Luck

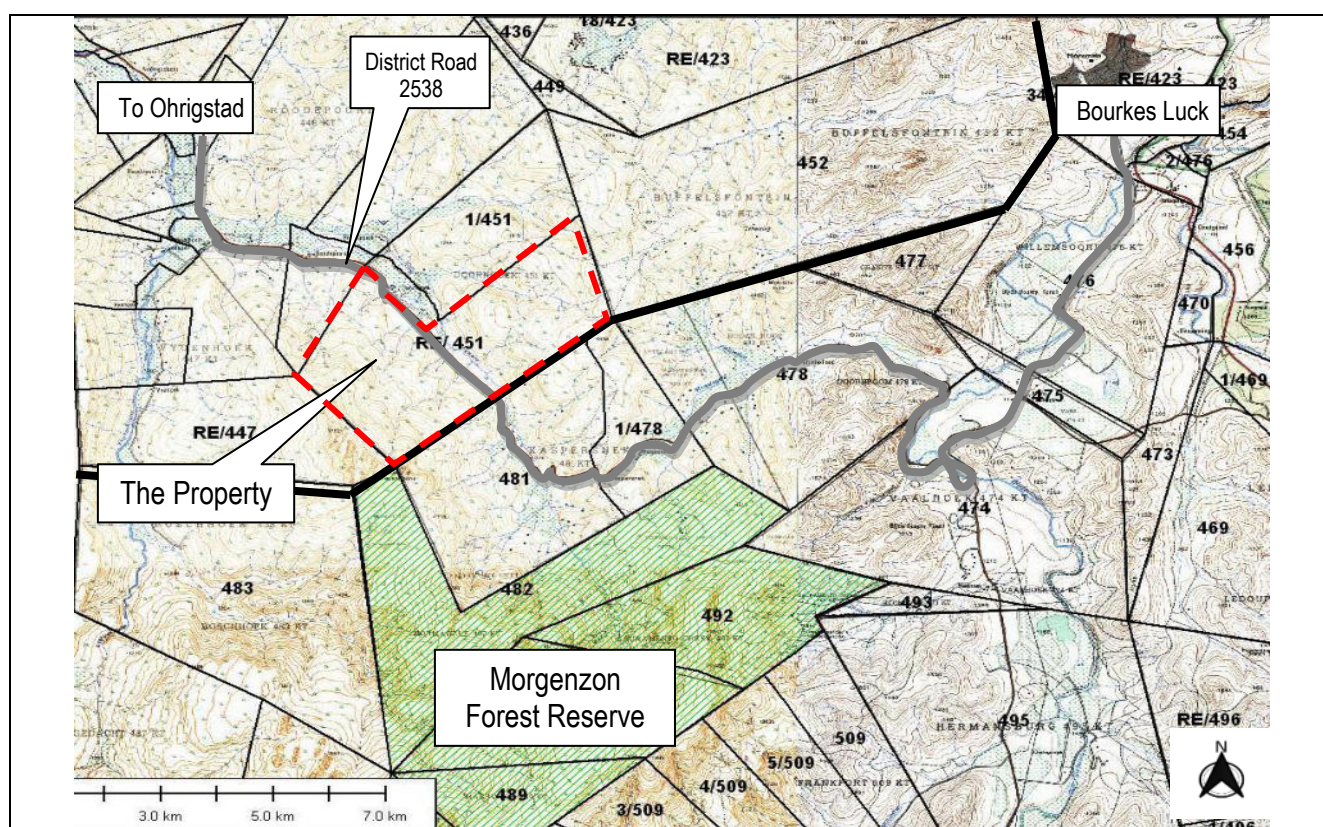
### DISTRICT LOCATOR MAP



### B.4 CENTRE COORDINATES OF LAND

Projection (WGS84)	South	East
Geo Lat/Long (DDMMSS)	$24^{\circ}43'0''$	$30^{\circ}41'30''$

### B.5 SITE LOCALITY MAP



Topographic Map 2430 Pilgrim's Rest

## SCOPING: THE PROJECT DESCRIPTION

This section aims to describe the project to be undertaken including associated structures and infrastructure as required in terms of GN R326 Appendix 2, Section 2(1)(d).

### C1 PRELIMINARY PROJECT OBJECTIVE, EXTENT AND SCOPE

#### C1.1 Project objective

*The objective of the Land User is to unlock the full economic potential of the property by way of proposed soft citrus cultivation on sites that are suitable for this purpose on the remainder of the farm Doornhoek 451-KT.*

#### C1.2 Background of historic and current land uses on the property

##### **Existing use and activities on the property.**

- *Historic cultivation and cattle farming occurred on the property from the late 1800s and specifically in the very arable valley sections of the Kaspersnek Valley.*
- *Although the property was historically utilised for the above purposes, cattle farming was at a time more favoured by the previous landowner and as a result, the previous cultivation lands became unutilised which resulted in large-scale bush encroachment that occur throughout the proposed new cultivation sites.*
- *Apart from small scale cattle farming that currently still occur on the property, it is otherwise vacant.*

##### **Existing public infrastructure**

- *The property is situated along District Road (2538), passing through the Kaspersnek Valley that connects to the R36 provincial road leading to Ohrigstad west of the property and connecting to the Vaalhoek District Road (5017) towards Bourkes Luck east of the property.*
- *The District Road (2538) that services the property is situated within a road servitude on the property.*
- *Several storm water pipes underneath Road 2538 receives run-off that emanates from the property.*
- *An ESKOM distribution line (Ohrigstad-Rietvlei line) that conducts 22 kvA is situated within a 4-meter wide servitude that runs parallel along Road 2538. Electrical supply to the property is therefore readily available.*

##### **Existing farm infrastructure**

*The following farming infrastructures currently occurs on the property:*

- *Internal management roads and fire breaks.*
- *Fencing along district road.*
- *Internal cattle camp fences.*
- *Existing cattle kraals.*
- *Existing in-stream dam in the Kgwete river.*
- *Existing buildings are storage rooms for general equipment storage.*
- *Three boreholes are located on the property. The main borehole (Number GT-0236) will be used for irrigation while another borehole requires rehabilitation and the other is a backup borehole for farming use.*

##### **Existing lawful water uses.**

- *The property has no registered surface water allocation for irrigation with the Kaspersnek-Vygehoek Rivers Irrigation Board.*
- *However, the Applicant is in the process of applying for a water use license to use groundwater for the irrigation of the proposed cultivation project.*

#### C1.3 Preliminary extent of the proposed new cultivation project

*Nine (S1-S9) preliminary cultivation sites have been identified but excludes the remainder of the farm (S10):*

- |                               |   |
|-------------------------------|---|
| ▪ <i>S1 measures 3.436 ha</i> | ▪ <i>S6 measures 1.884 ha</i>                     |
| ▪ <i>S2 measures 3.384 ha</i> | ▪ <i>S7 measures 22.61 ha</i>                     |
| ▪ <i>S3 measures 18.73 ha</i> | ▪ <i>S8 measures 3.053 ha</i>                     |
| ▪ <i>S4 measures 3.749 ha</i> | ▪ <i>S9 measures 2.392 ha</i>                     |
| ▪ <i>S5 measures 7.56 ha</i>  | ▪ <i>S10 measures 1110.3 ha (cattle farming).</i> |

*The pre-identified sites, S1-S9 covers 5.6% of the total property and the remaining S10 covers 94.4% of the total property.*

#### **C1.4 Proposed scope of the project associated with the orchard establishment phase**

**The project implementation will include the following:**

- Internal management roads and watercourse crossings.
- Irrigation infrastructure, including pumphouse and irrigation water storage dam (off-stream metal structure) and underground installation of pipelines and crossing of pipelines over watercourses.
- Perimeter fencing and fire-break.
- Orchard (land) preparation including vegetation removal, soil conservation works and planting.
- In-stream erosion protection structures including the repair of the dam wall.
- Small farm waste site.

**The project operations and maintenance will include the following:**

- Maintain the natural watercourses and in-stream dam by way of seasonal removal of silt and debris.
- Seasonal maintenance, repair and installation of in-stream and off-stream erosion protection structures.
- Seasonal vegetation clearing of fire breaks and servitudes.
- Regular maintenance of management roads and watercourse crossings
- Seasonal control of bush encroachment and alien vegetation.

## **C.2 IDENTIFICATION OF PROJECT ALTERNATIVES**

*The DEA (2004) Criteria for determining alternatives in EIA, Information Series 11, describes the concept of alternatives as a possible course of action, in place of another, that would meet the same purpose and need within the context of the project scope and objectives and in support of sustainable development. Alternatives should be identified as early as possible in the project cycle (e.g. during the pre-feasibility stage) and usually takes place during the scoping phase of the EIA. The project alternatives that are being considered as part of the agricultural development on the property include:*

- Agricultural land use alternatives
- Cultivation site alternatives, and
- Cultivation methods/technology alternatives.

*Section I.3.b of this Report provides a full description and comparative evaluation and selection of the identified alternatives.*

### **C2.1 DESCRIPTION OF THE LAND USE ALTERNATIVES**

*The property has agricultural zoning and therefore only agricultural land use alternatives are being considered as an appropriate land use on this property. The suitability of the property for long-term citrus cultivation, seasonal crop cultivation, livestock farming and aquaculture are considered in terms of the expected suitability and availability of natural resources and expected climate change resilience as well as financial viability and socio-economic benefits.*

*The above-mentioned agricultural land uses alternatives are evaluated in Section I.3.b and confirms that citrus cultivation would be the most suitable in terms of the above evaluation criteria. Therefore, only citrus cultivation as an agricultural land use will be considered further in this scoping assessment.*

### **C2.2 DESCRIPTION OF ALTERNATIVE CULTIVATION SITES**

*The property holds potential for cultivation within the low-lying valley areas and nine sites (S1-S9) as indicated on a draft cultivation plan (Map C3) have been pre-identified for this purpose based only on their historic use, expected favourable biophysical features and their accessibility:*

- Sites S1-S3 were historically utilised for crop production and are currently utilised for small-scale cattle farming and storage rooms for agricultural equipment and S3 has direct access to District Road 2538.
- Sites S4-S9 are vacant agricultural land, which has previously been modified due to historic cultivation and livestock farming. All the sites have direct access to District Road 2538.

- Site S10 is the remaining extent of the farm that is mostly the mountainous areas of the property that is utilised for cattle grazing. Although S10 has direct access to District Road 2538 the overall accessibility towards the far-reaching corners of the property is extremely limited due to topographical restrictions.

All of the pre-identified sites (S1-S9), as well as S10, will be considered further in this scoping assessment in terms of their biophysical and physical features and cultivation suitability to inform the compilation of a final cultivation plan.

## **C2.3 DESCRIPTION OF THE ALTERNATIVE FARMING METHODS AND TECHNOLOGIES**

Alternative cultivation methods and technologies can in terms of their impact on the environment, be categorised as unsustainable or sustainable cultivation methods and can broadly be described as follows:

### **C2.3.1 Potentially high impacting and unsustainable cultivation methods**

In South Africa, certain poor land use management practices that are associated with cultivation farming have largely ignored the conservation of the natural resources and ecological services, which forms the foundation for sustainable and successful farming. The result is the extensive and irreplaceable loss of arable land due to the loss of topsoil, as well as water scarcity and poor water quality due to the over-exploitation and contamination of water resources. This in return has the potential to decrease agricultural productivity and pose overall socio-economic impacts. Furthermore, the loss of ecological services and ecological connectivity due to the fragmentation of natural vegetation and habitats pose long-term negative impacts on remaining vegetation and wildlife communities.

### **C2.3.2 Potentially low impacting and sustainable cultivation methods**

Sustainable cultivation methods aim at conserving the natural resource base by preventing the degradation of soil and water resources as well as maintaining ecological services that are beneficial for both the environment and for human health and wellbeing. By achieving these aims, the long-term production of agricultural products on the property can be secured with subsequent economic and social benefits to both the farmer and the agricultural workers and their families.

In this scoping assessment, the sensitivity of the bio-physical and physical elements on each of the pre-identified cultivation sites will be identified concerning the implementation (or not) of sustainable cultivation methods and technologies. This scoping assessment will aim to identify cultivation methods and technologies that may significantly affect the natural resources and ecological services of each of the proposed cultivation sites and to ultimately identify sustainable cultivation methods and appropriate impact mitigation for integration into a final cultivation plan.












### C.3 CONCEPT CULTIVATION PLAN: CULTIVATION SITES WITH ASSOCIATED INFRASTRUCTURE

**LAND USE TABLE: PROPOSED CULTIVATION PLAN (1) ON THE REMAINDER OF DOORNHOEK 451-KT AS DEPICTED BY FIGURE S1, S2, S3, S4, S5, S6, S7, S8, S9, S10**

#### LAND USE TABLE

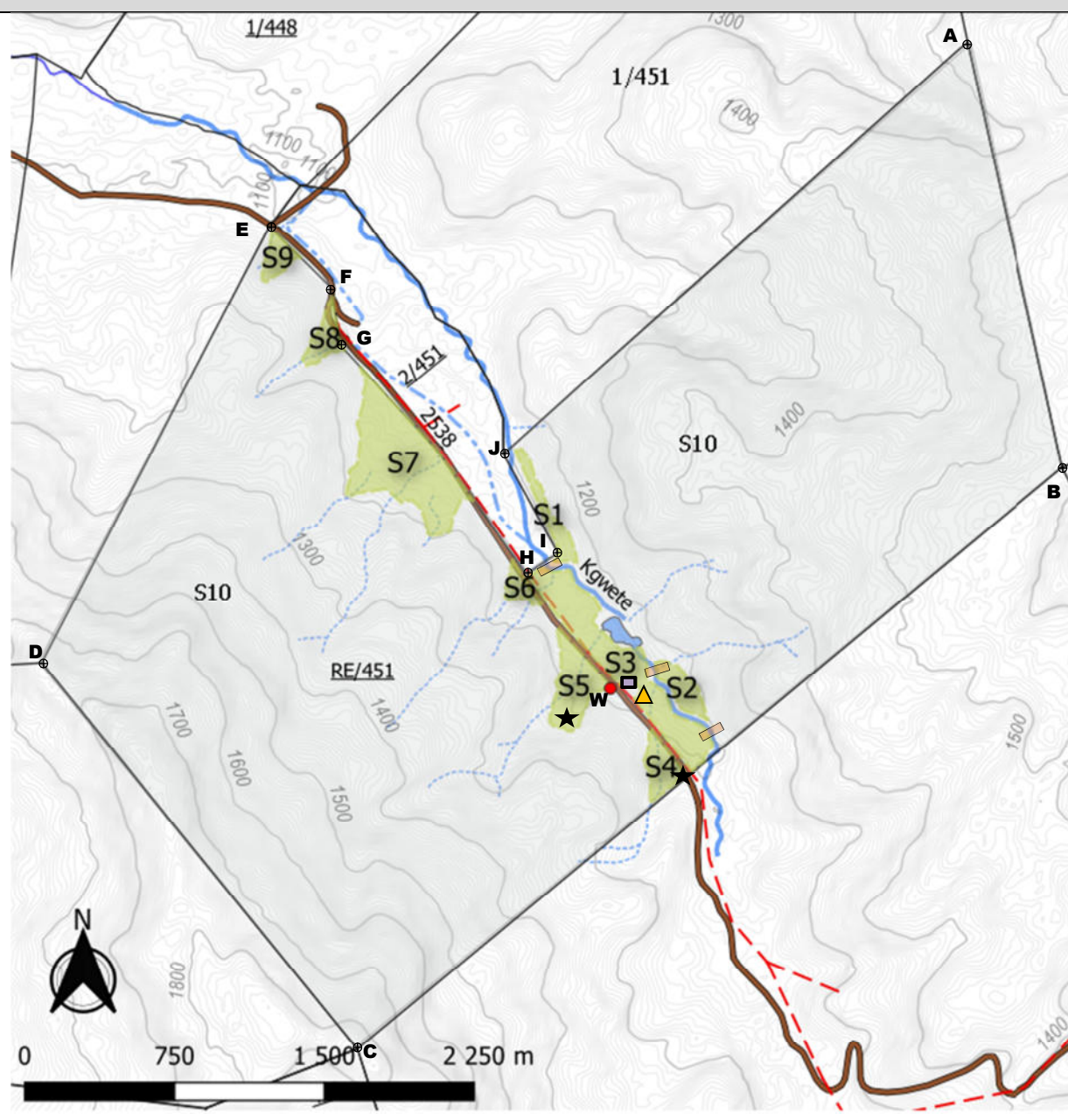
Legend	Land uses	Site	Area (ha)	%
	Cultivation site	S1	3.436	0.29
	Cultivation site	S2	3.384	0.29
	Cultivation site	S3	18.73	1.59
	Cultivation site	S4	3.749	0.32
	Cultivation site	S5	7.56	0.64
	Cultivation site	S6	1.884	0.16
	Cultivation site	S7	22.61	1.92
	Cultivation site	S8	3.053	0.26
	Cultivation site	S9	2.392	0.20
	Remaining farm extent	S10	1110.3	94.33
<b>Total</b>	<b>Remainder of Doornhoek 451-KT</b>		<b>1177.1</b>	<b>100</b>

#### EXISTING FEATURES

	Existing Cattle kraal
	Existing Borehole GT0236
	District road
	Perennial water course (Kgwete River)
	Non-perennial water courses
	Existing in-stream dam
	Existing Eskom electrical power line
	Existing storerooms
	Existing stream crossings

#### PROPOSED FARMING INFRASTRUCTURE

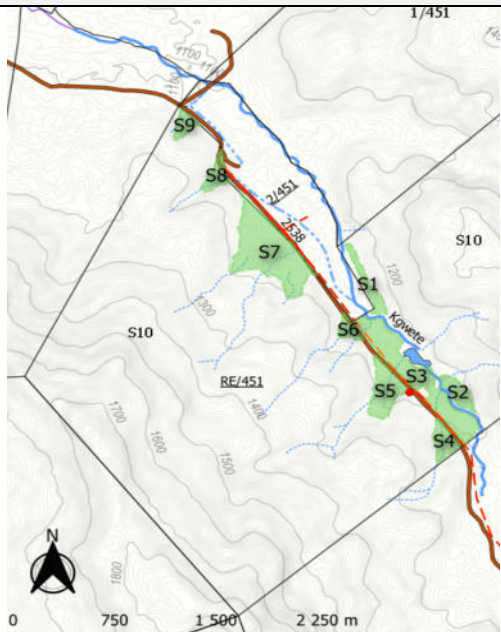
<b>W</b>	Proposed farm waste disposal site
<b>★</b>	New irrigation storage dam
<b>A-J</b>	Represents the boundary of the Remainder of the farm Doornhoek 451-KT



## SCOPING: IDENTIFICATION OF REGULATED ACTIVITIES

The aim of this Section is to provide a description of the scope of the proposed activity/ies, including all listed and specified activities triggered and being applied for, as required in terms of GN R326 Appendix 2, Section 2(1)(c)(i)&(ii).

### D1. IDENTIFICATION OF NEMA-EIA REGULATED ACTIVITIES

CHECKLIST : EIA ACTIVITY IDENTIFICATION (NEMA EIA GN Rs 324, 325 & 327 of 7 April 2017)				
PROJECT PLAN	DEVELOPMENT ACTIVITY	Listing Notice & Activity	ACTIVITY DESCRIPTION	
	Agriculture type	LN1-4	High density cattle, goat or pig feedlots.	No
		LN1-5	High density poultry farming.	No
		LN1-6	Aquaculture.	No
		LN1-8	Hatcheries / agri-industrial facility.	No
		LN2-15	Vegetation clearance >20ha.	Yes
	Irrigation water	LN1-9	Water pipes <360mm diameter.	No
	Electricity	LN1-11	Transmission & distribution outside urban areas more than 33 but less than 275kV.	No
	Internal roads & watercourse crossings	LN1-19	Removal / infilling of more than 10m <sup>3</sup> of material from / into a watercourse.	Yes
		LN1-24	A road of 8m wide and reserve of 13.5m	No
	Run-off management	LN1-9	Stormwater pipes >360mm dia. are excluded.	No
		LN1-19	Removal / infilling of more than 10m <sup>3</sup> of material from / into a watercourse.	Yes
		LN3-14	Dams / weirs / infrastructure >10m <sup>2</sup> in geographic sensitive areas.	Yes

### D.2 DESCRIPTION OF THE NEMA-EIA REGULATED PROJECT ACTIVITIES

The following table provides the full description of the identified regulated activities and relevance to the project as identified in the relevant Listing Notices under the EIA Regulations which requires Environmental Authorisation.

Acty No.	REGULATED ACTIVITIES AS LISTED IN THE EIA REGULATIONS APPLICABLE TO THIS PROJECT	EXTENT OF ACTIVITIES TO BE UNDERTAKEN INCLUDING ASSOCIATED STRUCTURES AND INFRASTRUCTURE
<b>GNR 327 Listing Notice 1 of 2017</b>		
19	The infilling or depositing of any material of more than 10m <sup>3</sup> into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10m <sup>3</sup> from a watercourse.	Excavation and backfilling are expected to occur as part of the construction of management roads and irrigation water pipeline trenches across watercourses, including actions associated with the installation and repair of erosion prevention structures and repair of the dam wall and the periodic removal of soil and silt deposits within the dam basin and within watercourses.
<b>GNR 325 Listing Notice 2 of 2017</b>		
15	The clearance of an area of 20 hectares or more of indigenous vegetation.	The proposed cultivation sites cover 66.8 ha and more than 20 hectares of indigenous vegetation will thus be cleared to establish the proposed cultivation lands.
<b>GNR 324 Listing Notice 3 of 2017</b>		
14	The development of - (ii) channels exceeding 10 m <sup>2</sup> in size; (iv) run-water outlet structures exceeding 10m <sup>2</sup> . (xii) infrastructure or structures with a physical footprint of 10 m <sup>2</sup> or more where such development will occur within 32m from the edge of a watercourse and within 5km from a protected area.	The construction, installation, repair and future maintenance of road crossings and water pipeline crossings as well as any run-off management and erosion prevention structures within 32m from the edge of a watercourse that is associated with the initial establishment and future maintenance of the proposed cultivation lands, erosion prevention structures and existing dam wall.

## SCOPING THE LEGISLATIVE CONTEXT

In compliance with GN R 326 Appendix 2, Section 2(1)(e) this section identifies the relevant legislation, policies, plans, guidelines, spatial tools, municipal development planning frameworks and instruments that apply to the proposed cultivation project and which are considered in the assessment process.

### E.1 LEGISLATION

Title of legislation	Authority	Relevance	Response
<i>National Environmental Management Act (1998) (NEMA)</i>	LEDET	<i>An Application for Environmental Authorisation in terms of section 24 of the NEMA applies to the proposed cultivation project.</i>	<i>The Application for Authorisation was submitted to LEDET and is in process of review.</i>
<i>Environmental Impact Assessment Regulations 2014 (amended in 2017)</i>	LEDET	<i>Regulated activities that are as listed in GN R 327, 325 and 324 of the EIA Regulations 2017 will be 'triggered' by the proposed cultivation project.</i>	<i>This Scoping and Environmental Impact Report (S&amp;EIR) fulfils the requirements of the NEMA Regulations. See Section D2 for applicable regulated activities in terms of the NEMA 2014 EIA Listing Notices.</i>
<i>National Environmental Management: Biodiversity Act 2004 (NEMBA)</i>	DEA	<ul style="list-style-type: none"> <li>▪ The NEMBA requires authorisation for any activity, which may affect threatened or protected ecosystems and species as specified in terms of Section 52.</li> <li>▪ The Threatened or Protected Ecosystem Regulations GN R 1002 of 9 December 2011 lists critically endangered, endangered, vulnerable ecosystems that require protection.</li> <li>▪ The Threatened or Protected Species Regulations GNR151 of 23 February 2007 (as amended) specify the legal obligations of landowners in respect of listed plant and animal species of conservation concern species that occur on their properties.</li> <li>▪ The Alien and Invasive Species Regulations GNR 864 of 29 July 2016 (as amended) specify the legal obligations of landowners in respect of listed invasive plant and animal species that occur on their properties.</li> </ul>	<ul style="list-style-type: none"> <li>▪ GNR1002 identifies the Northern Escarpment Dolomite Grassland (GM22) that is listed as a vulnerable ecosystem within the project area (refer to Section F8.2). However, several discrepancies have been identified between official sources and on-site land cover verification (refer to Section F8.4) which requires further assessment by a Terrestrial Ecologist (refer to Plan of Study – Section J).</li> <li>▪ The screening assessment identified several plants and animal species that are listed under GNR151 that may potentially occur within the project area, which requires further assessment by a Terrestrial Ecologist (refer to Plan of Study – Section J).</li> <li>▪ A preliminary on-site verification identified several listed alien invader plant species within the project area, which requires further verification by a Terrestrial Ecologist (refer to Plan of Study – Section J).</li> </ul>
<i>Waste National Environmental Management Act 2008 (NEMWA)</i>	LEDET	<ul style="list-style-type: none"> <li>▪ The NEMWA requires authorisation for any listed waste activity that exceeds the stipulated threshold as identified in GNR 921 of 29 November 2013 (as amended).</li> <li>▪ The cultivation activity is not expected to generate organic waste or general solid and liquid waste during the orchard establishment and operational phases over the stipulated thresholds.</li> <li>▪ The cultivation activity is not expected to generate hazardous waste during the orchard establishment and operational phases over the stipulated thresholds.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The activity would not require a Waste Licence for the generation, storage, treatment, recycling or disposal of organic waste, general waste or hazardous waste.</li> <li>▪ Hazardous agricultural chemical waste shall be handled in terms of the requirements of SANS 10206.</li> </ul>



Title of legislation	Authority	Relevance	Response
National Environmental Management Air Quality Act 2004 (NEMAQA)	SDM	The Activity is not listed/regulated in terms of the Act. However, the National Dust Control Regulation under GN-R827 of 1 November 2013 specifies dust-fall rates for non - residential areas.	Precautionary measures must be employed by the applicant to minimise dust-fall during orchard establishment/preparation and this aspect must be included in the EMPR.
National Water Act (1998) (NWA)	DWS	<ul style="list-style-type: none"> <li>▪ The property has no registered surface water allocation with the Kaspersnek-Vygehoek Rivers Irrigation Board.</li> <li>▪ The Applicant is in process of obtaining a water use license for the use of groundwater for irrigation purposes.</li> </ul>	<ul style="list-style-type: none"> <li>▪ A hydro-geological study was conducted to confirm sustainable groundwater availability.</li> <li>▪ The applicant is in process of applying for a Water Use License for the proposed new cultivation sites.</li> </ul>
The National Forest Act (1998) (NFA)	DAFF	The Act provides for the protection of certain listed tree species.	A permit shall be obtained for the removal of listed species (if any).
National Environmental Management Protected Areas Act 2003 (NEMPA)	LTA	<ul style="list-style-type: none"> <li>▪ The activity is not located in a protected area or within 10km of a National Park.</li> <li>▪ The activity is located within a 5km protected area buffer of the proclaimed Morgenson State Forest Reserve.</li> <li>▪ The activity is not located within the National and Provincial Protected Area Expansion Strategy Focus Area.</li> </ul>	The Morgenson State Forest Reserve that is situated $\pm 2$ km south of the property does not facilitate any form of tourism. Therefore it is not expected that the proposed cultivation would pose any negative visual impact on the Reserve.
Conservation of Agricultural Resources Act (1983) (CARA)	DAFF	<p>The Act regulates the :</p> <ul style="list-style-type: none"> <li>▪ utilization of land for cultivation purposes,</li> <li>▪ limitations for the cultivation of land on steep slopes,</li> <li>▪ the responsibility of the landowner regarding the prevention of soil erosion, restoration of eroded land, protection of wetlands and watercourses, and;</li> <li>▪ responsibilities to combat weeds and invader plants and bush encroachment.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The applicant shall implement soil conservation and control methods to combat weeds and invader plants, bush encroachment, and shall maintain riparian zones and watercourses in a healthy state in accordance with the Act.</li> <li>▪ The EMPr will contain more detailed plans and mitigation measures as part of the EIR.</li> <li>▪ The applicant shall obtain a cultivation permit from DAFF after obtaining a positive decision from LEDET.</li> </ul>
The National Veld and Forest Fire Act (1998)	DAFF	Requires a landowner to prevent veld fires and maintain fire breaks in conjunction with a Local Fire Protection Agency.	The applicant shall maintain its membership with the local Fire Prevention Agency and employ measures to prevent and combat uncontrolled veld fires.
Agricultural Pests Act (1983) GN-R442 of 6 June 2015 -Control Measures	DAFF	DAFF is responsible for the regulation of pesticides to ensure the protection of the health and safety of people, animals and crops, the environment, and trade. The DAFF regulates the manufacture, distribution, sales, use and advertisement of pesticides. The regulation provides assurance, that pesticide products are safe for human health and the environment, that the product can be effective and cannot adversely affect the ability to trade agricultural produce.	<ul style="list-style-type: none"> <li>▪ The applicant shall only use pesticide products, inorganic soil fertiliser products legally registered by DAFF.</li> <li>▪ Product application of agricultural chemicals will be done in accordance with a product safety data sheet is provided with each chemical.</li> <li>▪ All relevant DAFF guidelines will be adhered to (see guidelines below).</li> </ul>
Fertilisers, Farm Feeds, Agricultural Remedies and Stock Remedies Act (1947)	DAFF		
The National Heritage Resources Act (1999) (NHRA)	SAHRA	Provides for the protection of heritage resources.	An Archaeologist specialist report will identify and assess heritage resources on the proposed cultivation sites and a permit shall be obtained for the removal of heritage resources (if any).
Limpopo Environmental Management Act (2003)	LEDET	Provides for the protection of certain plant and animal species.	A permit shall be obtained for the removal of protected species (if any).

Title of legislation	Authority	Relevance	Response
Civil Aviation Act (2009)	SACAA	All proposed developments or activities that potentially could affect civil aviation military aviation or military areas of interest must be assessed by SACAA, in terms of the SACARs and South African Civil Aviation Technical Standards (SA-CATS) to ensure aviation safety.	The proposed cultivation area is not located near an airfield or aerodrome and the development would not constitute an aviation obstacle. Thus, the proposed cultivation project will not require a request for permission by the SACAA.
Fencing Act (1963)	DAFF	Regulations regarding fencing near servitudes and clearing of bush for boundary fencing has to be followed.	Clearing bush for the boundary fencing shall not be extended beyond legislative restrictions. The applicant will allow reasonable ingress and egress to any electrical infrastructure of Eskom on the established servitude.

## E.2 POLICIES AND PLANS

Title of policy or plan	Authority	Relevance	Response
National Development Plan (NDP)	-	The national policy recognises the potential of commercial agriculture for job creation.	The NDP was considered in this assessment - refer to need and desirability assessment – Section G.
Industrial Policy Action Plan (IPAP) 2018/19 – 2020/21	DTI	The IPAP features fruit export development as one of the key action programmes for the country.	The IPAP was considered in this assessment - refer to need and desirability assessment – Section G.
Agricultural Policy Action Plan (APAP)	DAFF	The APAP takes its cue from the NDP and the IPAP. It suggests that the fruit and nut sector should increase plantings to increase employment opportunities.	The APAP was considered in this assessment -refer to need and desirability assessment – Section G.
Policy on agriculture in sustainable development	DAFF	<ul style="list-style-type: none"> <li>▪ The policy identifies strategies, guidelines, and practices that constitute the South African concept of sustainable agriculture.</li> <li>▪ Environmental: protection of the natural resources; prevention of water and soil erosion and biodiversity conservation.</li> <li>▪ Economic: assurance of a safe and high-quality supply of agricultural products.</li> <li>▪ Social: contribution to social well-being.</li> </ul>	The sustainability parameters were considered in this assessment and the proposed cultivation activities are in line with the national sustainability requirements for agricultural practices. Refer to Section F regarding the receiving environment.
Pesticide management Policy GN-R 1120 of 2010	DAFF	The policy promotes better protection from health and environmental risks posed by pesticides.	The applicant shall abide by the regulation and policies concerning the handling and application of pesticides on the property.
Consolidated Fetakgomo Greater Tubatse Municipal Integrated Development Plan (IDP) 2016-2021	FTLM	Relevant to this application, the IDP aims at strengthening the agricultural sector to enhance established commercial markets and utilize local labour and skill resources. The protection of groundwater quality and river systems for water supply to communities is a high priority when dealing with activities relating to agriculture.	A completed Geo-hydrological study identified sustainable use of groundwater resources that do not affect the Kgwete River system when used for irrigation. Downstream water users have been considered and the proposed cultivation activities would not affect such users negatively. Refer to section F for more detail.
Greater Tubatse Municipal Integrated Development Plan (IDP) 2016-2021	FTLM	Relevant to this application, the IDP identifies Agricultural production, especially Citrus, as a key economic sector in the local municipality. This economic sector should continually grow and expand.	The proposed cultivation project can add growth to the local and national agricultural commercial market. This could then stimulate economic growth and decrease the unemployment rate in the local area. Refer to Section F for more detail.

Title of policy or plan	Authority	Relevance	Response
Sekhukhune District Municipality (IDP) 2018/2019	SDM	The Sekhukhune District municipal IDP focuses on aspects that include sustainable agriculture regarding food security, increase the efficiency of agricultural water use and include water reuse strategies.	The proposed cultivation project is focused on sustainable agricultural development and efficient water use. Refer to Section C & I regarding project description and Section F regarding the receiving environment.
Limpopo Conservation Plan v2 Plan 2013	LEDET	The terrestrial and aquatic biodiversity priority assessment of the LCP presents the following classification of the site: The project area is situated in a Critical Biodiversity Area (CBA 1). However, this categorisation has been replaced by the updated Sekhukhune District Bioregional Plan 2019. In terms, thereof the project area is situated in an Ecological Support Area (ESA 1).	<ul style="list-style-type: none"> <li>■ Preliminary site verification indicates a high level of vegetation modification.</li> <li>■ Terrestrial and aquatic ecologist specialist studies must verify the biodiversity sensitivity of the sites.</li> <li>■ Refer to Section J regarding the plan of study and Section F regarding the receiving environment.</li> </ul>
Sekhukhune District Bioregional Plan (SDBP) 2019	LEDET	Similar to the above Limpopo Conservation plan v2 (2013), the Sekhukhune District Bioregional Plan (2019) combines the terrestrial and aquatic features into single categories. The classification of the sites are: <ul style="list-style-type: none"> <li>■ All the proposed cultivation sites are largely situated in the category of an Ecological Support Area (ESA) level 1 as defined in terms of the SDBP 2019.</li> <li>■ Proposed cultivation site S9 has a small extent of "ESA 2" and "No natural remaining areas" on-site as defined in terms of the SDBP 2019.</li> <li>■ Proposed cultivation site S7 has a small extent of "ESA" 2 on-site as defined in terms of the SDBP 2019.</li> </ul>	<ul style="list-style-type: none"> <li>■ In terms of the terrestrial features, the National Screening Tool indicates that the sites pose potentially HIGH terrestrial biodiversity sensitivity.</li> <li>■ In terms of the aquatic features, the National Screening Tool indicates that the sites pose partially LOW and partially HIGH aquatic biodiversity sensitivity</li> <li>■ Refer to Section J: the plan of study for the Terrestrial and Aquatic Ecologist specialist studies to verify and assess the impact of the proposed cultivation sites on biodiversity.</li> </ul>

### E.3 PROVINCIAL, MUNICIPAL & OTHER DEVELOPMENT PLANNING FRAMEWORKS AND INSTRUMENTS

Municipal planning Frameworks	Authority	Relevance	Response
Municipal Land Use Management System (LUMS) 2020	FTLM	The LUMS specifies land use zones unique to each property. The property has an Agricultural land-use zoning.	The proposed cultivation project will complement the current land use of the area being that of "Agriculture". Refer to Section F regarding the receiving environment.
Municipal Local Economic Development Strategy (GTM LEDS) 2007	FTLM	Concerning this application, the GTM LEDS aims at increasing intensive agricultural development on potential arable land.	The proposed cultivation project is in line with the LEDS. Refer to Section C for the project description and the receiving environment Section F.
Sekhukhune District Municipality Spatial Development Framework (SDF) 2018 draft	SDM	In relation to this application, the Sekhukhune District Municipality SDF focus on the spatial integration of complementary land use patterns. A relevant SDF development principle for this application aims to actively protect, manage and rehabilitate natural environmental resources in order to ensure a sustainable equilibrium between agricultural industries.	The proposed cultivation project is based on complementary and sustainable agricultural methods and technologies that are in line with the SDF vision and principles.
Regional Environmental Management Framework	(DEA/DWS)	The property is located within the Environmental Management Framework for the Olifants and Letaba Rivers Catchment Areas (OLRCA EMF). The site is located in	<p>The EMF is a guideline to assist the decision-making process. Water allocation objectives of the EMF states the following objectives:</p> <ul style="list-style-type: none"> <li>■ Water quantity objectives: Irrigation</li> </ul>

		the Blyde River Sub Catchment (Zone F) of the OLRCA EMF.	allocations must not pose a negative impact on the ecological reserve of any part of the river system in the EMF area. <ul style="list-style-type: none"> <li>Water quality objectives: Ensure that water that is released back into the system from any activity must comply with the relevant quality standards.</li> <li>Conservation objectives: All natural wetlands, riparian areas and river systems that occur in the zone must be maintained.</li> <li>Refer to Section F regarding the receiving environment</li> </ul>
World Heritage Convention Act, 1999	DEA	The project area is not located in a World Heritage Area or a UNESCO Man and the Biosphere Programme Area.	N/A
Limpopo Protected Area Expansion Strategy	LEDET	In terms of the Sekhukhune Bioregional Plan 2019, the project sites are not located in an area earmarked for the expansion of protected areas.	See Table E2 for more information regarding the Sekhukhune District Bioregional Plan (2019).
National Protected Area Expansion Strategy (NPAES) 2019	DEA	The NPAES identified the property for inclusion in the "Priority focus areas". However, the project sites are not located within the National and Provincial Protected Area Expansion Strategy Focus Area.	N/A

#### E.4 REGULATIONS, GUIDELINES, NORMS & STANDARDS

Title of guideline, norms or standard	Relevance	Response
Guideline: A Primer on Soil Conservation (1984)	The document provides guidelines to agricultural engineers and farmers alike on measures to prevent soil erosion and measures to rehabilitate existing erosion on farms.	Basic methods derived from these guidelines are incorporated in the mitigation proposals of this assessment.
Various guidelines on the use of Agricultural Chemicals	A Guide for the Control of Plant Diseases (2003), A Guide for the Control of Plant Pests (2002), A Guide to Use of Herbicides (2000), A Guide for the Control of Household and Industrial Pests (2000).	The applicant must implement where applicable, the guidelines published by the Dept. of Agriculture (and updated from time to time).
Standard: The handling, storage and disposal of pesticides (SANS 10206)	This standard specifies procedures and requirements for handling, storage and disposal of pesticides by farmers (amongst others) to minimise risk to health and safety, property and environment.	The applicant must implement the standard as published by the Dept. of Agriculture (and updated from time to time).
Guideline: Management of the risk of agricultural remedies on insect pollinators (2017)	Recommends actions that can be taken in terms of Act 36 of 1947, and suggestions on other measures that can be taken to preserve and protect insect pollinators.	The applicant must implement the guideline published by the Dept. of Agriculture (and updated from time to time).
DEA (2017), Guideline on Need and Desirability	The EIA Regulations stipulates that "Need & Desirability" of a project must be considered in the EIA process. The Guideline aims to ensure that all the relevant sustainability considerations have been taken into account.	A Need & Desirability assessment according to the Guideline is incorporated into Section G of this report.

<i>DEA (2010) IEM Guideline 7 Public Participation</i>	<i>The EIA Regulations stipulates that “Public Participation” must be incorporated in the EIA process. The Guideline aims to ensure that a fair Public Participation Process is followed.</i>	<i>A Public Participation Process according to the Guideline is incorporated into Section K of this report.</i>
<i>SANS 0103:2008 The measurement and rating of environmental noise.</i>	<i>The Standard provides a guiding method for environmental noise impact assessments and to predict noise impacts at a certain noise level distance from noise.</i>	<i>A basic noise assessment is incorporated in Section F15 of the Report.</i>
<i>NEMAQA: Listed activities and minimum emission standards 2007 (as amended).</i>	<i>Any development must incorporate the minimum emission standard if activity on the site can produce listed/regulated emissions.</i>	<i>No activity as part of the proposed cultivation can produce listed/regulated emissions.</i>
<i>NEMAQA: Ambient air quality standards 2009.</i>	<i>The development should not change the characteristics of the ambient air quality above the minimum air quality standards.</i>	<i>No activity as part of the proposed cultivation is expected to change the ambient air quality above the listed standards.</i>
<i>NEMWA: Draft national norms and standards for the treatment of organic waste (2021)</i>	<i>The proposed cultivation project must incorporate facilities and methods in the operational phase that need to comply with the minimum standards if organic waste will be treated on-site.</i>	<i>Organic waste can be generated on-site and used as organic soil fertiliser, however; such a facility is not currently foreseen.</i>
<i>NEMWA: Guidelines on separation of waste at source (2018)</i>	<i>The guideline provides methods for waste separation on-site before waste removal and disposal activities occur, thus the waste management hierarchy can be followed.</i>	<i>The implementation of waste separation on-site is a feasible and reasonable waste management activity – refer to Section I3 of the Report.</i>
<i>NEMWA: Norms and standards for the remediation of contaminated land and soil (2014).</i>	<i>The correct remediation procedures must be followed when soil is contaminated to ensure the prevention of further contamination and the correct method of disposal.</i>	<i>In the event of soil contamination due to accidental spillage, e.g. excess spillage of pesticide chemicals, these norms and standards shall apply.</i>
<i>DWA. Small Waste Sites on Farms</i>	<i>The Policy provides minimum criteria for small waste sites for general waste disposal on farms.</i>	<i>The assessment must identify the most suitable site for such waste disposal site and guidelines for its use must be incorporated in the EMPR.</i>
<i>NEMA: Relevant Specialist protocols GN-R 320 &amp; GN-R 1150 (2020)</i>	<i>Identified protocol guidelines for specialist has been identified accordingly in GN-R 320 &amp; GN-R 1150</i>	<i>The scoping report has identified key issues for the specialist, regarding the protocols-refer to Section J of the report</i>

## SCOPING THE RECEIVING ENVIRONMENT

In compliance with GN R326 Appendix 1 Section 3(1) (h), this section provides a scoping assessment of the selected sites and its suitability for the proposed activity. The activities are, however, interconnected with the land use and cannot be assessed in isolation. It is therefore important to verify the suitability of the receiving environment for the intended land use together with the potential impacts posed by the regulated activities and associated activities. The methods used to assess the environmental attributes of each site were done by way of actual terrain survey; GIS map overlay analysis, and environmental data analysis as well as the use of available secondary data of the area (previous research).

### F.1 CADASTRAL DESCRIPTION AND LAND-USE ZONING

F1.1 PROPERTY DESCRIPTION	SELECTED PROPERTY	ALTERNATIVE PROPERTY
Property description or physical address of the study area	Province	Limpopo
	District Municipality	Sekhukhune DM
	Local Municipality	Fetakgomo Tubatse LM
	Ward Number(s)	Ward 1
	Farm name and number	Doomhoek KT
	Erf / Portion number	Remainder
	Size of the study area	± 60ha
No alternative property is considered in this assessment.		

F1.2 PROPERTY LAND-USE ZONING	Selected sites
Current zoning as per local municipality LUMS.	Agricultural
Earmarked zoning Local Municipality SDF	Agricultural
Change of land-use/consent use required?	None
Registered servitudes	Servitudes for District Road 2538 and ESKOM's Ohrigstad-Rietvlei 22kV overhead distribution power line cross over the property.

F1.3 LOCALITY OF THE PROPOSED CULTIVATION SITES OF THE PROPERTY
The proposed cultivation sites are expected to cover ±60 ha of the property as more clearly indicated on the Sites Plan (Refer to Section C of this report).

F1.4 LAND-USE SUITABILITY, IMPACTS, AND RISKS
The proposed cultivation sites have been used mainly for cattle farming but aerial photo evidence indicates more extensive crop farming in the valley earlier than the 1970's and historic records indicate cultivation agriculture occurred in the Kaspersnek valley since the late 1800's. It is thus not expected that the proposed new citrus cultivation would compromise the current land-use zoning and the earmarked land use of the property as indicated in the Municipal SDF.

### F.2 TOPOGRAPHY

F2.1 REGIONAL LOCALITY AND LANDFORM
The property is situated in the Kaspersnek Valley that occurs on the western slopes of the Drakensberg Escarpment near Ohrigstad in a region also known as the Middle-veld being situated at altitudes between that of the Highveld towards the west and the Lowveld towards the east.

### F2.2 BROAD LANDFORM(S) THAT BEST DESCRIBES THE AREA IN WHICH THE SITES ARE LOCATED

LANDFORM DESCRIPTION		COMMENT
Plateau / Ridgeline	No	Cultivation development may be subject to limitations in the local landscape.
Side slope of mountain/valley	No	Cultivation development may be subject to cut-and-fill land stability limitations.
Valley bottom	Yes	Cultivation development may be subject to limitations in the local landscape.
Closed valley	Yes	Cultivation development may be subject to limitations in the local landscape.
Undulating plains country	No	Cultivation development may be subject to limitations in the local landscape.



## F2.3 TERRAIN WITHIN THE LOCAL LANDFORM THAT BEST DESCRIBES THE SITES

TERRAIN UNITS	Cultivation suitability	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
(1)Crest (C)	Mostly unsuitable										X
(2) Upper mid-slope (UMS)	Potentially hazardous										X
(3) Lower Mid-slope (LMS)	Overall suitable				X		X			X	
(4) Foot-slope (FS)	Overall suitable	X	X		X	X	X	X	X	X	
(5) Valley bottom (VB)	Overall suitable		X	X							
(5) Floodplain (FP)	Mostly unsuitable										

## F2.4 TERRAIN UNIT SUITABILITY IMPACTS AND RISKS

The terrain position of the proposed sites within the footslope to lower-mid-slope terrain units of the locally closed valley landform would not pose a potential hazard or risk of slope instability and flooding.

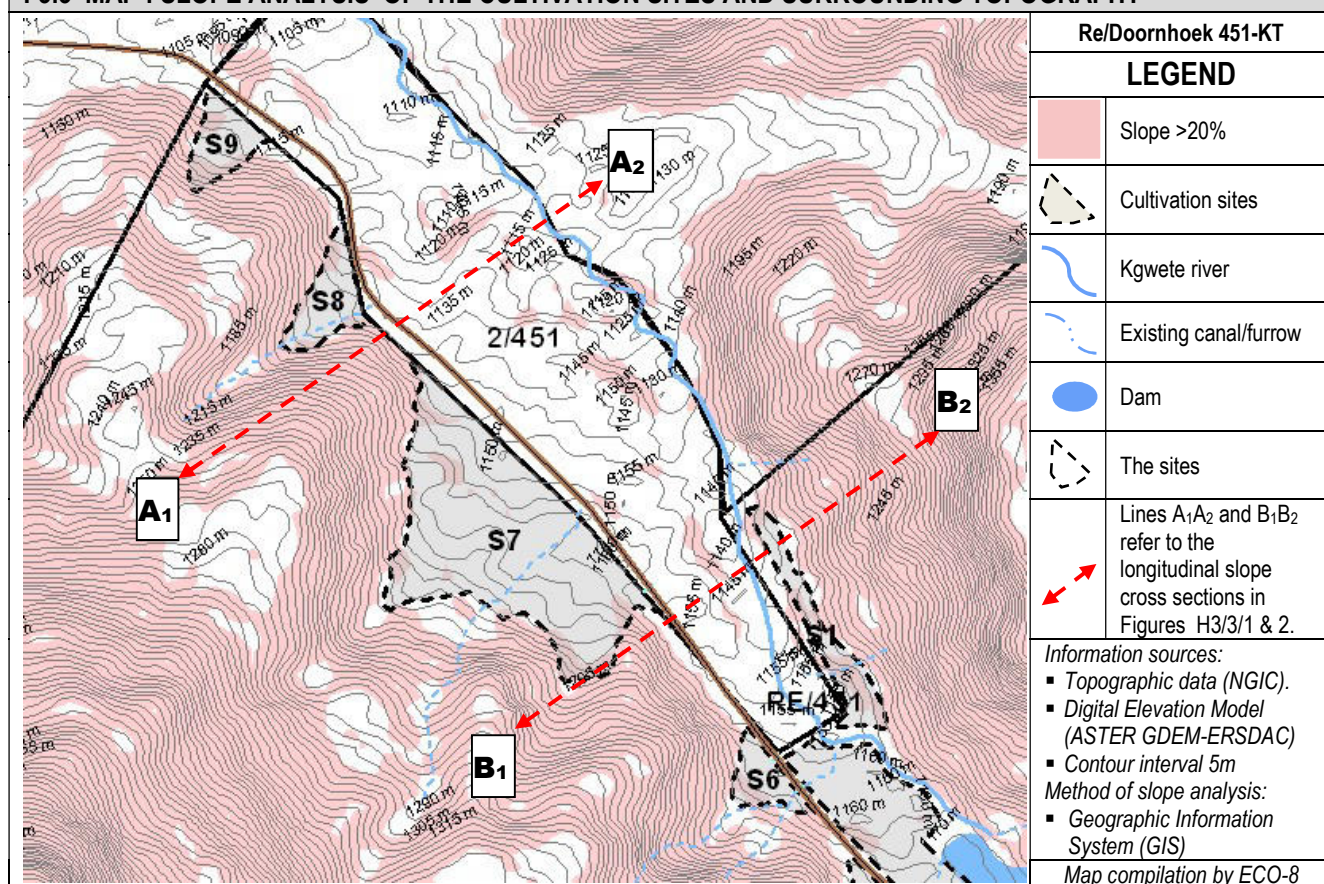
## F.3 ALTITUDE, GRADIENT / SLOPE

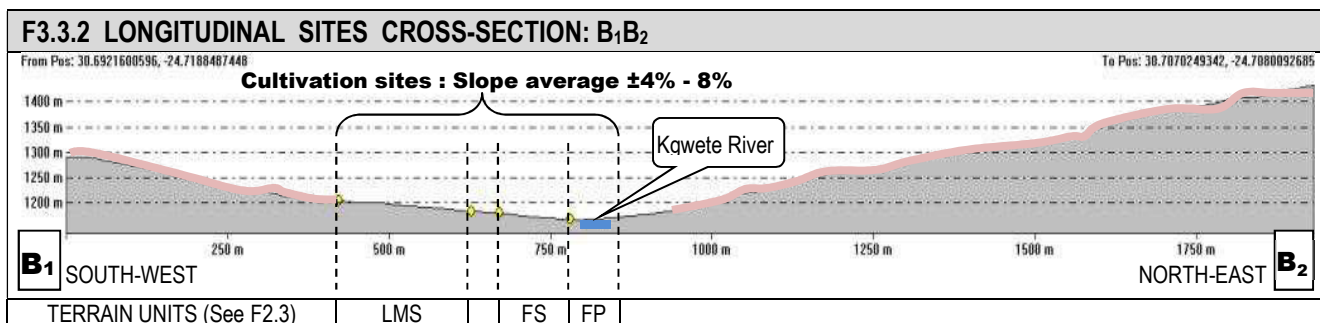
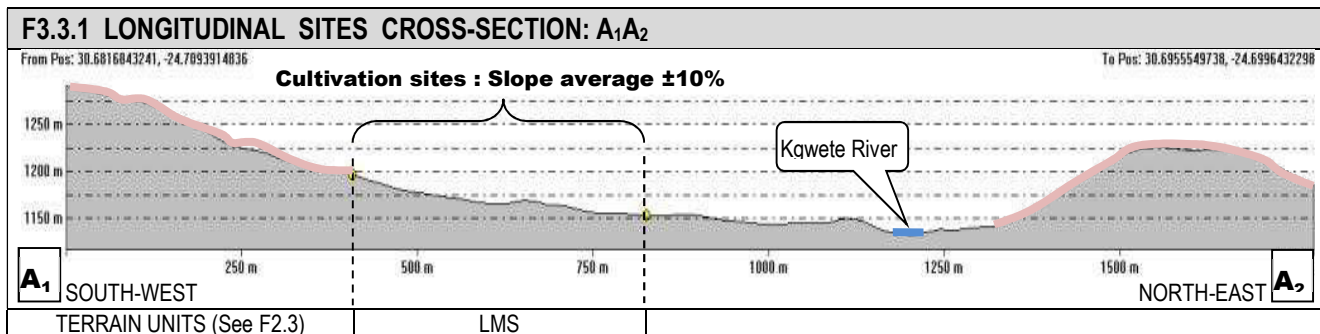
F3.1 AVERAGE GRADIENT	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Highest elevation – meters (m)	1168	1195	1186	1224	1211	1181	1198	1158	1154	1775
Lowest elevation – meters (m)	1151	1181	1180	1205	1180	1164	1149	1125	1105	1140
Elevation difference (m) (E)	17	14	6	19	31	17	49	33	49	635
Elevation distance (D)	75	105	148	273	386	131	513	280	228	2640
Slope % (E/Dx100)	22.6	13.33	4.05	6.95	8.03	12.9	9.55	11.78	21.49	>24

## F3.2 GRADIENT / SLOPE OF THE SITES

Height : horizontal distance (m)	Slope % or gradient	Cultivation suitability	Gradient / slope									
			S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
1:20 – 1:15	1-5%	Overall very good			X							
1:15 – 1:10	5-10%	Overall good				X	X		X			
1:10 – 1:7,5	10-15%	Overall moderate		X				X		X		
1:7,5 – 1:5	15 – 20%	Overall limited									X	
Steeper than 1:5	>20%	Overall unsuitable	X								X	X

## F3.3 MAP : SLOPE ANALYSIS OF THE CULTIVATION SITES AND SURROUNDING TOPOGRAPHY





#### F3.4 ALTITUDE AND SLOPE SUITABILITY, IMPACTS, AND RISKS

The proposed cultivation sites are situated at altitudes ranging from 1105m to 1224m above sea level and fall within the acceptable altitude range for citrus cultivation. The Conservation of Agricultural Resources Act, 1983 (CARA) stipulates that no land user shall cultivate any land on a slope of more than 20%. The slope of Sites 1 and 9 is overall unsuitable; however the area of Sites 9 can be reduced to fall within the slope limit of 20%. Sites 2-7 pose overall suitable slopes for cultivation but 20% slopes are exceeded in some places along the lower-mid-slopes and along drainage lines that occur within these sites. Avoidance mitigation is possible but will reduce the area that is available for cultivation. Accordingly, the cultivation sites plan will require an amendment to avoid cultivation on slopes that exceeds 20%.

### F4 GEOLOGY AND SOIL CONDITIONS

#### F4.1 UNDERLYING GEOLOGY

According to the Geological Map (1:250 000, 2430 Pilgrims Rest), the immediate geology that underlay the property and cultivation sites is a sedimentary rock and predominantly shale of the Malmani Sub-group (Chuniespoort Group).

#### F4.2 BROAD SOIL FORM

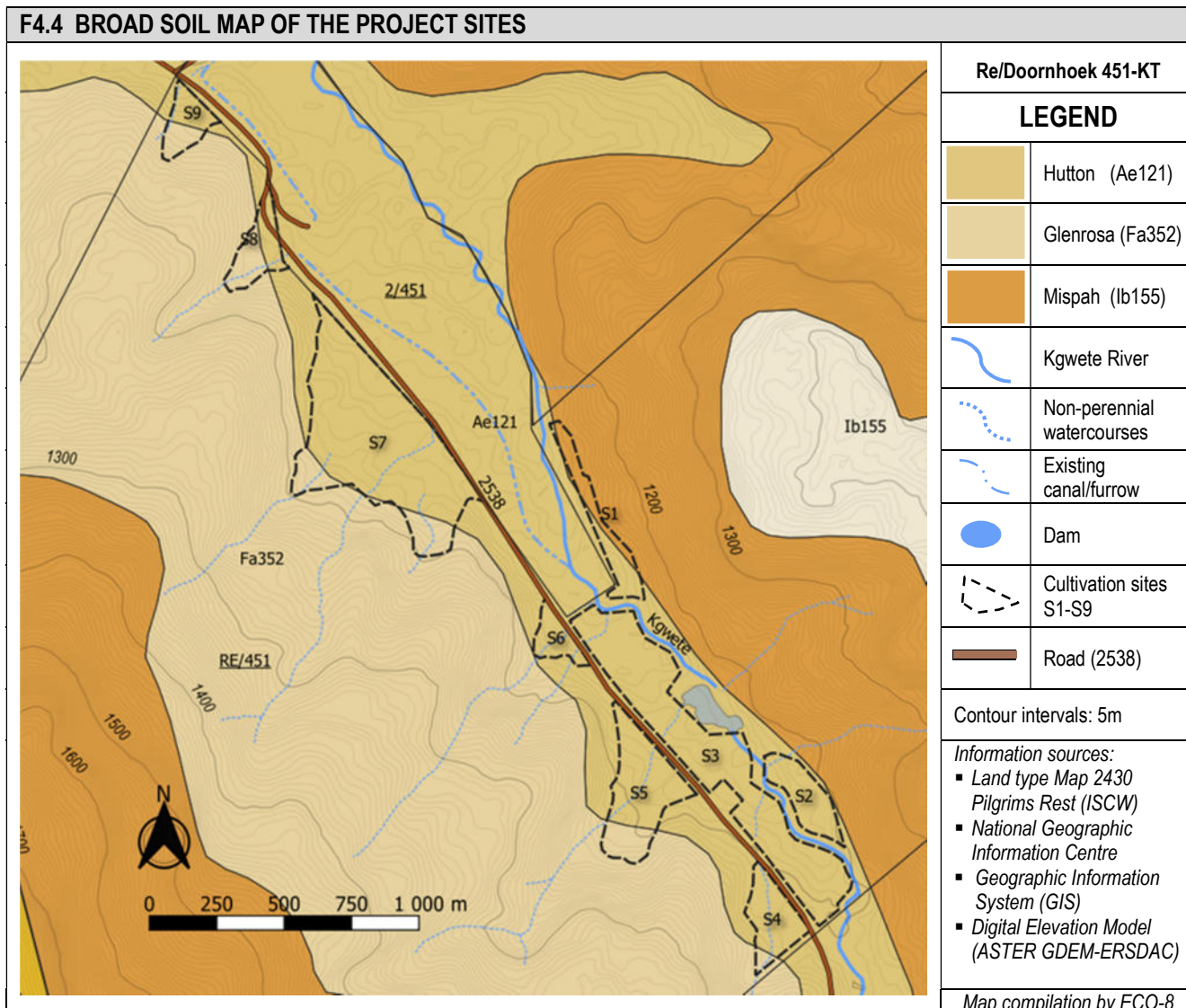
According to the National Land Type survey (Schoeman et al, 1984) map sheet 2430 Pilgrim's Rest, The valley bottom to foot-slope terrain unit is classified as Land Type Ae121 which consists mainly of red freely drained, structureless soils and alluvium (clay, sand, gravel) predominantly of the Hutton soil. Weathered gravelly shale of the Glenrosa the soil form characterise Land type Fa352 and occurs mainly along the lower to mid-slope areas. The shallow soils and rock outcrop along the steeply inclined valley slopes represent the Mispah soil form of Land Type Ib155.

#### F4.3 BROAD SOIL FORM CHARACTERISTICS

Soil form	Colour & Structure	Infiltration rate	Internal drainage	Water supplying capacity		Limiting conditions for root penetration	Depth mm	Erosion hazard (disturbed)	Nutrient status and fertility	Mechanical limitations	Topsoil texture	Average Clay %
				A Hor	B Hor							
<b>Hutton</b>	Red & loamy	Slow to moderate	Slow to Moderate	Low	Low	None	30-120	Moderate to high	Low to mod/high	None	SA-Lm	25-35
<b>Glenrosa</b>	Loamy and clayey	Slow	Slow to Moderate	Low	Very low	Weathered rock	100-400	Low	Low to mod/high	Weathered gravel	SA-LmSa	15-25
<b>Mispah</b>	Brown & Loamy	None to slow	Slow	Low	N/A	Shallow rock	100-300	Very low	Low to mod/high	Shallow rock	SA-LmSa	10-20

Soil type; soil depth (mm); soil texture: sand (Sa)/clay (Cl) /loam (L), Clay content (%)





Citrus can be grown in a wide range of soil types provided they are well-drained. In the case of soil suitability, soil factors such as effective depth, texture, clay content, soil colour (internal drainage) and mechanical limitations are important issues that need to be considered. The following Table provides a soil suitability guideline for citrus cultivation:

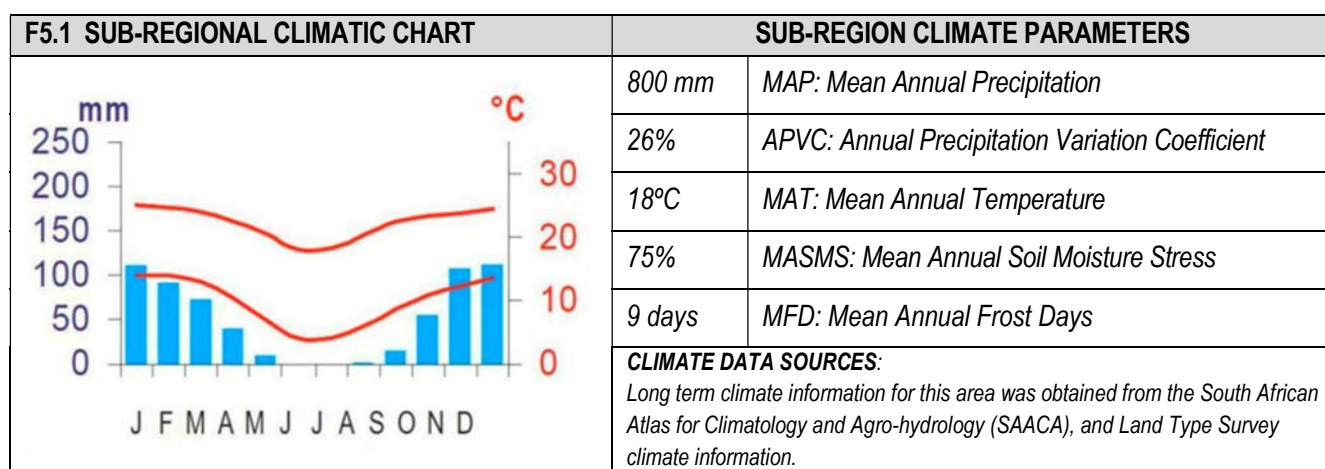
<b>F4.5 SOIL SUITABILITY FOR CITRUS CULTIVATION</b>													
<b>SOIL SUITABILITY CRITERIA</b>													
<b>PROPOSED CULTIVATION SITES</b>	<b>Effective soil depth (m)</b>			<b>Soil clay content %</b>				<b>Soil colour (drainage)</b>			<b>Factors that could limit root development</b>		
	<b>Optimal</b>	<b>Good to marginal</b>	<b>Not suitable</b>	<b>Optimal</b>	<b>Marginal or less favourable</b>	<b>Not suitable</b>	<b>Not suitable</b>	<b>Optimal</b>	<b>Marginal or less favourable</b>	<b>Not suitable</b>			
	>1.0	1.0 - 0.5	<0.5	10-40	5-15	15-40	>40	Red or brown	Yellow & dark	Grey & blue	Hard layers	Saturated soils	
<b>S1</b>	-	50%	50%	-		X	-		X -	-	X	-	
<b>S2</b>	100%	-	-	X	-		-	X	-	-	-	-	
<b>S3</b>	100%	-	-	X	-		-	X	-	-	-	-	
<b>S4</b>	90%	10%	-	X	X		-	X	-	-	-	-	
<b>S5</b>	75%	25%	-	X	X		-	X	-	-	-	-	
<b>S6</b>	100%	-	-	X	-		-	X	-	-	-	-	
<b>S7</b>	80%	20%	-	X	X		-	X	-	-	-	-	
<b>S8</b>	50%	50%	-	X	X		-	X	-	-	-	-	
<b>S9</b>	50%	50%	-	X	X		-	X	-	-	-	-	
<b>S10</b>	-	-	100%	-		X	-	-	X	-	X	-	

#### F4.6 SOIL SUITABILITY, IMPACTS, AND RISKS

- The Hutton soils on suitable slopes that are present on sites are very favourable for cultivation.
- The soil was found to be deeper than 600 mm indicating good root development potential.
- The red colour of the soil indicates a good drainage character; however, the optimal clay content would ensure good moisture retention.
- The soil is moderate to highly susceptible to erosion and soil conservation measures must be applied.
- The overall soil characteristics of the sites indicate optimal soil suitability for citrus cultivation along with all-terrain units.

#### F.5 CLIMATE

This property is situated in the western rain shadow of the Drakensberg Escarpment, where the climate is much drier than along the eastern face of the escarpment and where fairly infrequent frost occur during the winter. The region receives 90% of its total annual rainfall during the period October to April with the highest rainfall in January and February. The following climate diagram indicates a range of climatic conditions in the project area:



Climate change is expected to affect rainfall and drought events over South Africa. The CSIR's emerging climate change predictions for the project area, projected towards the year 2050 are summarised in the following table:

F5.2 EMERGING BASELINE CLIMATE CHANGE VARIANTS FOR THE PROJECT AREA				
Climate	Baseline	2050 Projection		
		Change	Percentage	Impact***
Average Temperature	18°C	▲ ±2.5°C	▲ ±13.8%	Low
Very Hot Days* (Per Annum)	25 days	▲ ±0 days	▲ ±0%	Low
Average Rainfall	±800 mm	Neutral	Neutral	Low
Extreme Rainfall**	Not Available	1 event/annum	N/A	Low

Data Source: Le Roux *et al.*, 2019 (CSIR)

\*A very hot day is a day when the max temp exceeds 35°C.

\*\*An extreme rainfall event (including severe thunderstorms) is defined as 20mm of rain occurring within 24h over the 8x 8km grid point.

\*\*\*Impacts are predicted as low, moderate or extreme.

F5.3 EMERGING CLIMATE-INDUCED HAZARDS POTENTIAL OF THE PROJECT AREA			
Hazards	Current Status	Projected Status (2050)	Trend
Likelihood of Fire	Low	Low	Low increase
Likelihood of Flooding	Moderate	Moderate	Low increase
Likelihood of Drought	Low	Moderate	Low increase
Likelihood of Heat Stress	Low	Low	Neutral

Data Source: Le Roux *et al.*, 2019 (CSIR)

<b>F5.4 BROAD CLIMATE CHANGE VULNERABILITIES THAT CAN BE EXPECTED IN THE PROJECT AREA</b>			
<b>Vulnerability Aspect</b>	<b>Current Status</b>	<b>Expected Vulnerability</b>	<b>Project Vulnerability</b>
Surface Water Quantity	<i>The project area is located in a high potential surface water recharge zone with high surface water use dependency.</i>	<i>Climate change projections do not indicate a major change in rainfall with no expected change to the surface water potential.</i>	<b>Low</b>
Groundwater Quantity	<i>The project area is located within a high area potential groundwater recharge zone with low groundwater use dependency.</i>	<i>Climate change projections do not indicate a major change in rainfall with no expected change in groundwater recharge.</i>	<b>Low</b>
Surface water quality	<i>The present ecological state of the watercourses in the local catchment is classified as largely modified (Class D).</i>	<i>An increase in flood events may result in soil erosion with resultant silt deposition, which may further affect the freshwater ecology of local rivers.</i>	<b>Moderate</b>
Agricultural crop resilience to temperature and droughts	<i>The area undergoes low occurrences of cyclic droughts. Existing citrus production within the Kaspersnek Valley confirms the suitability of the local climate for the proposed crop.</i>	<i>A moderate increase in drought periods combined with increase temperatures may affect the type of crop that can be grown. However, the proposed citrus cultivar is resilient to high temperatures being a water-efficient crop type.</i>	<b>Low</b>
Agricultural crop resilience to pests	<i>The relatively cold winters in the area contribute to the natural control of pests that may affect crop production.</i>	<i>A slight increase in temperature in the area may result in increased crop exposure to temperature induces pests.</i>	<b>Low</b>

Data Source: Le Roux et al., 2019 (CSIR) / Sekhukhune District Municipality: Climate Change Vulnerability Assessment and Response Plan

\*GVAP: Gross Value Added Product to the national economy.

<b>F5.5 CLIMATE CHANGE IMPACTS AND PROJECT ADAPTABILITY</b>
<ul style="list-style-type: none"> <li>▪ When considering the local climatic conditions within the project area and the projected sub-regional climate change vulnerabilities for agriculture, it is not expected that climate change would significantly affect the proposed citrus cultivation.</li> <li>▪ The proposed citrus cultivation is less vulnerable to climate change compared to livestock farming and other crops due to the overall resilience of citrus orchards against heat and water stress when compared to livestock and other crops.</li> <li>▪ Potential temperature increases and heat stress impacts on agricultural cultivation can be mitigated by shade netting that has a dual purpose in protection against temperature fluctuations, soil moisture evaporation and storms.</li> <li>▪ Potential impacts on water quality and freshwater ecology due to soil erosion by expected increasing storm events can be mitigated by the introduction of soil conservation and erosion protection measures within the proposed orchards.</li> <li>▪ Overall, the climate of the project area is suitable for citrus cultivation and the cultivation project is adaptable to introduce appropriate mitigation measures to address potential climate change vulnerabilities and impacts.</li> </ul>

## **F.6 HYDROLOGY (SURFACE DRAINAGE)**

### **F6.1 REGIONAL HYDROLOGY**

The Drakensberg mountain range is classified as a Strategic Water Resource Area. This area is therefore an important source of water that provides and maintains important ecological services downstream. The project site is located within the central reaches of the local catchment basin of the Kgwete River and within quaternary catchment No: B60G of the Ohrigstad - Blyde River sub-catchment of the Olifants River Water Management Area.

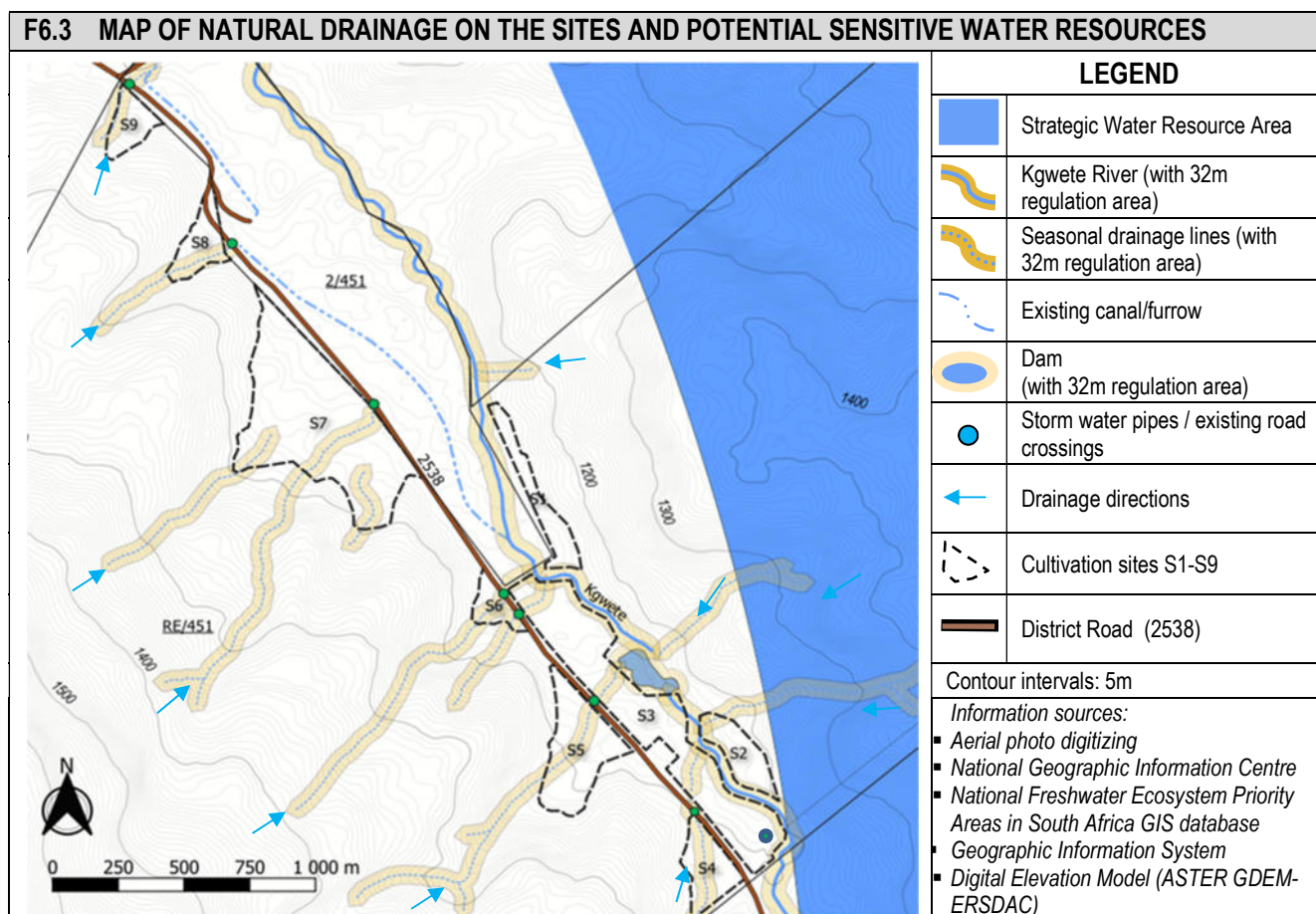
#### **F6.1.1 WATER MANAGEMENT AND CATCHMENT AREA**

<b>CATEGORY</b>	<b>Catch. Name</b>	<b>Catch. Code</b>	<b>Drainage order</b>	<b>Flow Class</b>	<b>*PES</b>
Management Area	<i>Olifants –North</i>	<i>B</i>	<i>3</i>	<i>Perennial</i>	<i>-</i>
Main catchment	<i>Ohrigstad</i>	<i>60</i>	<i>2</i>	<i>Perennial</i>	<i>CLASS D</i>
Quaternary catchment	<i>Kaspersnek-Vygehoek</i>	<i>G</i>	<i>1</i>	<i>Seasonal</i>	<i>CLASS D</i>

\*PES: Present Ecological State –Class D=Largely Modified

## F6.2 TERRAIN HYDROLOGY

The Kgwete is a seasonal stream that originates deep in the Kaspersnek Valley on the western slopes of the Drakensberg and it runs through the property and mouths into the Vygeboom River ±7km downstream. The mountainous landform of the project area is highly dissected by numerous small second to third order seasonal streams that drain towards the Kgwete River. An existing dam in the Kgwete River provides water storage on the property all year round.



## F6.4 POTENTIALLY SENSITIVE WATER RESOURCES WITHIN OR IMMEDIATELY ADJACENT TO THE SITES

The National Freshwater Ecological Priority Assessment of 2012 (NFEPA) assigns a sensitivity status to vulnerable water resources within the local sub-catchment of the project area that require protection as indicated below:

SURFACE WATER RESOURCE	SITES									
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Strategic groundwater resource area	X	X	X	X	X	X	X	X	X	✓
Critical Biodiversity River (Kgwete River)	X	X	X	X	X	X	X	X	X	X
Ecological Support Areas Sub-catchments	X	✓	✓	✓	✓	✓	✓	✓	✓	✓
Critical biodiversity wetlands	X	X	X	X	X	X	X	X	X	X

CBR: Critical Biodiversity River / CBW: Critical Biodiversity Wetlands / ESA: Ecological Support Area (Sub-catchment)

## F6.5 EXISTING AND NEW WATERCOURSE MODIFICATIONS WITHIN OR IMMEDIATELY ADJACENT TO THE SITES

SURFACE WATER RESOURCE	SITES									
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Existing In-stream dam	X	X	✓	X	X	X	X	X	X	X
Existing watercourse crossing (roads)	✓	✓	✓	✓	✓	✓	✓	✓	✓	X
Altering watercourse bed and bank	X	✓	✓	✓	✓	✓	✓	✓	✓	✓
Altering flow / impediment	X	✓	✓	✓	✓	✓	✓	✓	✓	✓



## F6.6 SURFACE WATER AVAILABILITY FOR IRRIGATION PURPOSES

Kaspersnek Vygehoek Rivers Irrigation Board indicates that the property is not enlisted for an irrigation water allotment from surface water resources and there is no evidence of existing lawful use during the qualifying period under the National Water Act 1998. Therefore, no surface water from the property can be used for irrigation purposes.

### F6.7 IMPACTS AND RISKS ON SURFACE WATER RESOURCES

Map F6.3 illustrates several natural drainage lines across the proposed cultivation sites. These are ephemeral and poorly defined watercourses that convey run-off from the higher-lying valley slopes towards the Kgwete River during periods of heavy precipitation only.

- The establishment of cultivation land/orchards, as well as the installation of irrigation pipelines and management roads across these natural drainage lines, may cause run-off impediment or watercourse modification that may cause soil erosion and downstream silt deposition and the subsequent impact on aquatic eco-system services downstream.
- These impacts can however be mitigated by way of correct orchard layout planning, to avoid natural drainage lines and correct surface contouring of the orchard to direct run-off towards these drainage lines. Soil conservation measures in the orchards, as well as in-stream erosion protection measures, can be applied to prevent soil erosion and scoring of watercourses.
- By implementing the above measures the free flow of surface water would not be impeded and there should thus not be any water quality and quantity impacts on downstream water ecology and users.
- The property holds no surface water rights for irrigation and therefore of the proposed cultivation would not impact on water availability of downstream water users.

## F7 GROUNDWATER RESOURCES

### F7.1 AQUIFER CLASSIFICATION AND BROAD GROUNDWATER CONDITIONS

According to the Aquifer Classification Map of South Africa (DWA - August 2012), the property is located on the edge of a major aquifer system which is a potentially high-yielding aquifer system of potentially good water quality. It is noteworthy that groundwater springs originate on the southern mountainous foot-slopes of the property which is an indication of a potentially high yielding groundwater resource as the property is located in close proximity to the mid-slope Malmani dolomite formation of the Drakensberg (Chuniespoort group). The dolomite formation on the property is classified as a strategic groundwater resource area. The valley bottom along the Kgwete River also holds a potentially shallow alluvial aquifer. Such an aquifer occurs in the saturated zone of the river/floodplain that is generally composed of clay, silt, sand, gravel or similar unconsolidated material. Although such water occurs underground, the use of alluvial groundwater from boreholes along the river is considered to be surface water in terms of its designated use.

### F7.2 AQUIFER VULNERABILITY

Aquifer vulnerability refers to the tendency or likelihood for contamination to reach a specified position in the groundwater system after introduction at some location above the uppermost aquifer. The Aquifer Vulnerability Map of SA (Directorate Hydrological Services 2013) indicates that all sites are located in the most vulnerable region indicates a high tendency or likelihood for contamination to reach a specified position in the groundwater system after introduction at some location above the uppermost aquifer.

### F7.3 AQUIFER SUSCEPTIBILITY

Aquifer susceptibility refers to a qualitative measure of the relative ease with which a groundwater body can be potentially contaminated by anthropogenic activities and includes both aquifer vulnerability and the relative importance of the aquifer in terms of its classification (Aquifer Susceptibility Map of SA, Directorate Hydrological Services 2013). The underlying aquifer is classified as highly susceptible.

F7.4 AQUIFER SUSCEPTIBILITY MATRIX		AQUIFER CLASSIFICATION		
VULNERABILITY		POOR	MINOR	MAJOR
	LEAST	Low	Low	Medium
	MODERATE	Low	Medium	High
	HIGH	Medium	High	High

## F7.5 LOCAL GROUNDWATER AVAILABILITY

A Hydro-geological study revealed that there is sufficient and sustainable yield from groundwater resources located in the dolomite formations that underlay the property to provide in the required water demand for irrigation of the proposed new citrus expansion area. The full sustainable safe daily abstraction rate of 734.400m<sup>3</sup>/day from borehole GT-02736, is enough to irrigate 59.568ha of soft citrus at the demand (4 500m<sup>3</sup>/ha/annum) on the Remainder of the farm Doornhoek 451 KT. This groundwater demand calculates to Category A or small-scale abstraction (<60% of recharge on the property). It is important to note that the borehole is located more than 100m away from the Kgwete River, are more than 60m deep, and is not considered to be located within the alluvial aquifer of the Kgwete River. For more information, refer to the Specialist Addendum Hydro-geological Reports.

## F7.6 GROUNDWATER / BOREHOLE CHARACTERISTICS ON RE / DOORNHOEK 451-KT

SUPPLY BOREHOLE	Sustainable abstraction rate	Irrigation Potential (hectares)
Borehole 1 Borehole register no GT-02736 (new)	734.4 m <sup>3</sup> /day	59.568 ha

The potential groundwater abstraction from the new borehole GT-02736 located on the Remainder of the farm Doornhoek 451 KT provides an irrigation potential for 59.568 ha of soft citrus production at an extraction rate of 4500 m<sup>3</sup>/ha/annum.

## F7.7 GROUNDWATER USE IMPACTS

A hydro-geological impact assessment was conducted as part of the feasibility determination for the proposed cultivation and the following findings were presented:

- The underlying groundwater system is a major aquifer that is most vulnerable in terms of exploitation and contamination of the resource.
- The annual recharge to the groundwater resource compared with the proposed extraction is sufficient to ensure its sustainable utilisation therefore without risking the over-exploitation of the resource.
- The use of groundwater will not impact surrounding groundwater users.
- The use of groundwater will not impact downstream surface water users.
- The agricultural activity does not pose a groundwater contamination risk.

## F8 LAND COVER

### F8.1 BROAD VEGETATION DESCRIPTION

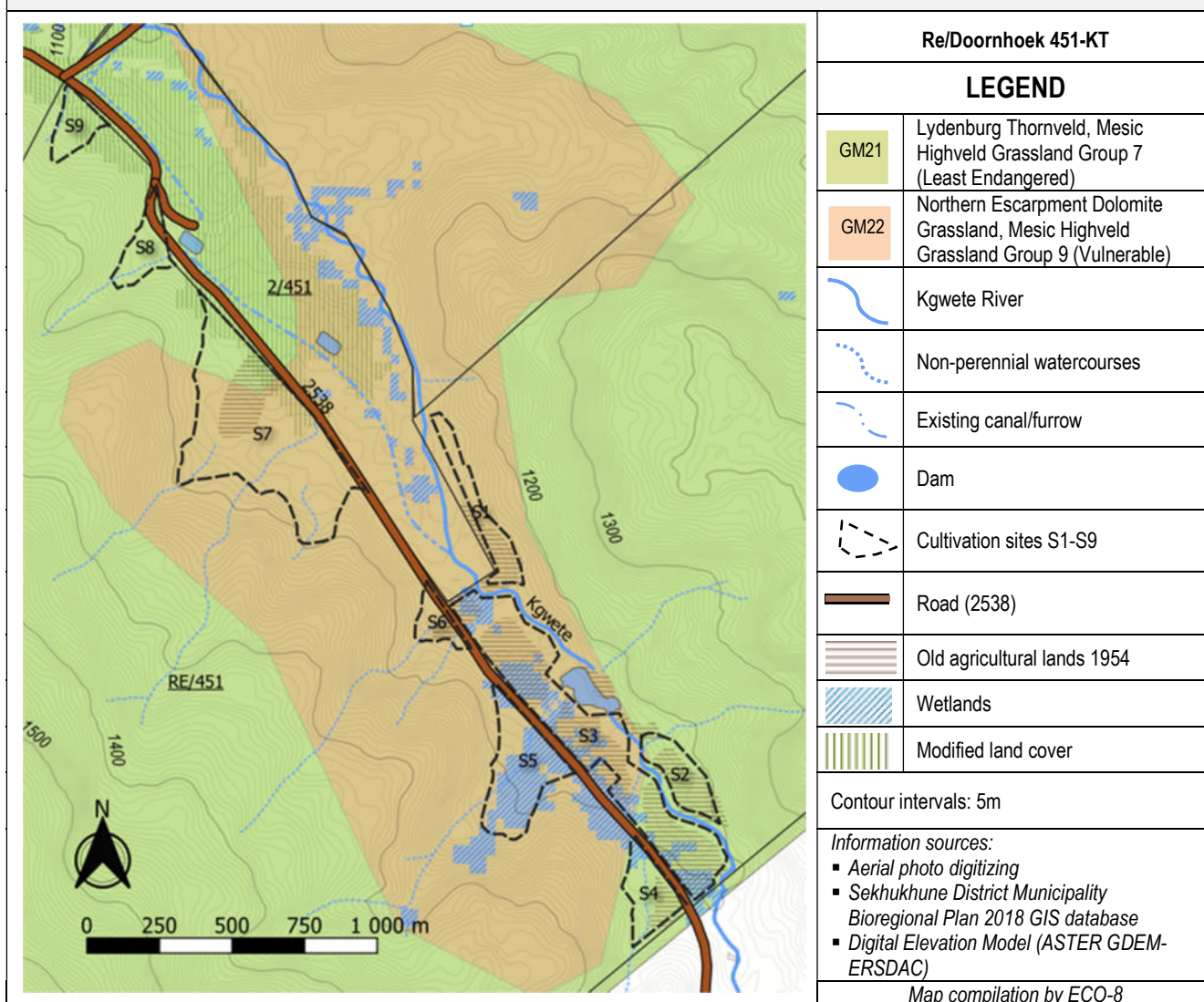
The vegetation map of Mucina & Rutherford (2006) classifies the vegetation of the project area as the “Lydenburg Thornveld” (GM21) and “Northern Escarpment Dolomite Grassland” (GM22), both vegetation types being of the Mesic Highveld Grassland Bioregion. The GM21 vegetation type is situated in broadband between the high-lying mountains from just north of Ohrigstad, tapering southwards through Lydenburg. This vegetation type occurs at lower elevations along the valley-bottom of valleys and along the foot slopes of the mountains and can broadly be described as open, frost-hardy woodland. The GM22 vegetation type occurs on the western slopes of the Drakensberg Escarpment from the north of the Blyde River Canyon to the south near Kaapsehoop. This vegetation type, being predominantly grassland with a shrub layer along drainage lines, covers the more elevated mid-slopes and crests of the mountainous terrain.

### F8.2 VEGETATION / TERRESTRIAL ECOSYSTEM STATUS (IMPORTANCE & SENSITIVITY)

The Sekhukhune Bioregional Plan indicates that the proposed cultivation sites are located in both the Lydenburg Thornveld (GM21) and in the Northern Escarpment Dolomite Grassland (GM22) vegetation types.

- The Lydenburg Thornveld (GM21) is not listed as an ecosystem that is threatened as published in Government Notice R1002 of 9 December 2011 Section 52 of NEMBA. The conservation target of this vegetation type is 27% however, currently, only ±2% of this vegetation type is statutorily protected. Regionally a total of 22% of this vegetation type has been transformed, mainly by dryland and irrigated cultivation. The remaining 78.9% is potentially vulnerable (although not currently classified as such) (Mucina & Rutherford, 2006).
- The Northern Escarpment Dolomite Grassland (GM22) is listed as a vulnerable ecosystem and in need of protection as published in Government Notice R1002 of 9 December 2011 Section 52 of NEMBA. The conservation target of this vegetation type is 27% however, currently, only ±2% of this vegetation type is statutorily protected within the Blyde River Canyon National Park (Mucina & Rutherford, 2006).

### F8.3 MAP OF PRELIMINARY LAND COVER CONDITION ASSESSMENT OF THE SITES



### F8.4 LAND COVER AND VEGETATION DESCRIPTION OVER THE PROPOSED CULTIVATION SITES

Preliminary verification of land cover by way of aerial photo analysis, vegetation map and site visit indicate the following:

- Agriculture occurred historically within this valley and written sources refer to this dating back to the late 1800s.
- There is evidence that portions of the project area were previously cultivated, however dense regrowth by mainly pioneer woodland species occur on these previously modified areas.
- There is evidence of previous and current cattle farming within the project area and historically overgrazing may have occurred that lead to bush-encroachment within the valley bottom and foot-slope areas later on.
- The land cover and vegetation that occur on the proposed cultivation sites S1 to S7 are characterised by a dense woodland thicket with poor woody diversity and mostly an absent herbaceous & grass layer which is not representative of the GM22 vegetation type.
- Bush encroachment and alien vegetation are evident on all sites S1 to S9 with dominant pioneer species that are listed under CARA (1983) present.
- Ephemeral drainage lines that are poorly defined occur within sites S4-S9 and S10, however, no vegetation and moist soil conditions that are associated with wetlands were identified on the proposed cultivation sites.
- A riparian woodland zone occurs in the valley-bottom along the Kgwete River, consisting mainly of woody vegetation that is associated with the presence of deep alluvial soils.
- The whole of the proposed site S3 borders onto this riparian woodland and in some places, the preliminary delineation of this site enters into the riparian zone.
- The preliminary verification identifies several land cover and vegetation discrepancies compared with official sources.

F8.5 LAND COVER CONDITION										
LAND COVER STATUS	CULTIVATION SITE ALTERNATIVES									
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Natural vegetation	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Near natural (transformed)	✓	✓	✓	✓	✓	✓	✓	✓	✓	X
No natural land cover	X	X	X	X	X	X	X	X	X	X
Alien plant infestation	✓	✓	✓	✓	✓	✓	✓	✓	✓	X
Bush encroachment	✓	✓	✓	✓	✓	✓	✓	✓	✓	X
Poor veld management /	✓	✓	✓	✓	✓	✓	✓	✓	✓	X
Erosion/donga/bare soil	X	X	X	X	X	X	X	X	X	X
Old lands	✓	✓	✓	✓	X	✓	✓	X	X	X
Currently cultivated lands	X	X	X	X	X	X	X	X	X	X
Current and previous cattle grazing	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
Buildings & cattle kraals	X	X	✓	X	X	X	X	X	X	X
Roads & servitudes	X	X	✓	✓	✓	✓	✓	✓	✓	X
Earth works	X	X	X	X	X	X	X	X	X	X
Other	-	-	-	-	-	-	-	-	-	-

✓= Occurs in site, X=Does not occur on-site, U=Unsure – requires further site verification

## F8.6 PRELIMINARY IMPACT ASSESSMENT OF CURRENT VEGETATION / LAND COVER CONDITIONS OF SITES

MEASURE OF MODIFICATION	SITES	SIZE	LAND COVER CONDITION DESCRIPTION	IMPACT PREDICTION
Heavily modified	S2,S3,S4,S5,S6	±35.4 ha	Moderate modification of vegetation due to historic farming and bush encroachment.	Low impact
Moderately modified	S1,S7	±26 ha	Moderate modification of vegetation due to bush encroachment.	Low impact
Low modification	S8,S9	±5.4 ha	Low modification of vegetation due to bush encroachment.	Moderate impact

F8.7 LAND COVER SUITABILITY IMPACTS AND RISKS
<ul style="list-style-type: none"> <li>The sites have been transformed historically, first by cultivation activities and later the sites were used for cattle breeding and grazing.</li> <li>The sites thus represent a moderately transformed and degraded land cover due to historic cultivation overgrazing, poor veld management and resultant alien vegetation infestation with large scale bush encroachment.</li> <li>It is thus predicted that the proposed change in land cover would pose an overall “Low to Moderate” impact on vegetation, biodiversity, important species, habitat and ecological functions.</li> <li>However, clearing of vegetation may affect riparian zones and ephemeral drainage lines. Therefore, accurate delineation and avoiding such areas during the planning of the layout of the orchards should provide suitable mitigation.</li> </ul>

## F.9 TERRESTRIAL AND AQUATIC BIODIVERSITY SENSITIVITY

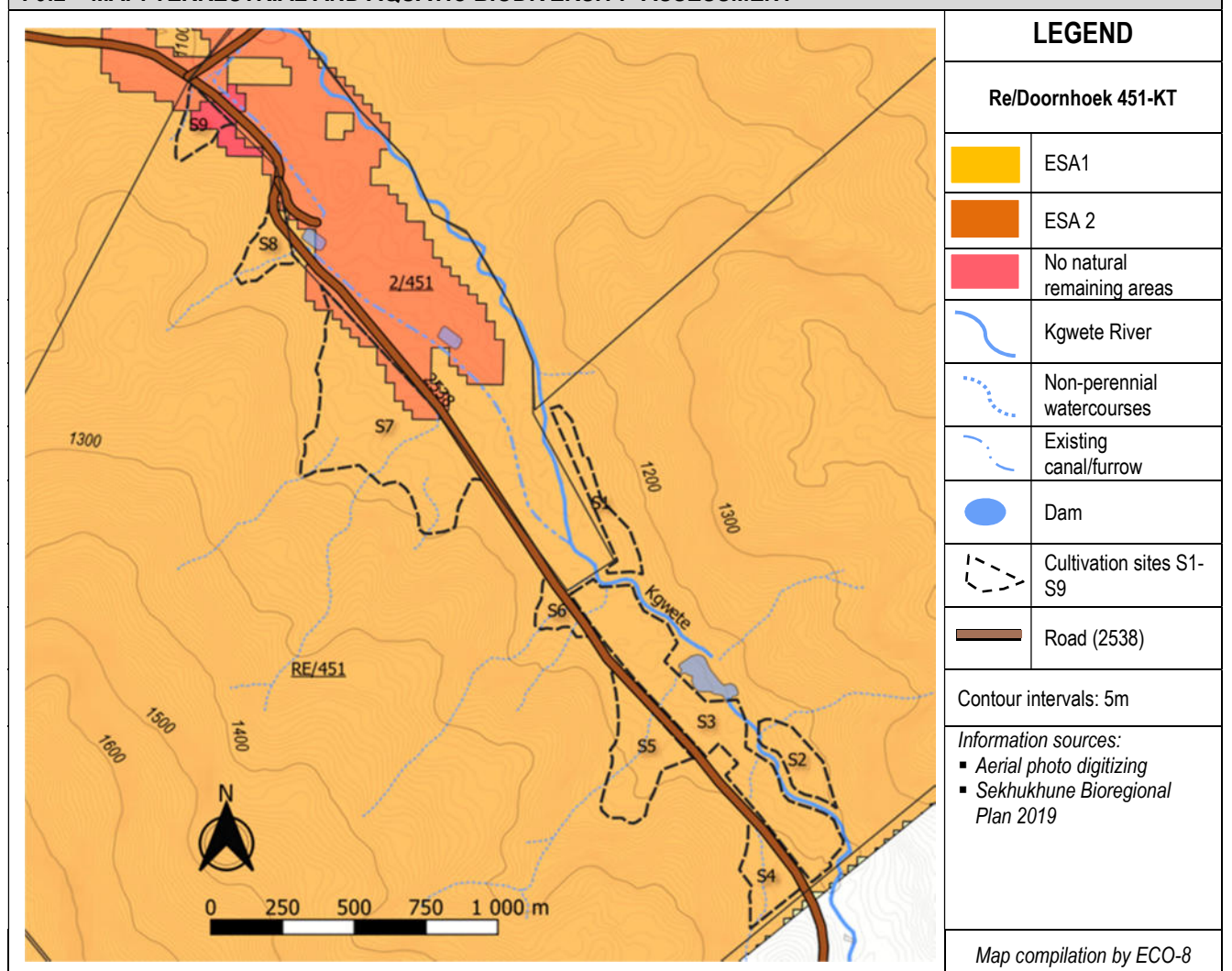
The Sekhukhune District Bioregional Plan (2019) provides a combined assessment of the terrestrial and aquatic biodiversity importance on a very detailed scale. According to this biodiversity assessment, previous and existing land transformation on the property (as assessed in 2019), represents the majority of the proposed cultivation sites (being ±64.4ha in total size). The table below quantifies the biodiversity classification within each of the proposed cultivation sites:

F.9.1 TERRESTRIAL BIODIVERSITY SENSITIVITY OF THE SITES		PROPOSED CULTIVATION SITES									
Terrestrial Biodiversity Categories		1	2	3	4	5	6	7	8	9	10
Protected area (PA's)	Formal Protected Areas are declared as such under the National Environmental Management Protected Areas Act (NEMPAA).	X	X	X	X	X	X	X	X	X	X
CRITICAL BIODIVERSITY AREA	Areas that are required to meet biodiversity targets for species, ecosystems or ecological processes.										
CBAs Irreplaceable (Level 1)	<ul style="list-style-type: none"> <li>Irreplaceable sites.</li> <li>Areas essential for meeting biodiversity targets.</li> <li>No alternative sites can meet targets.</li> </ul>	X	X	X	X	X	X	X	X	X	X



Terrestrial Biodiversity Categories		1	2	3	4	5	6	7	8	9	10
<b>CBAs Optimal (Important and necessary) (Level 2)</b>	<ul style="list-style-type: none"> <li>Areas selected to meet biodiversity targets.</li> <li>Optimal sites based on complementarity, connectivity and land uses conflict avoidance.</li> </ul>	X	X	X	X	X	X	X	X	X	X
<b>ECOLOGICAL SUPPORT AREA</b>	Areas that play an important role in supporting the functioning of PA's or CBAs and for delivering important ecosystem services										
<b>Ecological Support Area (Level 1)</b>	Natural, near-natural and semi-natural or degraded areas that support the ecological functioning of CBAs and protected areas and maintain ecological processes.	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>Ecological Support Area (Level 2)</b>	Areas with little to no natural habitat that is nevertheless important for supporting ecological processes.	X	X	X	X	X	X	✓	✓	✓	✓
<b>OTHER NATURAL AREAS (ONA)</b>	Natural or near-natural areas that are currently not considered essential for meeting biodiversity targets or maintaining ecological functioning; may still retain valuable biodiversity or play an important role as ecological infrastructure or in the delivery of ecosystem services.										
<b>(ONA Level 2)</b>	Natural and intact but not required to meet targets, and not identified as CBAs or ESAs.	X	X	X	X	X	X	X	X	X	X
<b>NO NATURAL HABITAT REMAINING (NNR)</b>	Areas in which significant or complete loss of natural habitat and ecological function has taken place due to activities such as ploughing, hardening of surfaces, open-cast mining, cultivation etc.										
<b>No Natural Habitat Remaining (NNR)</b>	<ul style="list-style-type: none"> <li>Areas with no direct biodiversity importance.</li> <li>Areas with no natural habitat or degraded natural areas that are not required as ESAs, including intensive agriculture, urban, industry and built infrastructure.</li> </ul>	X	X	X	X	X	X	X	X	✓	X

## F9.2 MAP: TERRESTRIAL AND AQUATIC BIODIVERSITY ASSESSMENT



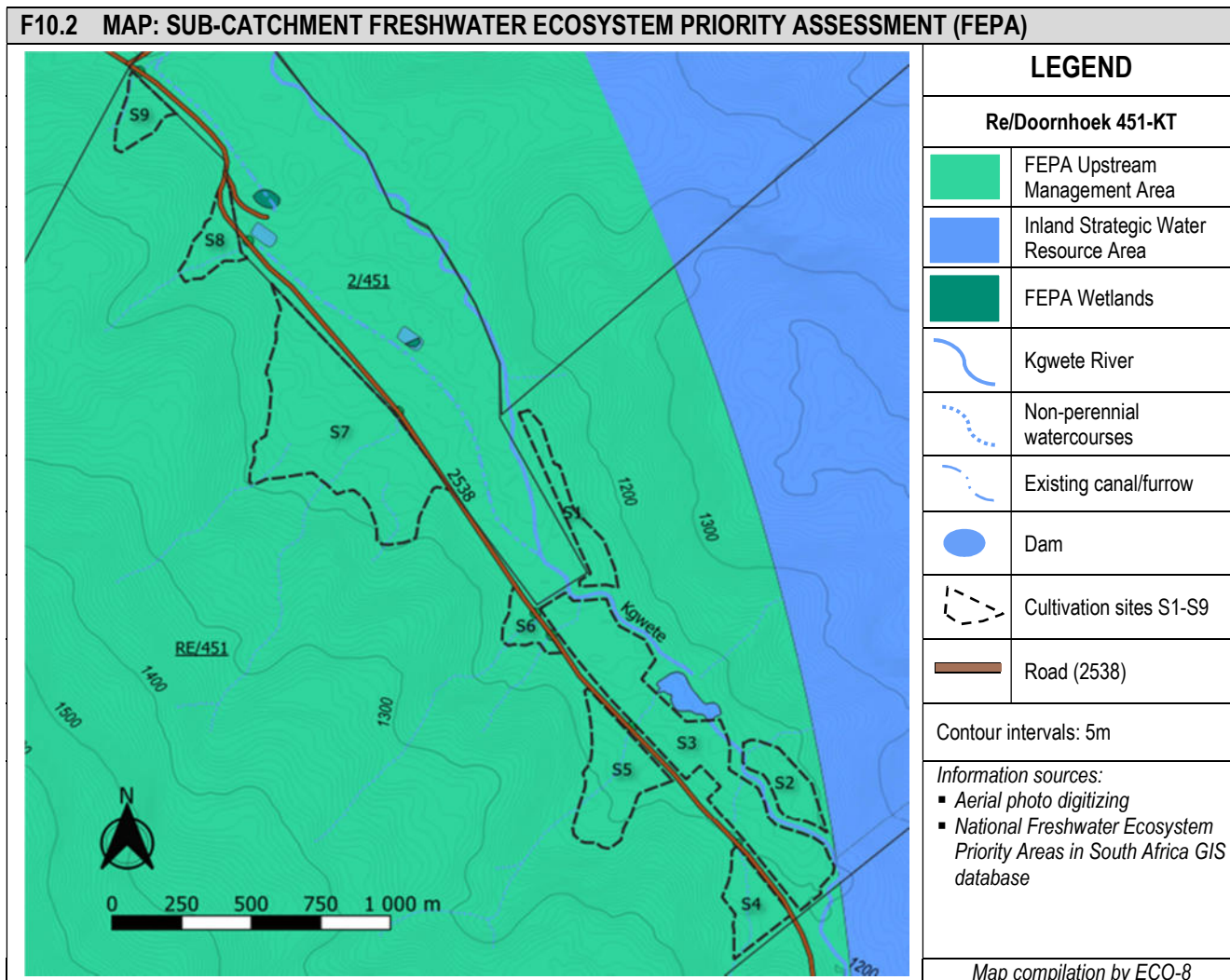
<b>F9.3 LAND USE GUIDELINES FOR THE BIODIVERSITY CATEGORY : ESA 1 &amp; ESA 2</b>	
<b>GUIDELINE OBJECTIVES/RECOMMENDATIONS</b>	<b>SCOPING THE IMPACT RESPONSE OF THE SITES</b>
<p>The objectives of Ecological Support Area-1 (ESA1) are to maintain ecosystem functionality and connectivity allowing for the limited loss of biodiversity patterns. The guidelines to achieve these objectives are:</p> <ul style="list-style-type: none"> <li>▪ Implement appropriate zoning and land management guidelines to avoid impacts on ecological processes and connectivity.</li> <li>▪ Avoid intensification of land use.</li> <li>▪ Avoid fragmentation of the natural landscape</li> </ul>	<ul style="list-style-type: none"> <li>▪ A preliminary assessment indicates by way of aerial photo analysis, map interpretation and on-site verification indicate that all the proposed cultivation sites S1-S9 are located totally or partially within ESA1.</li> <li>▪ It is expected that ecological functionality and connectivity on all of the proposed cultivation sites have mostly declined due to previous land cover modification (bush encroachment) as well as fragmentation of habitat by District Road 2538 and by fences on both sides of this road.</li> <li>▪ The ecological support services that can be rendered are thus questionable and remains subject to further investigation.</li> <li>▪ Potentially ecological connectivity may be found along the riparian zone of the Kgwete river and ephemeral drainage lines, specifically towards the north and east of the Kgwete River. It is important to maintain this ecological connectivity between different habitats from the valley bottom towards the crest of the valley and beyond.</li> <li>▪ Ecological connectivity between the valley bottom and the valley crests west of the Kgwete River has mostly been fragmented by the District Road and electricity servitude that runs alongside, as well as by boundary fencing along the District Road. Some measure of ecological connectivity in this area may be repaired by way of ecological corridors along ephemeral drainage lines but their efficiency would be subject to dropping of fences along certain sections of the District Road to facilitate the movement of fauna.</li> <li>▪ If the above can be applied, both the cultivation objectives as well as ecological objectives may be achieved.</li> <li>▪ Specialist terrestrial and aquatic ecological investigations and recommendations on the above preliminary assessment will be required.</li> </ul>
<p>The objectives of Ecological Support Area-2 (ESA2) on areas with no natural habitat remains important for supporting ecological processes.</p>	<ul style="list-style-type: none"> <li>▪ A preliminary assessment by way of map interpretation indicates that some of the proposed cultivation sites S7-S9 are located partially within ESA2.</li> <li>▪ However, a site verification indicates that the area in which these sites are proposed, rather qualify as an ESA1.</li> <li>▪ A specialist terrestrial and aquatic ecological verification and confirmation of the above preliminary assessment will be required.</li> </ul>

<b>F9.4 LAND-USE GUIDELINES FOR THE BIODIVERSITY CATEGORY: NO NATURAL REMAINING AREA</b>	
<b>GUIDELINE</b>	<b>SCOPING THE IMPACT RESPONSE OF THE SITES</b>
<p>No natural remaining areas (NNR), are those areas in which significant or complete loss of natural habitat and ecological function has taken place due to activities such as ploughing, hardening of surfaces, open-cast mining, cultivation.</p>	<ul style="list-style-type: none"> <li>▪ A preliminary assessment by way of map interpretation indicates that cultivation site S9 is located partially within an ESA2. However, a site verification indicates that the area in which this site is proposed rather qualifies as an ESA1.</li> <li>▪ A small area on S3 where an existing cattle kraal is located as well as an ESKOM servitude parallel to the District Road qualifies as an NNR area.</li> </ul>

## F10 FRESHWATER ECOSYSTEM SENSITIVITY

The National Freshwater Ecological Priority Assessment (NFEPA) that was compiled and published in 2011 provides an assessment of important watercourses, wetlands and catchment areas and a guideline for development in support of healthy freshwater ecosystems. The table below indicates the occurrence of FEPA on each of the proposed cultivation sites:

F.10.1 FRESHWATER ECOLOGICAL SENSITIVITY OF THE SITES		PROPOSED CULTIVATION SITES									
FEPA Categories		1	2	3	4	5	6	7	8	9	10
<b>RIVER FEPA AND ASSOCIATED SUB-QUATERNARY CATCHMENT</b>	<b>A</b>	Unmodified, natural (good condition).	X	X	X	X	X	X	X	X	X
	<b>B</b>	Largely natural with few modifications. A small change in natural habitats and biota may have taken place but the ecosystem functions are essentially unchanged.	X	X	X	X	X	X	X	X	X
	<b>C</b>	Moderately modified. A loss and change of natural habitat and biota have occurred but the basic ecosystem functions are still predominantly unchanged.	X	X	X	X	X	X	X	X	X
	<b>D</b>	Largely modified. A large loss of natural habitat, biota and basic ecosystem functions have occurred.	✓	✓	✓	✓	✓	✓	✓	✓	✓
	<b>E</b>	Seriously modified. The loss of natural habitat, biota and basic ecosystem functions are extensive.	X	X	X	X	X	X	X	X	X
	<b>F</b>	Critically/Extremely modified. Modifications have reached a critical level and the system has been modified completely with an almost complete loss of natural habitat and biota, loss of the basic ecosystem functions and changes are irreversible.	X	X	X	X	X	X	X	X	X
<b>WETLAND FEPA</b>		Important wetlands that support biodiversity and is habitat to important fauna.	X	X	X	X	X	X	X	X	X
<b>WETLAND CLUSTER</b>		Wetland clusters are groups of wetlands embedded in a relatively natural landscape. This allows for important ecological processes such as the migration of frogs and insects between wetlands.	X	X	X	X	X	X	X	X	X
<b>FISH SANCTUARY AND ASSOCIATED SUB-QUATERNARY CATCHMENT</b>		Fish sanctuaries are rivers that are essential for protecting threatened and near-threatened freshwater fish that are indigenous to South Africa.	X	X	X	X	X	X	X	X	X
<b>FISH SUPPORT AREA AND ASSOCIATED SUB-QUATERNARY CATCHMENT</b>		Fish Support Areas also include sub-quaternary catchments that are important for migration of threatened or near-threatened fish species	X	X	X	X	X	X	X	X	X
<b>UPSTREAM MANAGEMENT AREA</b>		Upstream Management Areas are sub-quaternary catchments in which human activities need to be managed to prevent degradation of downstream river FEPAs and Fish Support Areas.	✓	✓	✓	✓	✓	✓	✓	✓	✓
<b>PHASE 2 FEPA</b>		Phase 2 FEPAs were identified in moderately modified rivers (C ecological category), only in cases where it was not possible to meet biodiversity targets for river ecosystems in good condition (A or B ecological category).	X	X	X	X	X	X	X	X	X
<b>FREE-FLOWING RIVER</b>		Free-flowing rivers without dams which are importance for ecosystem processes.	X	X	X	X	X	X	X	X	X
<b>STRATEGIC SURFACE WATER AREAS</b>		Sub-quaternary catchments where mean annual run-off is at least 3X more than the average for the related primary catchment.	X	X	X	X	X	X	X	X	✓
<b>STRATEGIC GROUNDWATER RESOURCE AREAS</b>		Sub-quaternary catchments where ground-water recharge is at least 3X more than the average for the related primary catchment.	X	X	X	X	X	X	X	X	✓



F10.3 LAND-USE GUIDELINES FOR AQUATIC FOR FEPA UPSTREAM MANAGEMENT AREAS	
GUIDELINE	SCOPING THE IMPACT RESPONSE OF THE SITES
<ul style="list-style-type: none"> <li>▪ The guiding principle for development is to maintain the good ecological condition of the network of streams and wetlands in the sub-catchment.</li> <li>▪ Although the proposed cultivation activities can be supported in terms of the FEPA, indirect impacts such as non-point source pollution by way of leaching of agricultural chemicals and suspended solids through eroded soil sediment may occur which may result in poor water quality and pose a detrimental effect on freshwater ecology.</li> </ul>	<ul style="list-style-type: none"> <li>▪ Pathways for aquatic biological movement must be incorporated into the layout of the orchard.</li> <li>▪ A buffer zone can be incorporated along the edge of all watercourses that can perform the purpose of a sink for intercepting agricultural chemicals.</li> <li>▪ Soil erosion and silting of watercourses can be prevented by the installation of orchard run-off management structures to maintain good water quality within the catchment.</li> </ul>

F10.4 FRESHWATER ECOLOGY IMPACTS AND RISKS
<ul style="list-style-type: none"> <li>▪ Changes can be expected in run-off hydrology such as increased run-off peak flows due to impediment of normally dispersed run-off and concentration of run-off in furrows or along contoured ridges within the orchards.</li> <li>▪ Such changes combined with changes in ground cover within the orchard can result in sheet soil erosion across the orchard surface area and in channel erosion (rills and gullies).</li> <li>▪ Silt loaded run-off (potentially containing traces of soil fertilizers and pesticides) can impact downstream water quality which poses a risk to freshwater ecology. Specifically S1, S2 and S3 are subject to these impacts and risks.</li> <li>▪ Mitigation measures need to be implemented to maintain good run-off water quality from all sites.</li> <li>▪ Fencing should be designed to allow for ecological connectivity of aquatic species along drainage lines.</li> </ul>

## F.11 SPECIES SENSITIVITY

F11.1 SPECIES OF CONSERVATION CONCERN	PROPOSED CULTIVATION SITES									
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Important Plant Species (SCC)	M	M	M	M	M	M	M	M	M	M
Important Animal Species (SCC)	M	M	M	M	M	M	M	M	M	M

VH=Very high / H=High probability / M=Moderate probability / L=Low probability of species occurring on sites in terms of the National Screening Tool – Preliminary Assessment

F11.2 LEGALLY PROTECTED SPECIES		PROPOSED CULTIVATION SITES									
Act	Protected Species	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
NFA	None identified	U	U	U	U	U	U	U	U	U	U
LNCA	None identified	U	U	U	U	U	U	U	U	U	U
NEMBA	None identified	U	U	U	U	U	U	U	U	U	U

NFA: National Forests Act 1998 / LNCA: Limpopo Nature Conservation Act 1998 / NEMBA: National Environmental Management Biodiversity Act 2004

U: Unsure-Verification to be determined by a qualified person

F11.3 IMPORTANT SPECIES IMPACTS AND RISKS
<i>Species of conservation concern may occur in this area and potentially on the sites as indicated by the National Environmental Screening Tool. Aerial photographs verification indicates historic cultivation on several sites and together with bush encroachment, important species may have been removed or replaced. A terrestrial ecologist must conduct a site verification to identify, map, and determine the impact of the proposed cultivation development on sensitive species and must recommend mitigation actions such as avoidance, rescuing, re-location, offsetting, and replacement.</i>

## F.12 SENSITIVE HERITAGE RESOURCES

<i>“Heritage impact” means the impact or potential impact that activity has, has had or may have on an object or place of cultural or archaeological significance, paleontological remains or paleontological sites, living heritage, public monuments, and memorials, or a place declared to be a national or provincial heritage site by the relevant authority.</i>
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F12.1 POTENTIAL HERITAGE IMPACTS	PROPOSED CULTIVATION SITES									
	S1	S2	S3	S4	S5	S6	S7	S8	S9	S10
Cultural & historic sites	U	U	U	U	U	U	U	U	U	U
Historic buildings (older than 60 years)	U	U	U	U	U	U	U	U	U	U
Archaeological sites / settlements	U	U	U	U	U	U	U	U	U	U
Fossils (Palaeontological)	U	U	U	U	U	U	U	U	U	U
Graves	U	U	U	U	U	U	U	U	U	U
Other	U	U	U	U	U	U	U	U	U	U

U: Unsure-Verification to be determined by a qualified person; X: No evidence found but can be changed by ground-truthing

F12.2 POTENTIAL IMPACT ON HERITAGE RESOURCES
<ul style="list-style-type: none"> <li>▪ The National Environmental Screening Tool identified no potential sensitivity on the sites for the occurrence of historic and cultural heritage resources.</li> <li>▪ The National Environmental Screening Tool identified no potential sensitivity on the sites for the occurrence of archaeological resources.</li> <li>▪ The National Environmental Screening Tool identify potentially sensitive paleontological areas. The National Environmental Screening Tool has a combined sensitivity of “Medium” to “High” on the proposed cultivation sites.</li> <li>▪ A Heritage Impact Assessment including a paleontological investigation must be conducted in terms of Sections 35 and 36 of the National Heritage Resources Act (1998) to identify and map archaeological, historic structures and cultural heritage sites and graves and to determine the impact that the proposed cultivation project may have on such heritage resources and must recommend mitigation actions such as avoidance and possible re-location amongst others.</li> </ul>



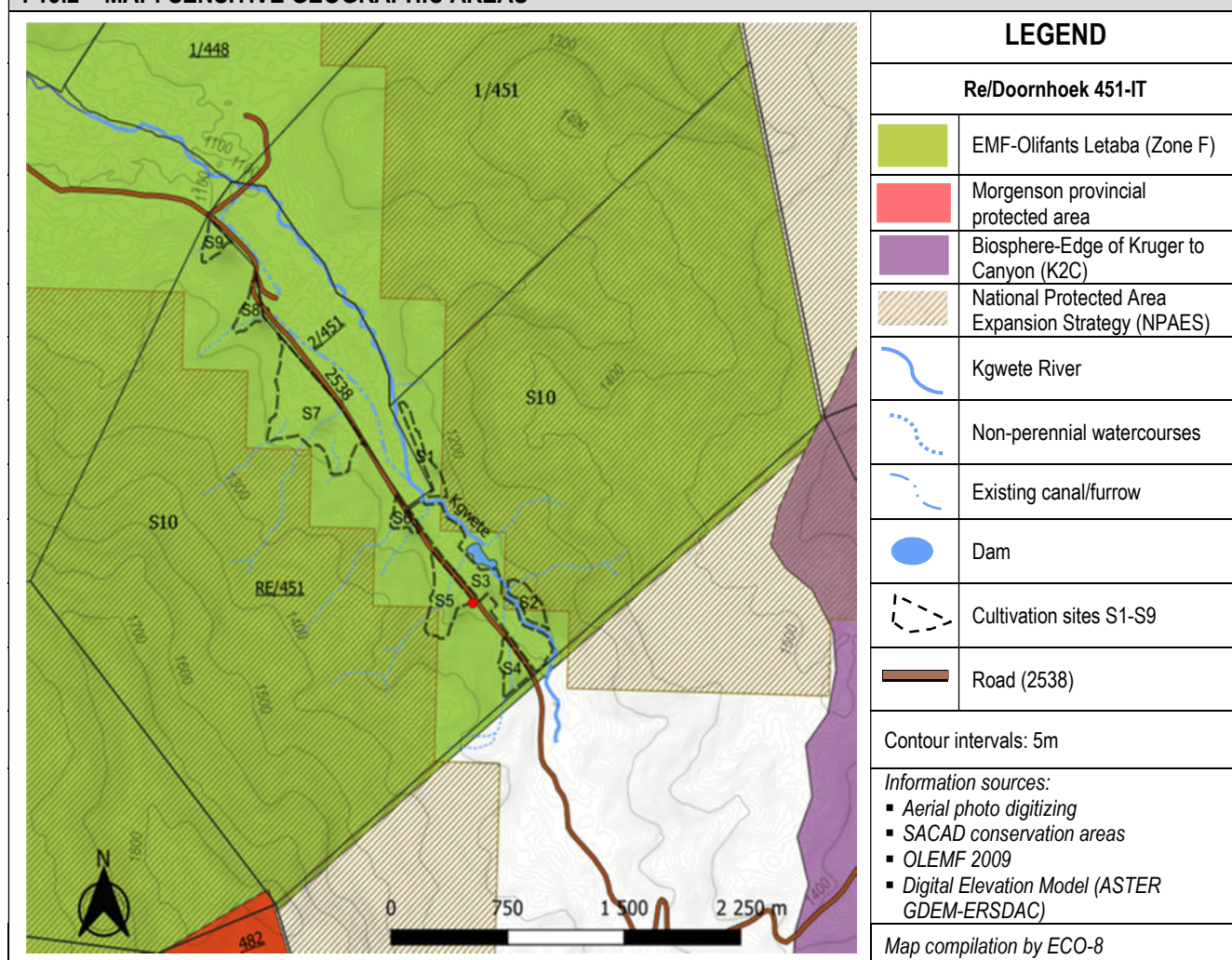
## F13 SENSITIVE GEOGRAPHIC AREAS

Sensitive geographic areas are incorporated in Listing Notice 3 of the EIA Regulations and therefore any development must be considerate to the sensitivity of such areas.

### F13.1 IDENTIFICATION OF GEOGRAPHIC SENSITIVE AREAS (AS IDENTIFIED IN LN3 OF EIA REGULATIONS)

Important geographic areas	Description	The locality of the sites	Potential impact due to the proposed activity
Near to / within national protected areas	Within a 10km buffer surrounding a national protected area.	No	N/A
Near to / within provincial protected areas	Within a 5km buffer surrounding a provincial protected area.	Yes	Potential visual impact.
Within a focus area for protected area expansion	Specific guidelines apply. It is evident that the expansion area excludes the valley bottom area and should therefore not extend over the project area.	No	N/A
Near to / within World Heritage Sites	Specific guidelines will apply	No	N/A
Near to / within a Biosphere Region	Outside the Kruger-to-Canyons Biosphere Region.	No	N/A
Near to / within an International Convention Area	Specific guidelines will apply	No	N/A
Within sensitive areas identified in EMF's	Zone F of the Olifants-Letaba Catchments Environmental Management Framework Area (OLEMF).	Yes	Ecological reserve of the river system and loss of earmarked conservation & tourism areas.

### F13.2 MAP: SENSITIVE GEOGRAPHIC AREAS



<b>F13.3 POTENTIAL IMPACT ON SENSITIVE GEOGRAPHIC AREAS</b>
<ul style="list-style-type: none"> <li>A potential 'sense-of place' and 'visual impact' may occur as the property is situated within the 5km buffer from a provincial protected area, namely the Morgenson Provincial Reserve. However, these impacts are considered in Sections F15.1 and F15.2 which verifies that the potential impacts can be expected to have low significance.</li> <li>The ecological reserve of the Kgwete-Vygehoek and Kaspersnek Rivers may be impacted by the proposed cultivation use. In this regard, it was confirmed that the project would not make use of surface water for irrigation and the intended groundwater extraction will have no effect on surface water quantity or flow as indicated in Sections F6 and F7. The ecological reserve of the river system is therefore not expected to be affected negatively by the proposed cultivation.</li> <li>Conservation and tourism are the earmarked land use for the entire Zone F of the OLEMF. This land use designation, however, does not take historic and current agricultural land uses within the Kaspersnek Valley into consideration. Furthermore, there is no trend of tourism business and related activities in the surrounding areas and the establishment of such uses on high potential agricultural land within the Kaspersnek Valley is highly unlikely. Conservation and tourism land-use as suggested in the EMF is therefore not a feasible or reasonable alternative in terms of land use as further elaborated in Section I3.b.</li> </ul>

## **F14 SURROUNDING LAND USES AND ASSOCIATED INFRASTRUCTURE SERVICES**

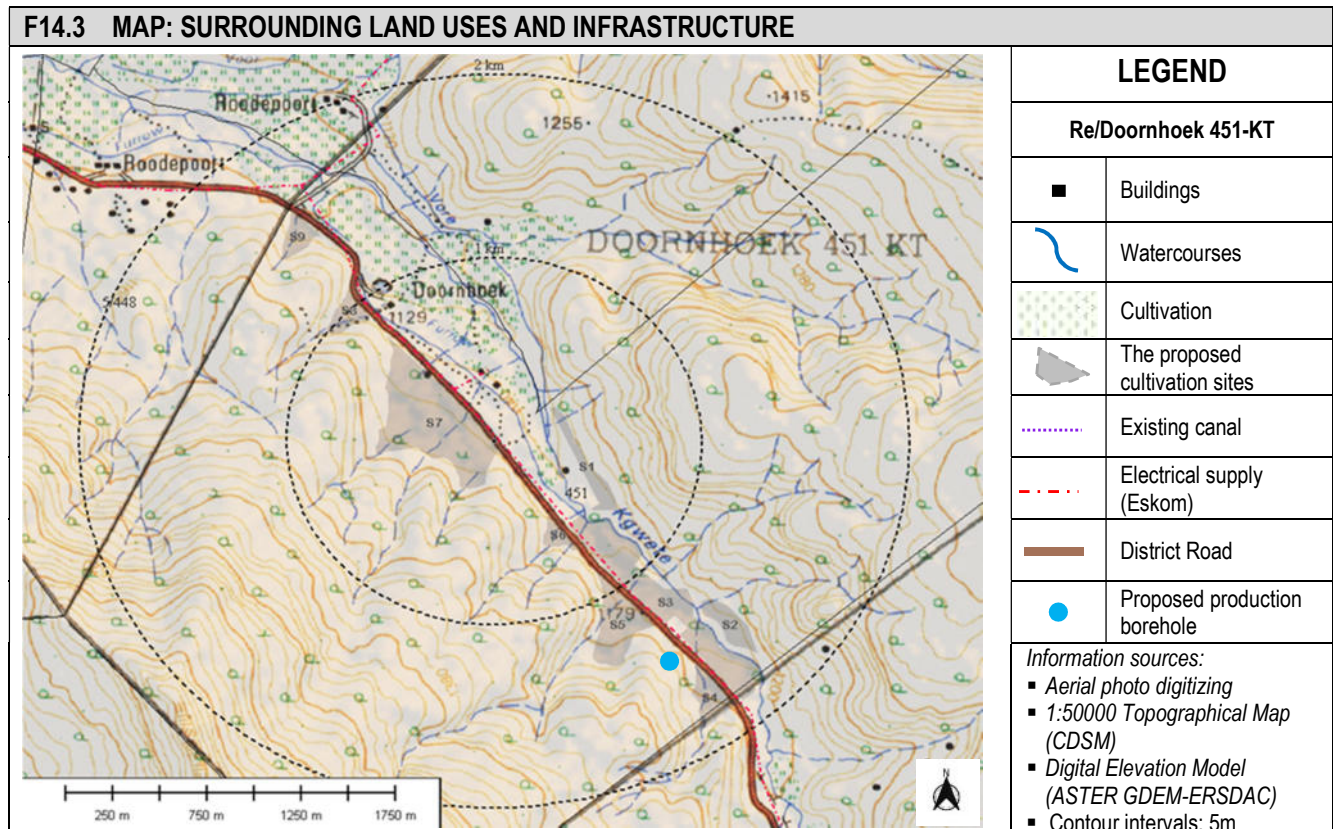
<p><b>"Land use"</b> means the purpose for which land is or may be used lawfully in terms of a land use scheme, existing scheme or in terms of any other authorisation, permit or consent issued by a competent authority, and includes any conditions related to such land use purposes.</p> <p><b>"Infrastructure"</b> means any structures, infrastructure or earthworks that are necessary for the development and functioning of a facility or activity.</p>
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<b>F14.1 LAND USES IN SURROUNDING AREA (&lt;5KM FROM THE PROJECT AREA)</b>			
<b>Land Use</b>	<b>Y/N</b>	<b>Km</b>	<b>Potential impact due to the proposed cultivation project.</b>
Residential areas (formal & informal)	N	N/A	N/A
Urban commercial & industrial	N	N/A	N/A
Institutional and medical uses	N	N/A	N/A
Tourism & tourism accommodation uses	N	N/A	N/A
Commercial Agriculture (downstream in the Kaspersnek Valley)	Y	>0km	Water extraction from water resources over the allocated volume and calculated extraction rates may reduce the availability of water for downstream users.
Subsistence farming	Y	>5km	Maroabjang Community village practises subsidence farming towards the east of the property. These farmers fall in a different water catchment region and thus there should be no water-related impact on this community.
Agri - industries	Y	>0km	Soft citrus cultivation farming occurs down the Kaspersnek valley with associated infrastructure and housing to support the industries. The proposed cultivation project may impact the water resource quality and quantity.
Protected Area / Conservation area	Y	>2km	The Morgenson State Forest Reserve is located south of the application property. There are no tourism facilities in the reserve. The proposed cultivation area is compatible with surrounding agricultural uses and would not pose a negative visual impact (views) from the reserve (see F15.2).

<b>F14.2 INFRASTRUCTURE &amp; SERVICES</b>		
<b>Type</b>	<b>Km</b>	<b>Potential impact due to the cultivation project</b>
National, Provincial or District Road	Along the site	District Road 2538 is located adjacent to the proposed sites S3-S9. Access to the new cultivation sites will be gained from internal farm roads to the sites. The District road is kept in good condition thus the proposed cultivation project will not negatively impact this land use.



Road - stormwater pipes	Along the site	Non-perennial watercourses cross the district road and storm water pipes are located underneath the road surface. The proposed orchards layout design can direct run-off to the existing storm water pipes. Run-off attenuation measures within the orchard and within natural drainage lines can be installed to prevent the inundation of existing storm water pipes.
Domestic water supply	±1km	Boreholes for domestic use occur on an adjacent property ±1000m from the proposed supply borehole. A hydro-census that was conducted as part of a geo-hydrological study revealed that domestic water supply within the catchment will not be affected.
Irrigation water supply by way of groundwater	On-site	Downstream, the surface water of the Kgwete river is used for orchard irrigation. The application property does not hold any surface water allocation for irrigation and therefore will be dependent on groundwater. The proposed production borehole is located ±540m distance from the Kgwete River and is more than ±85m deep and is thus not located within the alluvial aquifer of the Kgwete River. A Geo-hydrological Report indicates that during a 72-hour dropdown test the water extraction from the borehole had no effect on the level of the Kgwete river. The irrigation planning, management and monitoring measures can ensure the sustainable use of the groundwater from this borehole without any risk of over-exploitation.
Electricity supply	>0km	An Eskom transmission line runs parallel with District road 2538 adjacent to the proposed cultivation sites. The proposed cultivation will not impact the ESKOM servitude negatively.
Waste management	25km – 50km	The nearest municipal waste disposal site is located at Ohrigstad, ±24km distance by road from the project area (located outside the municipal waste collection area). Citrus cultivation as land use is not regarded as a highly polluting activity. The land user is responsible for the correct disposal of general waste in a typical small farm disposal site (refer to DW808 waste disposal on farms). The land user is also responsible for the safe storage and removal of empty chemical containers to/by the supplier. Two waste recycling facilities are located at Burgersfort (±50 km from the project area) that receive certain recyclable waste that is produced on the farm.





## F15 SENSORY ENVIRONMENT

### F15.1 SENSE OF PLACE

**"Sense of place"** can be defined as how humans relate to or feel about the environments in which they live". **"Sense of place impact"** means the impact or potential impact that activity has, has had or may have on the mix of natural and cultural features in the landscape that provides a strong and unique identity and character that is deeply felt by local inhabitants and/or visitors (GN R698:2017).

F15.1.1 "SENSE OF PLACE" IMPORTANCE RATING OF THE PROJECT AREA			
Criteria	High	Moderate	Low
Sense of Place without any development	<del>A particularly definite place with a dominant natural ambience, character, or theme.</del>	<b>A place that projects a loosely defined theme, character, or ambience.</b>	<del>A place having little or no ambience with which it can be associated.</del>
The visual quality of the sites	<del>A very attractive setting with great variation and interest.</del>	<b>A setting that has some aesthetic and visual merit.</b>	<del>A setting that has little aesthetic value.</del>
Surrounding man-made Structures	<b>Man-made structures as a minor visual element.</b>	<del>Man-made structures as a partial visual element.</del>	<del>Man-made structures as a dominant visual element.</del>
Association with surrounding land uses	<b>No similar land uses occur within the local area.</b>	<del>Similar land uses occur further than 5km from the proposed cultivation project and are confined to specific areas.</del>	<del>Similar land uses occur between 2-5km from the proposed cultivation project</del>
Surrounding Landscape Compatibility	<del>The landscape cannot accommodate proposed land use without it appearing totally out of place visually.</del>	<b>The proposed land use can be accommodated in the landscape setting without appearing out of place.</b>	<del>The proposed land use is ideally suitable within this landscape setting.</del>

### F15.1.2 POTENTIAL SENSE OF PLACE IMPACT

The project area poses a moderate to a high sense of place in terms of rural character and agricultural land uses. The proposed agricultural activity is therefore highly compatible with the surrounding landscape and land uses and it is not expected to impact negatively on the area's sense of place.

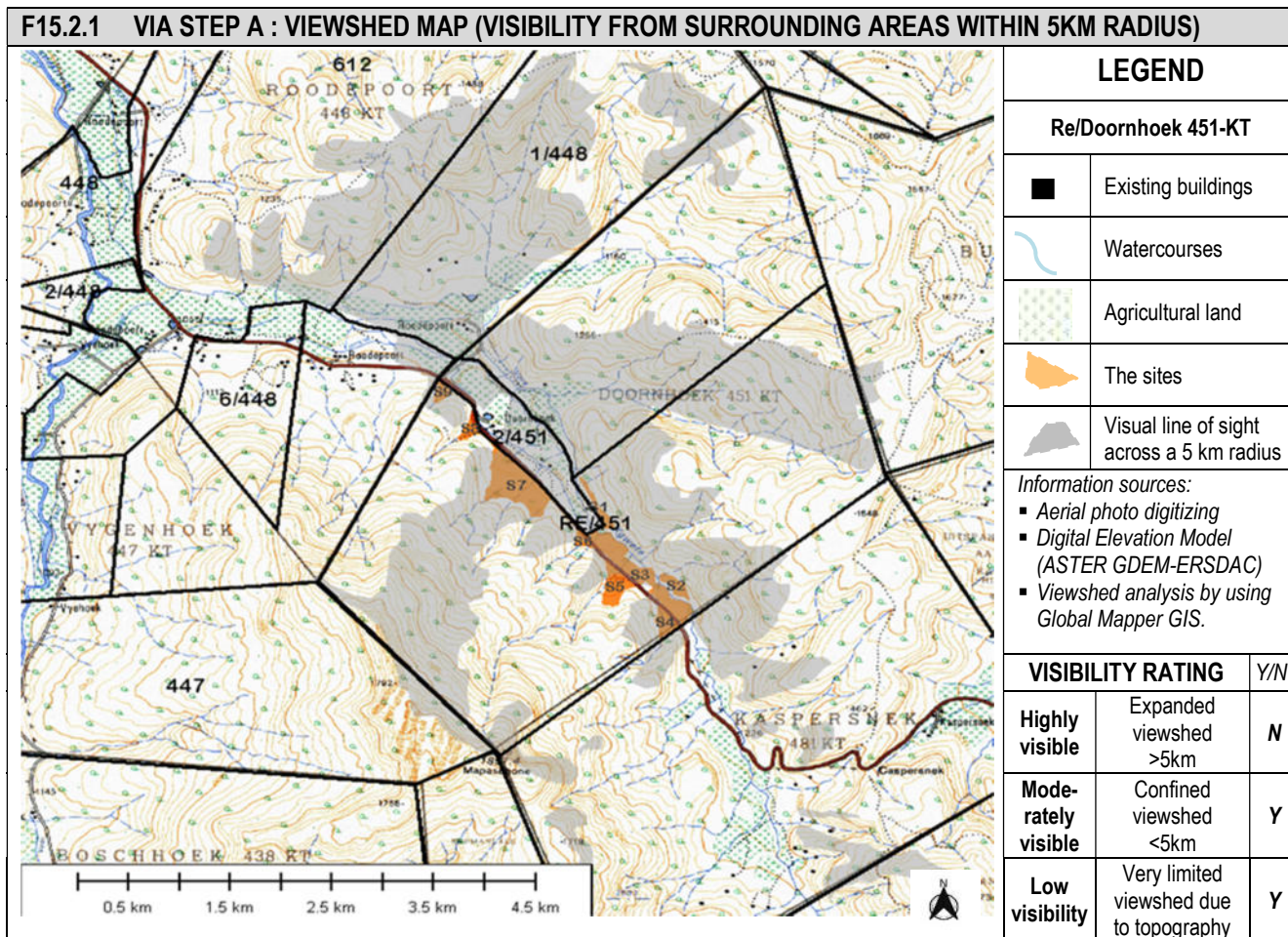
### F15.2 AESTHETIC ENVIRONMENT

**"Aesthetic environment"** is the environment that viewers experience through senses (limited to visual experience for this application) (Ramsay, 1993).

**"Visual impact"** means the degree of change in visual resources and viewer response to those resources caused by a development project (USDT, 1981).

A visual assessment and impact prediction follows the method as indicated in Steps A – E below:

- A – Determine the viewshed & visibility.
- B – Predict the visual exposure and viewer sensitivity.
- C – Determine the viewer proximity/ visual distance
- D – Predict & assess the visual absorption capacity of the site and the activity.
- E – Based on the above, the overall visual impact of the cultivation activity can be predicted.



**F15.2.2 VIA STEP B: PREDICT POTENTIAL VISUAL EXPOSURE & VIEWER SENSITIVITY**

**“Visual exposure”** means the degree to which viewers are exposed to a view by their physical location, number of viewings and duration of view (Smardon et al, 1986). **“Viewer sensitivity”** means the viewers variable receptivity to the elements within the environment that he/she is viewing, affected by the viewers activity and awareness (USDT, 1981).

Potential areas of visual exposure	Y/N	VIEWER SENSITIVITY	Visual exposure rating		
			Very visible (High)	Moderately visible (Medium)	Hardly visible (Low)
Views onto the proposed cultivation lands from adjacent farm houses.	Yes	Low	Yes	N/A	N/A
Views onto the proposed cultivation lands from roads.	Yes	Low	Yes	N/A	N/A
Views from geographic sensitive areas and tourism facilities.	No	N/A	N/A	N/A	N/A

**F15.2.3 VIA STEP C: DETERMINE VIEWER PROXIMITY / VISUAL DISTANCE**

**“Visual distance”** mean the measurable units between the viewer’s position and the object being observed (Smardon et al, 1986). **“Viewer proximity”** means the geographic extent of a resource and legibility of its features which can be seen by an observer (viewer) determined by his or her location. (Smardon et al, 1986).

Viewer proximity / distance	Y/N	VIEWER FREQUENCY	Viewer proximity		
			Short Distance (1-500m) (High)	Medium Distance (500m – 1500m)	Long Distance (> 1500m) (Low)
Views onto the proposed cultivation lands from adjacent farm houses.	Yes	Low	Yes	N/A	N/A
Views onto the proposed cultivation lands from roads.	Yes	Low	Yes	N/A	N/A
Views from geographic sensitive areas and tourism facilities.	No	N/A	N/A	N/A	N/A

F15.2.4 VIA STEP D: PREDICT THE VISUAL ABSORPTION CAPACITY			
<p>The “<b>Visual Absorption Capacity (VAC)</b>” is the physical capacity of a landscape to screen proposed development and still maintain its inherent visual character also referenced as the degree of visual penetration and the complexity the landscape affects this capacity (Smardon et al, 1986). The VAC is primarily a function of the vegetation structure and density as well as texture, colour, form and light / shade and contrasting characteristics of structures / land uses in the landscape. VAC also generally increases with distance, where discernible detail in visual characteristics of both environment and structure decreases.</p>			
Rating	Low	Moderate	High
Expected Visual Absorption Capacity (VAC)	The landscape will not visually accept the proposed cultivation development due to incompatible land use within a natural landscape.	The landscape will partially accept the proposed cultivation development visually, due to its rural and setting.	The landscape will easily accept the proposed cultivation development visually because of its rural and agricultural setting, and land use compatibility.
F15.2.5 VIA STEP E: OVERALL VISUAL IMPACT PREDICTION			
<ul style="list-style-type: none"> <li>The viewshed is limited to the immediately surrounding valley areas due to the mountainous topography.</li> <li>Although the short distance visual exposure over a short distance from surrounding farms and road users are high, the viewer sensitivity and frequency is expected to be low.</li> <li>The visual absorption capacity within the rural agricultural setting is expected to be high when the trees are mature.</li> <li>The overall visual impact of the proposed cultivation project is thus expected to be very low.</li> <li>No visual mitigation measures would thus be required.</li> </ul>			

### F15.3 ACOUSTIC ENVIRONMENT

F15.3.1 SOURCES OF POTENTIAL NOISE IMPACTS
<p>The agricultural activity is not a significant noise generator but noise may be a potential nuisance to nearby residents during the sites preparation phase when chain saws and earth moving machinery will be used to clear vegetation and to prepare the soil for planting. Intermittent use of low noise emitting machinery to maintain the orchard will occur throughout the operational phase. Assessment will be done in accordance to SANS 10328.</p>
F15.3.2 POTENTIAL NOISE RECEPTORS
<p>Adjacent land owners and associated farm workers, occupants in nearby located farm houses.</p>

F15.3.3 CRITERIA FOR APPLYING NOISE RATINGS					CRITERIA FOR DETERMINING NOISE IMPACTS	
SANS (10103) TYPICAL RATING LEVELS FOR AMBIENT NOISE			SANS 10103 Outdoors Rating Level (dBA)		NOISE IMPACT QUALIFIERS (SANS 10103)	
dB(A) is the value of sound pressure level in decibels (dB), determined using an expected weighted noise level (A) at typical noise emitting environments.			Day-time 06:00 – 22:00	Night-time 22:00 – 06:00	Impact	The noise difference between residual noise and typical outdoor rating level.
Type of District		Y/N				
Residential Districts	Rural districts	Y	45	35	Negligible	0
	Suburban districts with little road traffic	N	50	40	Low	Between 0 & 5 dBA
	Urban	N	55	45	Moderate	Between 5 & 10 dBA
Non- Residential Districts	Urban workshops, business premises & main roads	N	60	50	High	Between 10 & 15 dBA
	Central business districts	N	65	55	Very high	More than 15 dBA
	Industrial districts	N	70	60	Noise dissipates by 6dBA as distance doubles	

Y = Yes, applicable to the project area N = No, not applicable to the project area

F15.3.4 MODEL FOR PREDICTION OF NOISE IMPACTS								
NOISE SOURCES (SANS10103)	Noise dissipates at 6dBA by doubling the distance from source							
Noise type and noise level at the source	1m	2m	4m	8m	16m	32m	64m	128m
Orchard establishment: Bulldozer / loader / trucks / chain saw (average 92dBA at source – SANS 10103)	92	86	80	74	68	62	56	50

F15.3.5 POTENTIAL NOISE IMPACTS
<ul style="list-style-type: none"> <li>The average daytime outdoor ambient noise rating for rural districts is <math>\pm 45</math>dBA.</li> <li>Short term and intermittent noise disturbance is can be expected during the orchard establishment period and some periods during the operational phase due to expected management practices.</li> <li>A maximum noise rating from plant/equipment at source is expected at <math>\pm 92</math>dBA which is double that of the rural residential day-time rating.</li> <li>The closest residence is located <math>\pm 500</math>m away from a potential noise.</li> <li>Noise dissipates as the distance from the noise source doubles and interference between the noise source and the receiver such as soil berms, buildings, trees, walls, bushes, and topographical absorbing landscapes can reduce noise impacts even further.</li> <li>Taking the above calculation into account, the closest residence would thus experience an expected noise rating of less than 45dBA which rates as a very low to negligible noise impact during the orchard establishment and the operational phases.</li> <li>The cultivation activity would therefore not pose an overall noise impact.</li> </ul>

## F15.4 AMBIENT AIR QUALITY

F15.4.1 AIR QUALITY CONTROL / PRIORITY AREA		
Air quality control /priority. (Section 18 of the NEMAQA 2004)	Low air quality risk area.	Regulations / Standards : (N/A)

F15.4.2 IDENTIFICATION OF POTENTIAL NEW SOURCES OF ATMOSPHERIC EMISSIONS / ODOURS				
Potential emission generation	Distance from sites	Emissions description	Frequency / Rating	Impact / risk
Land preparation earthworks	On-sites	Dust	Occasional during the orchard establishment period.	Nuisance to surrounding residents.
Aerial pesticide application	On-sites	Spray drift	Occasional during the operational period.	Human health risk to surrounding residents.

F15.4.3 POTENTIAL AIR QUALITY IMPACTS
<ul style="list-style-type: none"> <li>During the orchard establishment phase, dust may be a potential nuisance to adjacent residents specifically during the initial sites preparation phase when on-site vegetation clearing and earth moving activities will take place.</li> <li>The extent of dust-fall, due to vegetation clearing and earth moving activities on the sites, cannot be anticipated or estimated as several variables such as soil moisture, wind direction, and wind speed, as well as the extent of earthworks, plays a role in the generation of dust. However, precautionary measures can be applied to minimise dust generation during the sites preparation phase. Such measures must be incorporated in the EMPR.</li> <li>Spraying as a manner of in-orchard pesticide application may potentially result in aerial drift to natural areas adjacent to the orchard, which may impact directly on insects and indirectly on wildlife. Pesticide application within the orchard cannot be avoided however, the potential impacts can be reduced by making use of the prescribed methods as indicated in the relevant Guidelines as published by the Department of Agriculture. Such measures must be incorporated in the EMPR.</li> <li>The cultivation activity is therefore not expected to pose any significant impact on ambient air quality.</li> </ul>

## F.16 WASTE AND ENVIRONMENTAL POLLUTION

<b>F16.1 EXISTING WASTE MANAGEMENT SERVICES / METHODS</b>
<i>The property is vacant agricultural land with no existing infrastructure or services or waste disposal methods in place. A small-scale farm waste site as provided for in DWA Policy DW808 will be established as part of the farming operations. Furthermore, a dedicated storage facility for empty agricultural chemical containers and an impermeable evaporation pond will be constructed for chemical rinsing, chemical neutralising and soil remediation.</i>

<b>F16.2 IDENTIFICATION OF POTENTIAL SOURCES OF WASTE</b>				
<b>Waste generation activities</b>	<b>Waste type</b>	<b>Waste description</b>	<b>Waste handling</b>	<b>Impact / risk prediction</b>
<i>Waste will be generated during the orchard establishment phase.</i>	<i>Inert waste</i>	<i>During construction periods where brick and mortar is involved.</i>	<i>Re-use on-site.</i>	<i>Low risk contamination of soil.</i>
	<i>Organic waste</i>	<i>Vegetation clearance as well as pruning and wasted fruit.</i>	<i>Re-use on-site as compost.</i>	<i>No potential risk / impact.</i>
	<i>General waste</i>	<i>Plastic waste from planting bags and bottles, pipe off-cuts and plastic cables.</i>	<i>Dispose on-site at a designated small scale farm waste site.</i>	<i>Low risk of soil and water contamination.</i>
<i>Waste will be generated during the farming operation period.</i>	<i>General waste</i>	<i>Seasonal plastic waste from bags, bottles and netting.</i>	<i>Dispose on-site at a designated small scale farm waste site.</i>	<i>Low risk of soil and water contamination.</i>
	<i>Hazardous waste</i>	<i>Empty chemical and fertilizer containers.</i>	<i>Return to supplier.</i>	<i>Low risk of leachate and contamination of soil and water resources.</i>
	<i>Hazardous waste</i>	<i>Liquid waste from cleaning of chemical containers after use.</i>	<i>Remove and dispose in on-site evaporation pond.</i>	<i>Low risk of leachate and contamination of soil and water resources.</i>
	<i>Hazardous waste</i>	<i>Hydro-carbon spills from working with &amp; servicing farm equipment &amp; vehicles.</i>	<i>Remove and remediate contaminated soil by chemical neutralisation.</i>	<i>Low risk of leachate and contamination of soil and water resources.</i>
	<i>Hazardous waste</i>	<i>Chemical spills from concentrated containers</i>	<i>Remove and remediate contaminated soil by chemical neutralisation.</i>	<i>Low risk of leachate and contamination of soil and water resources.</i>

<b>F16.3 IDENTIFICATION OF POTENTIAL SOURCES OF POLLUTION</b>				
<b>contamination identification</b>	<b>Contamination type</b>	<b>Contamination description</b>	<b>Contamination handling</b>	<b>Impact / risk prediction</b>
<i>Potential contamination during the farming operation period.</i>	<i>Point Source</i>	<i>Storage room / facility for agricultural chemicals</i>	<i>Managed in accordance with regulatory norms and standards.</i>	<i>If contamination sources are dealt with in accordance with the guidelines of contamination, risk is to be expected low.</i>
	<i>Point Source</i>	<i>Fuel tanks</i>		
	<i>Non-Point Source</i>	<i>Sprat drift to aerial spraying</i>		



## F.17 SOCIO-ECONOMIC ENVIRONMENT

The property is located in Ward 1 of the Fetakgomo Tubatse Local Municipality, however, the opportunities that can be derived from the proposed farming business can also benefit the communities living in Ward 10 of the Thaba Chweu Local Municipal Area. The latest (2011) Census data as provided by Statistics South Africa (SSA), the Municipal Integrated Development Plans and Wazimap (2016) were used to determine the broad socio-economic conditions of the area.

### F17.1 DEMOGRAPHIC PROFILE OF THE FETAKGOMO TUBATSE MUNICIPAL WARD 1

DEMOGRAPHIC INDICATOR	DATA OF WARD 1 FTLM	SOCIO-ECONOMIC INTERPRETATION OF WARD 1
Age	<i>The population has a median age of 23 years and a 48% male to 52% female ratio.</i>	<i>The data indicates a young population. This implies an increase in unemployed young adults in the area.</i>
Education	<i>±52.6% completed Grade 9 or higher but only 24.3% completed Matric or higher.</i>	<i>The population has a low educational profile and therefore opportunities for unskilled labour is required.</i>
Employment	<i>±63.1% of the adult population is unemployed.</i>	<i>An opportunity exists in the agricultural sector for the high percentage of the unskilled labour force.</i>
Average annual income	<i>R 14 400.00</i>	<i>The average annual income of employed persons is below par with that of the Province (being R25 000.00).</i>
Income opportunities	<i>Income generation platforms are strongly connected to the Agricultural sector.</i>	<i>Rural to urban migration for employment has a low success rate coupled with poor education levels. New employment opportunities in the agricultural sector should expand the income opportunities for the local population.</i>

### F17.2 BROAD SOCIO-ECONOMIC CHARACTER OF THE AREA

- *The area in which the site is located in a rural farming area and the nearest rural residential community is Moremela, Leroro and Matibidi in the Dientje Area. These communities are overall poor with little to no economic opportunities locally.*
- *The adjacent farms of ±15000ha to the east of the property belong to the Maroabjang Community. Although these farms were previously commercially utilised there is currently no economic activity being conducted. There is evidence of community cattle grazing and removal of natural resources on these properties. Although the land belongs to the above-mentioned communities, there are no employment opportunities or income generation from these lands. The community, therefore, remains dependant on other sources of income and employment.*
- *Commercial cattle farming occur in the mountainous areas towards the west of the sites which provides few direct employment opportunities.*
- *Large-scale commercial citrus farming occurs within the Kaspersnek Valley directly northwest of the property. These farms provide substantial direct, indirect, permanent, and seasonal employment opportunities mainly for poor local communities.*

**“Socio-economic impact”** means the impact or potential impact that activity has, has had or may have on the surrounding community's social and economic wellbeing, including changes in demographics, housing, employment, income opportunities, and demand for public services

### F17.3 SOCIO-ECONOMIC INTERPRETATION OF THE AREA AND POTENTIAL IMPACTS

*The assessment revealed that economic opportunities from the proposed new cultivation activities will impact positively the local and regional community as follows:*

- *Agricultural development is socially justifiable and consistent with the employment needs of the residents within the Ward.*
- *Agricultural development provides improved access to employment opportunities for the local population with lower levels of education and skill.*

- *Benefits are expected to filter through to the supply-chain service providers to secondary and indirect employment and overall income generation within the local economy.*
- *The agricultural development will complement the National, Provincial and Local development objectives.*
- *The agricultural development will promote justifiable economic and social development in terms of the spatial priorities and desired spatial patterns as indicated in the Municipal IDP and the Municipal Economic Development Strategy.*
- *It is not expected that the proposed agricultural activity would negatively affect existing economic activities on surrounding properties.*
- *The local farming community is reliant on the natural resources of the area and as such there may be concern regarding the potential impact of the proposed groundwater use for agricultural irrigation purposes on the water resource and availability of water to the existing downstream surface and groundwater users. For this reason, a comprehensive hydro-geological study was commissioned which indicates that the proposed use of groundwater would not affect the availability of surface water and groundwater downstream of the property.*
- *An overall positive socio-economic impact can be expected by the development of the proposed cultivation lands as more clearly described below:*
  - *Employment opportunities*  
*The proposed cultivation project aligns with the development goals of the Greater Tubatse Municipal IDP (2016-2021). The proposed cultivation project would increase the socio-economic growth of the region that would directly increase employment opportunities especially impacting poor communities positively. These employees have to commute to the proposed cultivation project ±17 km and will create indirect jobs regarding transportation services as well.*
  - *Income-generating opportunities*  
*The Fetakgomo Tubatse IDP (2016-2021) as well as the National Economic Action Plans identified citrus cultivation as a foundational economic investment for strategic economic growth and poverty alleviation.*
  - *Local economic opportunities*  
*The proposed cultivation project will contribute directly and indirectly to the local economy by acquiring the local supply chain of goods and services.*
  - *Public health & safety*  
*It is not expected that the proposed cultivation project will have a negative health and safety impact. Sufficient legal norms and standards apply to the proposed cultivation activity and external auditing can ensure compliance thereto.*

## SCOPING THE PROJECT NEED & DESIRABILITY

This section identifies the need and desirability for the proposed development including the need and desirability of the activity in the context of the preferred location and complies with GN R326 Appendix 2, Section 2(1)(f).

### G1. NEED & DESIRABILITY CONTEXTS

*The need and desirability assessment in EIA deals with the search for the best practicable option that will best ensure the maintenance of ecological integrity while promoting justifiable social and economic development. When considering how development may affect or promote justifiable economic and social development, the relevant spatial plans must be considered, including Municipal Integrated Development Plans (IDP), Spatial Development Frameworks (SDF) and Environmental Management Frameworks (EMF). In the absence of a Municipal EMF, the district-level Bioregional Plans or the provincial-level Biodiversity Sector Plan is used instead.*

*The **Getakgomo Tubatse Municipal Spatial Development Framework (2019)** establishes the geographic context to physical and infrastructural development concerning the desired spatial form, desirable land use patterns, and the location of future development. It also establishes priorities for public sector development and investment and provides a spatial logic that guides private sector investments.*

*The **Sekhukhune District Bioregional Plan (2019)** spatially identifies the biodiversity status and priority of terrestrial and freshwater ecosystems and is accompanied by recommended land-use guidelines for use in land-use and development planning, environmental assessment and regulation, and natural resource management, ultimately ensuring continued progress towards sustainability.*

*The **Integrated Environmental Management Guideline on Need and Desirability**, (DEA:2017) provides the requirements for need and desirability assessment in the EIA process in the form of a list of questions that aims to ensure that all the relevant need and desirability considerations have been taken into account.*

*During the “scoping” these questions must be used to identify the **key issues** to be addressed as well as to identify alternatives that will better respond to the considerations (i.e. that will firstly avoid the negative impact or better mitigate the negative impact, or that will better enhance the positive impact).*

*The information to address the list of questions is mainly derived from the Fetakgomo Tubatse Municipal IDP (2016/21) and SDF (2019) as well as the Sekhukhune District Bioregional Plan (2019), which has been incorporated into Section F of this report. To prevent duplication, the list of questions is presented in the form of a Checklist concerning the relevant sections in the report that has already been addressed.*

*“Need and desirability” considerations as part of an EIA process must also take into account national policies and strategies that support growth in the economy (need) whilst ensuring that such growth is ecologically sustainable (desirability).*

*The **National Development Plan (NDP)** recognises the potential of commercial agriculture for job creation. It identifies the potential for 250000 direct jobs and 130000 indirect jobs in addition to those presently employed. Citrus production is one of the agricultural sub-sectors identified as having great promise. The NDP states the following “The employment requirement to produce citrus fruit is estimated at one worker per hectare of an estimated 60 000 translating into about 60 000 workers employed on citrus farms. Direct downstream labour requirements for citrus are estimated at one labourer per 2500 cartons packed: with about 100 million cartons packed per year, some 40 000 jobs are created in packing plants for six months, or 20 000 full-time equivalents. In addition, there are labour requirements for transportation, warehousing, port handling, research and development, and processing”.*

The **The New Growth Path (NGP) (2010)** highlights the need to focus on facilitating growth in sectors ("sectoral targeting") able to create employment on a large scale. Agriculture was identified as such a sector on both national and local level (see sector development projects of the Fetakgomo Tubatse Municipal IDP above).

The **Industrial Policy Action Plan (IPAP) 2018 -20/21** features fruit export development as one of the key action programmes for the country. The intention is to accelerate agricultural export, grow and develop value-added and processed agricultural products in both new and existing markets ([www.thedti.gov.za](http://www.thedti.gov.za)).

The **Agricultural Policy Action Plan 2015 (APAP)** takes its cue from the NDP and the IPAP. It suggests that the fruit and nut sector should increase plantings in order to increase employment opportunities. It suggests that the citrus sector increase plantings by 15 000ha to 80 000ha, which is expected to increase employment from 70 200 to 85 200 jobs

## G2. NEED & DESIRABILITY PREDICTION CHECKLIST

### G2.1 SECURING ECOLOGICAL SUSTAINABLE DEVELOPMENT AND USE OF NATURAL RESOURCES

**Will this development (and its separate elements/aspects) impact the ecological integrity of the area?**

<b>G2.1.1 Were the following ecological integrity considerations taken into account?</b>	Yes	Ref.
a. Threatened Ecosystems	Yes	F8.2
b. Sensitive, vulnerable, highly dynamic or stressed ecosystems.	Yes	F9 /F10
c. Critical Biodiversity Areas ("CBAs") and Ecological Support Areas ("ESAs").	Yes	F9 /F10
d. Conservation targets.	Yes	F8.2
e. Ecological drivers of the ecosystem.	Yes	F9 /F10
f. Environmental Management Framework.	Yes	F13.1
g. Spatial Development Framework.	Yes	F1.2
h. Global and international environment responsibilities (e.g. RAMSAR sites, Climate Change, etc.).	Yes	F13/F5

<b>G2.1.2 Will this development disturbs or enhance ecosystems and/or result in the loss or protection of biological diversity?</b>	Unsure	Ref.
<p>The pre-identified cultivation sites are located within sensitive biodiversity areas as identified on maps and F8.4 and F9.2 of the previous report section as follows:</p> <p>(1) GN R1002 of 9 December 2011 under Section 52 of NEMBA identifies the Northern Escarpment Dolomite Grassland (Gm22) as a vulnerable ecosystem (VU). According to the Regulation some of the pre-identified cultivation sites are located within this sensitive ecosystem. This is a poorly protected grassland ecosystem and any development within this ecosystem may lead to an irreversible loss of natural habitat. The ecosystem consists of a very species-rich grassland that occurs along the Escarpment Dolomite belt and includes in some places a very dense shrub layer that varies in height and density.</p> <p>(2) The Sekhukhune Bio-regional Plan (2019) indicates that the proposed cultivation sites are all located within an Ecological Support Area "1" which is classified as being largely in a natural state, and are important for supporting Critical Biodiversity Areas (CBA's).</p> <p>The above-mentioned sensitive ecosystem and biodiversity area were verified by way of aerial photo interpretation and preliminary on-site verification on scoping level. The preliminary verification reveals that the Northern Escarpment Dolomite Grassland is not represented within the proposed project area and the immediate surrounding areas that are located within the valley bottom landscape. The vegetation type is more indicative of the Lydenburg Thornveld (Gm21) that occurs at lower levels at the foot of mountains and on the undulating plain. Furthermore, historic cultivation and cattle farming on most of the proposed cultivation sites may have resulted in the permanent transformation of vegetation type and structure as can be seen in the extensive bush encroachment that occurs on the proposed sites.</p> <p>The result of this scoping investigation, therefore, includes specific terms of reference for specialist studies to investigate and to report on the above findings.</p>	Unsure	F6.4/8.1/ 9.1/10.1

a. Were measures explored to avoid negative impacts?	Yes	I1
b. Where negative impacts could not be avoided altogether, were measures explored to minimise and remedy (including offsetting) the impacts?	Yes	I1
c. Where possible was ecosystem enhancement explored?	No	N/A
<b>Does this issue require further information to be generated during the assessment?</b>	Yes	J1

<b>G2.1.3 Will this development pollute and/or degrade the biophysical environment?</b>	Unsure	Ref.
a. Were measures explored to avoid negative impacts and where negative impacts could not be avoided altogether, were measures explored to minimise and remedy (including offsetting) the impacts?	Yes	I1
b. Were measures explored to enhance positive impacts?	No	N/A
<b>Does this issue require further information to be generated during the assessment?</b>	Yes	J1

<b>G2.1.4 What waste will be generated by this development?</b>		Ref.
a. Were measures explored to avoid waste?	No	N/A
b. Where waste could not be avoided altogether, were measures explored to minimise, reuse and/or recycle waste?	Yes	F16.2
c. Were measures explored to safely treat and/or dispose of unavoidable waste?	Yes	F16.3
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.1.5 Will this development disturbs or enhances landscapes and/or sites that constitute the nation's cultural heritage?</b>	Unsure	Ref.
a. Were measures explored to avoid negative impacts?	No	N/A
b. Where negative impacts could not be avoided altogether, were measures explored to minimise and remedy (including offsetting) the impacts?	No	N/A
c. Were measures explored to enhance positive impacts?	No	N/A
<b>Does this issue require further information to be generated during the assessment?</b>	No	J1
<b>G2.1.6 Will this development use and/or impact non-renewable natural resources?</b>	Yes	Ref.
<i>Electricity supply by ESKOM which is dependent on the use of non-renewable fossil fuels is a given impact of all developments in the country. Some measures of mitigation can be achieved by the efficient design of energy uses such as irrigation.</i>		F14.2
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.1.7 Will this development use and/or impact renewable <u>natural resources</u> and the ecosystem of which they are part? (surface water)</b>	Yes	Ref.
<i>Surface water use can impact downstream water users. Run-off from new cultivation lands may result in soil scouring and erosion that may result in silting of watercourses and thus impacts negatively on aquatic biota.</i>		F6.7/F10.4
<b>a. Were measures explored to avoid negative impacts?</b>	Yes	Ref.
<i>Special attention must be provided to the implementation of soil conservation measures and the design of surface drainage structures.</i>		F6.6/F10.4/F16.2
<b>b. Where negative impacts could not be avoided altogether, were measures explored to minimise and remedy (including offsetting) the impacts?</b>	Yes	Ref.
<i>Mitigation measures to maintain good run-off water quality is assessed.</i>		F6.6/ F10.4/F14.2
<b>c. Were measures explored to enhance positive impacts?</b>	Yes	Ref.
<i>An existing in-stream dam wall will be repaired to ensure that the water storage on the property is sufficient all year round.</i>		F6.7
<b>d. Does the proposed development exacerbate the increased dependency on increased use of resources to maintain economic growth?</b>	No	Ref.
<i>The proposed cultivation activity will increase the use of resources to achieve economic growth. However, being located in a strategic water resource area, it is expected that sufficient recharge of the local aquifer can occur. It is thus not expected that the proposed cultivation would adversely impact on the water resource as it can be regarded as a renewable resource but this assumption is subject to confirmation by way of a specialist study.</i>		F7.5



<b>e. Does the proposed development reduce resource dependency?</b>	Yes	Ref.
<i>The implementation of sustainable agricultural practices will reduce crop irrigation requirements and can thus reduce dependency on the groundwater resource.</i>		F7.7/F14.3
<b>f. Does the proposed use of natural resources constitute the best use thereof?</b>	Yes	Ref.
<i>The implementation of sustainable agricultural practices will reduce crop irrigation requirements and can thus reduce dependency on the groundwater resource.</i>		F7.7/F14.3
<b>g. Is the use justifiable when considering intra- and intergenerational equity?</b>	Yes	Ref.
<i>It is expected that the groundwater resource is renewable and as such the resource will still be available for use by future generations. The proposed cultivation activity is not a permanent activity and can be decommissioned after which the land can be rehabilitated or can be used economically for another purpose.</i>		F7.7/F14.3
<b>h. Are there more important priorities for which the resources should be used (i.e. what are the opportunity costs of using these resources this proposed development alternative?)</b>	No	N/A
N/A		N/A
<b>i. Would the proposed location, type and scale of development promote a reduced dependency on resources?</b>	Yes	Ref.
<i>The position of the proposed cultivation lands in the landscape will reduce extensive earthworks and the implementation of a sustainable orchard design and maintenance as well as application of efficient irrigation systems will reduce the dependency on resources.</i>		F5.4/F14.2
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.1.8 Was a risk-averse and cautious approach applied in terms of ecological impacts?</b>	Yes	Ref.
<i>The position of the proposed cultivation sites within the landscape on areas that pose previous modification due to bush encroachment was considered. Development in these areas will pose the least impact on the ecology.</i>		I3/4/5
<b>a. Are there limits of current knowledge (state the gaps, uncertainties and assumptions)</b>	Yes	Ref.
<i>Refer to the Plan of study for Impact Assessment which lists the terms of reference for further information/investigation.</i>		I3/4/5
<b>b. What is the level of risk associated with the limits of current knowledge?</b>	Moderate	Ref.
<i>The risk level is low as this scoping assessment indicates that soil, slope, climate and water are sufficient for the proposed cultivation. Furthermore, this scoping-level assessment has already identified that the proposed cultivation sites can be situated on areas that were subject to previous vegetation/ecological modifications due to historic agricultural practices. However, this level of assessment must be verified by way of specialist assessment and ground-truthing to validate the level of risk.</i>		F5-F10
<b>c. Based on the limits of knowledge and the level of risk, how and to what extent will a risk-averse and cautious approach be applied to the development?</b>		Ref.
<i>An approach of avoidance, prevention, minimisation, rehabilitation or compensation of potential unacceptable impacts by way of sustainable cultivation methods and irrigation technology alternatives, is achievable.</i>		I1/I3.4.5
<b>Does this issue require further information to be generated during the assessment?</b>	Yes	J2 & 3

<b>G2.1.9 Will the ecological impacts resulting from this development impact people environmental rights in terms of the following?</b>		
<b>a. Negative impacts: e.g. access to resources, opportunity costs, loss of amenity, air and water quality impacts, nuisance (noise, odour, etc.), health impacts, visual impacts, etc.</b>	Yes	Ref.
<i>Potential water use (quantity and quality) may impact the water use of downstream land users. This can however be mitigated through implementing suitable soil and water conservation measures and applying efficient irrigation technologies.</i>		F15/F17.3
<b>b. Were measures taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?</b>	Yes	Ref.
<ul style="list-style-type: none"> <li><i>Plan the orchards on areas that are not ecologically sensitive and on slopes that would not require major earthworks.</i></li> <li><i>Avoid natural drainage lines in the layout design of the orchards thus preventing soil erosion in the orchard that will promote soil conservation.</i></li> <li><i>Apply impact minimisation methods in terms of suitable soil and water conservation measures and applying efficient irrigation technologies.</i></li> </ul>		F3.4/F6.7/F7.7/F8.7/F11.3

<b>c. Positive impacts: e.g. improved access to resources, improved amenity, improved air or water quality, etc. What measures were taken to enhance positive impacts?</b>	Yes	Ref.
<i>The property is currently not providing any sustainable form of economic activity. Crop farming and specifically citrus cultivation can be a sustainable land use that can improve the economic use of the land without compromising natural resources and at the same time provide economic opportunities including employment opportunities.</i>		F17.1-3/I3.4.5
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.1.10 Will the development's ecological impacts result in socio-economic impacts (e.g. on livelihoods, loss of heritage site, opportunity costs, etc.) in terms of the linkages and dependencies between human wellbeing, livelihoods and ecosystem services applicable to the area in question?</b>	No	Ref.
<i>Potential wastewater and stormwater may impact downstream water users, due to potential water quality and water quantity impacts. This can however be mitigated using suitable soil and water conservation measures and applying efficient irrigation technologies.</i>		F6.7/I3.4.5
<b>Does this issue require further information to be generated during the assessment?</b>	Yes	J2&3

<b>G2.1.11 Based on all of the above, will this development impact on ecological integrity objectives/targets/considerations of the area?</b>	No	Ref.
<i>At this scoping assessment level, it is evident that the ecological integrity of the cultivation sites may have been lost due to previous land use modifications. It is thus not expected that the proposed cultivation activities will impact ecological integrity objectives and targets. This, however, will require specialist investigation and reporting.</i>		F11.3
<b>Does this issue require further information to be generated during the assessment?</b>	Yes	J2&3

<b>G2.1.12 Considering the need to secure ecological integrity and a healthy biophysical environment, describe how the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed), resulted in the selection of the "best practicable environmental option" in terms of ecological considerations?</b>	Yes	Ref.
<i>Soil conservation, water conservation and biodiversity conservation strategies and methods can be applied in agricultural developments. The implementation of such strategies and methods has been researched and represents the best practicable environmental options in terms of ecological considerations.</i>		I3-1.1-1.3
<b>Does this issue require further information to be generated during the assessment?</b>	Yes	J2.2

<b>G2.1.13 Describe the positive and negative cumulative ecological/biophysical impacts bearing in mind the size, scale, scope and nature of the project concerning its location and existing and other planned developments in the area?</b>	Yes	Ref.
<i>Without soil and water conservation mitigation on the cultivation lands, the cultivation activity would likely result in cumulative downstream impacts on water quality, river health and downstream water users.</i>		F4.6/F6.6/ F11.3/ I2-1.1
<b>Does this issue require further information to be generated during the assessment?</b>	Yes	J2.2

<b>G2.2 PROMOTING JUSTIFIABLE ECONOMIC AND SOCIAL DEVELOPMENT</b>		
<b>Will this development promote justifiable economic and social development?</b>		
<b>G2.2.1 What is the socio-economic context of the area, based on, amongst other considerations, the following considerations?</b>		Ref
The socio-economic context of the area is taken into account in terms of the broad socio-economic character of the ward and the socio-infrastructure limitations in the area		F17.1/2
<b>a. Will the activity be in line with IDP (and its sector plans' vision, objectives, strategies, indicators and targets) and any other strategic plans, frameworks or policies applicable to the area?</b>	Yes	Ref.
<i>The Fetakgomo Tubatse IDP identifies agriculture as an important economic strategy for economic growth and poverty alleviation.</i>		E3/ F17.3
<b>b. Will the activity be in line with spatial priorities and desired spatial patterns (e.g. need for integration of segregated communities, need to upgrade informal settlements, need for densification, etc.)</b>	Yes	Ref.

<i>The property is currently zoned for agricultural use and the intended cultivation is in line with the land-use zoning.</i>		F1.2
<b>c. Will the activity be in line with spatial characteristics (e.g. existing land uses, planned land uses, cultural landscapes, etc.),</b>	Yes	Ref.
<i>The property is currently zoned for agricultural use and the intended cultivation is in line with the land use zoning</i>		F1.2/ F13.3
<b>d. Will the activity be in line with the Municipal Economic Development Strategy ("LED Strategy")?</b>	Yes	Ref.
<i>The Fetakgomo Thubatse LED identifies agriculture as an important economic strategy for economic growth and poverty alleviation in the municipal area.</i>		E3
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A
<b>G2.2.2 Considering the socio-economic context, what will the socio-economic impacts be of the development (and its separate elements/aspects), and specifically also on the socio-economic objectives of the area?</b>		Ref.
<i>Apart from the employment opportunities, it is also expected that the overall living standards of the local labour community can be enhanced.</i>		F17.2&3
<b>a. Will the development complement the local socio-economic initiatives (such as local economic development (LED) initiatives), or skills development programs?</b>	No	Ref.
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A
<b>G2.2.3 Will this development address the specific physical, psychological, developmental, cultural and social needs and interests of the relevant communities?</b>	No	N/A
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A
<b>G2.2.4 Will the development result in equitable (intra- and inter-generational) impact distribution, in the short- and long term?</b>	Yes	Ref.
<i>Agriculture as a land-use holds opportunity for both, medium to long-term intra and inter-generational opportunities.</i>		F17.2&3
<b>a. Will the impact be socially and economically sustainable in the short- and long term?</b>	Yes	Ref.
<i>The international demand for citrus products is on the increase and is expected to pose long-term economic opportunities and social support for locally employed communities. Thus the proposed project has aligned with the National Development Planning Goals of job creation, infrastructure expansion and proper use of resources.</i>		G1/F17.2 &3
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A
<b>G2.2.5 In terms of location, will the placement of the proposed development:</b>		Ref
<b>a. Will it result in the creation of residential and employment opportunities near or integrated?</b>	No	Ref.
<i>The proposed cultivation activity is not located near existing rural residential communities.</i>		F14.3/ F15.3.5
<b>b. Will it reduce the need for transport of people and goods?</b>	No	Ref.
<i>Contracted employees will be transported to the workplace over a distance of ±17ha.</i>		F17.2
<b>c. Will it result in access to public transport or enable non-motorised and pedestrian transport (e.g. will the development result in densification and the achievement of thresholds in terms of public transport)?</b>	No	Ref.
<i>Not applicable</i>		N/A
<b>d. Will it compliment other uses in the area?</b>	Yes	Ref.
<i>The proposed cultivation will contribute to the local economy by complimenting the local supply chain of goods and services.</i>		F17.2&3
<b>e. Will it be in line with the planning for the area?</b>	Yes.	Ref.
<i>The Municipal Integrated Development Plan (IDP) earmarks the area for agricultural development expansion.</i>		E3/ F17.3
<b>f. Will it (for urban-related development) make use of underutilised land available with the urban edge?</b>	N/A	Ref.
<i>Not applicable</i>		N/A

<b>g. Will it optimise the use of existing resources and infrastructure?</b>	Yes	Ref.
<i>The existing infrastructure such as the ESKOM electricity network as well as District Road 2538 is located within the project areas that can support the proposed farming operation.</i>		F14.3
<b>h. Will it result in opportunity costs in terms of bulk infrastructure expansions in non-priority areas (e.g. not aligned with the bulk infrastructure planning for the settlement that reflects the spatial reconstruction priorities of the settlement)?</b>	No	Ref.
<i>The complete agricultural development will be self-reliant.</i>		F14.3
<b>i. Will it discourage "urban sprawl" and contribute to compaction/densification.</b>	N/A	Ref.
<i>Not applicable</i>		N/A
<b>j. Will it contribute to the correction of the historically distorted spatial patterns of settlements and the optimum use of existing infrastructure above current needs?</b>	N/A	Ref.
<i>Not applicable</i>		N/A
<b>k. Will it encourage environmentally sustainable land development practices and processes?</b>	Yes	Ref.
<i>An agricultural best practice method that aligns with sustainable farming methods is proposed.</i>		I3.4.5
<b>l. Will it take into account special locality factors that might favour the specific location (e.g. the location of the strategic mineral resources, access to the port, access to rail, etc.)?</b>	Yes	Ref.
<i>The suitability of the site for agricultural development in terms of the biophysical environment as well as locality in terms of accessibility has been considered.</i>		F2/F13.1
<b>m. Will the investment in the settlement or area in question generate the highest socio-economic returns (i.e. an area with high economic potential)?</b>	Yes	Ref.
<i>The proposed investment crop cultivation is considered the best environmental and socio-economic option for this project.</i>		C2.1
<b>n. Will it impact the sense of history, sense of place and heritage of the area and the socio-cultural and cultural-historic characteristics and sensitivities of the area?</b>	No	Ref.
<i>The project area has been utilised for cultivation and cattle farming since the late 1800s and the proposed new cultivation sites will visually fit well into the existing crop farms in the area.</i>		F15.2.6
<b>o. Will the development in terms of nature, scale and location promote or act as a catalyst to create a more integrated settlement?</b>	N/A	Ref.
<i>Not applicable.</i>		N/A
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.2.6 Will a risk-averse and cautious approach is applied in terms of socio-economic impacts?</b>	Yes	Ref.
<b>a. Are there limits of current knowledge (note: the gaps, uncertainties and assumptions must be clearly stated)?</b>	No	Ref.
<i>Water use by the proposed cultivation is expected to be the major socio-economic concern. A thorough geo-hydrological investigation was commissioned to investigate the impact of water use for this development on downstream water users.</i>		F14.2/F17.3
<b>b. What is the level of risk (note: related to inequality, social fabric, livelihoods, vulnerable communities, critical resources, economic vulnerability and sustainability) associated with the limits of current knowledge?</b>	Low	Ref.
<i>The expected level of socio-economic risk associated with the above-mentioned limitation is low, subject to the implementation of suitable mitigation measures.</i>		F17.3/I2-1.1
<b>c. Based on the limits of knowledge and the level of risk, was a risk-averse and cautious approach applied to the development (and to what extent)?</b>	Yes	Ref.
<i>The scoping assessment identifies potential environmental impacts and based on the impact prediction a risk-averse and cautious approach will be followed with the application of mitigation measures. This can include the identification of project alternatives that can pose the best environmental option in terms of the development and all of its components.</i>		I3-1
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.2.7 Will the socio-economic impacts resulting from this development impact people's environmental rights in terms of the following:</b>		Ref.
<b>a. Negative impacts: e.g. health (e.g. HIV-Aids), safety, social ills, etc.</b>	No	Ref.

<i>It is not expected that the proposed cultivation development will pose negative health, safety and social ills. The proposed cultivation operations will comply with all legal norms and standards that regulate public safety.</i>		E4/F17.3
<b>b. Were measures taken to firstly avoid negative impacts, but if avoidance is not possible, to minimise, manage and remedy negative impacts?</b>	Yes	Ref
<i>The scoping assessment identified potential impacts and predicted potential significance and recommends mitigation measures to avoid minimise manage and remedy potential impacts. Potential impacts on soil, water and vegetation during the orchard establishment period that may pose negative ecological and social impacts have been identified and can be addressed by way of environmental site monitoring and compliance reporting during the orchard establishment period.</i>		F8.7/F11.3/F12.2
<b>c. Positive impacts and were measures taken to enhance positive impacts?</b>	Yes	Ref.
<i>Recommendations for alternative possibilities regarding implementation feasibility has been provided.</i>		F16.2-3/F17.3
<b>Does this issue require further information to be generated during the assessment?</b>	Yes	J2-4

<b>G2.2.8 Will the development's socio-economic impacts result in ecological impacts considering the linkages and dependencies between human wellbeing, livelihoods and ecosystem services? (Describe the linkages and dependencies applicable to the area in question and how e.g. over utilisation of natural resources, etc.)</b>	No	Ref
<i>Groundwater use for irrigation of the proposed cultivation areas is highlighted as a potential socio-economic impact if such water use results in the diminishing of the surface water that downstream water users rely on for irrigation purposes and also potentially impacting the ecological reserve of the Kgwete and the downstream Vygehoek Rivers.</i>		F6.7/F7.7/F10.4/F14.2/F17.3
<b>Does this issue require further information to be generated during the assessment?</b>	Yes	N/A

<b>G2.2.9 Was the "best practicable environmental option" selected in terms of socio-economic considerations? (What measures were taken to pursue such selection)?</b>	Yes	Ref
<i>This preliminary scoping-level assessment indicates that the selected land use being citrus cultivation is regarded as the best practicable environmental option in terms of the socio-economic considerations as follows:</i> <ul style="list-style-type: none"> <li><i>In terms of physical infrastructure, the proposed cultivation areas have good access to the District Road Network and the local electricity distribution network. The proposed cultivation is not expected to impact negatively on existing infrastructure that also serves adjacent landowners.</i></li> <li><i>In terms of socio-economic considerations, the proposed cultivation is expected to create a significant number of direct and indirect local employment opportunities as well as contributing directly and indirectly to the local economy of the area. No other agricultural land use can provide the socio-economic benefits mentioned above.</i></li> </ul>		F17.1-3/I3.1.3
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.2.10 Was measures taken to pursue environmental justice so that adverse environmental impacts shall not be distributed in such a manner as to unfairly discriminate against any person, particularly vulnerable and disadvantaged persons (who are the beneficiaries and is the development located appropriately)?</b>	Yes	Ref
<i>All identified impacts can be contained and mitigated on-site and should not impact or discriminate against neighbouring persons or communities.</i>		F16.2-3/F17.3
<b>a. Considering the need for social equity and justice, do the alternatives identified, allow the "best practicable environmental option" to be selected.</b>	Yes	Ref
<i>The proposed land use aligns with the development goals of the local municipal IDP and it was found that the best form of agriculture to provide the socio-economic benefits to the local unemployed community is cultivation agriculture.</i>		E3/I1.3-1.3
<b>b. Considering the need for social equity and justice is there a need for other alternatives to be considered?</b>	No	Ref
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A



<b>G2.2.11 Was measures taken to pursue equitable access to environmental resources, benefits and services to meet basic human needs and ensure human wellbeing (what special measures were taken to ensure access thereto by categories of persons disadvantaged by unfair discrimination)?</b>	Yes	Ref.
<i>Water for the proposed cultivation is considered the only environmental resource that is also essential to meet basic human needs and wellbeing. As such a hydrogeological investigation was commissioned to determine the sustainable use of groundwater for the proposed cultivation to identify the impact on surrounding groundwater users and also determine the impact of groundwater use on the base flow of the Kgwele River which sustains a substantive farming community downstream of the proposed cultivation project. The hydrogeological study found that the intended groundwater use for the proposed cultivation would not impact other groundwater users or on the base flow of the Kgwele River.</i>		F7.5/F7.7
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.2.12 Was measures taken to ensure that the responsibility for the environmental health and safety consequences of the development has been addressed throughout the development's life cycle?</b>	Yes	Ref
<i>The life cycle of this project consists of the cultivation planning, orchard establishment and operational phase of the cultivation project. Environmental health and safety can be achieved by adhering to the relevant Regulations, Norms, Standards and Guidelines as issued by the Department of Agriculture, specifically concerning the correct and safe handling of agricultural chemicals. The land user that manages the cultivation project must comply with these occupational health and safety regulations, norms, standards and guidelines during the operational period.</i>		E4/F17.3
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.2.13 Will measures be taken to:</b>		
<b>a. Ensure the participation of all interested and affected parties.</b>	Yes	Ref.
<i>Public newspaper notices, notice boards, focus-group meetings and open dialogues with I&amp;APs constitutes the backbone of public participation for the proposed establishment of the cultivation project (subject to COVID-19 requirements). Specific dates for comments and responses will be communicated to all I&amp;APs.</i>		J6
<b>b. Provide all people with an opportunity to develop the understanding, skills and capacity necessary for achieving equitable and effective participation.</b>	Yes	Ref.
<i>Written and advertised site notices will be given where applicable and appropriate according to the minimum requirements as stipulated in the EIA Regulations. In this regard, a specific request will be directed to the relevant Ward Councillor/Ward Committee.</i>		J6
<b>c. Ensure participation by vulnerable and disadvantaged persons.</b>	Yes	Ref.
<i>Written and advertised site notices will be given where applicable and appropriate according to the minimum requirements as stipulated in the EIA Regulations. In this regard, a specific request will be directed to the relevant Ward Councillor/Ward Committee.</i>		J6
<b>d. Promote community wellbeing and empowerment through environmental education, the raising of environmental awareness, the sharing of knowledge and experience and other appropriate means.</b>	Yes	Ref.
<i>Written and advertised site notices will be given where applicable and appropriate according to the minimum requirements as stipulated in the EIA Regulations. In this regard, a specific request will be directed to the relevant Ward Councillor/Ward Committee.</i>		J6
<b>e. Ensure openness and transparency, and access to information in terms of the process.</b>	Yes	Ref.
<i>Written and advertised site notices will be given where applicable and appropriate according to the minimum requirements as stipulated in the EIA Regulations. In this regard, a specific request will be directed to the relevant Ward Councillor/Ward Committee.</i>		J6
<b>f. Ensure that the interests, needs and values of all interested and affected parties were taken into account and that adequate recognition was given to all forms of knowledge, including traditional and ordinary knowledge.</b>	Yes	Ref.
<i>Written and advertised site notices will be given where applicable and appropriate according to the minimum requirements as stipulated in the EIA Regulations. In this regard, a specific request will be directed to the relevant Ward Councillor/Ward Committee.</i>		J6

<b>g. Ensure that the vital role of women and youth in environmental management and development was recognised and their full participation therein was promoted?</b>	Yes	Ref.
<i>Written and advertised site notices will be given where applicable and appropriate according to the minimum requirements as stipulated in the EIA Regulations. In this regard, a specific request will be directed to the relevant Ward Councillor/Ward Committee.</i>		J6
<b>Does this issue require further information to be generated during the assessment?</b>	Yes	K

<b>G2.2.14 Considering the interests, needs and values of all the interested and affected parties, will the development allow for opportunities for all the segments of the community (e.g. a mixture of low-, middle-, and high-income housing opportunities) that is consistent with the priority needs of the local area (or that is proportional to the needs of an area)?</b>	No	Ref.
<i>The proposed development would not include housing opportunities and the provision of social services. The proposed farming project can, however, provide employment opportunities for various skilled individuals but will mainly provide basic employment opportunities for unskilled and poorly educated individuals in the community.</i>		F17.2-3
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.2.15 Have measures have been taken to ensure that current and/or future workers will be informed of work that potentially might be harmful to human health or the environment or of dangers associated with the work, and what measures have been taken to ensure that the right of workers to refuse such work will be respected and protected?</b>	Yes	Ref
<i>The life cycle of this project consists of the cultivation planning, orchard establishment and operational phase of the cultivation project. The land user that managed the farming operations will be accountable to ensure that the necessary occupational health and safety standards are incorporated in all the phases of the orchard establishment and cultivation phases of the project.</i>		F17.3
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.2.16 Will the development impact job creation in terms of, amongst other aspects:</b>		
<b>a. The number of temporary versus permanent jobs that will be created.</b>	Yes	Ref.
<i>A detailed projection of the potential employment opportunities is not available, however, it is expected that a lower number of seasonal jobs will be created during the annual harvesting period compared to the permanent jobs to maintain the orchards during the remaining period.</i>		N/A
<b>b. Whether the labour available in the area will be able to take up the job opportunities (i.e. do the required skills match the skills available in the area)</b>	Yes	Ref.
<i>The social-economic analysis of the surrounding communities that are likely to be employed indicates a poor education and skill level which is well suited for the proposed cultivation project.</i>		F17.2
<b>c. The distance from where labourers will have to travel.</b>	No	
<i>The project area is located ±17km from the nearest rural residential areas where the potential labour force may originate from. The land user will, however, provides daily private transport for workers between their residential settlements and the workplace.</i>		N/A
<b>d. The location of jobs opportunities versus the location of impacts (i.e. equitable distribution of costs and benefits).</b>	No	
<i>The location of the project is not expected to pose direct or indirect negative socio-economic impacts (cost) on the surrounding rural settlements.</i>		N/A
<b>e. The opportunity costs in terms of job creation (e.g. a mine might create 100 jobs, but the impact on 1000 agricultural jobs etc.)</b>	No	
<i>There are widespread and high levels of unemployment in this area; there is thus an over-supply of labour resources in this area which is not expected to result in opportunity cost (loss of employment opportunities) for any other economic sector.</i>		F17.1/F17.3
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.2.17 Were measures taken to ensure:</b>		
<b>a. That there were intergovernmental coordination and harmonisation of policies, legislation and actions relating to the environment.</b>	Yes	Ref.
<i>Relevant State Departments that administers laws and regulations as identified in Section E will be invited to participate in the EIA.</i>		E1/J6

<b>b. The development is in line with the IDP, SDF and LED. Relevant organs of state will be included in the Public Participation Process.</b>	Yes	Ref
<i>Refer to the policy and plan analysis – Section E.</i>		E
<b>c. Those actual or potential conflicts of interest between organs of state were resolved through conflict resolution procedures?</b>	N/A	Ref
<i>No conflict of interest between organs of the state is expected but that will be confirmed during participation by state departments in the EIA process.</i>		N/A
<b>Does this issue require further information to be generated during the assessment?</b>	Yes	J6

<b>G2.2.18 Were measures taken to ensure that the environment will be held in public trust for the people, that the beneficial use of environmental resources will serve the public interest, and that the environment will be protected as the people's common heritage?</b>	N/A	Ref
<i>In terms of natural resources (soil and water), the proposed cultivation project is not expected to result in an irreversible loss of such resources. The use of these resources will be beneficial to serve both the socio-economic interest of the land user and that of the local unemployed communities without adversely impacting on any such resources.</i>		F14.3
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.2.19 Are the mitigation measures proposed realistic (what long-term environmental legacy and the managed burden will be left)?</b>	Yes	Ref
<i>The predicted impacts due to cultivation can be mitigated by applying well-researched mitigation measures in terms of avoidance of sensitive ecological areas, implementation of soil conservation and watercourse restoration measures. Therefore, it is not foreseen that there will be any long-term negative environmental burden or legacy due to this development.</i>		F17.3
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.2.20 Were measures taken to ensure that the costs of remedying pollution, environmental degradation and consequent adverse health effects and of preventing, controlling or minimising further pollution, environmental damage or adverse health effects will be paid for by those responsible for harming the environment?</b>	Yes	Ref
<i>In terms of Section 28 of NEMA, the Developer remains ultimately responsible for the cost of remedying environmental damage.</i>		N/A
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.2.21 Did the alternatives identified (in terms of all the different elements of the development and all the different impacts being proposed); result in the selection of the best practicable environmental option in terms of socio-economic considerations (Considering the need to secure ecological integrity and a healthy bio-physical environment)?</b>	Yes	Ref
<i>This preliminary scoping-level assessment indicates that the selected land use being citrus cultivation is regarded as the best practicable environmental option in terms of the socio-economic considerations as follows: In terms of socio-economic considerations, the proposed cultivation is expected to create a significant number of direct and indirect local employment opportunities as well as contributing directly and indirectly to the local economy of the area. No specific aspect was identified that may pose a significantly negative socio-economic impact.</i>		F17.3
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G2.2.22. Will the development result in positive cumulative socio-economic impacts bearing in mind the size, scale, scope and nature of the project concerns its location and other planned developments in the area?</b>	Yes	Ref
<i>The proposed development is expected to positively impact the local economy that will cumulatively contribute to increased employment, spending and betterment of living conditions.</i>		I2
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A

<b>G.2.2.23 Will the development result in negative cumulative socio-economic impacts bears in mind the size, scale, scope and nature of the project concerning its location and other planned developments in the area?</b>	No	Ref.
<i>The use of surface water for irrigation may result in a negative cumulative socio-economic impact on downstream surface water users. However, the proposed cultivation will only make use of groundwater. The availability, recharge and extraction volumes as indicated in a scientifically based Geohydrological Study of ground and surface water resources in the Kgwele River valley, indicates that the proposed use of groundwater for the intended cultivation would not pose any direct, indirect or cumulative impact on surface and groundwater availability</i>		I2
<b>Does this issue require further information to be generated during the assessment?</b>	No	N/A
<b>G2.3 SUMMARY OF THE NEED AND DESIRABILITY</b>		
<p><i>The need for the proposed cultivation can be justified in terms of the Economic Development Strategy of the Local Municipality as well as National Growth and Development strategies, to create rapid growth, investment and job creation. Soft citrus production qualifies for each of these needs and can be achieved sustainably without compromising the natural system on which it is based.</i></p> <p><i>Financial viability should be considered within the context of justifiable economic development, measured against the broader societal short-term and long-term needs. The soft citrus industry can create short term, large scale and long term employment opportunities. The viability of the farming enterprise will financially benefit its employees and local industry service providers thereby contributing to fulfilling the needs and interests of the community and local economic growth.</i></p> <p><i>In terms of desirability, it is not expected that the development will impact the ecological integrity of the area and initial impact prediction on this scoping level indicates that:</i></p> <ul style="list-style-type: none"> <li>▪ <i>The cultivation sites are not located in a threatened ecosystem as identified under Section 52 of NEMBA.</i></li> <li>▪ <i>The cultivation sites are not located in a Critical Biodiversity Area.</i></li> <li>▪ <i>It is not expected that the selected and previously transformed cultivation sites would compromise any ecosystem conservation targets.</i></li> <li>▪ <i>The cultivation is not expected to impact ecological drivers or the local ecosystem. Although some drivers may previously have been modified due to historic cultivation, drivers such as biodiversity, natural erosion control and run-off attenuation as well as trapping of sediment, nutrients and pollutants can be maintained by applying specific avoidance, reduction, and remediation measures in the planning and establishment of the cultivation sites.</i></li> <li>▪ <i>Although polluting can occur as a result of poor waste management on a farm, cultivation as an economic activity is not regarded as a polluting activity and contamination by the use of agricultural chemicals can be avoided.</i></li> <li>▪ <i>The cultivation activity will not alter the local landscape or modify any known cultural heritage resources.</i></li> <li>▪ <i>Management of potential cumulative impacts such as irrigation water use can be introduced as part of the cultivation plan irrigation plan.</i></li> <li>▪ <i>The overall suitability of the site in terms of terrain, soil, water and climate is favourable for the cultivation of soft citrus compared to any other form of agriculture that is locally suitable.</i></li> </ul>		
<b>G.2.3.1 Did the need and desirability assessment identifies the key issues having to be considered in terms of the additional information generated during the assessment stage?</b>	Yes	I3/I4 J2/J3
<b>G2.3.2 Did the need and desirability assessment identifies alternatives that will better respond to the considerations (i.e. that will firstly avoid the negative impact or better mitigate the negative impact, or that will better enhance the positive impact)?</b>	Yes	I3/I4
<b>G2.3.3 Did the need and desirability assessment identify issues that do not require further information to be generated during the assessment?</b>	Yes	G
<b>G2.3.4 Did the need and desirability assessment reveals any fatal flaw in the ecological and socio-economic justification?</b>	No	N/A

## SCOPING: SUMMARY OF ISSUES BY INTERESTED AND AFFECTED PARTIES

This Section provides a summary of the issues raised during the Public Participation Process for Environmental Scoping in compliance with, and complies with GNR 326 of 17 April 2017, Appendix 2 Section 2(1)(g)(ii) & (iii).

*The details of the public participation process for Environmental Scoping and for the subsequent Environmental Impact Assessment in terms of regulation 41 of the Regulations are described in Section J6 of this report.*

### H.1 SUMMARY OF ISSUES RAISED BY INTERESTED AND AFFECTED PARTIES

*The Table provides a summary of the issues raised by interested and affected parties and an indication of the manner in which the issues are incorporated, or the reasons for not including them.*

#	Summary of the issue	Manner in which the issue has been incorporated / or not	Report Reference
-	No issues have been raised by registered I&AP's to date.	N/A	-



## SCOPING: IDENTIFICATION OF IMPACTS ALTERNATIVES & KEY ISSUES

This section provides a description of the process followed to identify impacts and risks, to identify and select the preferred site, activities and location of the activity footprints within the site as required in GN R326 of 17 April 2017, Appendix 2 Section 2(1)(g).

### I1 IMPACT IDENTIFICATION

**Impacts** are the changes in an environmental parameter that result from undertaking an activity. The change is the difference between the effects on the environmental parameter where the activity is undertaken compared to that where the activity is not undertaken. Impacts occur over a specific period and within a defined area and may be positive or negative and may be categorised as being direct (primary), indirect (secondary) or cumulative impacts.

**Direct impacts** are caused directly by the activity and generally occur at the same time and at the place of the activity. These impacts are usually associated with the construction, operation or maintenance of an activity and are generally obvious and quantifiable.

**Indirect impacts** are induced changes that may occur as a result of the activity. These potential impacts do not manifest immediately when the activity is undertaken and may occur at a different place as a result of the activity.

**Cumulative impacts** result from the incremental and collective impacts of the proposed activity on a common resource when added to the impacts of other past, present or reasonably foreseeable future activities.

Several of the recognised environmental impact identification methods that are applied in this Scoping Assessment is indicated in Table I2.1 below

I1.1 IMPACT IDENTIFICATION METHODS		
Method	Description	Report Ref.
Legal Assessment	Checking and listing relevant regulations, plans, guidelines, norms & standards.	Section E
Checklist Methods	Checking relevant sensitive environmental issues and listing potential impacts.	Section F&G
Map overlay Method	Use Geographic Information Systems to compile map-overlays & prediction models.	Section F
Matrix Method	An adapted Matrix method to identify impacts & determine impact significance.	Section I
RCIP Model	The Rapid Cumulative Impact Identification and Prediction Model were used to predict cumulative impacts.	Section I

Source DEAT (2002) Integrated Environmental Management Information Series: No.5

### I1.2 IMPACT EVALUATION

The impact prediction method is used to predicting the nature, magnitude, extent and duration of potentially significant impacts after which a range of mitigation measures is considered that could be implemented to lessen the impacts of the activity, which results in a significance rating of residual impacts i.e. impacts that remain after taking mitigation measures into account. The ranking method that is used in this scoping assessment is indicated in the three tables below.

I1.2.1 IMPACT PREDICTION RANKING METHOD				
Nature of Potential Impact	Rating or Category	Ranking		Description of Impact on the Environment
Period	Planning	PI	-	Project planning and decision-making phase.
	Construction	Co	-	Construction phase.
	Operational	Op	-	Operational phase.
	Construction and Operation period	C/O	-	Combined Construction and Operation phase.
Extent	Site	S	1	Limited to the site and its immediate surroundings.
	Local	L	2	Up to 5km from the project site.
	Regional	R	3	Beyond 5km of the site. Up to a 20km radius from the project site.
	Province/National	P	4	Will affect beyond 20km from the site.
Duration	Short term	S	1	Not applicable or construction and early operation 0 - 5 years.
	Medium-term	M	2	Operational phase up to 25 years.
	Long term	L	3	Operational phase is longer than 25 years.
	Permanent	P	4	The impact will continue after the operational phase.

Continue overleaf

<b>Consequence Intensity / Severity</b>	<b>Very low</b>	<b>L-</b>	<b>0</b>	None or limited damage to a small area. Natural, cultural or social functions or processes are not affected/negligible.
	<b>Low</b>	<b>L</b>	<b>1</b>	Marginal damage. Natural, cultural or social functions or processes can / will be only marginally affected.
	<b>Medium</b>	<b>M</b>	<b>2</b>	Moderate damage. Natural, cultural or social functions or processes can / will be notably altered but can continue although in a modified way /state.
	<b>High</b>	<b>H</b>	<b>3</b>	Severe damage. Natural, cultural or social functions or processes can / will be altered to the extent that they temporarily cease.
	<b>Very high</b>	<b>H+</b>	<b>4</b>	Irreparable damage. Natural, cultural or social functions or processes can / will be altered in such a way that they will permanently cease.
<b>Probability</b>	<b>Unlikely</b>	<b>U</b>	<b>1</b>	Less than 5% probability that impact may occur.
	<b>Probable</b>	<b>P</b>	<b>2</b>	There is a good chance that the impact may occur (6-49%)
	<b>Very likely</b>	<b>VI</b>	<b>3</b>	Likely that the impact will occur, (50 – 94%)
	<b>Definite</b>	<b>D</b>	<b>4</b>	More than 95% probability that impact may occur.
<b>Degree of loss of irreplaceable resources</b>	<b>Low</b>	<b>L</b>	<b>1</b>	Not likely that there will be an irreplaceable loss of resources.
	<b>Probable</b>	<b>P</b>	<b>2</b>	There is a good chance of loss of irreplaceable resources.
	<b>Very likely</b>	<b>VI</b>	<b>3</b>	More than 50% probability of loss of irreplaceable resources.
	<b>Definite</b>	<b>D</b>	<b>4</b>	More than 90% probability of loss of irreplaceable resources.
<b>Significance</b>	<b>See significance ratings in Table I2.2</b>			Significance rating without applying mitigation measures.
<b>Mitigation potential</b>	<b>See mitigation measures in Table I1.2.3</b>		<b>-1/-5</b>	Mitigation measures and objectives and ranking in the table below.

(Impact rating: 0 = Lowest / 4 = Highest)

**“Significant impact”** means an impact that may have a notable effect on one or more aspects of the environment or may result in non-compliance with accepted environmental quality standards, thresholds or targets and is determined through rating the positive and negative effects of an impact on the environment based on criteria such as duration, magnitude, intensity and probability of occurrence.

#### 11.2.2 CRITERIA FOR DETERMINING IMPACT SIGNIFICANCE

	<b>Rating or Category</b>	<b>Ranking</b>		<b>Description of Impact on the Environment</b>
<b>Significance</b>	<b>Neutral</b>	<b>N</b>	<b>0</b>	Zero significance
	<b>Low</b> (Normally acceptable)	<b>L</b>	<b>0-5</b>	The impact is likely to be very low and mitigation is not required.  Impacts have little real effect/ mitigation is easily achieved.
	<b>Medium</b> (Can be acceptable with mitigation).	<b>M</b>	<b>6-10</b>	Moderate impact and mitigation is both feasible and fairly easily possible but may influence the decision if not mitigated / or modification of the project design or alternative action may be required.
	<b>High</b> (Normally unacceptable).	<b>H</b>	<b>11-15</b>	Mitigation is essential to reduce to an acceptable level, mitigation is difficult, time-consuming and/expensive and may affect the decision to continue or approve.
	<b>Very high</b> (Unacceptable).	<b>&gt;H</b>	<b>16-20</b>	No possible mitigation or mitigation is extremely difficult, time-consuming and/or expensive. The decision to approve will be affected
<b>Status of the impact</b>	<b>Positive or Negative</b>			Status of the impact (positive (benefits) or negative (costs)).

I1.2.3 RANKING MODEL : MITIGATION ACTIONS THAT ARE AIMED AT REDUCING UNACCEPTABLE IMPACTS			
Mitigation objective	Ranking		The degree to which negative impacts can be mitigated
<b>Avoidance / prevention</b>	<b>AP</b>	<b>-5</b>	Measures are taken to anticipate and prevent adverse environmental impacts before actions or decisions are taken that could lead to such impacts. This approach is most effective when applied in the earliest stages of project planning. Project alternatives can also form part of avoidance mitigation measures (see Section I3.4) with the aim of identifying the best environmental option and incorporating the selected alternatives in the early planning stages of the proposed development.
<b>Minimise / Reduce</b>	<b>MI</b>	<b>-4</b>	Measures are taken to reduce the duration, intensity, extent and significance of environmental impacts cannot be completely avoided. This can be achieved by scaling down, relocating, or redesigning elements of a project.
<b>Rehabilitate</b>	<b>RE</b>	<b>-3</b>	Measures are taken to repair/restore/maintain degradation or damage to specific environmental features and ecosystem services of concern following project impacts that cannot be completely avoided and/or minimized.
<b>Compensate / Off-set</b>	<b>CO</b>	<b>-2</b>	Measurable conservation outcomes resulting from actions designed to remedy the negative impacts of development which remain after measures to avoid, minimize and rehabilitate have been taken into account. Creation, enhancement, or protection of the same type of resource at another suitable and acceptable location, compensating for lost resources.
<b>Preservation</b>	<b>Ps</b>	<b>-1</b>	Preventing any future actions that might adversely affect an environmental resource. This is typically achieved by extending legal protection to selected resources beyond the immediate needs of the project.

Mitigation rating: -4= Most favourable / -1=Least Favourable

### I1.3 IDENTIFICATION OF POTENTIAL SIGNIFICANT IMPACTS BY WAY OF MATRIX RANKING METHOD

The adapted Environmental Impact Identification Matrix method has the following objectives:

- The matrix method **identifies positive and negative impacts/risks** that proposed land uses and engineering services including identified alternatives may pose on the receiving environment and where relevant identify the impacts/risks that the receiving environment may pose on the proposed development.
- The matrix method predicts the **significance** (quantitative and qualitative) of negative impacts/risks that may be posed by the proposed land uses and associated engineering services (including alternatives).
- The matrix method provides a **comparative ranking** of the land use and technology alternatives in order to facilitate the selection of the most appropriate land use and technology alternatives to be included in the proposed cultivation farming project.
- The matrix method also predicts the residual impacts/risks after mitigation measures have been applied. Moderate to Very high residual are identified as **Key Issues** that are put forward for specialist investigation and assessment as detailed in Section J.
- The matrix method for cumulative impacts is further described in section I2. Identified negative cumulative impacts/risk that is predicted is seen as **Key Issues** and put forward for Specialist Investigations and assessment as detailed in Section J.

[illegible]

ENVIRONMENTAL IMPACT IDENTIFICATION AND IMPACT PREDICTION MATRIX			PROJECT DESCRIPTION: PROPOSED CULTIVATION ON THE REMAINDER OF DOORNHOEK 451-KT																					
LEGEND		ALTERNATIVE CULTIVATION SITES AND CULTIVATION METHODS																NEGATIVE IMPACT PREDICTION						
POTENTIALLY SIGNIFICANT IDENTIFIED IMPACTS/RISKS		S <sub>1</sub> Cultivation site 1	S <sub>2</sub> Cultivation site 2	S <sub>3</sub> Cultivation site 3	S <sub>4</sub> Cultivation site 4	S <sub>5</sub> Cultivation site 5	S <sub>6</sub> Cultivation site 6	S <sub>7</sub> Cultivation site 7	S <sub>8</sub> Cultivation site 8	S <sub>9</sub> Cultivation site 9														
POTENTIALLY NEGATIVE    ○ Indirect    ● Direct																								
POTENTIALLY POSITIVE    □ Indirect    ■ Direct																								
U = UNSURE - TO BE VERIFIED BY SPECIALIST																								
BLANK = NOT APPLICABLE OR NO ANTICIPATED IMPACT																								
RECEIVING ENVIRONMENT	POTENTIAL IMPACTS/RISKS OF THE CULTIVATION PROJECT	No-go alternative	Period	Extent	Duration	Consequence / intensity	Probability	Irreplaceable loss of resources	Impact significance w/o mitigation	Degree of impact mitigation	Predicted residual Impact /risk	Residual Impact significance rating												

I-7. CHANGES TO GROUNDWATER QUANTITY AND QUALITY	Groundwater availability	□	□	□	□	□	□	□	□	□																
	Groundwater sustainability	□	□	□	□	□	□	□	□	□																
	Groundwater quality	□	□	□	□	□	□	□	□	□																
	Aquifer contamination vulnerability																									
	Aquifer contamination susceptibility																									
I-8. CHANGES TO LAND COVER / VEGETATION	Vulnerable ecosystem (GM22)	U		U		U	U	U																		
	Previous modification - Old lands	□	□	□	□		□	□																		
	Modified – invasive & bush encroachment	□	□	□	□	□	□	□	□	□																
	Buildings and structures			●																						
	Roads and electricity servitudes			●	●	●	●	●	●	●																
	Fragmentation of habitats	U	U	U	U	U	U	U	U	U																
	Ecosystem services	U	U	U	U	U	U	U	U	U																
I-9. IMPACTS & RISKS TO TERRESTRIAL AND AQUATIC BIODIVERSITY	CBA Irreplaceable (CBA 1)																									
	CBA Optimal (CBA 2)																									
	ESA level 1	U	U	U	U	U	U	U	U	U																
	ESA level 2								U	U																
	Other Natural Area (ONA)																									
	No Remaining Natural Habitat									■																
I-10. IMPACTS AND RISKS TO FRESH-WATER ECOLOGY	Catchment FEPA (Category D)	○	○	○	○	○	○	○	○	○																
	Wetland FEPA																									
	Wetland clusters																									
	Fish sanctuaries																									
	ESA Fish support areas																									



ENVIRONMENTAL IMPACT IDENTIFICATION AND IMPACT PREDICTION MATRIX			PROJECT DESCRIPTION: PROPOSED CULTIVATION ON THE REMAINDER OF DOORNHOEK 451-KT																					
LEGEND		ALTERNATIVE CULTIVATION SITES AND CULTIVATION METHODS																NEGATIVE IMPACT PREDICTION						
POTENTIALLY SIGNIFICANT IDENTIFIED IMPACTS/RISKS		S <sub>1</sub> Cultivation site 1	S <sub>2</sub> Cultivation site 2	S <sub>3</sub> Cultivation site 3	S <sub>4</sub> Cultivation site 4	S <sub>5</sub> Cultivation site 5	S <sub>6</sub> Cultivation site 6	S <sub>7</sub> Cultivation site 7	S <sub>8</sub> Cultivation site 8	S <sub>9</sub> Cultivation site 9														
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U = UNSURE - TO BE VERIFIED BY SPECIALIST																								
BLANK = NOT APPLICABLE OR NO ANTICIPATED IMPACT																								
RECEIVING ENVIRONMENT	POTENTIAL IMPACTS/RISKS OF THE CULTIVATION PROJECT	No-go alternative	Period	Extent	Duration	Consequence / intensity	Probability	Irreplaceable loss of resources	Impact significance w/o mitigation	Degree of impact mitigation	Predicted residual Impact /risk	Residual Impact significance rating												

	Upstream management area	○	○	○	○	○	○	○	○																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																</
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ENVIRONMENTAL IMPACT IDENTIFICATION AND IMPACT PREDICTION MATRIX			PROJECT DESCRIPTION: PROPOSED CULTIVATION ON THE REMAINDER OF DOORNHOEK 451-KT																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
LEGEND		ALTERNATIVE CULTIVATION SITES AND CULTIVATION METHODS																	NEGATIVE IMPACT PREDICTION																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																					
POTENTIALLY SIGNIFICANT IDENTIFIED IMPACTS/RISKS		S <sub>1</sub> Cultivation site 1	S <sub>2</sub> Cultivation site 2	S <sub>3</sub> Cultivation site 3	S <sub>4</sub> Cultivation site 4	S <sub>5</sub> Cultivation site 5	S <sub>6</sub> Cultivation site 6	S <sub>7</sub> Cultivation site 7	S <sub>8</sub> Cultivation site 8	S <sub>9</sub> Cultivation site 9																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																																														

I-14.1 IMPACTS ON SURROUNDING LAND USES	Sensitive areas identified in EMF's																									
	Land use compatibility	■	■	■	■	■	■	■	■	■																
	Residential uses – rural & informal																									
	Commercial uses - urban																									
	Institutional uses																									
	Tourism uses																									
	Commercial agriculture																									
	Subsistence agriculture																									
	Agricultural industries																									
I-14.2 IMPACTS ON EXISTING INFRA-STRUCTURE AND PUBLIC SERVICES	Protected areas																									
	Roads																									
	Stormwater infrastructure				○	○	○	○	○	○																
	Downstream domestic water supply																									
	Downstream irrigation water supply																									
	Electricity supply infrastructure																									
I-15 CHANGES TO THE SENSORY ENVIRONMENT	Waste disposal / waste site																									
	Change in the sense of place																									
	Change in the visual environment																									
	Change in the acoustic environment																									
I-16 IMPACT AND RISK OF WASTE AND POLLUTION	Change in the ambient air quality																									
	General waste sources	●	●	●	●	●	●	●	●	●																
	Hazardous waste sources	●	●	●	●	●	●	●	●	●																
	Point source contamination risk	●	●	●	●	●	●	●	●	●																
	Non-point sources contamination risk	●	●	●	●	●	●	●	●	●																



## 12 CONSIDERATION OF CUMULATIVE IMPACTS

This Section provides the objective and model of cumulative impact identification for Environmental Scoping in compliance with, and complies with GN R 326 of 17 April 2017, Appendix 2 Section 1 (g).

A **“Cumulative impact”**, in relation to an activity, means the past, current and reasonably foreseeable future impact of an activity, considered together with the impact of activities associated with that activity, that in itself may not be significant, but may become significant when added to the existing and reasonably foreseeable impacts eventuating from similar or diverse activities [DEA 2017].

### 12.1 OBJECTIVES OF CUMULATIVE IMPACT ASSESSMENT PREDICTION

The aim is to determine if the combined impacts of the project and activities will result in a condition that may put the sustainability of the valued environmental and social components at risk.

### 12.2 RAPID CUMULATIVE IMPACT PREDICTION MODEL (RCIA)

The methodology for the Rapid Cumulative Impact Assessment (RCIA) follows the five-step approach as proposed by the IFC Good Practice Handbook.

**Step 1: Selection of valued environmental and social components (VESC).**

This method considers fifteen selected baseline environmental and social components (refer to Section F) namely: Groundwater, Climate Change, Surface Water (hydrology), Land cover (vegetation), Terrestrial biodiversity, Aquatic Biodiversity and Freshwater Ecology, Heritage Environment, Sensitive Geographic Areas, Land Use & Infrastructure, Acoustic Environment, Visual Environment, Air Quality, Pollution & Waste, Social Environment and the Economic Environment.

**Step 2 : Determine the spatial contexts of VESCs**

The spatial boundaries selected include the site, surrounding area up to 500m, the local area and the municipality area. The potential internal effect within the footprint and immediate surrounding area is not expected to pose any significant residual cumulative effect as such impacts may be mitigated on-site and can be confined to the site, however the cumulative effect combined with similar external effects within the local and sub-regional area can be difficult to mitigate and may pose a more significant cumulative effect.

**Step 3 : Determine the temporal boundaries of VESCs**

The consideration of the trend of each of the identified VESCs in terms of duration, frequency and reversibility.

**Step 4 : Consider the cumulative impacts of VESCs.**

Consider the trend of each of the identified VESCs on terms of magnitude and probability (how substantial the residual effect predicted is) and the likelihood of the residual effect.

**Step 5 : Assign a cumulative significance prediction ranking of VESCs**

The cumulative prediction assigns a low, moderate or high significance ranking on the identified VESCs.

### 12.3 MODEL LIMITATIONS

The limitations of the RCIA are as follows:

**Data** – data used in the cumulative impact assessment was from preliminary primary data collection but largely from secondary sources. The data on key issues must be provided as part of specialist studies.

**Public consultation** –there was no public consultation, a public participation process must be conducted and relevant comments must be incorporated within the assessment process.

I2-1.1 RAPID CUMULATIVE IMPACT IDENTIFICATION AND PREDICTION MODEL			Step 1 Valued Environmental and Social Components (VESC)														
PROPOSED CULTIVATION FARMING ON THE REMAINDER OF THE FARM DOORNHOEK 451-IT FETAKGOMO TUBATSE MUNICIPAL AREA			GW=Groundwater CC=Climate change SW=Surface water LC=Land cover TB=Terrestrial biodiversity					AB=Aquatic Biodiversity HE=Heritage Environment SG=Sensitive Geographic Areas LU=Land Use & Infrastructure AE=Acoustic Environment VE=Visual Environment					AQ=Air Quality PW=Pollution & waste SE=Social Environment EE=Economic Environment N/A=None/ Not applicable Blank=No cumulative effect				
			GW	CC	SW	LC	TB	AB	HE	SG	LU	AE	VE	AQ	PW	SE	EE
Cumulative prediction criteria with mitigation included			GW	CC	SW	LC	TB	AB	HE	SG	LU	AE	VE	AQ	PW	SE	EE
Step 2	Spatial extent : the spatial occurrence of past, present and future additive / interactive impact components																
Footprint area	The land/project site (potential cumulative effect remains within the site).		X	X	X	X	X		X	X	X	X	X	X	X	X	X
Immediate area	The area directly surrounding the project site (500 m).			X	X		X	X		X	X		X	X	X	X	X
Local area	The Kaspersnek valley surface water sub-catchment area.			X	X			X		X						X	X
Sub-regional area	The Ward area and downstream surface water catchment areas.			X	X			X								X	X
Step 3	Temporal Context																
Duration  Period of the event causing the effect.	Short-term	Event occurs during the extent of clearing and construction through to project commissioning.															
	Mid-term	Event occurs during the first 10 years of operations.			X			X									
	Long-term	Ongoing event that extends greater than 10 years, over the life of the project and beyond.		X												X	X
Frequency  How often would the event that caused the effect occur?	Accidental	Event occurs rarely over the life of the Project.															
	Isolated	Event is confined to a specified Project activity. Occasional event occurs intermittently and sporadically.			X			X									
	Occasional	Event occurs intermittently and sporadically over the life of the project.															
	Periodic	Event occurs intermittently however, repeatedly over the life of the project.		X													
	Continuous	Event occurs continually over the life of the project.														X	X
Reversibility  Period of time over which the residual effect extends.	Short-term	Event is limited to the project construction through to commissioning															
	Mid-term	Event extends during the first 10 years of operations.			X			X									
	Long-term	Event extends beyond the first 10 years of operations.		X												X	X
	Permanent	The event is irreversible.															



RAPID CUMULATIVE IMPACT PREDICTION MODEL		Valued Environmental and Social Components (VESC)															
Step 4	Cumulative impact prediction	GW	CC	SW	LC	TB	AB	HE	SG	LU	AE	VE	AQ	PW	SE	EE	
Residual Magnitude																	
Negligible	No detectable change from existing (baseline) conditions.																
Low	Change is detectable and results in a limited effect on the VESC.		X	X			X										
Medium	Change is detectable and results in a moderate effect on the VESC.														X	X	
High	Change is detectable and results in a severe effect on the VESC.																
Residual Probability																	
Low	Unlikely		X	X			X								X	X	
High	Likely																
Step 5	Cumulative Significance Prediction																
Low Cumulative Impact			X	X			X										
Moderate Cumulative Impact															X	X	
High Cumulative Impact																	
Positive or Negative cumulative significance predictions																	
Positive	Predictive significance outcome has a positive cumulative impact														X	X	
Negative	Predictive significance outcome has a negative cumulative impact		X	X			X										

## 13 CONSIDERATION OF PROJECT ALTERNATIVES

### 13.1 OBJECTIVE OF ALTERNATIVES

Potentially reasonable and feasible alternatives is considered in respect of the proposed development or activities that forms part of it, for it to feedback into the planning and design of the development/activity thereby optimising the positive aspects and minimising the negative aspects that are highlighted during the assessment process.

### 13.2 DEFINING AND IDENTIFYING PROJECT ALTERNATIVES

The “**alternatives**” concerning the proposed development or activity, means different means of meeting the general purpose and requirements of the development or activity, which for purpose of this activity, include the following alternatives:

- (a) the project area (property) where it is proposed to undertake the activity (property alternative);
- (b) the type of land use activity to be undertaken (land use alternative);
- (c) the sites within the project area on which to undertake the proposed activity (site alternative);
- (d) the cultivation methods to undertake the proposed activity (method alternative), and
- (f) the option of not implementing the activity/development ( the no-go alternative).

Project alternatives can form part of impact mitigation measures (see Section 13.4) to identify the best environmental option and incorporate the selected alternatives in the early planning stages of the proposed development.

### 13.3 THE METHOD

The method of identification is based on the Integrated Environmental Assessment Guideline Series 11, published by the DEA in 2004. Only those alternatives that are found to conform to both the requirements of reasonability and feasibility are put forward for further investigation during the EIA process. **Reasonability** refers to considerations of moderation, fairness, cost-effectiveness, sensibility, and sound judgement when considering an alternative. **Feasibility** refers to the ease, convenience, and capability to achieve/implement an alternative. The comparative assessment below aims at selecting the alternative that holds the best environmental option.

### 13.4 IDENTIFICATION OF ALTERNATIVES BY WAY OF COMPARATIVE ASSESSMENT

This section identifies the need for considering project alternatives based on the findings of the previous scoping sections.

13.4.1	ALTERNATIVE PROJECT AREA OR PROPERTY (PA)
Alternative	Identify another property for the development.
Disadvantages	<ul style="list-style-type: none"><li>▪ The property is municipally zoned for Agriculture and the proposed cultivation project complements the current zoning, showing no need for another land alternative.</li><li>▪ The proposed cultivation project areas are regarded as high potential agricultural land in terms of soil suitability, water availability and suitable climate.</li><li>▪ The cost of obtaining another property is high, whereas the proposed property has secure land ownership by the Applicant.</li><li>▪ Historic aerial photographs provide evidence of previous cultivation on the proposed cultivation sites. The preliminary scoping investigation of the receiving environment indicates that the land cover and biodiversity on the property has been modified, due to previous agricultural land use. Previously modified areas are more suitable for new cultivation compared to natural areas.</li><li>▪ The preliminary scoping investigation also identified a lack of employment opportunities in the area where the property is located. The Agricultural sector brings stability to the local municipal socioeconomic status. The proposed cultivation project can increase the economic value in the local region, which addresses a socio-economic need. This may not be achieved with an alternative property.</li></ul>
Advantages	There is no advantage in identifying and assessing the suitability of another property.
Reasonability	It would not be reasonable to identify and assess an alternative property.
Feasibility	It would not be feasible to do the development on another property.

I3.4.2 ALTERNATIVE LAND USE ACTIVITY (LU)	
ADVANTAGES / BENEFITS	DISADVANTAGES / LIMITATIONS
<b>Tourism &amp; conservation are used as suggested in the OLEMF.</b>	
<ul style="list-style-type: none"> <li>▪ The Olifants-Letaba Rivers Environmental Management Framework identifies the sub-region along the mountainous western slopes of the Drakensberg for conservation and tourism uses based on scenic and high biodiversity characteristics of that area.</li> <li>▪ Similar, the Limpopo protected area strategy identifies the mountainous areas of the sub-region for conservation purposes of potentially vulnerable ecosystems and expansion of protected areas within such ecosystems.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The Kaspersnek Valley was historically used for cultivation and cattle farming purposes and written evidence thereof dates back to the late 1800s and tourism uses may be limited due to the existing agricultural use of the property.</li> <li>▪ Due to the previous agriculture on the property and surrounding areas, the valley-bottom areas of the property have undergone land cover modification and lost to a large extent its original vegetation composition and structure. Subsequently, the habitat for wildlife also became less suitability which limits the eco-tourism potential of the property.</li> <li>▪ Furthermore, significant scenic landmarks or places of biophysical or historic interest that may hold potential for eco- or cultural tourism do not occur on the property.</li> <li>▪ The property overall holds very little potential for expansion of conservation areas and tourism within the identified project sites.</li> </ul>
<b>Aquaculture:</b>	
<ul style="list-style-type: none"> <li>▪ The quality of surface water would benefit any form of aquaculture.</li> <li>▪ Any form of protein production holds potential financial benefits.</li> </ul>	<ul style="list-style-type: none"> <li>▪ All forms of aquaculture require abundant water resources. The property is located in a water-scarce area, with other farmers and communities depending on the same water resource downstream.</li> <li>▪ The property does not hold a surface water allocation that would be required to sustain any form of aquaculture.</li> <li>▪ Aquaculture as a farming type holds limited employment opportunities.</li> </ul>
<b>Cultivation of seasonal crops</b>	
<ul style="list-style-type: none"> <li>▪ The soils within the project area are suitable for crop production.</li> <li>▪ The availability of groundwater for irrigation of seasonal crops may prove to enhance the production and overall feasibility of seasonal crops.</li> <li>▪ The current climatic conditions are favourable for the production of various seasonal crops.</li> <li>▪ Seasonal crop production holds ample employment opportunities during the harvesting period.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The region is expected to be prone to future changing climate conditions and seasonal crops are more vulnerable to heat and water stress which can result in the loss of planted crops.</li> <li>▪ As such, an expected future increase in temperatures would reduce the effectiveness of conventional overhead irrigation of crops with resultant loss of expensive irrigation water to evaporation.</li> <li>▪ The local market for seasonal crops can be unstable and therefore does not pose a secure production income.</li> <li>▪ The seasonality of the crop does not ensure permanent employment opportunities.</li> </ul>
<b>Cattle farming</b>	
<ul style="list-style-type: none"> <li>▪ The local region is historically known for extensive free-range cattle farming and as such, there is historic and current evidence that the project area is suitable for cattle farming.</li> <li>▪ Cattle farming are less intrusive in terms of potential environmental impacts compared to cultivation.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The subdivision of farms decreased the size of grazing lands on individual farms and thus impaired the economic viability thereof.</li> <li>▪ Therefore, current cattle farming on the property is limited due to grazing land limitations and resultant low stocking rates.</li> <li>▪ Cattle farming may become vulnerable to future climate change hazards such as heat</li> </ul>

ADVANTAGES / BENEFITS	DISADVANTAGES / LIMITATIONS
	<p><i>stress and droughts, which may affect grazing lands. As such, an expected future increase in evaporation rates would reduce the effectiveness of irrigated livestock pastures in support of natural grazing areas.</i></p> <ul style="list-style-type: none"> <li>▪ <i>Cattle farming hold limited employment opportunities.</i></li> <li>▪ <i>The size of the property does limit the potential and viability of extensive and commercial cattle farming.</i></li> </ul>
<b>Cultivation of citrus</b>	
<ul style="list-style-type: none"> <li>▪ <i>The proposed citrus cultivation can be motivated positively in terms of the availability and suitability of the natural resources on the property. The valley sections of the farm pose suitable soil conditions, are located close to sustainable groundwater resources for irrigation, and are located in an area with suitable climatic conditions for viable citrus cultivation.</i></li> <li>▪ <i>Successful citrus cultivation within the surrounding farming area has been practised for more than 50 years, which is further motivation for considering this citrus as a production commodity on this property.</i></li> <li>▪ <i>On a broader scale, the need for expansion of the citrus industry in South Africa has been recognised in the National Development Plan and the Agricultural Policy Action Plan (2015).</i></li> <li>▪ <i>Worldwide, South Africa is the second-largest citrus export country and with an ever-expanding international market, citrus is considered an economically viable cultivation product.</i></li> <li>▪ <i>Long-term citrus production would provide long-term and seasonal employment opportunities and increased socio-economic stability in the area.</i></li> <li>▪ <i>As citrus production is drought-tolerable, it is less vulnerable to future climate changes within the region.</i></li> <li>▪ <i>Overall, citrus production poses a much more economically favourable agricultural activity than cattle or seasonal crop farming.</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ <i>Vegetation clearance and earthworks create a risk for soil erosion.</i></li> <li>▪ <i>Water quality may be affected by silting of altered watercourses due to erosion by the proposed cultivation construction and operation phase.</i></li> </ul>
<b>FEASIBILITY, REASONABILITY AND SELECTION OF THE LAND USE ALTERNATIVE</b>	
<ul style="list-style-type: none"> <li>▪ <i>The property holds little to no tourism opportunities, whereas the natural resources on the property are very suitable for agricultural land uses.</i></li> <li>▪ <i>Aquaculture is expected to be an unsustainable land use compared to citrus cultivation.</i></li> <li>▪ <i>Seasonal crops are expected to be less financially viable and may pose employment insecurity with resultant economic and social impacts, compared to citrus cultivation.</i></li> <li>▪ <i>Livestock farming is expected to be less financially viable with substantially fewer local employment benefits than long-term citrus cultivation. However, to ensure the optimum economic utilisation of the property, small-scale cattle farming will continue on the remaining farming area that is not suitable for crop cultivation.</i></li> <li>▪ <i>Considering the above, citrus production is expected to be economically stable and financially viable and potential impacts as identified in this scoping assessment can be mitigated to acceptable levels.</i></li> <li>▪ <i>It is therefore reasonable to select citrus cultivation as the most suitable type of agriculture on this property.</i></li> </ul>	

<b>I3.4.3 ALTERNATIVE CULTIVATION SITES (S)</b>	
<b>ADVANTAGES / BENEFITS</b>	<b>DISADVANTAGES / LIMITATIONS</b>
<p><i>Sites S1-3</i></p> <ul style="list-style-type: none"> <li>▪ The proposed cultivation project will have less impact due to historic cultivation farming that occurred partially on these sites.</li> <li>▪ Existing infrastructure such as storage rooms for agricultural equipment will benefit the proposed cultivation project.</li> <li>▪ Soil and slope conditions are suitable for the proposed cultivation project.</li> </ul> <p><i>Sites S4-9</i></p> <ul style="list-style-type: none"> <li>▪ These sites constitute vacant agricultural land, thus the proposed cultivation project will be utilizing the current agricultural land use right optimally.</li> <li>▪ The proposed cultivation project will have less impact due to historic cultivation farming that occurred partially on these sites</li> <li>▪ Firebreak and footpaths are present on these portions adjacent to the District Road (2538) providing easy ingress and egress.</li> <li>▪ Soil and slope conditions are suitable for the proposed cultivation project.</li> </ul> <p><i>Site S10</i></p> <p>The remaining extent of the farm is suitable for small-scale commercial cattle farming and is currently practised in the property. Cattle farming will complement the proposed cultivation farming in terms of the financial viability of the overall investment that will be made.</p>	<p><i>Sites S1-3.</i></p> <ul style="list-style-type: none"> <li>▪ Hard rock layers exist partially on Sites S1 that may limit the cultivation potential of citrus on this site. Site verification is required to determine the final delineation.</li> <li>▪ Severe bush encroachment has modified the natural composition and structure of vegetation with resultant loss of habitat for wildlife.</li> <li>▪ The riparian areas along the Kgwete river are expected to be sensitive and specialist input by the appointed Aquatic Ecologist will be required to determine an adequate buffer zone along with these sensitive areas. This may reduce the cultivation area slightly.</li> </ul> <p><i>Sites S4-9</i></p> <ul style="list-style-type: none"> <li>▪ Severe bush encroachment has modified the natural composition and structure of vegetation with resultant loss of habitat for wildlife.</li> <li>▪ Natural drainage lines that convey run-off from the mountainous areas towards the valley bottom occurs on all of the sites. In addition, a portion of Site S5 may experience seasonal wetlands conditions. The appointed Aquatic specialist will identify and delineate such areas and it is expected that adequate mitigation can be applied in such circumstances and the remainder of this site can still be suitable for cultivation purposes.</li> </ul> <p><i>Site S10</i></p> <p>Site 10 that represents the remainder of the property is not suitable for cultivation due to steep slopes, poor soils and rockiness, poor accessibility to water for irrigation purposes as well as potentially harsh climatic conditions along the higher mid-slope to crest positions of the local landscape.</p>
<b>FEASIBILITY, REASONABILITY AND SELECTION OF THE SITES ALTERNATIVES</b>	
<ul style="list-style-type: none"> <li>▪ Sites 1 is marginally suitable for cultivation purposes and further assessment will be required before a final decision can be made concerning its inclusion in the project or not.</li> <li>▪ Sites 2 to 9 are all very suitable for cultivation purposes and the project can be expected to be economically feasible on these sites.</li> <li>▪ Site 10 would not be feasible for cultivation but remains economically feasible for small scale cattle farming.</li> <li>▪ It is, therefore, reasonable to select Sites 1 to 9 for further assessment as part of the EIA.</li> </ul>	



I3.4.4 ALTERNATIVE CULTIVATION METHODS (M)	
DISADVANTAGES / LIMITATIONS	ADVANTAGES / BENEFITS
<b>Conventional and potentially unsustainable cultivation methods</b>	<b>Environmentally considerate and sustainable cultivation methods</b>
<ul style="list-style-type: none"> <li>▪ The layout of orchards on lands with slopes up to 20 % may result in erosion and the loss of topsoil as proper contour ridges have not been incorporated in such a plan.</li> <li>▪ Natural drainage lines that cross the intended cultivation area are not considered and therefore the natural flow of such drainage lines may become diverted and impeded.</li> <li>▪ The topsoil of arable land is poorly protected. Soil conservation measures are not incorporated into the orchard layout plan and therefore widespread sheet-erosion can occur within the orchard and run-off can become channelled and concentrated in certain places to cause gully erosion.</li> <li>▪ Considering the above-mentioned erosion, run-off towards natural drainage lines outside the orchard will receive silt-laden run-off.</li> <li>▪ Gully erosion can alter the bed and banks of watercourses and subsequent sedimentation of streams or riverbeds will lead to a loss of aquatic vegetation.</li> <li>▪ Sedimentation also leads to poor water quality which is detrimental to freshwater ecology.</li> <li>▪ Sensitive environments that may occur within or alongside the intended cultivation area is not identified and as such potentially important ecological services that are required in support of biodiversity and ecological functioning can become fragmented and can disappear altogether.</li> <li>▪ The transition between the cultivation land and the surrounding natural area is abrupt without any measure of buffering of an activity that may be potentially detrimental to the surrounding natural environment.</li> <li>▪ The spread of alien invasive species, as well as bush densification, is not controlled in any manner and the extent of such encroachment not only affects natural ecological functioning but it also covers large areas of otherwise arable land.</li> <li>▪ Cultivation methods do not consider the impacts of soil compaction and the loss of soil moisture and soil nutrients.</li> <li>▪ Little to no attention is given to contour tillage, terrace systems, and run-off attenuation, which is inductive to uncontrolled run-off, continuous loss of topsoil and soil nutrients.</li> <li>▪ Water is wasted by making use of poor and inappropriate irrigation methods and technologies, and without irrigation, plan to determine the correct irrigation rate and irrigation schedules to use water efficiently and sparingly.</li> </ul>	<ul style="list-style-type: none"> <li>▪ The proposed cultivation sites should be situated in the valley bottom area on high potential agricultural land with desired slopes of less than 20%.</li> <li>▪ Contour ridges should be integrated with natural drainage lines to minimise the loss of topsoil through erosion.</li> <li>▪ Alignment of the drainage line through the cultivation areas should align with existing stormwater pipes beneath District Road 2538.</li> <li>▪ The layout plan of the cultivation area should include soil conservation measures to minimise any potential erosion caused by run-off.</li> <li>▪ Topsoil on and between contour ridges should be protected by vegetation strips to restrict surface erosion and downslope sedimentation.</li> <li>▪ Soil berms should be placed at 30-45 degree angle diagonally to the slope in between contour ridges.</li> <li>▪ Run-off waterways (swales) between the contour ridges of the orchard and the adjacent natural drainage line must be protected by way of stone pitching and vegetative strips.</li> <li>▪ Road crossings at all-natural drainage lines and watercourses should be stabilised by way of rocks along the bed and banks of such watercourses to prevent scouring.</li> <li>▪ Arable land is situated at the Kaspersnek Valley bottom with areas of sensitive alluvial soils prone to flooding. The cultivation planning must exclude riparian areas that are associated with alluvial soils.</li> <li>▪ Erosion control measures are necessary to divert run-off into existing drainage lines to prevent the channelling of water that can create gullies.</li> <li>▪ Adapting the layout plan to include ecological corridors (vegetation buffers) in sensitive environments should enhance water quality downstream thus supporting aquatic biodiversity and freshwater ecological functioning.</li> <li>▪ Such vegetation buffers provide ecosystem services including natural stormwater attenuation and species such as pollinators that are beneficial to cultivation. Vegetation buffers along natural drainage lines function as natural sinks to absorb and neutralize agricultural chemical residues that can be transported by surface water run-off from the orchards towards watercourses.</li> </ul>

<ul style="list-style-type: none"> <li>▪ <i>Agricultural chemicals (fertilisers and pesticides) are applied incorrectly at incorrect doses and without any schedule or plan.</i></li> <li>▪ <i>Waste streams are not recognised, neither is the waste mitigation hierarchy applied to reduce, re-use, or recycle waste and waste disposal occurs haphazardly within or near sensitive natural environments.</i></li> </ul>	<ul style="list-style-type: none"> <li>▪ <i>Irrigation methods should ensure correct irrigation rates and irrigation scheduling by way of soil moisture monitoring as well as the appropriate irrigation type. For citrus cultivation drip, irrigation should be the most effective and water-saving irrigation method.</i></li> <li>▪ <i>Farming practices should follow a waste mitigation hierarchy and management strategy to guide all waste streams to prevent environmental pollution.</i></li> <li>▪ <i>Farming chemicals should be applied safely according to all prescribed all norms and standards prevent contamination of the natural environment.</i></li> <li>▪ <i>An Invasive species monitoring, control and eradication plan should be implemented to prevent bush encroachment and to promote natural ecological functioning in the areas surrounding the proposed orchards.</i></li> </ul>
<b>FEASIBILITY, REASONABILITY AND SELECTION OF ALTERNATIVE CULTIVATION METHODS</b>	
<ul style="list-style-type: none"> <li>▪ <i>The overall environmental, social, and economic advantages of sustainable farming practices are obvious and are as such the selected farming method.</i></li> <li>▪ <i>The environmental management programme which forms part of the EIA must include the guidelines and specifications to ensure sustainability during the orchard planning phases, the orchard establishment and the operational phases.</i></li> </ul>	

Data sources: NDA (2001) / NDA (1997) / Schulze (2016)

## 14 KEY IDENTIFIED ISSUES / IMPACTS

The potentially negative impacts with a significance prediction ranking of “medium” to “very high” as indicated in the Matrix Ranking Table (Section I1.3), as well as the potential negative cumulative impacts/risk as predicted in the Rapid Cumulative Impact Identification and Prediction model (Section I2-1.1), and issues of which the EAP is unsure of are identified as **key issues/impacts** that are put forward for further verification and specialist investigation and assessment in the subsequent Environmental Impact Assessment process. Table I4.1 describes the key issues and also indicates the relevant environmental and/or technical specialist that needs to provide input by way of a specialist study.

I4.1 KEY ISSUE DESCRIPTION					
#	KEY ISSUE	ASPECTS DESCRIPTION	S	D	I C A
1	Slope gradient impacts	Steep gradients are particularly evident at site S1 and potentially along the edges of the proposed sites S4-9. Refer to Section F3 regarding detailed information on the issue raised. Slope gradients must be verified, and if necessary appropriate avoidance mitigation must be applied that can influence the cultivation layout plan.	-	X	X - SA
2	Soil conditions may contribute to cultivation project risks	The suitability of the soil in site S1 must be verified. Moderate to the high susceptibility of erosion is evident on all the sites. Refer to Section F4 regarding detailed information on the issues raised. Potential erosion risk areas must be identified, and the appropriate avoidance mitigation methods must be identified for further assessment and implementation.	-	X	X - SA MA
3	Changes to watercourses and surface drainage	The layout of the cultivation sites can change watercourse beds and banks, as well as altering the flow of seasonal drainage lines and can lead to soil erosion and downstream silt deposition. Refer to Section F6 regarding detailed information on the issues raised. Watercourses and drainage lines must be demarcated and ecosystem services must be verified and the impacts of the cultivation assessed. Appropriate mitigation must be recommended that may influence the cultivation layout plan.	AE	X	X X SA MA
4	Changes to terrestrial biodiversity	Vegetation clearance may result in a potential risk to ESA1 and ESA2 areas. Refer to Section F9 regarding detailed information on sensitive biodiversity. A preliminary site investigation revealed previous vegetation modification and as such, the ESA categorization may not be applicable. Ground truthing is required to validate categorization.	TE	X	X - SA
5	Changes to aquatic biodiversity and freshwater ecology	Vegetation clearing within and around seasonal drainage lines, as well as changes in surface water drainage within the site, add risk to the downstream water quality and river health. Refer to Section F10 regarding detailed information on the issues raised. The risk must be investigated and appropriate buffers along watercourses must be determined. If necessary, appropriate avoidance mitigation must be recommended that can influence the layout plan.	AE	X	X X SA MA
6	Changes to land cover and species	Vegetation clearance causes a risk to protected plant and animal species. Sensitive ecosystem areas and associated services may be impacted by the proposed cultivation project activities. Refer to Section F8 and F11 regarding detailed information on the issues raised. The occurrence of protected plant and animals species and sensitive ecosystems must be verified and recommendations for avoidance, relocation and/or replacement provided. If necessary, appropriate avoidance mitigation must be recommended that can influence the layout plan.	TE	X	X - SA

SR = Predicted Significance Ranking

S = Specialist assessment: GH=Geo-hydrologist / TE=Terrestrial Ecologist / AE=Aquatic Ecologist / HS=Heritage Specialist

Level of assessment: D = Direct impacts / I= Indirect / Impacts

A = Refer to identified project alternatives: SA=Site alternatives / LA=Land use alternatives / MA=Method and Technology Alternatives

Blank space = none / not applicable

## 15 PRELIMINARY IMPACT STATEMENT

*This environmental scoping investigation of the proposed agricultural cultivation on the Remainder of the farm Doornhoek 451-KT followed a structured and consultative process to identify the potentially significant residual impacts and risks, to determine the suitability of the site and the potential development alternatives and to identify key issues that will form the basis of impact assessment in the subsequent EIA process. The scoping process thus found the following:*

15 PRELIMINARY IMPACT STATEMENT
<p>15.1 The Scoping Report (Section E) identified the <b>legislation, policies, plans and guidelines</b> relevant to the proposed cultivation activity and all of its components that need to be taken into consideration in the final planning of the project. No project activity or project action was identified that could not align with the relevant legislation, policies, plans and guidelines. The proposed cultivation and associated activities can therefore be legally justified.</p> <p>15.2 Scoping the proposed cultivation in the contexts of the <b>receiving environment</b> (Section F) investigated the suitability of potential sites and it also identified potential impacts by focusing on the geographical, biological, physical, sensory, social, economic, and cultural aspects of the environment. This section of the scoping report was conducted by making use of primary and secondary data and <b>checklists and the GIS overlay and prediction method</b>. The overall finding of this investigation was that the proposed cultivation is suitable within the proposed location and can as such be acceptable within the receiving environment subject to the incorporation of impact mitigation measures.</p> <p>15.3 The <b>need and desirability</b> of the proposed cultivation was considered in the context of its proposed location (Section G). This section made use of the DEA 2017 Need and Desirability Guideline checklist with the following result:</p> <ul style="list-style-type: none"><li>▪ The need for the proposed development can be justified at the preferred location without compromising the natural environment within which it will be located subject to the implementation of mitigation measures where applicable.</li><li>▪ The proposed development can also be socially and economically justifiable and it is aligned with the needs of the local community and economic development objectives for economic growth, investment, employment and wealth creation as well as social facilitation as identified in national and local development plans</li><li>▪ The project area is also desirable in terms of accessibility to existing public infrastructure. The project is located next to an existing public road and has direct access to the ESKOM power distribution network.</li><li>▪ The need and desirability assessment did not reveal any fatal flaw in terms of the project's ecological and socio-economic justification.</li></ul> <p>15.4 Sections E, F &amp; G of the Scoping Report provided the necessary information to identify the impacts and risks of the proposed cultivation. In Section, I of the report an <b>Impact Prediction Ranking Model</b> was applied to predict the significance of potential impacts by qualitative and quantitative ranking in terms of their extent, duration, consequence and probability. A <b>Mitigation Ranking Model</b> that ranks the degree of impact mitigation was applied to predict the residual impacts/risks of the proposed development.</p> <p>In Section, I of the report, the adapted <b>Impact Identification and Ranking Matrix Method</b> was applied to identify positive and negative as well as direct and indirect impacts and to predict the residual risks by way of a ranking process.</p> <p>The cumulative effect of certain identified impacts was also predicted by way of applying the <b>Rapid Cumulative Impact Identification and Prediction Model</b>. The application of these methods resulted in the identification of <b>Key Issues</b> (predicted negative impacts with moderate to very high residual risks) to be addressed in the assessment phase and which are put forward for specialist investigation as detailed in Section J.</p> <p>A further result of the matrix method is a <b>comparative ranking</b> of the identified alternatives to facilitate the selection of the most appropriate alternatives for inclusion in the proposed cultivation plan.</p> <p>15.5 The preliminary result of this scoping report conclusively found that the proposed cultivation and associated activities <b>are suitable</b> on the proposed site and it should be possible to apply the necessary methods and alternatives to mitigate any predicted impacts and risks, to acceptable levels.</p>

## PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT

This Section provides the plan of study for undertaking the environmental impact assessment as required in GN R 326 of 17 April 2017, Appendix 2 Section 2(1)(h).

*The previous Section I identified the potential impacts and risks that the proposed cultivation project may pose on the environment. An impact prediction led to the significance ranking of each potential impact. All potential impacts with a predicted significance rating of moderate to very high were identified as a key issue that would require further verification and /or specialist study by a qualified environmental scientist as indicated in this section.*

### J1. DESCRIPTION OF ALTERNATIVES TO BE CONSIDERED IN THE ASSESSMENT

The matrix impact identification and prediction model in Section I1 identifies and predicts the potential impacts and risk that the proposed cultivation project alternatives may hold as well as the key issues that require specific attention. Section I3 of the Scoping Report also identifies and describes the site alternative (SA) the selected land use alternatives (LA) as well as methods and technology alternatives (MA) that must be considered in the impact assessment. The selected alternatives must be considered in the investigation and compilation of specialist studies.

### J2. ASPECTS TO BE ASSESSED BY ENVIRONMENTAL SPECIALISTS

#### J2.1 Ecologist - Terrestrial

An independent, qualified and experienced **Terrestrial Ecologist** must:

- Conduct a site investigation including ground-truthing of the terrestrial biodiversity value of the site in terms of the Sekhukhune Biodiversity Plan as indicated in Section I4 and report on the findings as well as the impacts associated therewith.
- Compile a Terrestrial Biodiversity Specialist Report as set out in the EIA Protocol for Terrestrial Biodiversity Assessment GN R320 of 20 March 2020 for a “high” biodiversity sensitivity rating as determined by the National Environmental Screening Tool.
- Compile a Terrestrial Animal Species Compliance Report as set out in the EIA Protocol for Terrestrial Animal Species Assessment GN R1150 of 30 October 2020 for a “medium” species sensitivity rating as determined by the National Environmental Screening Tool.
- Compile a Terrestrial Plant Species Compliance Report as set out in the EIA Protocol for Terrestrial Animal Species Assessment GN R1150 of 30 October 2020 for a “medium” species sensitivity rating as determined by the National Environmental Screening Tool.
- Provide a map of sensitive biodiversity, animal and plant species.
- The above investigations must be conducted on the selected sites (S1-S9) and each proposed cultivation site must be assessed and reported on individually.
- A specific aspect that would also require investigation is the identification of ecosystem services that are provided on each of the selected sites and the impact on and maintaining of terrestrial ecological corridors within or surrounding the proposed cultivation sites.
- Consideration must be given to the selected cultivation methods. Consider the impact of the proposed land-use methods and technologies on terrestrial ecology as identified in Section F & I.

#### J2.2 Ecologist – Aquatic

An independent, qualified, and experienced **Aquatic Ecologist** must:

- Conduct a site investigation including ground-truthing of the aquatic biodiversity and freshwater ecological value of the site in terms of the Sekhukhune Bioregional Plan as indicated in Section I4.
- Conduct site investigate including ground truthing of existing watercourse crossings and directly surrounding aquatic biodiversity and ecosystems as indicated in Section C3.
- Determine the baseline profile description of aquatic biodiversity and ecosystems.
- Delineate the watercourses, wetlands, and riparian zones on each of the proposed cultivation sites.
- Determine the riparian integrity of the Kgwete River that occurs within the project area.

- Determine appropriate buffers along all watercourses by applying the DWS 2014 Rivers and Wetlands Buffer Model.
- Provide a map of the above-mentioned in geo-referenced electronic format for use in compiling a cultivation layout plan.
- Compile an Aquatic Biodiversity Compliance Report in terms of the “low” sensitivity rating as per the National Environmental Screening Tool and the EIA Protocol for Aquatic Biodiversity Assessment GN R320 of 20 March 2020.

### J2.3 Heritage Impact Assessment Practitioner

An independent, qualified and experienced **Archaeologist** must:

- Consider the impact of the proposed cultivation and associated activities on heritage resources, taking into account the “low” cultural and archaeological sensitivity and the “medium to very high” paleontological sensitivity ratings for the proposed cultivation sites.
- Conduct a heritage impact assessment according to the Guidelines of the South African Heritage Resources Agency and commence with the relevant permit applications in terms of the NHRA 1999.
- Compile a paleontological verification report / verification letter by a qualified Palaeontologist covering all the cultivation sites.

### J3. PROPOSED METHOD OF ASSESSMENT

The objective of the environmental impact assessment process is to, through a consultative process—

- determine the policy and legislative context within which the activity is located and document how the proposed activity complies with and responds to the policy and legislative context;
- describe the need and desirability of the proposed activity, including the need and desirability of the activity in the context of the development footprint on the approved site as contemplated in the accepted scoping report;
- identify the location of the development footprint within the approved site as contemplated in the accepted scoping report based on an impact and risk assessment process inclusive of cumulative impacts and a ranking process of all the identified development footprint alternatives focusing on the geographical, physical, biological, social, economic, heritage and cultural aspects of the environment;
- The method of impact assessment shall follow the criteria as set out in Sections I1-2 to I1-4 of the Scoping Report to determine the—
  - (i) nature, significance, consequence, extent, duration and probability of the impacts occurring to inform identified preferred alternatives; and
  - (ii) degree to which these impacts—
    - (aa) can be reversed;
    - (bb) may cause irreplaceable loss of resources, and
    - (cc) can be avoided, managed, or mitigated;
- identify the most ideal location for the activity within the development footprint of the approved site as contemplated in the accepted scoping report based on the lowest level of environmental sensitivity identified during the assessment;
- identify, assess, and rank the impacts the activity will impose on the development footprint on the approved site as contemplated in the accepted scoping report through the life of the activity;
- identify suitable measures to avoid, manage or mitigate identified impacts; and
- identify residual risks that need to be managed and monitored.

### J4. DESCRIPTION OF THE SUITABLE MITIGATION MEASURES

Mitigation objective	The degree to which negative impacts can be mitigated	Potentially suitable methods can be considered.
<b>Avoidance / prevention</b>	Measures are taken to anticipate and prevent adverse environmental impacts before actions or decisions are taken that could lead to such impacts. This approach is most effective when applied in the earliest stages of project planning.	Specific norms, standards and compliance to relevant regulations and “good practice” methods can be applied to avoid potential impacts. Selected cultivation planning alternatives (Methods) can be applied to avoid potential impacts.



<b>Minimise / Reduce</b>	<i>Measures are taken to reduce the duration, intensity, extent and significance of environmental impacts that cannot be completely avoided.</i>	<i>Specified management activities can be considered to reduce impacts by incorporating such actions in the Environmental Management Programme Report.</i>
<b>Rehabilitate</b>	<i>Measures are taken to repair/restore degradation or damage to specific environmental features and ecosystem services of concern following project impacts that cannot be completely avoided and/or minimized.</i>	<i>The relocation and /or replacement of sensitive plant species can be considered. The installation, repair and maintenance of soil conservation and erosion protection measures. The re-vegetation and maintenance of orchards and buffer areas and the eradication of alien and invasive species.</i>
<b>Compensate / Off-set</b>	<i>Creation, enhancement, or protection of the same type of resource at another suitable and acceptable location, compensating for lost resources.</i>	<i>At this stage compensation and offset mitigation is not considered but a specialist may consider this appropriate after completion of specialist studies.</i>

## J5. EIA TASKS AND STAGES OF AUTHORITY CONSULTATION

#	EAP Tasks	Stage	Authority Consultation
1	<i>Pre-application consultation</i>	<i>Pre-Application</i>	<i>Discuss &amp; confirm Screening &amp; Scoping Issues</i>
2	<i>Submit the Application</i>	<i>Application</i>	<i>Review &amp; accept Application.</i>
3	<i>Submit Draft Scoping Report</i>	<i>Draft Scoping</i>	<i>Review Scoping and Plan of Study for EIA</i>
4	<i>Submit Final Scoping Report</i>	<i>Final Scoping</i>	<i>Accept &amp; approve Final Scoping Report.</i>
5	<i>Submit Draft Environmental Impact Report</i>	<i>D EIR</i>	<i>Review Draft Environmental Impact Report</i>
6	<i>Submit Final Environmental Impact Report</i>	<i>F EIR</i>	<i>Review Final Environmental Impact Report</i>
		<i>F EIR</i>	<i>Decide on the application and issue a Decision</i>

## J6. METHOD OF PUBLIC NOTIFICATION AND PARTICIPATION

The following method will be followed as part of the scoping and impact assessment process:

- *The broad public will be notified by way of a notification in one local newspaper.*
- *A notice board will be fixed on the boundary of the property along the District Road.*
- *A written notice of the application will be provided to:*
  - *The owners, persons in control of, and occupiers of the land adjacent to the site of activity.*
  - *The municipal councillor of the ward in which the proposed site falls.*
  - *The local municipality having jurisdiction over the proposed site.*
  - *An organ of the state having jurisdiction in respect to the proposed aspects of the activity.*
  - *Any other party as required by the competent authority.*
- *As a result of COVID-19 public gatherings and/or community meetings as a method of public notification shall not be allowed.*
- *Only small focus-group meetings shall be allowed subject to following the correct COVID-19 protocols. This may include amongst others meetings with registered parties and stakeholders and State Departments.*
- *Individuals who are desirous but unable to participate in the process due to illiteracy, disability or any other disadvantage will be provided with the opportunity to participate through the Ward Councillor.*
- *A register of interested and affected parties shall be opened after the conclusion of the Draft Scoping Public Participation process.*
- *Subject to GN R 26 of 17 April 2017 regulation 41 (5)(a) the formal newspaper, site and written notifications during an initial public participation process shall not be repeated in the final Scoping & EIR public participation process.*
- *Written notice shall be provided to registered interested and affected parties regarding where or how a copy of the environmental impact assessment report and EMPr may be obtained, how and who is the person to whom representations on these reports or plans may be made and the date on which such representations are due.*
- *A registered interested and affected party is entitled to comment, in writing, on all reports or plans submitted to such party during the public participation process.*

- *All registered interest and affected parties and the State Department must provide comments within 30 days after receiving notification.*
- *The EAP shall ensure that the comments of interested and affected parties are recorded in a Comments and Response Report which shall be submitted to the competent authority together with the Final Environmental Impact Assessment report.*
- *All registered interest and affected parties and relevant State department shall be provided with a notice of the decision of the competent authority.*

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**SCOPING: PUBLIC PARTICIPATION PROCESS**

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This section provides a summary of the issues raised during the Public Participation Process for Environmental Scoping in compliance with and complies with GN R326 of 17 April 2017, Appendix 2 Section 2(1)(g)(ii) & (iii).

*The details of the public participation process for Environmental Scoping and the subsequent Environmental Impact Assessment in terms of regulation 41 of the Regulations are described in Section J6 of this report.*

*At this Draft stage of the Scoping Assessment, no person/party registered and no comments have been received.*

**K.1 REGISTER OF IDENTIFIED PARTIES AND STATE DEPARTMENTS**

*To be inserted here*

**K2. PUBLIC NOTICES: SITE NOTICE AND NEWSPAPER NOTICE**

*To be inserted here*

**K3. WRITTEN NOTICE TO IDENTIFIED PARTIES AND STATE DEPARTMENTS**

*To be inserted here*

**K4. MINUTES OF FOCUS GROUP MEETINGS**

*To be inserted here*

**K5. COMMENTS RECEIVED**

*To be inserted here*

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## AFFIRMATION BY THE ENVIRONMENTAL ASSESSMENT PRACTITIONER

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### AFFIRMATION BY THE ENVIRONMENTAL ASSESSMENT PRACTITIONER (EAP)

#### ON THE DRAFT SCOPING REPORT

*I, Riaan Visagie, practising as Eco-8 Environmental Planners affirm to the best of my knowledge:*

*(i) the correctness of the information provided in the report;*

*(ii) written comments and inputs from stakeholders and interested and affected parties are not included in this Draft Scoping Report. Such comments and inputs will be included in the Final Scoping Report after the completion of the initial public participation process.*

*(iii) responses on comments by the EAP on inputs made by stakeholders or interested and affected parties are not included in this report. Such responses will be included in the Final Scoping Report after completion of the initial public participation process.*

*(iv) the level of agreement between the EAP and interested and affected parties on the plan of study for undertaking the environmental impact assessment will only be determined after completion of the initial public participation process.*

Riaan Visagie (EAP: EAPASA)  
Eco-8 Environmental Planners

October 2021

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