

CHAPTER THREE: DESCRIPTION OF THE AFFECTED ENVIRONMENT

3.1 INTRODUCTION

This section of the report provides baseline information regarding the affected environment, as well as an overview of the surrounding land use activities. An overview of the associated environmental attributes of the site has been included to aid in the process of identifying project activities that may have potential impacts on the environment, and which may require further assessment in the Environmental Impact Assessment (EIA) phase. Additionally, this information highlights potential constraints which the affected environment may place on the proposed development. In compliance with the requirements for a Scoping Report in terms of the NEMA EIA Regulations, 2014 (as amended), as contained in GN R326 Appendix 2.2 (1)(g)(iv), the following environmental attributes have been considered:

- Geographical Context: Site Locality and Surrounding Land-use
- Biological
- Physical
- Heritage and Cultural
- Socio-economic: Social and Economic

The baseline information presented in this chapter was sourced from the following available desktop resources:

- Plans
- Guidelines
- Spatial Tools and Mapping Resources
- Municipal Development Planning Frameworks and Instruments
- Relevant literature and Web-based Information

The respective environmental attributes have, amongst others, informed the identification of alternatives for the proposed development. The assessment of alternatives is contained in Chapter Five of this report. To further inform the description of the affected environment and refine the scope of the assessment, a site visit took place on the 23 May 2018. The information gathered from site observations was supplemented by preliminary specialist input. In addition, the description of the affected environment has been informed by the Environmental Assessment Practitioner's (EAPs) knowledge of the local area, based on several previous environmental assessments of a similar nature which have been undertaken in the Nelson Mandela Bay Municipality (NMBM) and Sundays River Valley Municipality (SRVM), namely:

- Agricultural developments for Habata Boerdery on the following farms:
 - Landdrost Veeplaats, SRVM
 - Oliphantskop, NMBM
 - Portion 18 and 19 Logan Braes, NMBM
 - Portion 16 and 17 Logan Braes, NMBM
 - Portion 15 Logan Braes, NMBM
 - Falcon Ridge, SRVM
- Agricultural developments for San Miguel Fruits SA (Pty) Ltd:
 - Riverbend Citrus, SRVM
 - Intsomi Citrus, SRVM
 - Sylvania, SRVM
- Agricultural expansion for Unifrutti South Africa (Pty) Ltd on Portion 14 of Farm 89, SRVM
- Agricultural development for Venter Boerdery on Hopefield Farm, SRVM
- Agricultural development for Kududu Trust on Portion 5 of Nooitgedacht, SRVM
- Agricultural development for Hermanus Potgieter Familie Trust on Swanepoels Kraal, SRVM
- Agricultural development for Luthando Farm on Portion 320 of Strathsomers Estate, SRVM

Subject to the outcome of the assessment process, specialist studies, technical input and consultation process, the proponent, Umgcambo Trading (Pty) Ltd, proposes to cultivate a variety of citrus and vegetables (butternut and pumpkin) on a portion of Portion 525 of Farm Strathsomers Estate No. 42 (~154.28ha in extent and hereafter known as Umgcambo), Sundays River Valley Municipality (SRVM). In order to supply the proposed development with the necessary irrigation water, an irrigation water pipeline is proposed to be installed on a portion of an adjacent property, Portion 523 of Farm Strathsomers Estate No. 42, owned by the same landowner. Additionally, a new irrigation storage dam is proposed to be constructed on Umgcambo, which is anticipated to have a storage capacity of ~80 000m³ and a footprint of ~4ha. In order to provide logistical support to the development it is proposed that a logistical/ administration area of ~2ha is constructed. The area under assessment measures ~155ha and the farm portions are zoned Agriculture I.

There are no existing buildings on Umgcambo and to provide logistical support to the development it is proposed that a logistical services area (~2ha footprint) be constructed. The logistical services area is proposed to include offices and a store for tractors, trailers and maintenance equipment, as well as a fully enclosed bunded, roofed facility of 30m³ for temporary chemical storage; mess area and ablution facilities (washing and toilets); loading and collection zone for the delivery and collection of product; and a new access road around the facility, as well as a manager's house and future buildings. See Chapter Two of the report for a detailed project description.

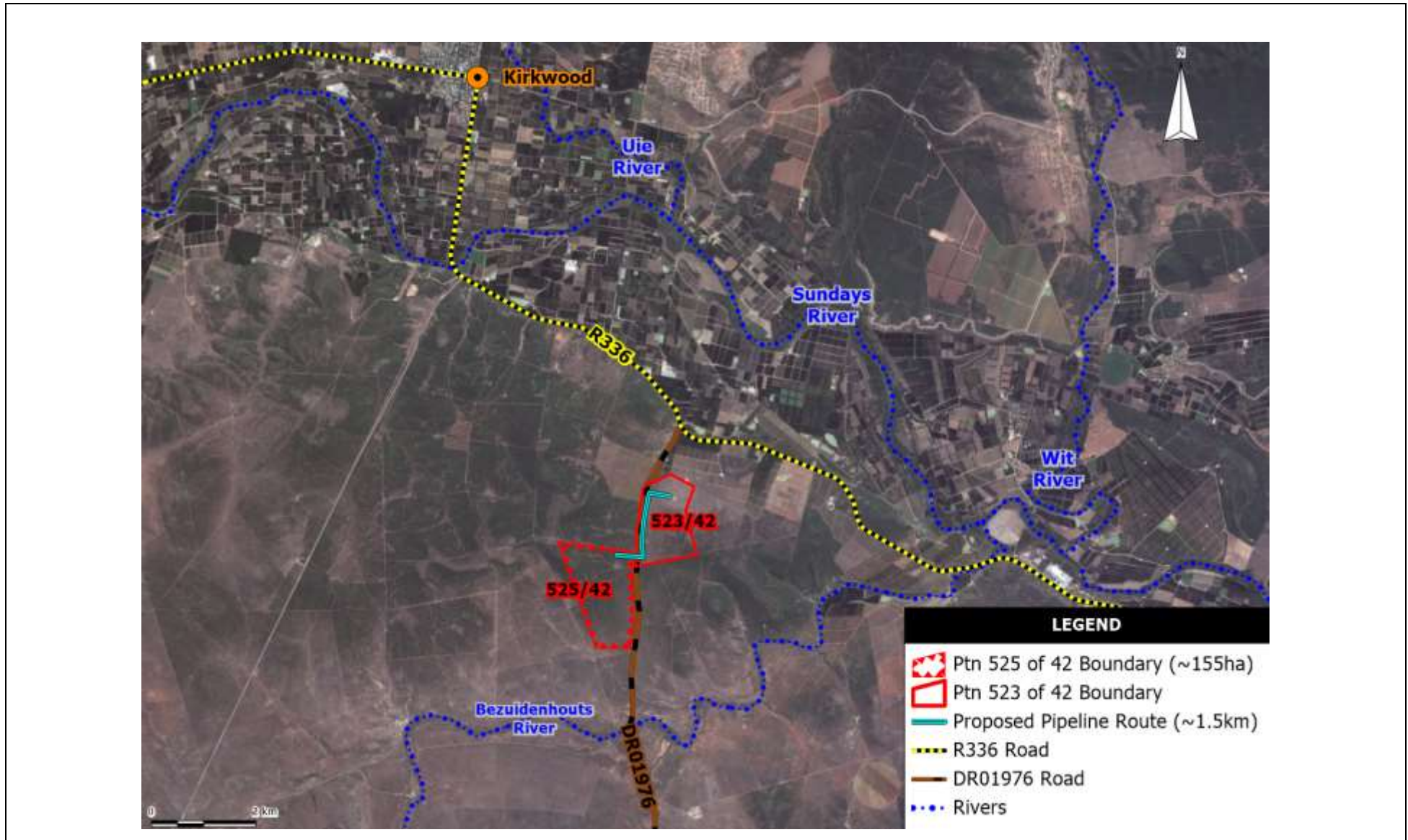
It is anticipated that a portion of Umgcambo will not be deemed suitable for development, subject to the recommendations by the various specialists, as well as technical input (aquatic resources and associated buffers, areas required to meet biodiversity targets, soil suitability, slope etc). The area proposed for installation of the irrigation infrastructure on the adjacent property (Portion 523) is proposed to take place within an existing access road and vehicle track along the fenceline of the property. The area to be cultivated, including associated infrastructure, will be determined by the outcome of the various specialist assessments forming part of this Scoping and EIA process. A detailed project description is provided in Chapter Two of this report.

3.2 GEOGRAPHICAL CONTEXT

3.2.1 Site Locality and Overview

Umgcambo is located ~7km south of Kirkwood (as the crow flies), in the SRVM, Eastern Cape, South Africa. The nearest boundary of the Addo Elephant National Park (AENP) is located more than 10km north of the farm and therefore, project activities proposed to take place on this property do not trigger listed activities which would require the assessment of impacts on the AENP. The installation of the irrigation water pipeline is proposed to take place on Portion 523, which is adjacent to Umgcambo. While Portion 523 is located within 10km of the AENP, the installation of the irrigation water pipeline does not trigger any listed activities in GN R324 - Listing Notice 3, which would require the assessment of impacts on the AENP (see Map 3.1 and insert).

Access to the farm is proposed off the gravel DR01976 road. An existing access point will be utilised to access the proposed cultivation area.



Map 3.1: The location of Portion 525 of Farm No. 42 Strathsomers Estate (Umgcambo), including the proposed irrigation pipe (light blue) on Portion 523 of Farm No. 42 Strathsomers Estate, in relation to the nearest town, rivers and roads.

3.2.2 Surrounding Land-use

Umgcambo is adjacent to seven properties (See Map 3.2). These properties, with their associated activities, are listed in Table 3.1 below. The vegetation on the properties surrounding Umgcambo to the north, west and east appears to be largely near-natural, although some modification (cut lines and vehicle tracks) is evident. In addition, these properties show various levels of degradation, presumably associated with domestic livestock grazing and game grazing. Portion 523, owned by the same landowner, is directly adjacent to the north eastern boundary of Umgcambo, and is currently engaged in commercial agricultural activities including citrus orchards, and vegetable production. Portion 523, upon which the irrigation pipe is proposed to be installed, is bound on its western, northern and eastern boundaries by cultivation. The “Sundays River Valley” area is located ~2.1km north of Umgcambo and is predominantly under intensive cultivation.

The focus of this EIA will be on the potential of the site for the planting of citrus orchards, including a variety of vegetables, as well as areas for conservation, guided by technical and biophysical constraints to be determined through relevant specialist studies. See Chapter Four for the full list of activities triggered.

Table 3.1: Activities on the properties surrounding and adjacent to the area under assessment.

Farm Number	Activities	Boundary
9/599	Cultivated fields and near-natural vegetation	North
2/599	Cultivated fields	North
210/42	Cultivated fields	North East
312/42	Cultivated fields	North East
219/42	Near-natural vegetation	East
RE 413/42	Near-natural vegetation	South and South East
RE 599	Near-natural vegetation	North West



Map 3.2: Properties (red outline) surrounding and adjacent to Portion 525 (Umgambo) and Portion 523 of Farm No. 42 Strathsomers Estate (yellow outline).

3.3 ENVIRONMENTAL ATTRIBUTES

3.3.1 Biological

The vegetation expected to occur at the site is noted in a number of conservation planning frameworks relevant to the area. The resolution of the planning framework mapping is limited to a landscape level and the vegetation types and distribution on individual farms is subject to confirmation by a vegetation specialist. The section below outlines the findings of the desktop review of the relevant National and Regional conservation planning frameworks and mapping resources applicable to the area.

3.3.1.1 Aquatic Vegetation

National Context

- National Freshwater Ecosystem Priority Areas (NFEPA; Net et al. 2011):

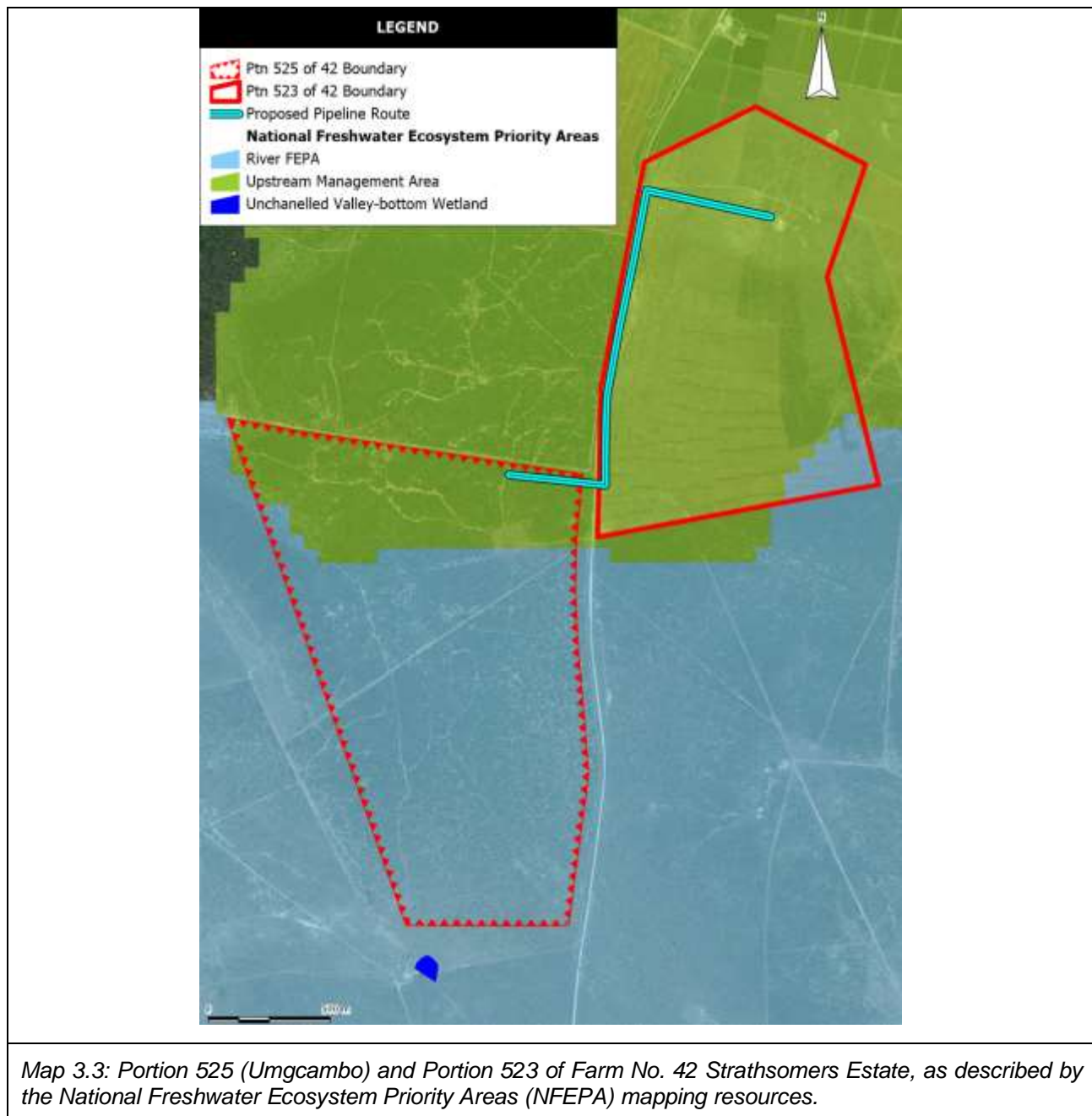
The NFEPA project is a systematic biodiversity planning framework which aims to identify FEPAs to meet national biodiversity goals for freshwater ecosystems, within the context of equitable socio-economic development. Additionally, the project aims to enable the effective implementation measures to ensure the protection of FEPAs, which includes free-flowing rivers.

In terms of the NFEPA map, the majority of Umgcambo is classified as a River Freshwater Ecosystem Priority Area (FEPA), with a northern portion classified as an Upstream Management Area (UMA). Portion 523, upon which the irrigation pipe is proposed to be installed, is largely classified as an UMA, with a southern portion classified as a River FEPA (see Map 3.3).

According to the NFEPA Project's Technical Report (August 2011), River FEPAs achieve biodiversity targets for river ecosystems and threatened/ near-threatened fish species and were identified in rivers that are currently in a good condition (Present Ecological State Category of A or B). FEPA status indicates the river, in this instance the Bezuidenhouts River, should remain in a good condition in order to contribute to the biodiversity goals of the country. For River FEPAs, the whole sub-quaternary catchment is shown as a FEPA, although FEPA status only applies to the *actual river reach* of the Bezuidenhouts River (~1km south of Umgcambo). UMAs are sub-quaternary catchments in which human activities need to be managed to prevent degradation of downstream River FEPAs, such as the Bezuidenhouts River, and Fish Support Areas (FSA). UMAs do not include management areas for Wetland FEPAs, which need to be determined at a finer scale. Therefore, from a cumulative perspective, high-intensive land uses would have an impact on the FEPA catchment within which the Bezuidenhouts River is situated.

The NFEPA Wetlands Map delineates one Unchanneled valley-bottom wetland, in this case a farm dam (artificial wetland) within 500m of the southern boundary of the farm (see Map 3.3).

The presence of potential and existing wetlands, rivers and drainage lines on Umgcambo and within 500m of the area under assessment will be confirmed and assessed by an aquatic specialist during the EIA phase of this assessment.



Regional Context

- Eastern Cape Biodiversity Conservation Plan (ECBCP; Berliner & Desmet 2007):

The ECBCP is a broad scale biodiversity plan, utilized to map particular Terrestrial or Aquatic Critical Biodiversity Areas (CBAs) for conservation in the Eastern Cape, as well as to assign appropriate land use categories and guidelines to the existing land.

It is important to note that, although the *Sundays River Valley Municipality Biodiversity Sector Plan* is a more recent document and has been mapped at a finer scale, when determining the listed activities applicable to the proposed development, the ECBCP, rather than the SRVM BSP is consulted, as stipulated by the competent authority.

In terms of the ECBCP mapping resources, the majority of Umgcambo falls within an Aquatic Biodiversity Land Management Class 2a (ABLMC 2a), while a northern portion of Umgcambo, as

well as Portion 523, upon which the irrigation pipe is proposed to be installed, falls within an ABLMC 2b (see Map 3.4).

According to the ECBCP's Technical Report (August 2007), an ABLMC 2a refers to important sub-catchments that assist in preventing the degradation of A1 rivers, such as the Bezuidenhouts River, and which require moderate or high protection. An ABLMC 2b refers to a catchment area of free-flowing rivers that are considered important for fish migration. In terms of the ECBCP, catchments which are classified as ABLMC 2a and ABLMC 2b have a transformation threshold of less than 15% and less than 20% of the sub-quaternary catchment, respectively.

The Aquatic CBA status is assigned because Umgcambo falls largely within the N40E-Sundays Catchment (FEPA Catchment) and partially within the N40C-Sundays Catchment (FEPA Upstream Management Area). Currently, ~22.2% of the N40E-Sundays Catchment has been modified, while ~21.6% has been degraded. Finally, ~13.9% of N40C-Sundays Catchment has been modified, while ~5% has been degraded.

The importance of the aquatic resources on Umgcambo in maintaining CBAs and Ecological Processes, will be assessed by an aquatic specialist during the EIA phase of this assessment.



Map 3.4: Portion 525 (Umgcambo, red outline) and Portion 523 (yellow outline) of Farm No. 42 Strathsomers Estate, in terms of the ECBCP Aquatic CBA mapping resources.

3.3.1.2 Terrestrial Vegetation

National Context

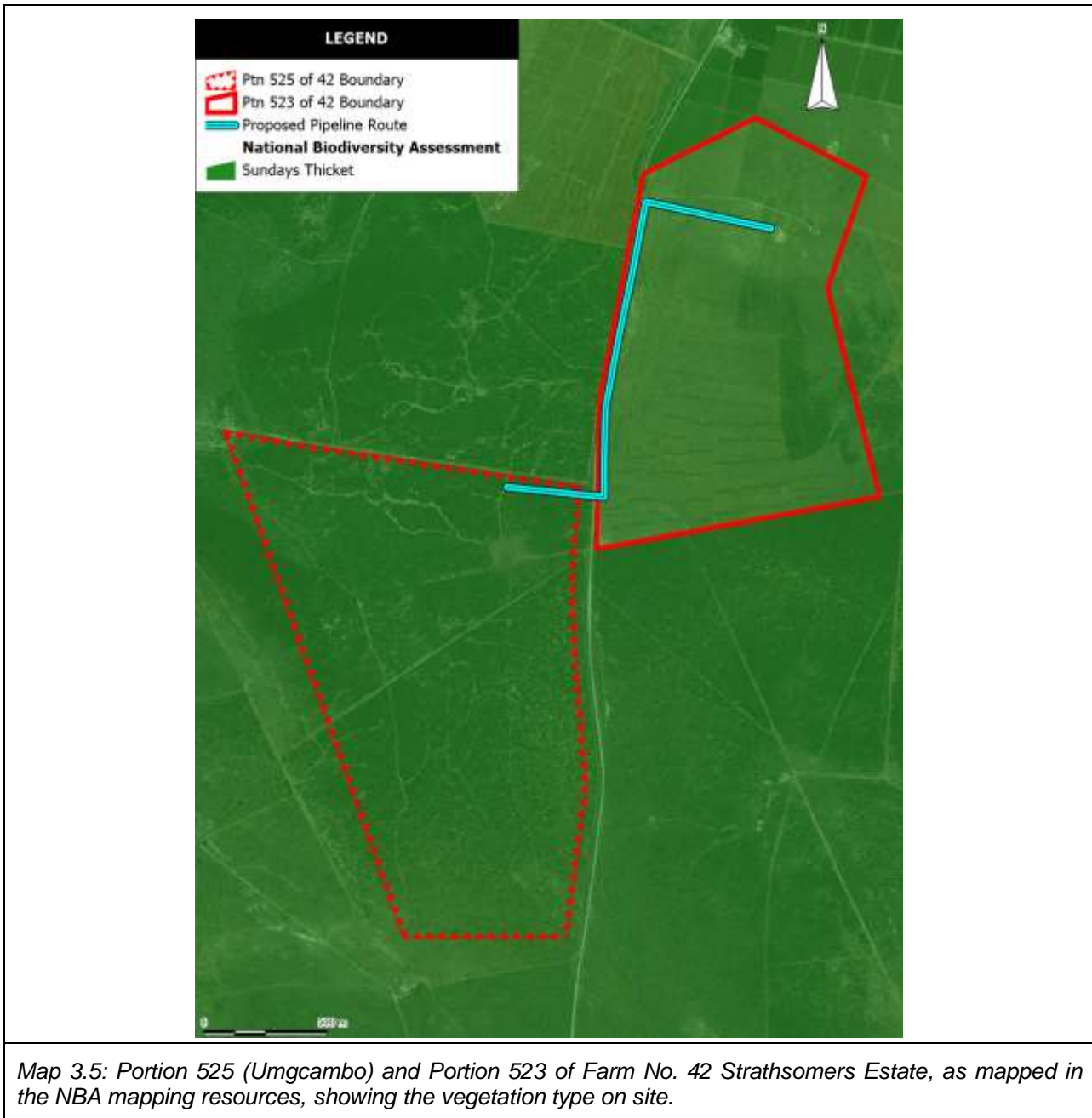
- National Biodiversity Assessment (NBA 2011):

The NBA aims to identify the threat status and protection levels for ecosystems, in order to map and classify various ecosystem types in South Africa.

The NBA shows the vegetation type on Umgcambo, as well as on Portion 523, upon which the irrigation pipe is proposed to be installed, as Sundays Thicket. Sundays Thicket has an ecosystem

status of Least Concern and is listed as Poorly Protected. The conservation target proposed for Sundays Thicket, as per the NBA mapping resources, is 19% of the original extent (see Map 3.5).

The presence and extent of the vegetation types on Umgcambo will be determined by a vegetation specialist during the EIA phase of this assessment.



Regional Context

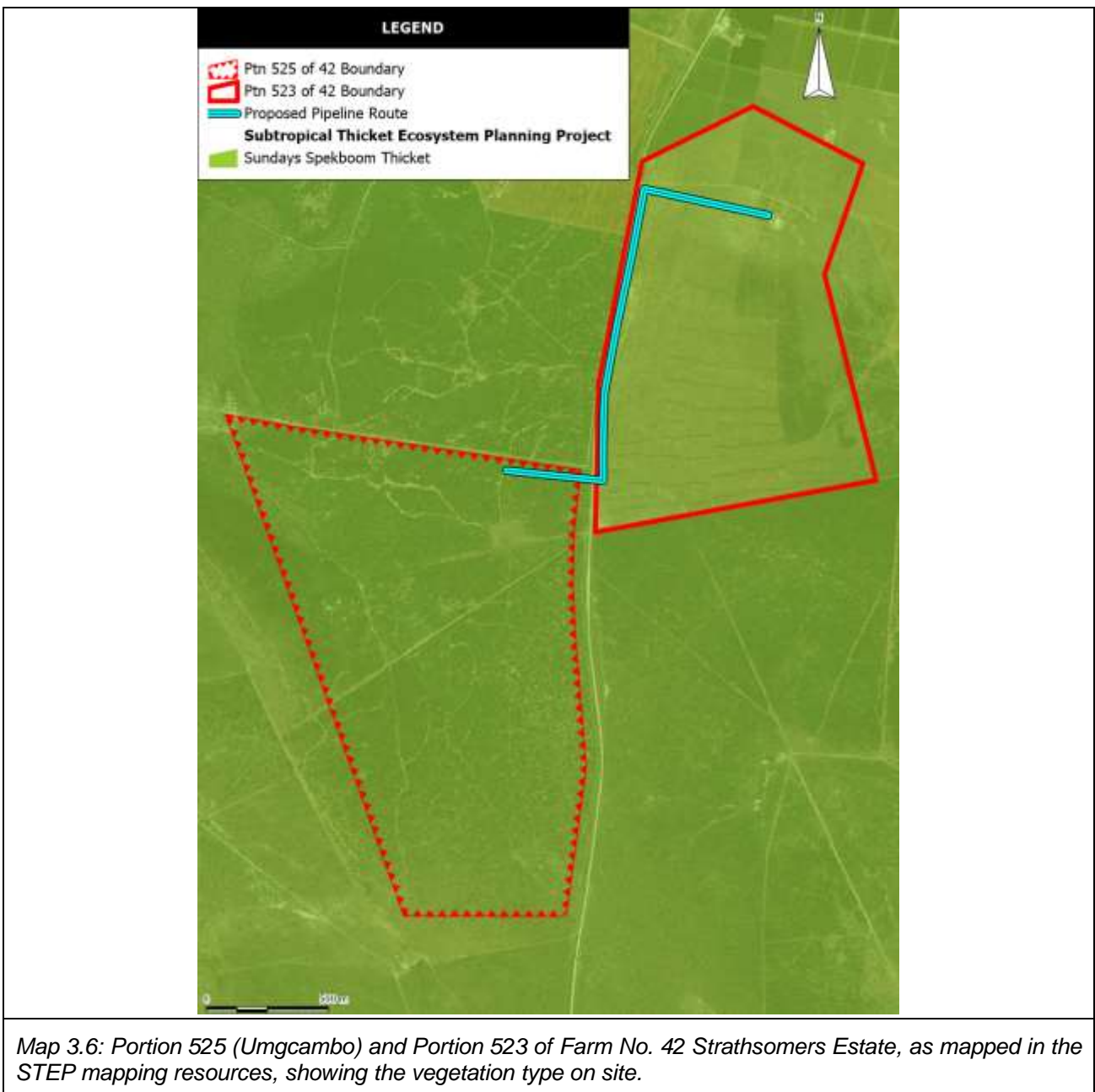
- Subtropical Thicket Ecosystem Programme (STEP; Pierce & Mader 2006):

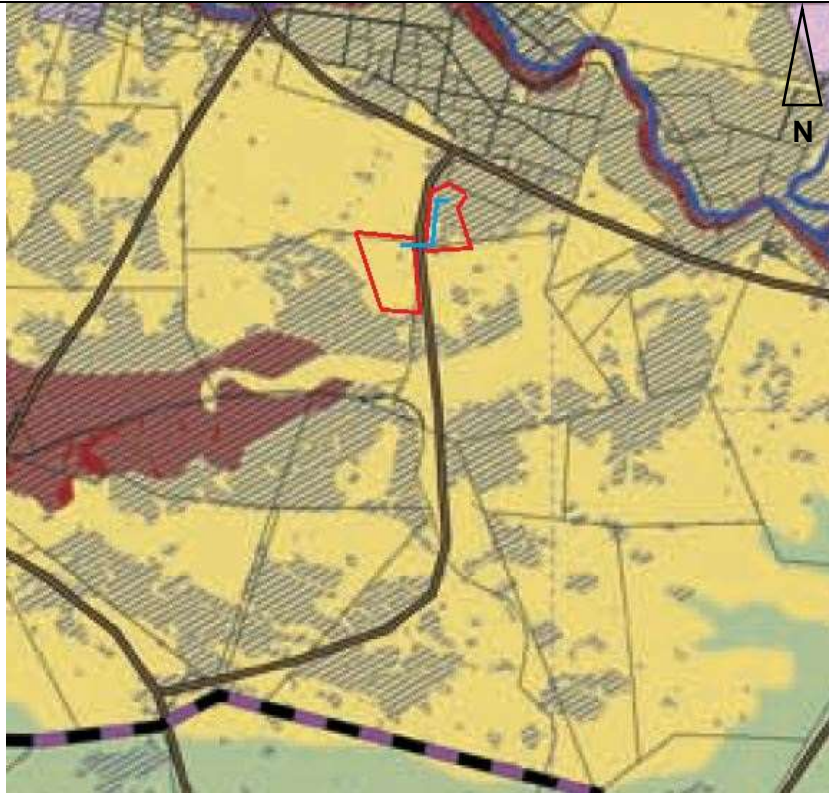
The STEP mapping resources indicate the vegetation type on Umgcambo, as well as on Portion 523, upon which the irrigation pipe is proposed to be installed, as Sundays Spekboom Thicket (See Map 3.6). Sundays Spekboom Thicket is listed as Vulnerable. The conservation target of Sundays Spekboom Thicket, as per STEP, is 18% of the original extent.

According to the STEP mapping resources, Umgcambo, as well as Portion 523, upon which the irrigation pipe is proposed to be installed, has a Vulnerable ecosystem status (yellow on Map 3.7). However, Portion 523 has simultaneously been assigned an Impacted Area status, as it is currently under cultivation (hatching on Map 3.7). Neither Umgcambo, nor Portion 523 is situated within a Biodiversity Corridor (purple on Map 3.7) and neither fall within a Protected Area (green on Map 3.7). The STEP Mapbook (2006), notes that Vulnerable land can withstand limited loss of area through disturbance or development.

It is worth noting that the STEP is superseded by the SRVM Biodiversity Sector Plan as it is a more recent document and mapped at a finer scale.

The presence of the vegetation types on Umgcambo, as well as their extent, will be confirmed by a vegetation specialist during the EIA phase of this assessment.





Map 3.7: Portion 525 (Umgcambo) and Portion 523 of Farm No. 42 Strathsomers Estate are not situated within a Biodiversity Corridor (purple) and do not fall within a Protected Area (green), as identified in the STEP mapping resources.

- Eastern Cape Biodiversity Conservation Plan (ECBCP; Berliner & Desmet 2007):

The ECBCP is a broad scale biodiversity plan, utilized to map particular Terrestrial or Aquatic Critical Biodiversity Areas (CBAs) for conservation in the Eastern Cape, as well as to assign appropriate land use categories and provide management guidelines to the existing land.

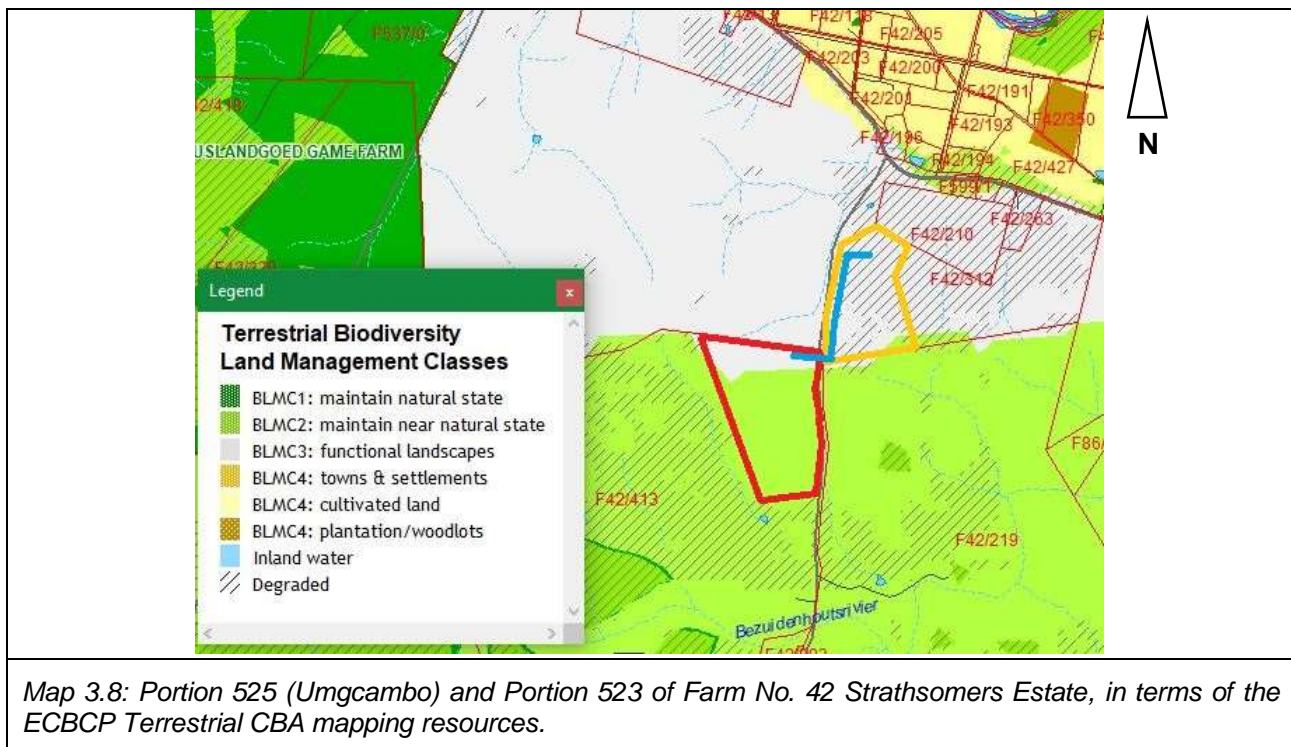
It is important to note that, although the *Sundays River Valley Municipality Biodiversity Sector Plan* is a more recent document and has been mapped at a finer scale, when determining the listed activities applicable to the proposed development, the ECBCP, rather than the SRVM BSP is consulted, as stipulated by the competent authority.

The ECBCP mapping resources indicates Umgcambo as predominantly Terrestrial Biodiversity Land Management Class 2 (BLMC2 – CBA), with the northern portion mapped as a Terrestrial Biodiversity Land Management Class 3 (BLMC3 – Functional Landscapes). The majority of Portion 523, upon which the irrigation pipe is proposed to be installed, has been mapped as BLMC3 (Functional Landscapes), while scattered sections across Portion 523 are shown as degraded (See Map 3.8).

A BLMC2 refers to a Critical Biodiversity Area (CBA) that must be maintained in a near-natural state. The recommended land use objective for a BLMC2 would be to manage sustainable development practices, with minimum loss in ecosystem integrity and functioning. The acceptable transformation threshold for a BLMC2 is 0%-10%, per land parcel considered. According to the ECBCP Handbook (2007), the land uses recommended for a BLMC2 includes conservation, game farming and communal livestock. For Functional Landscapes, the ECBCP recommends managing land to maintain basic ecosystem processes, despite expecting significant loss in natural

vegetation cover (i.e. under current cultivation), while simultaneously maintaining biodiversity in critical patches and ecosystem corridors. Finally, the land use objective for Degraded land is to manage sustainable development.

The importance of the vegetation on Umgcambo in maintaining CBAs and Ecological Processes will be assessed by a vegetation, as well as an aquatic specialist during the EIA phase of this assessment.



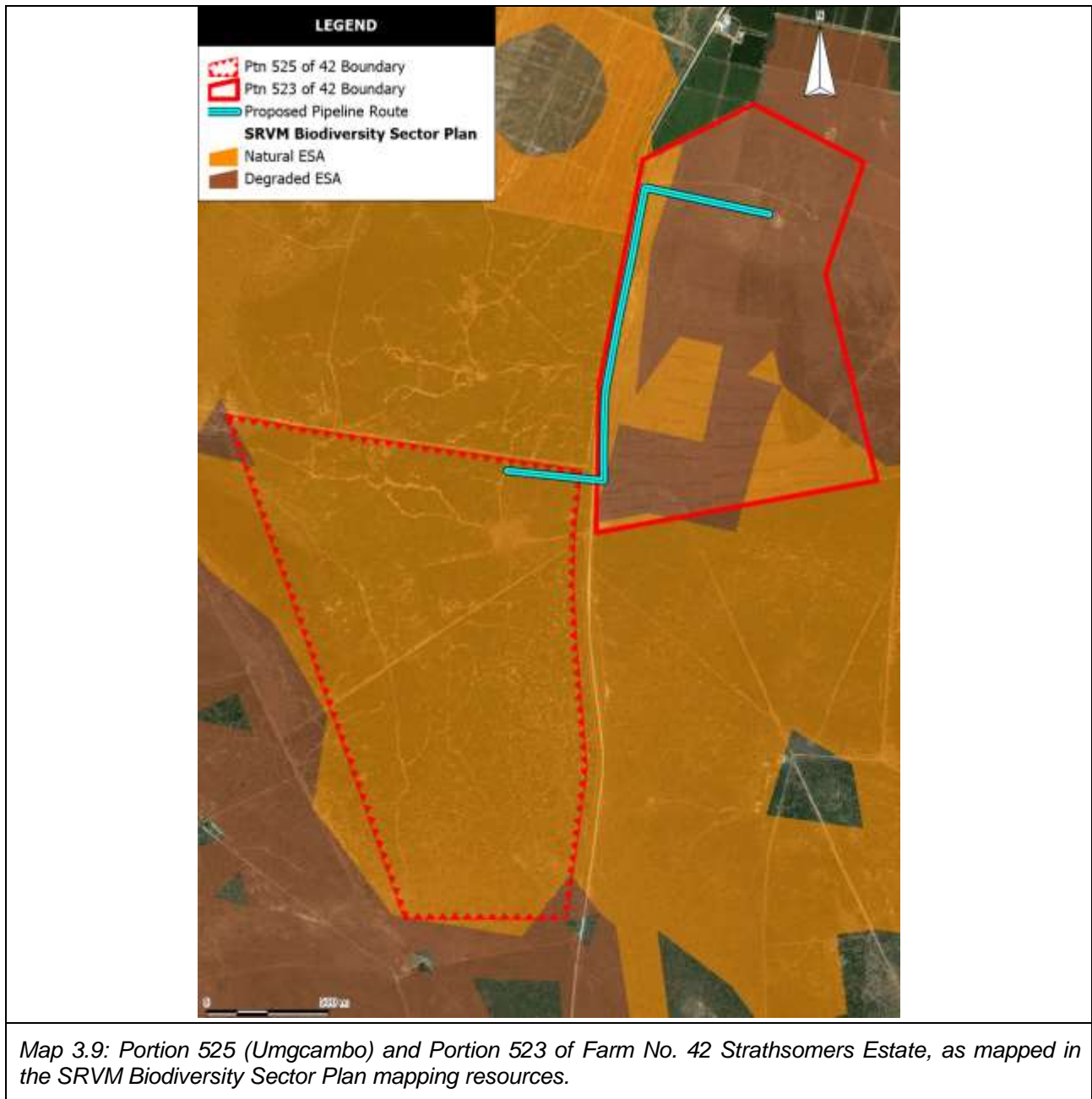
- Sundays River Valley Municipality Biodiversity Sector Plan (SRVM BSP; Vromans et al. 2012):

Of the nine local municipalities in the Sarah Baartman district Municipality, the Sundays River Valley Local Municipality is one of the four local municipalities for which Biodiversity Sector Plans have been developed. From a biodiversity perspective, these municipalities comprise 44.7% of South Africa's Albany Thicket Biome. Furthermore, approximately half of the Sundays River Valley Local Municipality occurs in the southwestern Albany-Pondoland-Maputoland Hotspot, a globally recognized hotspot (Mittermeier et al., 2004).

It is important to note that, although the *Sundays River Valley Municipality Biodiversity Sector Plan* is a more recent document and has been mapped at a finer scale, when determining the listed activities applicable to the proposed development, the ECBCP, rather than the SRVM BSP is consulted, as stipulated by the competent authority.

In terms of the SRVM BSP, Umgcambo, as well as Portion 523, upon which the irrigation pipe is proposed to be installed, is mapped as a combination of Natural and Degraded Ecological Support Area (ESA) (See Map 3.9). The ESA represents a functional zone that maintains the natural processes associated with the N40E-Sundays, as well as the N40C-Sundays catchments.

The importance of the vegetation on Umgcambo in maintaining CBAs and ESAs will be assessed by a vegetation, as well as an aquatic specialist during the EIA phase of this assessment.



3.3.1.3 Site Observations

The site observations discussed below were informed by the following:

- A site visit undertaken by the EAP on the 23 May 2018
- Preliminary input from specialists

There are currently no agricultural activities taking place on Umgcambo. However, wildlife and domestic livestock were historically grazed on the farm, by the previous landowner. Portion 523, upon which the irrigation pipe is proposed to be installed, is currently under citrus and vegetable cultivation.

Vegetation Levels of Modification and Degradation

Umgcambo

The site visit and preliminary input from the vegetation specialist confirmed that the vegetation on Umgcambo is Sundays Spekboom Thicket.

The condition of the vegetation is considered highly degraded in some areas, specifically towards the southern boundary of the farm, and is likely due to past wildlife and domestic livestock grazing and browsing. This is evidenced by several grassy areas dominated by *Cynodon dactylon* (Bermuda Grass), patches of *Pentzia incana* (Karoobossie) and *Mesembryanthemum aitonis* (Brakslaa) (see Photo 3.1). Additionally, some trees, such as *Pappea capensis* (Pruimbessiebos) and *Portulacaria afra* (Spekboom), showed visible signs of browsing (i.e. umbrella shaped). *Opuntia ficus-indica* (Prickly Pear) and *Opuntia aurantiaca* (Jointed Cactus), possible indicators of a degraded vegetation state, occurred throughout the farm. Modified areas on the farm are represented by various cut lines and existing vehicle tracks, as well as footpaths.

The condition of the vegetation is in a relatively good ecological state to the west of the farm, with moderate degradation levels based on species diversity, intactness and a high level of impenetrability, despite the presence of *Opuntia ficus-indica* (Prickly Pear) and *Opuntia aurantiaca* (Jointed Cactus), as well as existing vehicle tracks and footpaths. Towards the northern boundary of the farm, including the steeply sloped areas, the condition of the vegetation is mostly intact, with a higher level of impenetrability (i.e. fewer grassy areas, lower prevalence of *Cynodon dactylon* (Bermuda Grass) and decreased levels of visible browsing; see Photo 3.2).

Portion 523 and the DR01976 (proposed installation of irrigation pipe)

The proposed agricultural development on Umgcambo will require the installation of an irrigation pipeline, proposed to link into an existing outlet pipe from the dam on Portion 523 (owned by the same landowner), and which will cross under the DR01976 road, to a proposed new irrigation dam on Umgcambo.

The proposed pipeline on Portion 523 will be installed adjacent to the fenceline along an existing vehicle track within the existing citrus orchards (see Photo 3.3). In the road reserve of the DR01976 road, where the irrigation pipe is proposed to cross under the road, the vegetation is irreversibly modified, and edge effects have resulted due to the permanent removal of natural vegetation along this road (see Photo 3.4).

Concluding Remarks

These on-site findings supplement the information obtained from the various conservation and planning frameworks consulted above. These findings will be verified by a vegetation, as well as an aquatic specialist during the EIA phase of the assessment. If necessary, suitable recommendations (e.g. aquatic buffers and biodiversity target areas) should be made for the incorporation of the requirements of the relevant conservation planning frameworks in the proposed development.



Photo 3.1: Looking towards the eastern boundary of Umgcambo, showing a highly degraded vegetation state, with signs of previous domestic livestock grazing and browsing.



Photo 3.2: Looking towards the northern boundary of Umgcambo (red line), from Portion 523, upon which the irrigation pipe is proposed to be installed. Showing existing citrus orchards on Portion 523, as well as the mostly intact Sundays Spekboom Thicket vegetation on the northern hilled areas of Umgcambo.



Photo 3.3: The irrigation pipe proposed to be installed on Portion 523 at the existing dam outlet pipe (yellow circle) and in the road along the existing citrus orchards, towards the DR01976 road (red line).



Photo 3.4: Example of irreversibly modified vegetation cover in the road reserve of the DR01976, where the irrigation pipe is proposed to be installed under and across the road from Portion 523 to Umgcambo.

3.3.1.4 Fauna

A formal faunal investigation did not take place during the initial site visit on the 23 May 2018. However, goats were observed on Umgcambo during the site visit. It is anticipated that the vegetation on site provides habitat to several small to medium mammal, reptilian and amphibian species. As indicated in Section 3.3.1.3 above, there are indications of past wildlife and domestic livestock grazing and browsing across the farm. The site is likely also frequented by a variety of avifaunal species. The Addo Flightless Dung Beetle (*Circellium bacchus*) which is endemic to the region is anticipated to occur on the site.

The Ecological Specialist Assessment that will form part of the EIA phase of the assessment, should consider the potential occurrence of Rare and Endangered fauna on the site, within the context of the type and extent of faunal habitat on the site.

3.3.2 Physical

3.3.2.1 Climate

The Sundays River Valley is characterised by harsh climate conditions, with summer temperatures rising in excess of 40°C. The monthly distribution of average daily maximum temperatures ranges from 21.9°C (July) to 29.2°C during summer (February). The region is the coldest during July, with average night time temperatures of 5.2°C.

Rainfall for the area is overall low, between 250-500mm annually, and spread throughout the year. Kirkwood, the closest town to Umgcambo, receives ~315mm of rain per year. Lowest rainfall occurs during the winter, specifically in July (13mm), and the highest rainfall during autumn, particularly in March (44mm).

3.3.2.2 Geohydrology and Surface Water

A site visit on the 23 May 2018 and review of the relevant aerial imagery, as well as the NFEPA planning framework, have assisted in the identification of aquatic features in the vicinity. The NFEPA Wetlands Map delineates one Unchanneled valley-bottom wetland, in this case a farm dam (artificial wetland) within 500m of the southern boundary of the farm.

The presence and extent of aquatic features on Umgcambo will be assessed by an aquatic specialist during the EIA phase of the assessment.

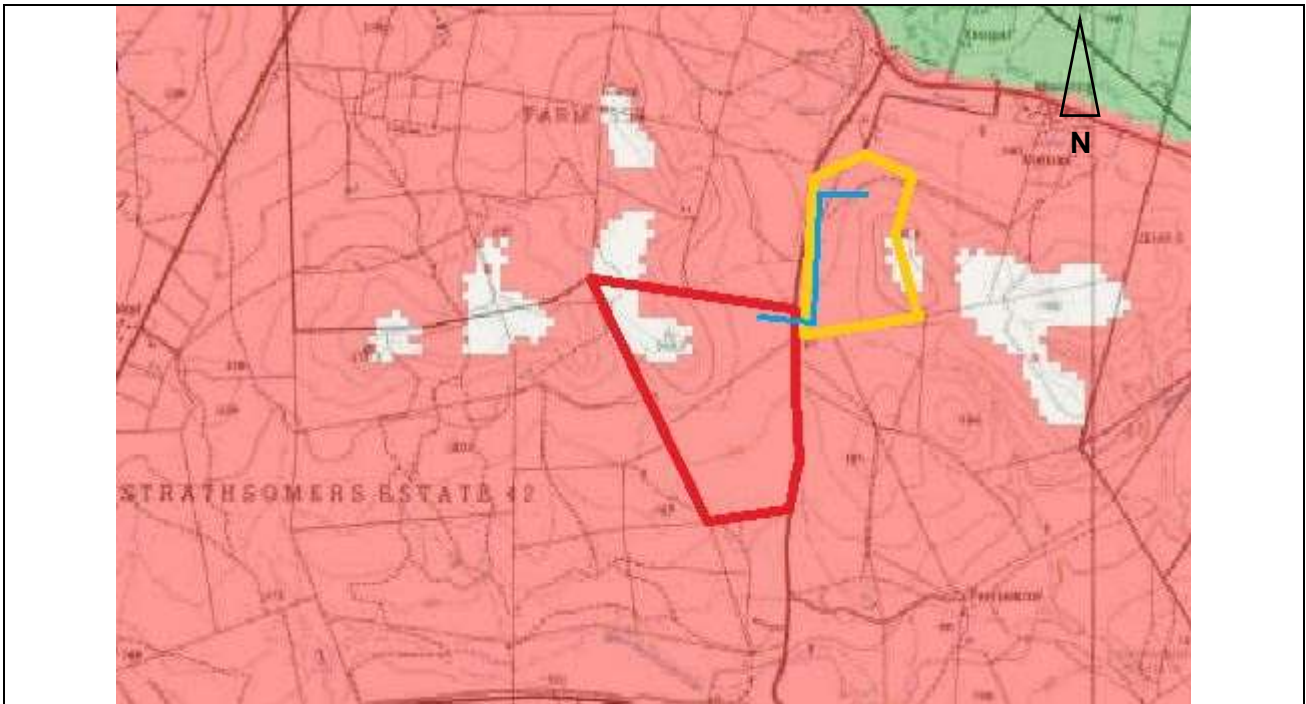
3.3.2.3 Geology and Topography

Geology

In terms of the Fossil Sensitivity Map compiled by the South African Heritage Resources Agency (<http://www.sahra.org.za/map/palaeo> Accessed May 2018), the fossil sensitivity on the majority of Umgcambo, as well as Portion 523, upon which the irrigation pipe is proposed to be installed, is Very High (red/ pink on Map 3.10). The area is largely underlain by the Kirkwood Formation comprising non-marine, fluvial to estuarine mudstone and sandstone sediments of the Early Cretaceous age (Almond 2012, NID 136578). These deposits may contain important examples of Mesozoic land plants (ferns, cycads, conifers etc.) and fossil bones, including large and small dinosaurs, as well as non-marine, and occasional marine, molluscs. There are also isolated patches of Pliocene Kudus Kloof alluvial terrace gravels which, may contain peats, palynomorphs (pollens, spores) and other microfossils, as well as the bones and teeth of mammals and other fauna (Almond 2016, NID 374576).

Despite this potentially high fossil sensitivity, local conditions and previous assessments suggest a low probability of fossil finds. The Kudu's Kloof Formation in this region would appear not to yield significant fossil material (Almond 2016, NID 374576). Furthermore, the nature of the proposed agricultural development is unlikely to result in deep excavations into bedrock.

A paleontological specialist will determine the likelihood of the occurrence of substantial fossil deposits on Umgcambo, as well as the potential impacts of the proposed agricultural development on such deposits, during the EIA phase of this assessment.



Map 3.10: Fossil Sensitivity on Portion 525 (Umgcambo) and Portion 523 of Farm No. 42 Strathsomers Estate, as given by the SAHRA mapping software.

Colour	Sensitivity	Required Action
RED/PINK	VERY HIGH	field assessment and protocol for finds is required
ORANGE/YELLOW	HIGH	desktop study is required and based on the outcome of the desktop study, a field assessment is likely
GREEN	MODERATE	desktop study is required
BLUE	LOW	no palaeontological studies are required however a protocol for finds is required
GREY	INSIGNIFICANT/ZERO	no palaeontological studies are required
WHITE/CLEAR	UNKNOWN	these areas will require a minimum of a desktop study. As more information comes to light, SAHRA will continue to populate the map.

Topography

The topography of Umgcambo gently grades from the higher lying slopes (240m) on the north western boundary, towards the Bezuidenhouts River floodplain, in a south eastern direction (160m; See Map 3.11).



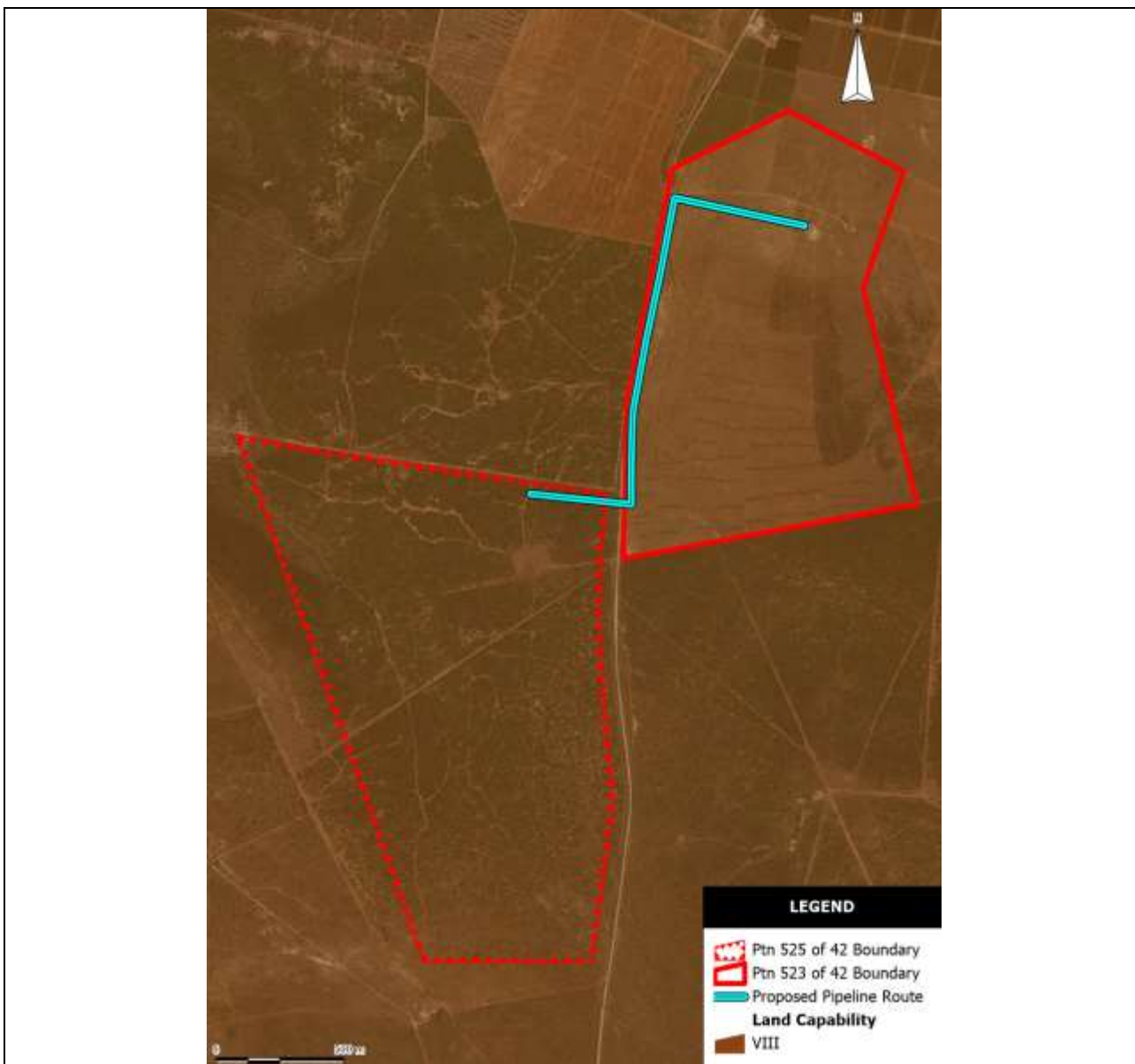
Map 3.11: Contour map (20m contour intervals) showing topography of Portion 525 (Umgcambo) of Farm No. 42 Strathsomers Estate (red outline).

3.3.2.4 Agricultural Potential

The Agricultural Geo-Referenced Information System (AGIS, accessed from www.agis.agric.za May 2018) mapping resources indicates that Umgcambo falls within Land Capability Class VIII (see Map 3.12). Land Capability Classification takes into consideration the terrain, soil conditions and climate in the area.

Land in Class VIII has limitations (based on desktop level data) that restrict its use to recreation, wildlife, water supply or aesthetic purposes. These limitations include erosion hazards and a severe climate, wet soils, low water-holding capacity, and salinity or sodicity.

Given that the Land Capability Mapping was done on a landscape scale, the suitability of the soils for cultivation will be verified on site by a soil specialist. The EIA phase of the assessment will include a Reconnaissance Soil Survey in order to assess the agricultural potential of the soils on Umgcambo.



Map 3.12 Portion 525 (Umgcambo) of Farm No. 42 Strathsomers Estate, showing the Agricultural Land Capability of the site (AGIS, 2007, www.agis.agric.za).

3.3.3 Heritage and Cultural

Certain cultural and heritage resources are protected under the National Heritage Resources Act, No 25 of 1999. These may include structures older than 60 years; archaeological and palaeontological sites and materials, and meteorites; certain burial grounds and graves; declared heritage objects; and declared heritage sites.

No graves, burial sites or structures older than 60 years were noted during the site visit. However, during the EIA phase of the assessment, the site should be surveyed by an archaeological specialist, for the presence of graves or burial grounds, as well as other material which might be of archaeological importance, or which may have potential impacts on the proposed development.

Given the palaeontological sensitivity of the rock formations that are anticipated to occur on site, as previously discussed under section 3.3.2.3, a palaeontological specialist will determine the likelihood of the occurrence of substantial fossil deposits on Umgcambo during the EIA phase of the assessment.

3.3.4 Socio-economic (Social and Economic)

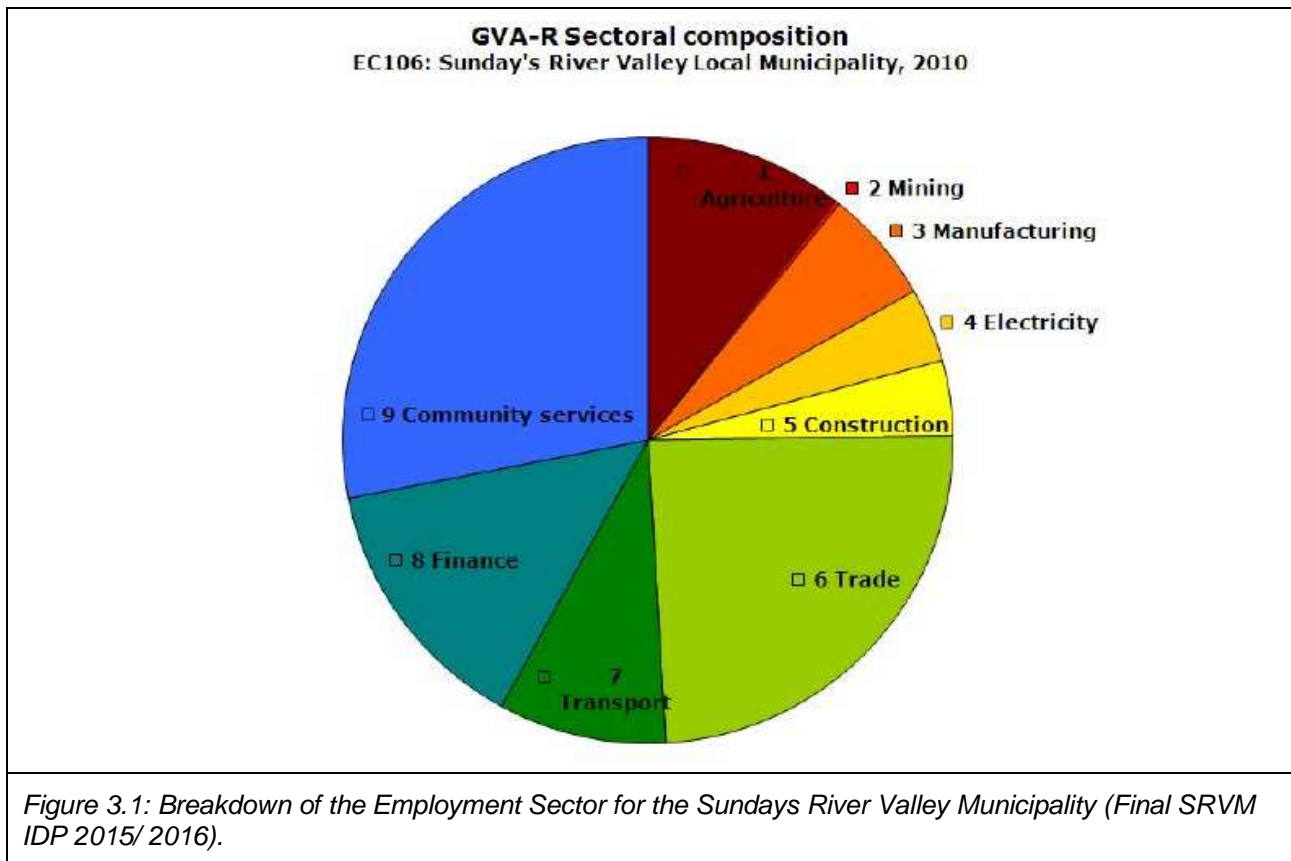
The nearest town to Umgcambo is Kirkwood, in the SRVM. However, local labour is sourced from both the SRVM, as well as the Nelson Mandela Bay Municipality (NMBM), therefore, socio-economic data for both municipalities have been considered here.

The Final Integrated Development Plan (IDP 2015/ 2016) for the SRVM indicates that the current unemployment rate in the municipal area is as high as 38.54%. The Agricultural Sector, being one of the top five employment sectors in the SRVM, provides room for growth in terms of employment opportunities, as it currently represents approximately 11% of the employment for the SRVM area. (Final SRVM IDP 2015/2016; See Figure 3.1).

The NMBM Integrated Development Plan 2011-2016 (14th Edition, 2015/ 2016 Financial Year) highlights some of the key socio-economic challenges in the NMBM and lists unemployment and poverty among them. Some of the reasons cited in the NMBM IDP (2015/ 2016) for the low economic growth experienced in the NMBM (3% per annum) are the high unemployment and dependency ratios (unemployment rate 36.3%). However, as with the rest of South Africa, the NMBM is undergoing a youth bulge, with approximately 35% of the population between the ages of 10-29 years. A positive outcome of such a youth bulge is demographic dividends, which, given gainful employment, can be used for poverty reduction and economic growth.

The nearby communities associated with the town Kirkwood in the SRVM, as well as the greater NMBM area, represent an important labour force in close proximity to the proposed agricultural development. It is further anticipated that the proposed agricultural development will result in a number of new permanent and seasonal employment opportunities for the local community.

No specialist socio-economic assessment is proposed for the EIA phase of the assessment.



3.4 CONCLUDING REMARKS

Key issues identified to date and which require specialist assessment in the EIA phase of the assessment, are:

- Biophysical (Biological and Physical) site assessment to include:
 - Potential project related impacts on natural vegetation and faunal habitat associated with the area under assessment, need to be considered.
 - An aquatic survey to identify and map aquatic features associated with the area under assessment, if any.
 - Assign suitable buffers for aquatic features identified, if any.
 - Provide comment on the potential impact of the proposed development on Aquatic and Terrestrial CBAs, as identified in the ECBCP.
 - The determination of suitable buffers associated with meeting biodiversity conservation targets specific to the vegetation types associated with the area under assessment, and in line with those targets indicated by the relevant planning frameworks for the area.
- It is recommended that a Phase 1 Palaeontological and Archaeological Assessment be undertaken.
- It is recommended that a Traffic Impact Assessment be undertaken.
- A Soil Suitability Assessment in the form of a Reconnaissance Soil Survey will be conducted to determine the suitability of the soil for the establishment of citrus orchards and the cultivation of a variety of vegetables.