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LIST OF ABBREVIATIONS

CBD: Central Business District

C-Plan: Conservation Plan

DEA: Department of Environmental Affairs

DFA: Development Facilitation Act

EAP: Environmental Assessment Practitioner

ECA: Environmental Conservation Act

EIA: Environmental Impact Assessment

IEMA: Institute of Environmental Management and Assessment

EIAR: Environmental Impacts Assessment Report

DWA: Department of Water Affairs

EMP: Environmental Management Plan

GAPA: Gauteng Agricultural Potential Atlas

GDARD: Gauteng Department of Agriculture, Conservation and Environment

GDRT: Gauteng Department of Roads and Transport

GSDF: Gauteng Spatial Development Framework

GDS: Growth and Development Strategy

GTIA: Gauteng Transport Infrastructure Act

I&AP: Interested and affected party

IDP: Integrated Development Plan

JMOSS: Johannesburg Metropolitan Open Space System

MOU: Memorandum of Understanding

NSBA: National Spatial Biodiversity Assessment

NEMA : National Environmental Management Act

PoS: Plan of Study

RSDF: Regional Spatial Development Framework

SACLAP: The South African Council of the Landscape Architects Profession

SAHRA: South African Heritage Resources Agency

SR: Scoping Report

SDF: Spatial Development framework

TIA: Traffic Impact Assessment

UNCED : United Nations Conference on Environment and Development

GLOSSARY OF TERMS

Agricultural Hub: An area identified for agricultural use by GDARD according to the Draft Policy on the Protection of Agricultural Land (2006).

Alien species: A plant or animal species introduced from elsewhere: neither endemic nor

indigenous.

Applicant: Any person who applies for an authorisation to undertake an activity or to cause such activity to be undertaken as contemplated in the National Environmental Management Act (Act No. 107 of 1998), as amended and the Environmental Impact Assessment Regulations, 2006.

Biodiversity: The variability among living organisms from all sources including, terrestrial, marine and other aquatic ecosystems and the ecological complexes of which they are apart.

Conservation of Agricultural Resources Act (Act No. 43 of 1983): This Act provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith.

C-Plan: The GDARD C-Plan focuses on the mapping and management of biodiversity priority areas within Gauteng. The GIDS includes protected areas, irreplaceable and important sites due to the presence of Red Data species, endemic species and potential habitat for these species to occur. GIDS, 2007.

Development Facilitation Act (DFA) 1995 (Act 67 of 1995): This Act formulates a set of general principles to serve as guidelines for land development.

Ecology: The study of the inter relationships between organisms and their environments.

Environment: All physical, chemical and biological factors and conditions that influence an object and/or organism. Also defined as the surroundings within which humans exist and are made up of the land, water, atmosphere, plant and animal life (micro and macro), interrelationship between the factors and the physical or chemical conditions that influence human health and well-being.

Environmental Impact Assessment: Assessment of the effects of a development on the environment.

Environmental Management Plan: A legally binding working document, which stipulates environmental and socio-economic mitigation measures that must be implemented by several responsible parties throughout the duration of the proposed project.

GDARD Draft Ridges Policy, 2001: According to the GDARD Draft Ridges Policy no

development should take place on slopes steeper than 8.8%.

GDARD Draft Red Data Species Policy, 2001: A draft policy to assist with the evaluation of development applications that affected Red Data plant species.

GDARD Requirements for Biodiversity Assessments Version 2 (June 2012): GDARD requirements for biodiversity assessments.

National Environmental Management Act (NEMA), 1998 (Act No 107 of 1998): NEMA provides for co-operative, environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state; and to provide for matters connected therewith.

National Environmental Management: Air Quality Act (Act No. 39 of 2004): The purpose of the Act is "To reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incident thereto".

National Environmental Management: Biodiversity Act, 2004 (Act No 10 of 2004): The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.

National Environmental Management: Protected Areas Act, 2003 (Act No 57 of 2003): The purpose of this Act is to provide the protection, conservation and management of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes.

National Heritage Resource Act, 1999 (Act No 25 of 1999): The National Heritage Resources Act legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 ha. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations

through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).

National Veld and Forest Fire Act, 1998 (Act No. 101, 1998): The purpose of this Act is to prevent and combat veld, forest and mountain fires throughout the Republic. Furthermore the Act provides for a variety of institutions, methods and practices for achieving the prevention of fires.

National Road Traffic Act, 1996 (Act No. 93 of 1996): This Act provides for all road traffic matters which shall apply uniformly throughout the Republic and for matters connected therewith.

National Water Act, 1998 (Act No 36 of 1998): The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled.

Open Space: Areas free of building that provide ecological, socio-economic and place-making functions at all scales of the metropolitan area.

Study Area: Refers to the entire study area compassing the total area of the land parcels as indicated on the study area map.

Sustainable Development: Development that has integrated social, economic and environmental factors into planning, implementation and decision making, so as to ensure that it serves present and future generations.

Water Services Act, 1997 (Act No 108 of 1997): The purpose of this Act is to ensure the regulation of national standards and measures to conserve water.

1. INTRODUCTION, BACKGROUND AND WAY FORWARD

1.1 Introduction

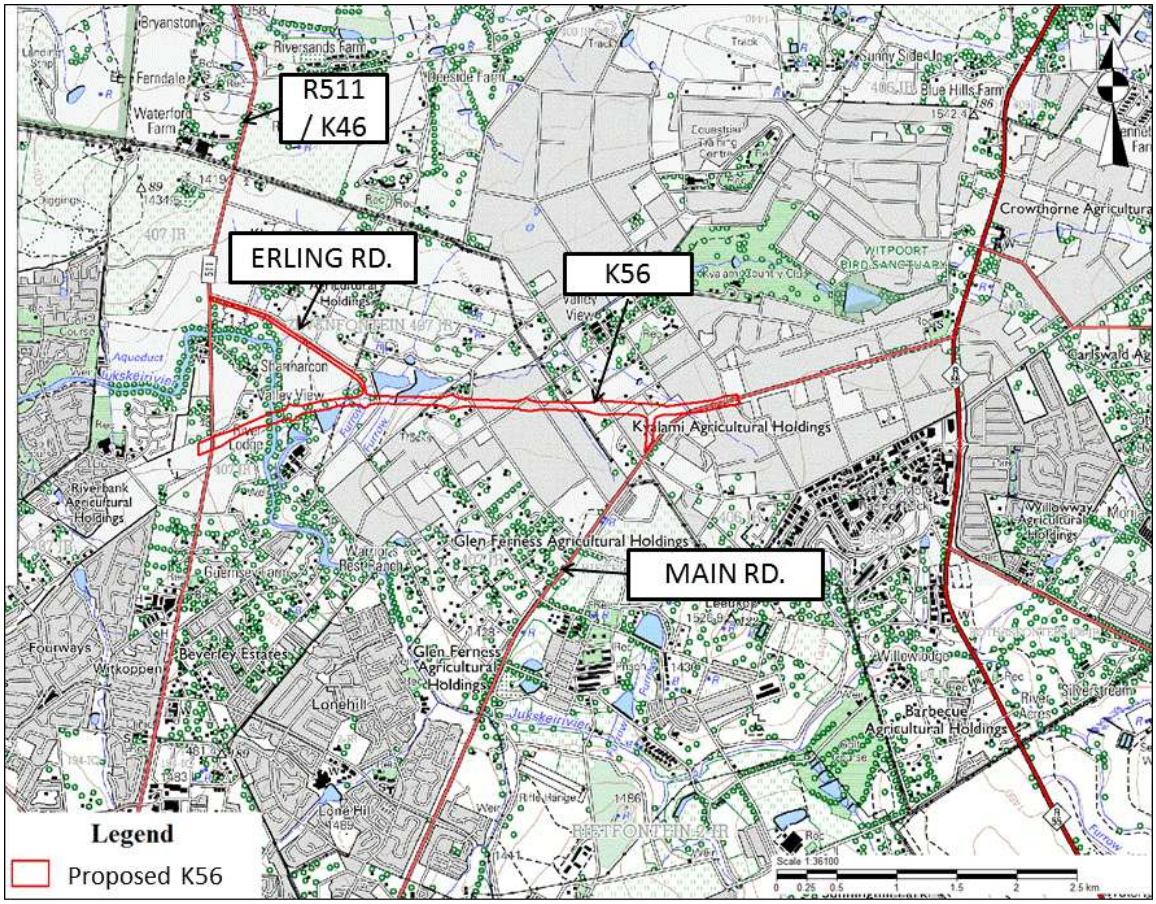
The application is made for authorization of the **Design and Construction of Erling Road between K46 and K56 and the K56 between K46 and Main Road, including all required access roads.** Road K56 is a planned east-west provincial road intended to provide vital east-west connectivity in the area and to distribute traffic to the future PWV9 and K46 (William Nicol Drive).

The Gauteng major road network is critically evaluated and adapted on a continuous basis, along with the latest land use and other developments. The route determination for the K56 between Road P126-1 and K111 was done by the PWV Consortium in 1976 (Report 303) and the Basic Planning Report was done by Brian Colquhoun, Hugh O' Donnell and Partners in 1978 (Report 1018). The K56 had been adopted as part of the Gauteng Strategic Road Network.[1] The purpose of this investigation is to evaluate this possible alignment of the involved section of the K56 for design and construction purposes.

The proposed road under consideration only represents a section of the larger K56 route. It stretches from William Nicol Drive (K46) in the west (km 21.0) to Main Road in the east (km 26.5) and is approximately **5,5km** in extent. The application also includes a section of **Erling Road** from William Nicol intersection up to intersection with K56. The involved section of the K56 and Erling Road traverse Fourways X 2, Kyalami Agriculturtal Holdings and Glenferness Agricultural Holdings and falls within the area of jurisdiction of the City of Johannesburg Municipal area ***(refer to Figure 1: Locality Map and Figure 2: Aerial Map).***

[1] *SEF Environmental Consultants supplied the Environmental Inputs for the Strategic Road review project. SEF assisted GDARD with the compilation of the C-Plan, which indicates the Gauteng ecological and agricultural sensitive areas/ irreplaceable sites. GDARD officials however indicated that they are aware of the Strategic Road Review Project, but the alignments of the provincial roads must however still undergo (where required) EIA applications.*

Note: Enlarged copies of the figures inserted in between the text below are included in



Annexure A of this report.

y Map

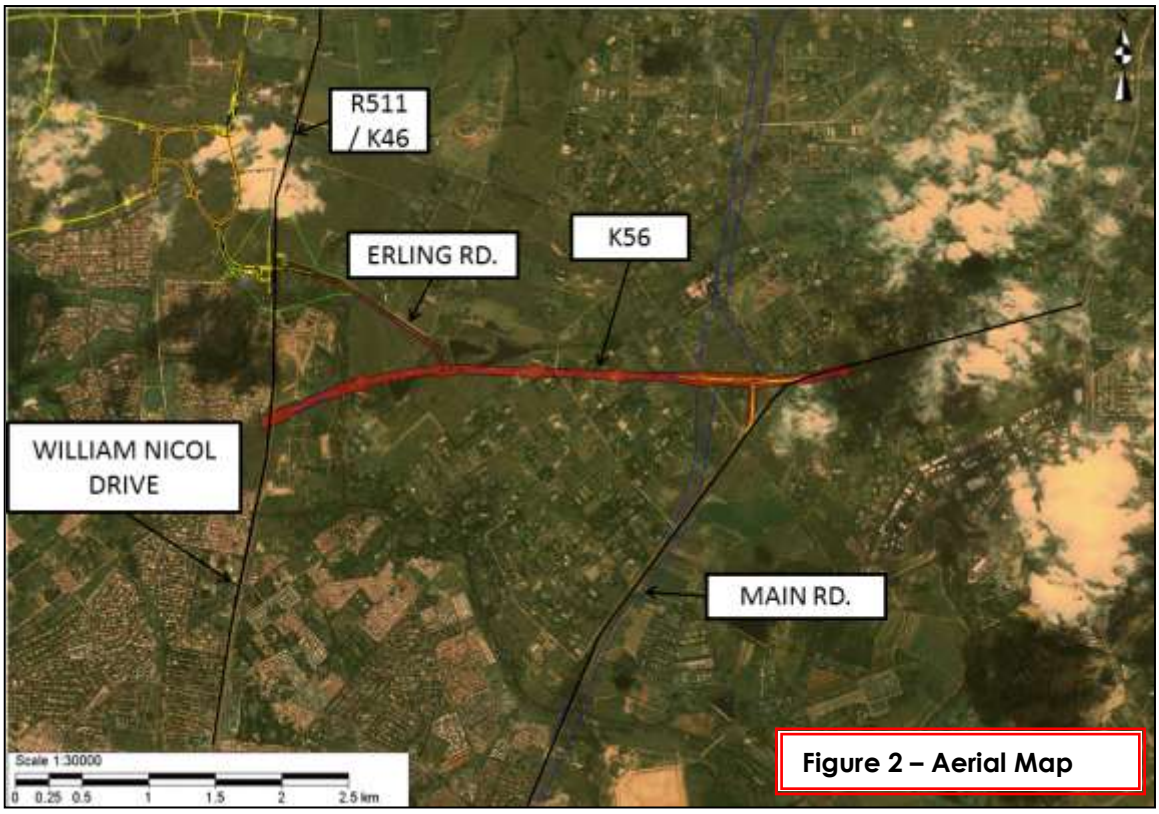


Figure 2 – Aerial Map

The application is made in terms of Government Notice No. R534 published in the Government Gazette no. 33306 of 18 June 2010 of the National Environment Management Act, 1998 (Act No. 107 of 1998).

According to the above mentioned Regulations and Notices, an Environmental Impact Assessment Process is required for the above-mentioned project, due to the following listed activity/ activities:

Table 1: Listed activities in terms of Notice No. R 544

Listing No. 1, R544,	Activity 11	The construction of:

18 June 2010		(i) Canals; (ii) Channels; (iii) Bridges; (iv) Dams; (v) Weirs; (vi) Bulk storm water outlet structures; (vii) Marinas; (viii) Jetties exceeding 50 square metres in size; (ix) Slipways exceeding 50 square metres in size; (x) Building exceeding 50 square metres or more Where such construction occurs within a watercourse or within 32 metres of a watercourse, measured from the edge of a watercourse, excluding where such construction will occur behind the development setback line. ***Reason for inclusion:*** *The proposed road has four river crossings which would entail construction within a watercourse.*
Listing No. 1, R. 544, 18 June 2010	Activity 18	The Infilling or depositing of any material of more than 5 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock from (i) a watercourse; (ii) the sea; (iii) the seashore; (iv) the littoral active zone, an estuary or a distance of 100 metres inland of the high-water mark of the sea or an estuary, whichever distance is the greater- but excluding where such infilling, depositing, dredging, excavation, removal or moving (i) is for maintenance purposes undertaken in accordance with a management plan agreed to by the relevant environmental authority; or (ii) occurs behind the development setback line ***Reason for inclusion:*** *To make provision for construction associated with river and wetland crossings.*
Listing No. 1, R.544, 18 June 2010	Activity 24	The transformation of land bigger than 1 000 square meters in size, to residential, retail, commercial, industrial or institutional use, where, at the time of the coming into effect of this schedule such land was zoned open space, conservation or had an equivalent zoning. ***Reason for inclusion:*** *To make provision for the transformation of land zoned as open space due to the construction of the road.*
Listing No. 1, R.544, 18 June 2010	Activity 39	The expansion of – (i) canals; (ii) channels;

		(iii) bridges; (iv) weirs; (v) bulk storm water outlet structures; (vi) marinas, within a watercourse or within 32 meters of a watercourse, measured from the edge of a watercourse, where such expansion will result in an increased development footprint but excluding where such expansion will occur behind the development setback line. ***Reason for inclusion:*** *To make provision for the expansion of existing bridges, bulk stormwater outlets etc. if required.*
Listing No. 1, R.544, 18 June 2010	Activity 47	The widening of a road by more than 6 meters, or the lengthening of a road by more than 1 kilometer – (i) where the existing reserve is wider than 13,5 meters; or (ii) where no reserve exists, where the existing road is wider than 8 meters, excluding widening or lengthening occurring inside urban areas. ***Reason for inclusion:*** *To make provision for the widening and lengthening of Main Road*

Table 2: Listed activities in terms of Notice No. R 545

Listing No. 2, R. 545, 18 June 2010	Activity 18	The route determination of roads and design of associated physical infrastructure, including roads that have not yet been built for which routes have been determined before 03 July 2006 and which have not been authorized by a competent authority in terms of the Environmental Impact Assessment Regulations, 2006 or 2009, made under section 24(5) of the Act and published in Government Notice No. 385 of 2006, - (i) It is a national road as defined in Section 40 of the South African National Roads Agency Limited and National Roads Act, 1998 (Act No. 7 of 1998); (ii) It is a road administered by a provincial authority; (iii) The road reserve is wider than 30 metres, or The road will cater for more than one lane of traffic in both directions. ***Reason for inclusion:*** *The proposed K56 is a provincial road.*

Table 3: Listed activities in terms of Notice No. R 546

Listing No. 3 R. 546, 18 June 2010	Activity 4	The construction of a road wider than 4 metres with a reserve less than 13.5 metres.	(b) In Gauteng: i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus area; iii. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; iv. Sites identified in terms of the Ramsar Convention; iv. Sites identified as irreplaceable or important in the Gauteng Conservation plan; v. Areas larger than 2 hectares zoned for use as public open space; vi. Areas zoned for a conservation purpose. vii. Any declared protected area including Municipal or Provincial Nature Reserves as contemplated by the Environmental Conservation Act, 1989 (Act No. 73 of 1989) and the Nature Conservation Ordinance (Ordinance 12 of 1983); Any site identified as land with high agricultural potential located within the Agricultural Hubs or important Agricultural Sites identified in terms of the Gauteng Agricultural Potential Atlas, 2006. ***Reason for inclusion:*** *The proposed route traverses Irreplaceable Sites*
Listing No. 3, R. 546, 18 June 2010	Activity 13	The clearance of an area of 1 hectare or more of vegetation where 75% or more of the vegetative cover constitutes indigenous	**d)In Gauteng** i. A protected area identified in terms a of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus areas; iii. Any declared protected area including Municipal or Provincial Nature Reserves as contemplated by the Environment Conservation Act, 1989 (Act No. 73 of 1989), the Nature Conservation Ordinance (Ordinance 12 of 1983); (v) Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as

			adopted by the competent authority; iv. Sites or areas identified in terms of an international convection; vi. Sites identified as irreplaceable or important in the Gauteng Conservation Plan. ***Reason for inclusion:*** *The proposed route traverses Irreplaceable Sites*
Listing No. 3, R. 546, 18 June 2010	Activity 19	The widening of a road by more than 4 metres, or the lengthening of a road by more than 1 kilometre.	**(b) In Gauteng** i. A protected area identified in terms of NEMPAA, excluding conservancies; ii. National Protected Area Expansion Strategy Focus areas; iii. Sensitive areas as identified in an environmental management framework as contemplated in chapter 5 of the Act and as adopted by the competent authority; iv. Sites or areas identified in terms of an International Convention; v. Any site identified as land with high agricultural potential located within the Agricultural Hubs or important Agricultural Potential Atlas, 2006; vi. All sites identified as irreplaceable or important in terms of the applicable Gauteng Conservation Plan; vii. Any declared protected area including Municipal or Provincial Nature Reserves as contemplated by the Environment Conservation Act, 1989 (Act No. 73 of 1989), the Nature Conservation Ordinance (Ordinance 12 of 1983) and the NEMPAA. ***Reason for inclusion:*** *The proposed route traverses Irreplaceable Sites*

Any additional activities identified during the EIA phase will be included in the EIAR.

1.2 Background

The Environmental Impact Management Guideline document published by the Department of Environmental Affairs and Tourism, in April 1998, identified the activity of the planning and construction of a provincial road numbered and administered by a provincial authority as a potentially detrimental activity that needs to be investigated. In Regulation 1182, Schedule 1 (c) and (d) of the former EIA Regulations and in Part 4 of the National Environmental Management Act (Act 107 of 1998), the construction and upgrading of transportation routes were identified as specific listed activities, which required that the EIA process be followed. However, the fact that road planning consist of various planning phases (network planning phase, route determination phase, preliminary design phase and the detail design phase) made it difficult for authorities, applicants and environmental consultants to determine the specific EIA process (scoping/ EIA) required for each planning phase. As a consequence, Gautrans and the Department of Agriculture, Conservation Environment and Land Affairs (GDARD) agreed (in a Memorandum of Understanding (MOU)[2]) that an Environmental Scan be conducted for the Route Determination Stage, that a Scoping Report be conducted for the Preliminary Design Stage and that an EIA Report be compiled for the Detail Design Stage of each provincial road. Although the Scoping and EIA reports were a requirement of the former EIA Regulations, the environmental scan report required for the route determination phase of a road was not a requirement of the EIA process.

The environmental scan was however added to the road planning process to assist with the determination and identification of the most significant environmental issues and "fatal flaws" before entering into the costly preliminary and detailed design stages of roads. The MOU also required that a Road History Report, which supplies the history and background of the road applied for, be included as part of the specific road report submitted to the authorities for evaluation. The purpose of the road history report was to supply the planning history of a specific road to GDARD, because the network planning for the Gauteng Roads already commenced more than 30 years ago and all the roads on the network plan are at

[2] According to one of the Officials at GDARD the original MOU as referred to above has been amended. We were not yet able to obtain a copy of such document. We would therefore appreciate it if GDARD could supply us with a copy of the revised MOU or with the contact details of the person/ department that could supply us with a copy of the document.

different planning stages and different levels of engineering[3] and environmental[4] reports have been compiled for the various roads.

The MOU as discussed above was however compiled when the former EIA Regulations were still in place and there appears to be some confusion regarding the applicability of the MOU amongst the EIA consultants and the GDARD officials. According to some of the officials the MOU is still applicable and according to other officials, the validity of the MOU expired when the former ECA EIA Regulations were replaced by the New NEMA Regulations. We already tried to arrange several meetings with GDARD to get clarity regarding the applicability of the MOU and the level of detail required for the Scoping, EIA and Basic Assessment Reports to be compiled in line with the New NEMA Regulations (as described in item 1 above), but unfortunately this effort was unsuccessful.

According to the relevant Gautrans officials they are currently in the process of compiling a revised MoU between GDARD and Gautrans. This MoU will take all the applicable legislation, policies, guidelines, the Strategic Road Review etc. into consideration.

1.3 Way Forward – Current MOU Versus The NEMA Requirements

Due to time constraints, it is not possible to wait until the above mentioned process discrepancies and the revised M0U have been resolved/compiled. We therefore decided to take the requirements of the New NEMA Regulations as well as the above mentioned MOU into consideration and to combine the historical and new information regarding the road into one report that will supply GDARD with enough information to make an informed decision at the end of the EIA process.

[3] i.e. Route Determination reports/Basic Planning Reports/Detail Design Reports
[4] i.e. Environmental Evaluation Reports (prior to the EIA Process)/Environmental Scans/Scoping Reports/ EIA Reports

Ms. L. Gregory of Bokamoso has more than 20 years' experience in road planning in Gauteng. She assisted the former PWV Consortium with the compilation of the original MOU between GDARD and Gautrans and she compiled Road History Reports and Environmental Scans for most of the Provincial Roads in Gauteng. These reports were compiled to be in line with the report requirements of the MOU.

Bokamoso Landscape Architects and Environmental Consultants were appointed by **Gauteng Department of Roads and Transport (GDRT)** as independent consultants to prepare the applicable environmental reports and GDARD accepted the application that was submitted on 3 February 2012. The Reference Number issued by GDARD for the project is **Gaut: 002/11-12/E0257.**

2. DESCRIPTION OF THE PROPOSED ACTIVITY

2.1. Name of Activity

The Design and Construction of Erling Road between K46 and K56 and the K56 between K46 and Main Road, including all required access roads.

2.2. Particulars of Applicant

Applicant:	Gauteng Department of Road and Transport
Contact Person:	Eddy H. Sikaala
Physical Address:	Sage life Building 41 Simmonds Street Marshalltown

2107

Postal Address: Private Bag X 83
Marshalltown
2107

Tel: (011) 355 7037
Cell: +27 83 647 6188
Fax: (011) 355 7532/086 510 6798
Email: Edwin.Sikaala@gauteng.gov.za

2.3 Background of Route

The original route determination for **Road K56** (between P126-1 and K111) was completed by the PWV Consortium in September 1976 (Report 393). More recently the Basic Planning Report for Road K56 (between PWV 3 and PWV 3) was done by Brian Colquhoun, Hugo O' Donnel and Partners (Report 1018) in 1978, and the Basic Planning Report for the K56 (between Roads K71 and K60) was done by De Leuw, Cather and Associates (Report 1077) in October 1983.

The proposed alignment of the K56 was included in the Gauteng Strategic Road Network Review, 2010 and is protected in terms of the Gauteng Transport Infrastructure Act, 2001 (Act 8 of 2001). More detail regarding this road review and the legal status of this report will be discussed in more detail during the EIA phase.

2.4. Particulars of Activity

2.4.1 Nature of Activity

The function of K-routes is two-fold, namely to serve through traffic i.e., traffic having neither an origin nor a destination in the area traversed by them, as well as to provide area access from the higher order freeway system to the surrounding land. Freeways (PWV-routes) are spaced at an 8 km to 12 km grid, while major arterials (K-routes) are spaced at approximately 1,8 km to 2,4 km intervals. Minor arterials and collector roads are again linked to the K-routes at 600m or larger intervals to complete the higher order road network.

The K56 is part of the second order mobility network planned for Gauteng Province and will play a supporting role to the future PWV5 and will supply linkage to the future PWV9. It would also provide local accessibility by means of well-spaced intersections with minor arterials and collector roads and in a few instances give direct access to minor tracts of land.

The proposed activity is the **Design and Construction of Erling Road between K46 and K56 and the K56 between K46 and Main Road, including all required access roads.**

2.4.2 Location of Activity

Refer to Figure 1 for Locality Map and Figure 2, Aerial Map

The involved section of the K56 lies in the quarter degree grid square 2528CC and stretches in an east-west direction from the K46 (William Nicol Drive) in Fourways to Main Road in Kyalami Agricultural Holdings. The route traverses Fourways X 2, Glen Ferness Agricultural Holdings and the Kyalami Agricultural Holdings.

The western section of the proposed route falls within the Provincial Urban Edge while the eastern section falls outside the Provincial Urban Edge, as indicated on ***Figure 3.***

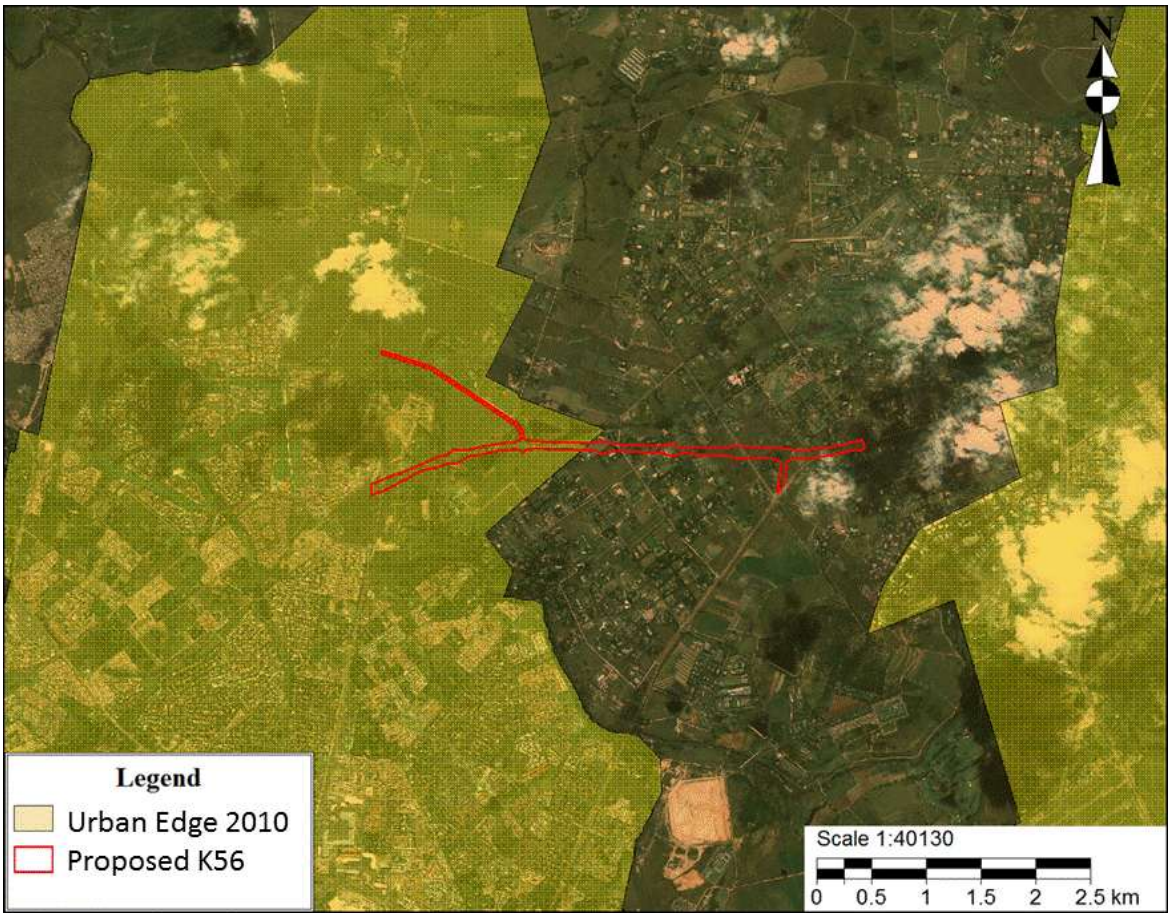


Figure 3 – Urban Edge Map

2.4.3 Delineation of the study area

The section of the K56 investigated in this Scoping Report (SR) is only a small section **(approximately 5,5km)** of a Provincial Route, which forms an important link in the larger Gauteng Road Network system ***(refer to Figure 4).***

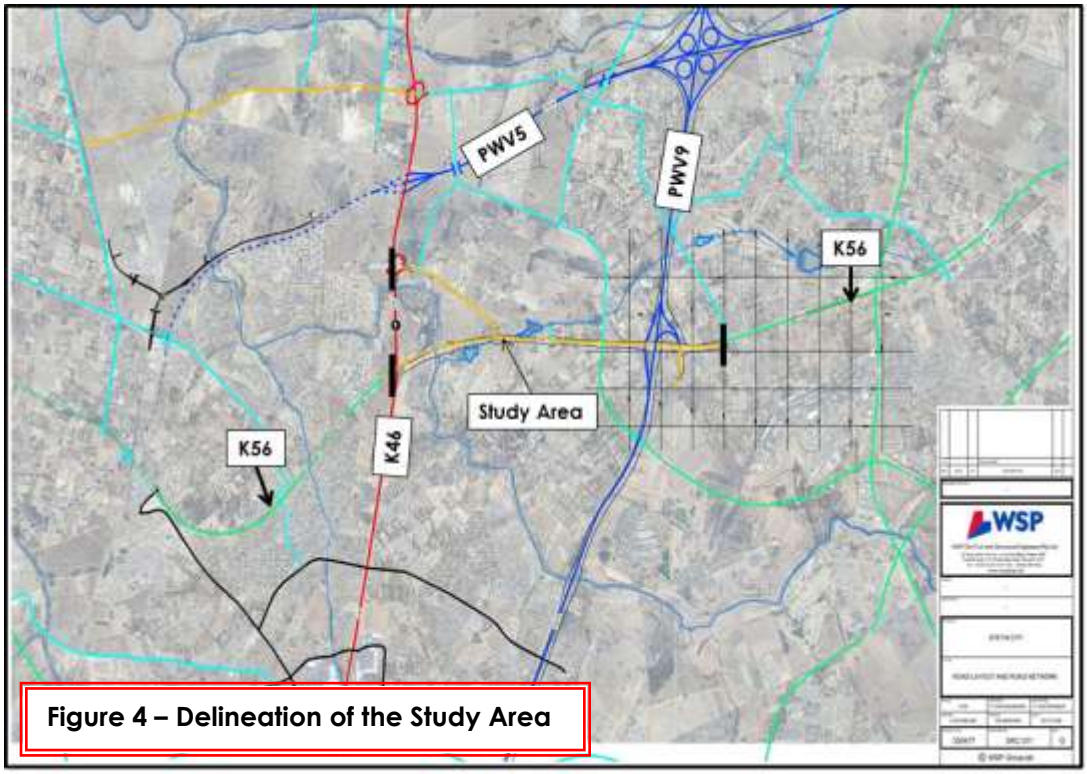


Figure 4 – Delineation of the Study Area

Although the Gauteng New Infrastructure Act, 2001, requires that all listed roads be accommodated in the layouts of new developments, EIA authorisation in terms of the new NEMA regulations must still be obtained for the roads and if any "fatal flaws" / significant environmental issues along the listed alignment are identified the regulations provides for alignment alternatives and even for the "no-go" alternative. This variable makes it difficult to finalise development layouts around such roads or only small portions of a larger road.

There were cases in the past where GDARD considered and authorised only isolated sections of K-routes / Freeways to accommodate the layouts and planning of surrounding developments affected by such roads. Unfortunately, these isolated decisions compromised the option of investigating alternative alignments if significant environmental issues / "fatal flaws" were identified along other sections of the road not applied for as part of a specific development. Refer to ***Figure 5*** below for a conceptual illustration.

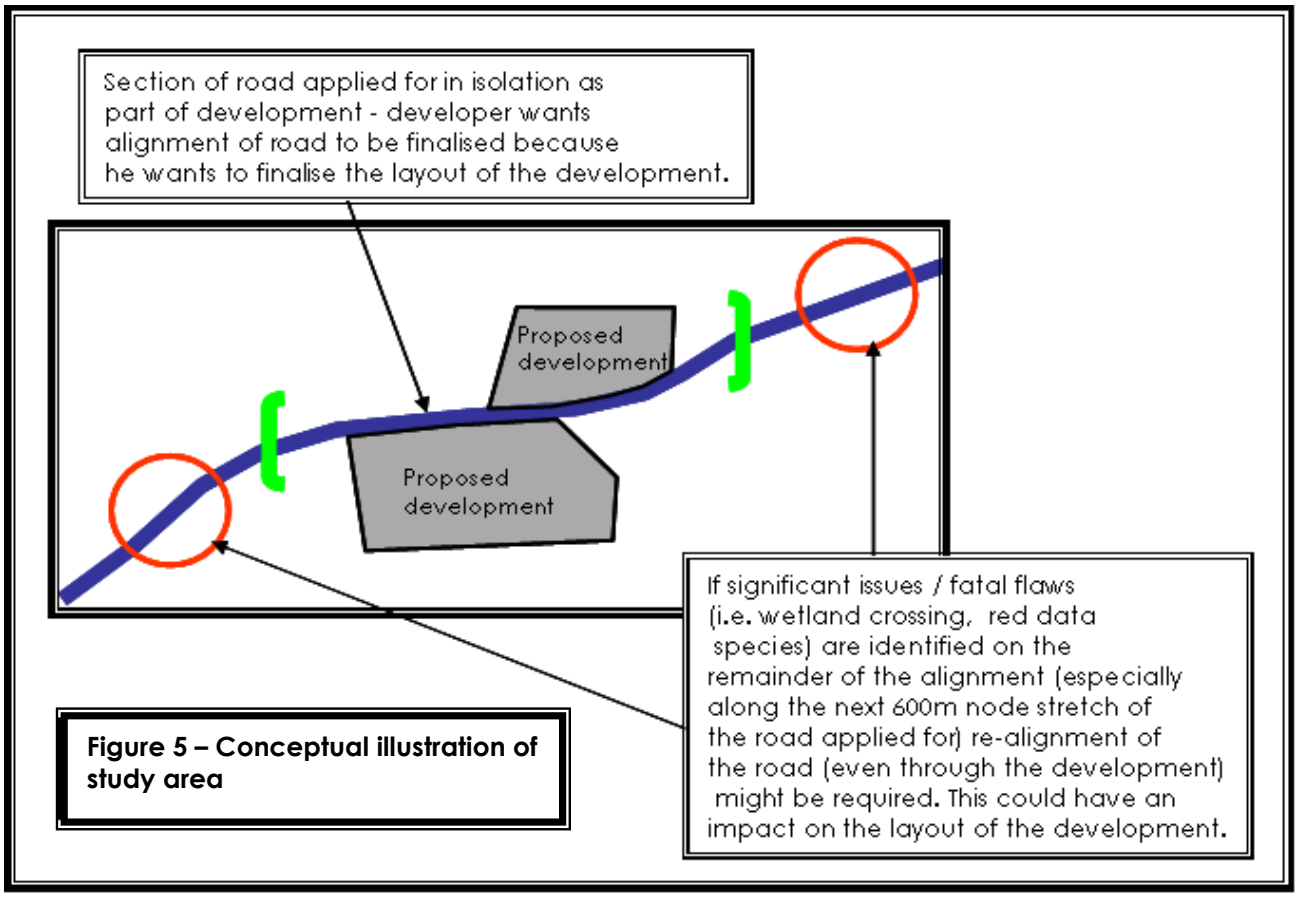
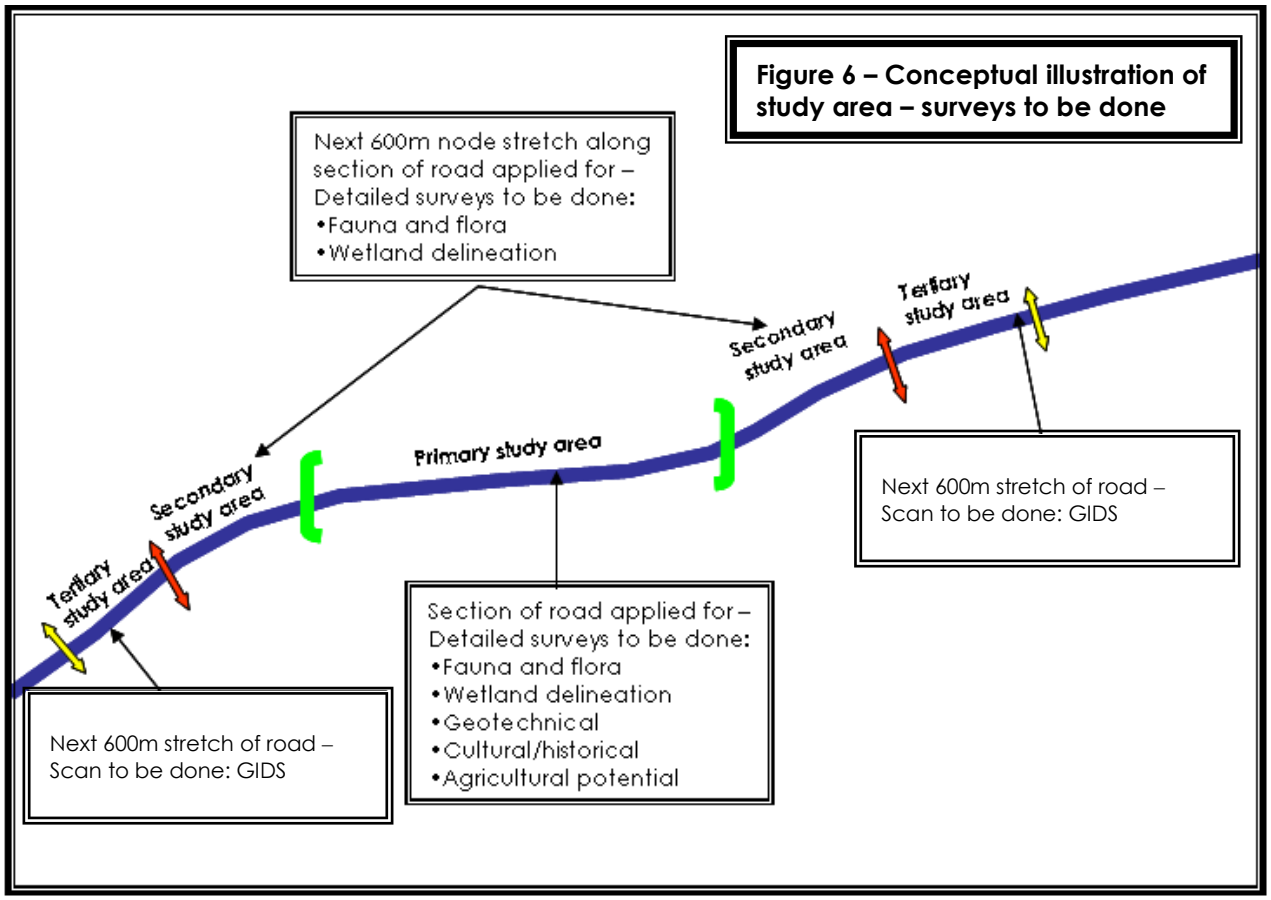


Figure 5 – Conceptual illustration of study area

In order to prevent such cases, GDARD now requires that EAPs not only limit their environmental assessments to the portion of a road applied for, but that they also extend their investigations to incorporate a longer section of the road (to both sides of the involved portion of the road). This will allow for two options: (i) amendments in the alignment or (ii) to investigate a portion of road that can easily terminate into existing roads and act as an independent internal / local road if "fatal flaws" prevent the remainder of the route from happening. ***Refer to Figure 6 and 7*** for conceptual illustrations.



According to a traffic engineer an acceptable distance which would allow for an amendment in the alignment is 600m from a node (distance from one intersection to the next potential intersection). It is therefore recommended that detailed surveys also be done for the next 600m node extensions of the section of road applied for and that a scan (GIDS) be done for the adjacent 600m extensions of the road in question.

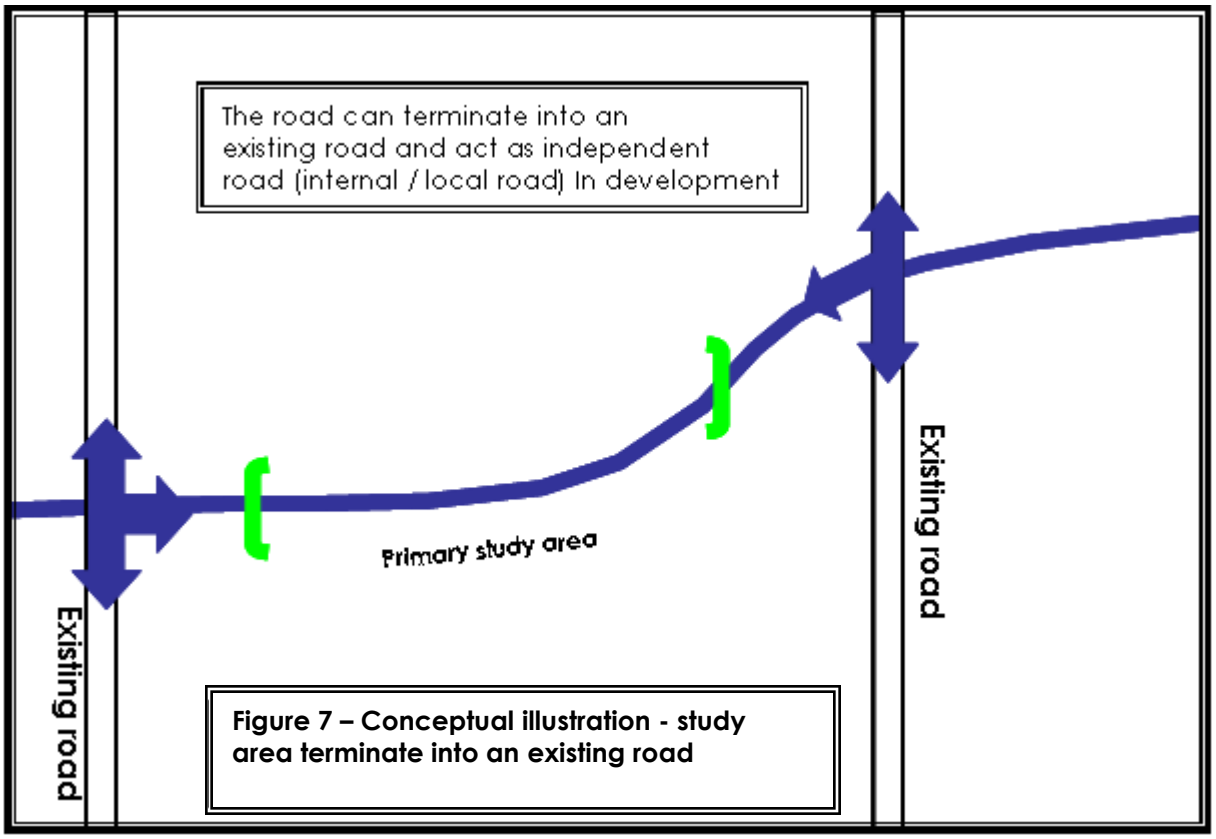


Figure 7 – Conceptual illustration - study area terminate into an existing road

In the case of this application the EAPs investigated the 600m node extensions of the involved section of the K56 and identified **irreplaceable sites to the west** of the involved section of the route that could result in a "fatal flaw" ***(refer to Figure 8).***

Detailed surveys for the 600m node extensions to the west of the involved section of the K56 are therefore regarded as necessary.

It is however possible for the route to terminate into K46 (William Nicol), should a fatal flaw be identified in the western extension of the route.

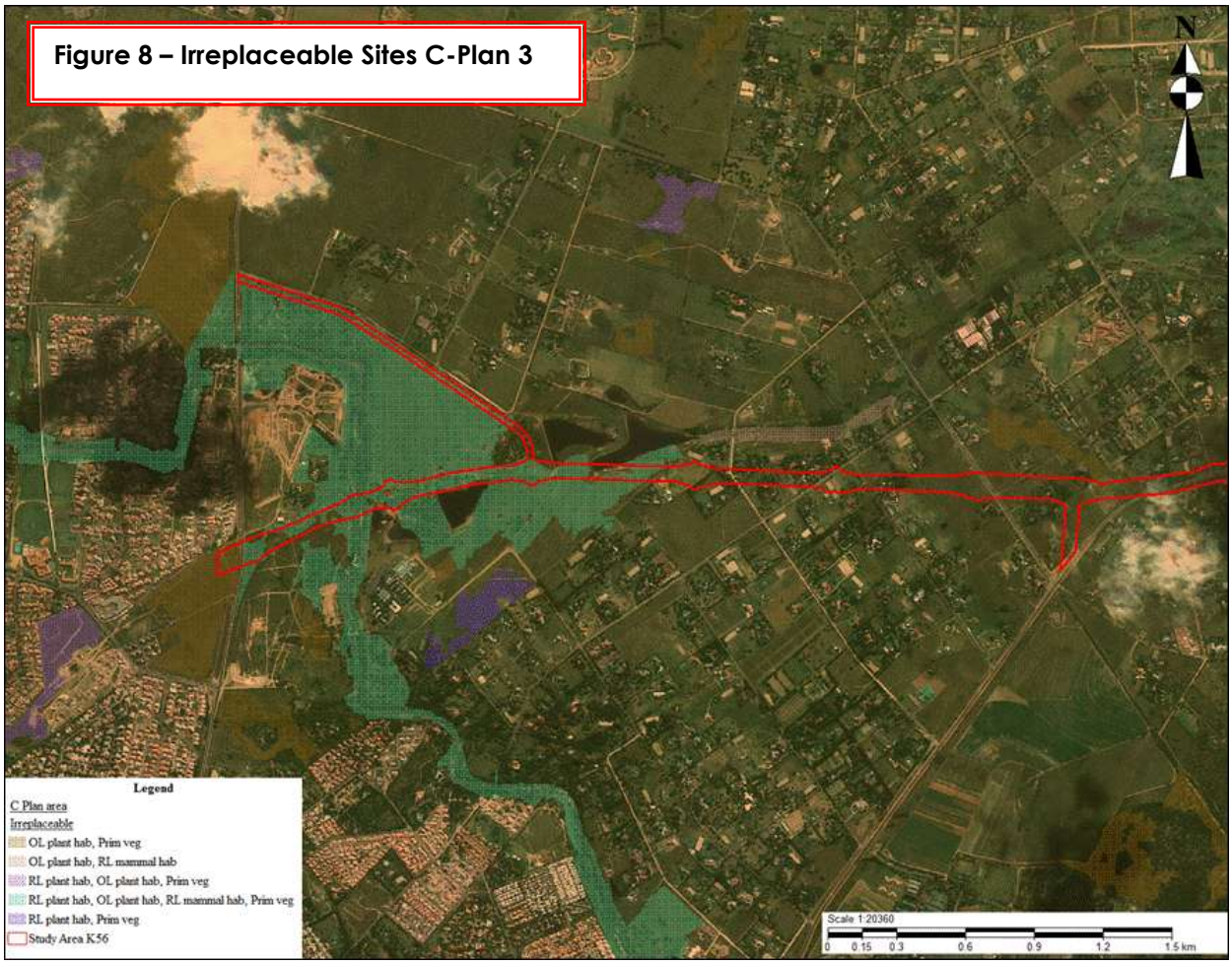


Figure 8 – Irreplaceable Sites C-Plan 3

2.4.4 The role of route K56 in the Gauteng Road Network and the importance of the proposed road for the City of Johannesburg.

The road network in Gauteng is under increasing pressure due to a number of factors, including:

- The economic growth of the province which currently stand at almost double the national growth rate;
- Increased car ownership;
- Increased urbanization towards the major cities; and
- Increased job opportunities resulting in more people entering the business market thereby increasing their personal wealth through property and car ownership.

Refer to Figure 9 and Annexure B for locality of the proposed K56 within the larger Gauteng Road Network System

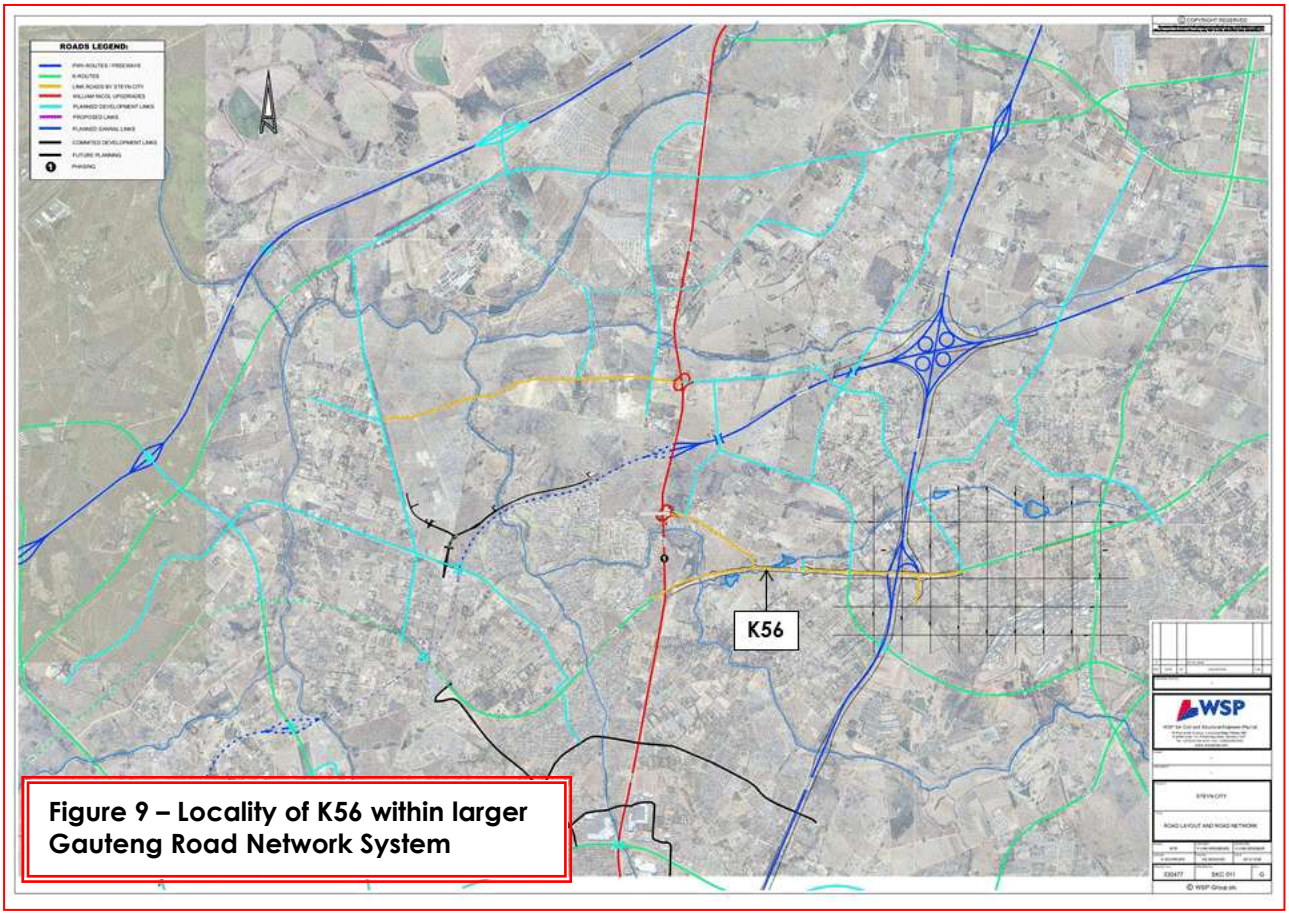


Figure 9 – Locality of K56 within larger Gauteng Road Network System

Amongst others this has resulted in increased demand for road capacity in general in Gauteng. The current system has over the last couple of years become notorious for the lack of capacity, with great congestion, huge delays, and severe safety concerns raised by various sectors, including the public, all spheres of government, and other institutions. Due to the lack of building new infrastructure to create a balanced road network or transport system the system has also resulted in increased pollution due to the congestion on the network.

The overall objectives of the Gautrans road network are to provide mobility and access in the Gauteng province. The K56 plays an important role in achieving these objectives. In a regional context, K56 provides east-west mobility through the greater Fourways area. It will provide linkages to the future PWV9 and K46 and play a supporting role to the future PWV5 some distance to the north.

The Strategic Road Network Review (2010) identified the K56 as a priority road (15 & 24).

Table 4: Prioritization of Class 2 Roads (Table 11: Strategic Road Network Review, 2010)

	Route	From	To	Length	Non-Tech Score	Average Vol/lane	Tech Score	Combined Score
1	K57	K142	K158	15.4	4.6	1950.1	10.0	7.3
2	K71	K103 North	D49	5.4	6.9	1385.3	7.1	7.0
3	K105	K220	K121	14.8	7.3	1226.5	6.3	6.8
4	K145	K22	K34	3.4	7.9	1109.1	5.7	6.8
5	K69	K34	K16	7.1	8.0	1009.5	5.2	6.6
6	K71	N14	P206-1(M1)	19.7	6.3	1299.3	6.7	6.5
7	K111	Nellmapius	PWV5	10.0	7.4	1079.1	5.5	6.5
8	K60	K74	K46	20.6	7.1	1113.9	5.7	6.4
9	K46	K60	N14	12.2	6.9	1128.1	5.8	6.3
10	K60	K46	K73	5.6	7.1	1028.6	5.3	6.2
11	K73	K71 North	K60	24.9	5.8	1281.4	6.6	6.2
12	K101	K38	K71	34.5	6.4	1161.4	6.0	6.2
13	K109	K101 South	K101 North	19.1	6.4	1085.4	5.6	6.0
14	K43	K142	K122	6.1	6.2	1120.6	5.7	6.0
15	K56	K101	K117	10.4	6.6	1041.1	5.3	6.0
16	K60	K71	K105	17.5	8.1	739.3	3.8	5.9
17	K11	Old P42-1	K102	6.3	5.8	1180.2	6.1	5.9

2.4.5 The Need For Route K56 and Erling Road

A reassessment of the major road network in the area and its development potential has indicated the need to strengthen the regional network.

The proposed road network link will divert traffic from existing road network links and thereby alleviate congestion on the existing road network system. As already mentioned the K56 will supply a vital east–west link in the greater Fourways area and will supply a link to the future PWV9 and K46. It will play a supporting role to the future PWV5 some distance to the north. This road link will establish another element to facilitate a more balanced road network and is also part of the Local Authorities and Provincial Government's road network planning for the larger areas.

A number of new developments are proposed in the greater Fourways area: ***(Refer to Figure 10 for Surrounding Land Use Map)***

- Steyn City
- Century
- Northern Farms
- Maroun Square Shopping Centre
- Cradle City

A Roads Masterplan Report for **Steyn City Development** had been compiled by WSP Civil and Structural Engineers (Pty) Ltd in August 2011.

The results of the Roads Masterplan Report indicated that the potential developments in the greater Fourways area can potentially generate a significant amount of traffic when they are fully developed, in the order of 16 000 and 18 000 peak hour vehicle trips in the 2025 AM and PM peak hours respectively. According to the involved traffic engineers new road links and substantial upgrades of the existing network will be required in order to accommodate these trips at acceptable levels of service.

The new roadways required include the K56 between PWV9 and Cedar Road (2 lanes per direction, design speed limit of 80kph) and the Erling Street extension between William Nicol and the K56 (single carriageway road with a single lane per direction and speed limit

of 60kph). It also includes a new access interchange at Erling Street/William Nicol which will provide the main access to Steyn City from the east.

The east-west linkage investigation has shown that east-west links are required throughout the study area. These will ultimately be provided by the East West Link Road through Northern Farms, the PWV9 and the K56.

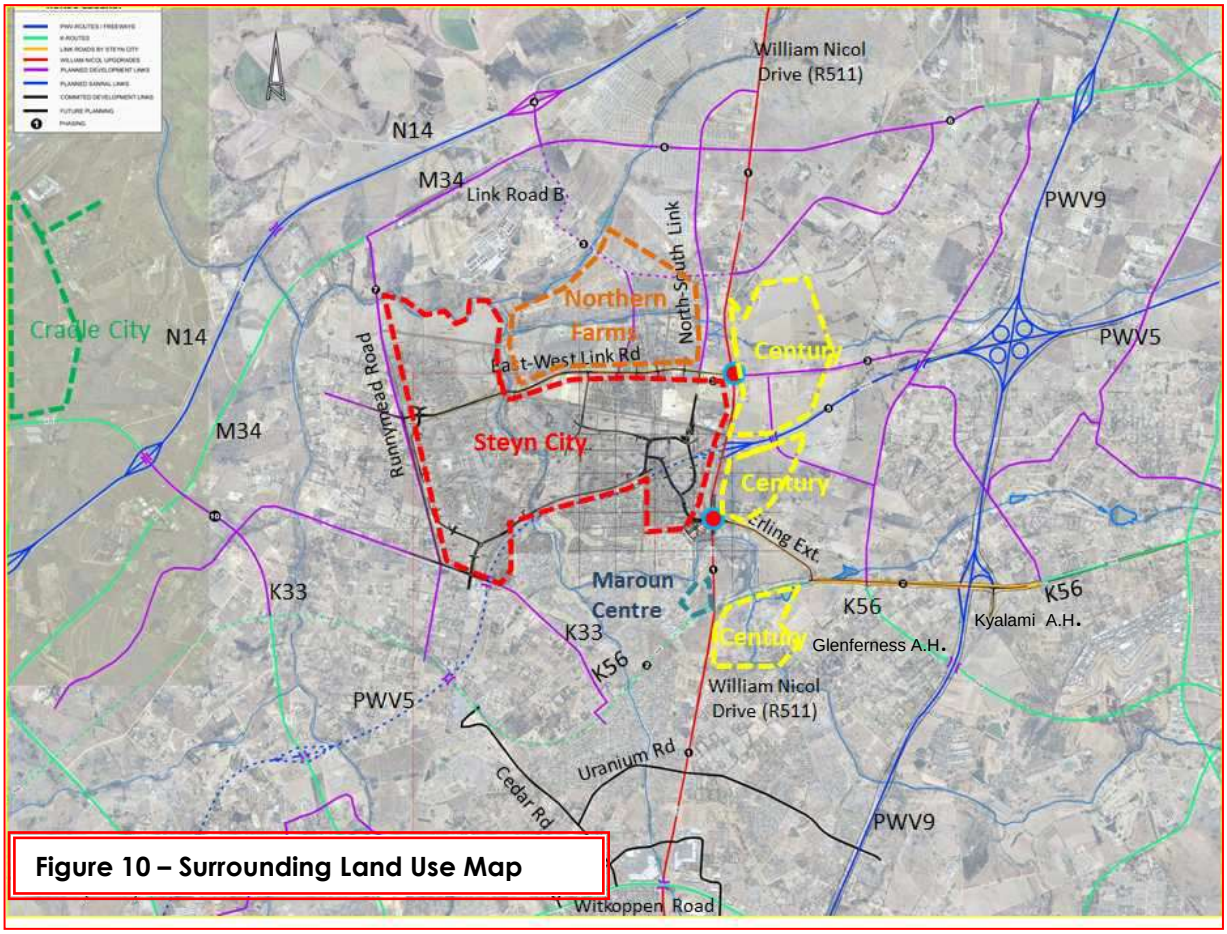


Figure 10 – Surrounding Land Use Map

2.4.6 *Intersecting routes*

The involved section of route K56 intersects with other important routes including the K46 (William Nicol), future K58 and PWV9. It also intersects with the Erling Street extension. The eastern section of the proposed route follows the alignment of the existing road P71-1 (Main Road).

2.4.7 End Points And Length

The section of the K56 to be constructed is proposed to be from the **K46 (William Nicol) (km 21.0)** in the west and **Main Road (R71) (km 26.5)** in the east.

The proposed section has a total length of approximately **5.5 km.**

2.4.8 Geometric design standards

(refer to the BP Report (Report 1018))

Table 5: Design Standards

Design element	**Desirable**	**Applied**
Horizontal alignment:		
Design for super elevation	100km/h	100km/h
Minimum radius of curves	1000m	1000m
Canting: Maximum	0,06m/m	0,0032m/m
Design speed for canting	80km/k	80km/h
Vertical alignment		
Design speed	100km/h	100km/h
Stopping sight distance	155m	155m
Maximum gradient	6%	6%
Minimum gradient	0,5%	0,5%
Minimum vertical curve length	180m	180m
Minimum K values – crest	62	66
Minimum K values – sag	37	58

2.5 The Gautrans Network Planning and the Gautrans Road Planning Stages

- **Network Planning at 1:50 000 scale.**

During the mid-seventies a grid network covering the traditional PWV area compiled by Gautrans was planned on a 1: 50 000 scale and maintained ever since. The grid network concept was based on a road hierarchy system comprising of a range of mobility and access routes.

- **Route Determination at 1: 10 000 scale**

During the Route Determination phase each route is investigated in more detail. Amongst others, the following aspects receive attention:

- The purpose of the route;
- Delineation of study area;
- Collection and interpretation of environmental information;
- Site visit;
- Literature Study;
- The description, analyses and interpretation of physical, biotic, socio-economic and environmental procedures; and
- Consultation with major landowners, local and other affected authorities.

- **Preliminary Design Phase - (Basic Planning)**

During this stage of planning, the issues addressed during the preceding stage are re-evaluated. Normally a long time period has passed between the above two stages and therefore revision is required.

The main purpose of Preliminary Design is to establish the road reserve and to conduct a cost framework. This phase includes also detail regarding bridge structures, culverts road fillings and road reserve boundaries. The commencement of this phase is normally

dependant on either/ both the traffic demand and land use development pressure within the area.

- **Detail Design and Construction.**

During this phase all-physical, environmental and socio-economic issues are integrated with the road planning. Land will be expropriated and detailed design of the road will depend on the priority of the route and the available funding.

- **The Design Phase Of This Application**

The involved section of the K56 is currently at the Design and Construction stage.

3. ENVIRONMENTAL ASSESSMENT PRACTIONER (EAP) [*Regulation 29(a) (i), (ii)]*

The new Environmental Regulations require that relevant details of the Environmental Assessment Practitioner be included as part of the Scoping Report. In this regard, attached as ***Annexure C***, is a copy of the CV of Lizelle Gregory from Bokamoso Landscape Architects and Environmental Consultants. In summary details of the EAP are indicated below:

- **Name:** Lizelle Gregory
- **Company:** Bokamoso Landscape Architects and Environmental Consultants.
- **Qualifications:** Registered Landscape Architect and Environmental Consultant (degree obtained at the University of Pretoria) with 15 years' experience in the following fields:
    - ❖ Environmental Planning and Management;
    - ❖ Compilation of Environmental Impact Assessments;
    - ❖ Landscape Architecture; and
    - ❖ Landscape Contracting

Ms. L. Gregory also lectured at the Technicon of South Africa and the University of Pretoria. She is a registered member of the South African Council of the Landscape Architects Profession (SACLAP), the International Association of Impact Assessments (IAIA) and the Institute of Environmental Management and Assessment (IEMA).

4. TERMS OF REFERENCE

The following terms of reference have been set:

- Determine if the proposed site is a suitable site for the proposed alignment from an environmental point of view.
- Prepare such an Environmental Scoping Report, taking into consideration the biophysical and social environment.
- Assess the attitude of the surrounding landowners to the proposed road construction and alignment.

5. SCOPE OF WORK AND APPROACH TO THE STUDY

5.1. Scope of Work

An application form for environmental authorisation of the relevant activity must be submitted to GDARD. The scope of work includes the necessary investigations to assess the suitability of the study area and the surrounding environment for the proposed activities. The scoping exercise describes the status quo of the bio-physical, social, economical and institutional environment and identifies the anticipated environmental aspects associated with the proposed development in the form of a basic issues matrix. The significance of the anticipated impacts, the assessment of the alternatives identified, the assessment of the possible impacts and the mitigation of the impacts identified will be addressed in the Environmental Impacts Assessment (EIA) report for the proposed development that will be

submitted after we (Bokamoso) received acknowledgement of receipt and acceptance of the Scoping Report and the approval of the Plan of Study for EIA, which is also included as part of this report.

All available material and literature were collected and used for the purpose of this study and it was further supplemented with discussions with provincial authorities, local authorities, other interested and affected parties, as well as by site surveys and photographic recording.

5.2. Approach to the Study

An investigative approach was followed and the relevant physical, social and economic environmental aspects were assessed.

This Scoping Report takes into consideration the environment that may be affected by the proposed activity. Therefore, the physical, biological, social, economical and cultural aspects are considered. A description of the property on which the activity is to be undertaken and the location of the activity on the property are described. A description of the need and desirability of the proposed activity, including advantages and disadvantages that the proposed activity or alternatives may have (on the environment and community that may be affected) are also included.

An identification of all legislation and guidelines that we are currently aware of is considered in the preparation of this Scoping Report. Furthermore a description of environmental issues and potential impacts, including cumulative impacts, are identified and discussed. Information on the methodology that will be adopted in assessing the potential impacts is furthermore identified, including any specialist studies or specialised processes that were/must still be undertaken. In addition reference will be made for the mitigation of identified impacts or for further studies that may be necessary to facilitate the design and construction of an environmentally acceptable facility.

Details of the Public Participation process are included: (i) the steps that were taken to notify potentially interested and affected parties of the application; (ii) proof that the notice boards, advertisements and notices, notifying potentially interested and affected parties of the application, have been displayed, placed or given; (iii) a list of all persons or organisations that were identified and registered; (iv) a summary of the issues raised by the interested and affected parties; (v) the date of receipt of and the response of the EAP to those issues.

6. ALTERNATIVES IDENTIFIED *[Regulation 29(b)]*

6.1 The "No-Go" Alternative

According to the GDARD C-Plan 3, 2011, the western section of the route traverses irreplaceable sites and is regarded as ecologically sensitive. ***Refer to Figure 8, Irreplaceable Sites map.*** However, this section of the proposed route is bordered by the Century Development to the south and Fourways X2 to the north, which also fall within irreplaceable sites.

The proposed alignment traverses the Jukskei River and tributaries as well as wetlands and could have a significant impact on the hydrology in the area, especially wetlands.

The involved section of the K56 will have a significant socio-economic impact on Glenferness A. H. and Kyalami A.H. i.e. equestrian industry, dissection of properties, loss of jobs, safety and security, noise, lightning, sense of place etc.

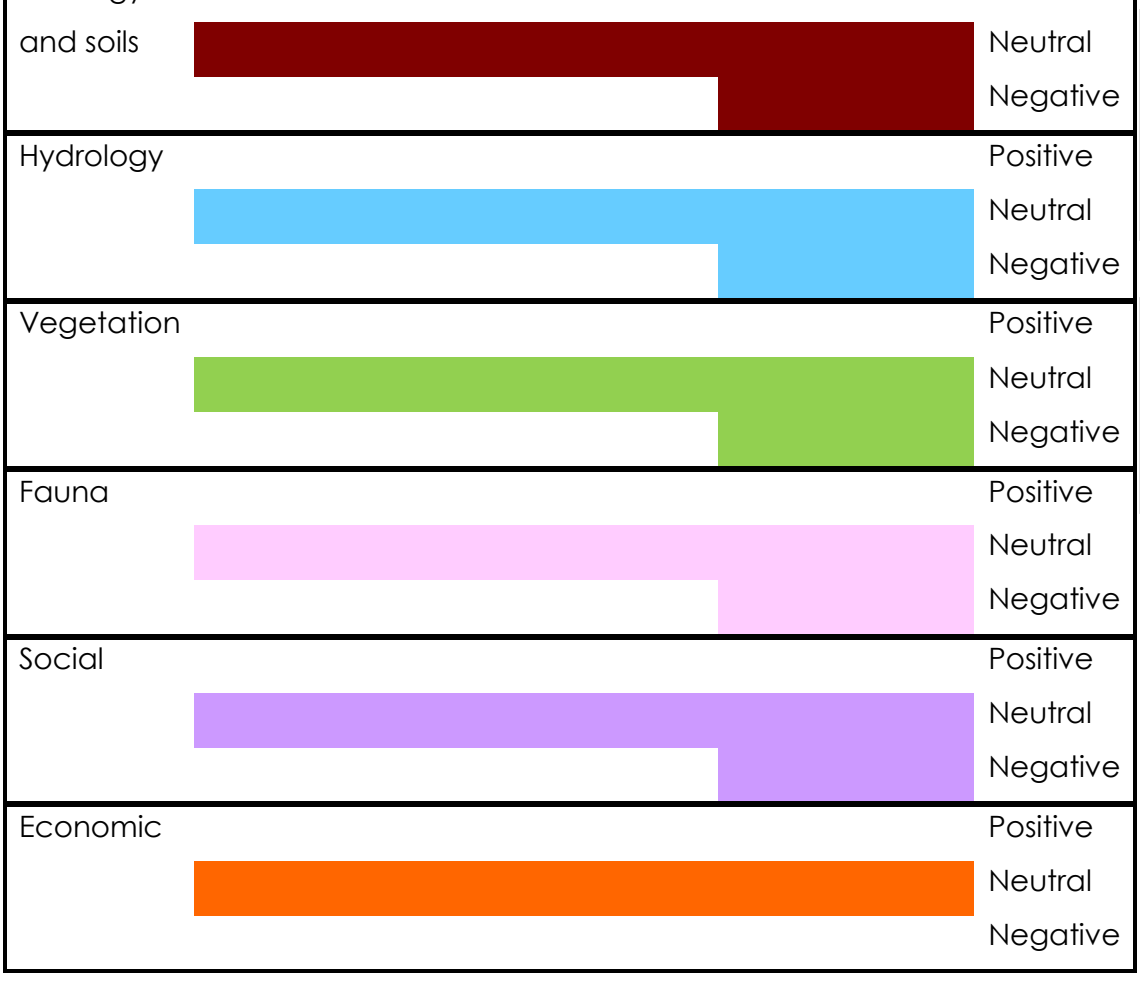
There is however a proven need and demand for the proposed K56 in order to provide east-west mobility in the area and to provide linkages to other major roads i.e. K46 and future PWV9. This was confirmed in the Gauteng Strategic Road Network Review, 2010.

The "No-Go" alternative is not viable from a road planning point of view, however it could be supported from a socio-economic point of view.

To follow now are tables that represent a preliminary comparison between the "No-Go" alternative and the development alternative.

Diagram 1: Preliminary Environmental issues - "No-Go" Option

Issue	Short term	Medium term	Long Term	Impact
Geology and soils				Positive / Neutral / Negative
Hydrology				Positive / Neutral / Negative
Vegetation				Positive / Neutral / Negative
Fauna				Positive / Neutral / Negative
Social				Positive / Neutral / Negative
Economic				Positive / Neutral / Negative



No development will not have a significant impact on the geology or hydrology of the study area, especially in the short term. Indirect impacts created by the edge effects of the surrounding developments (i.e. Century Development) could however, in the long term, lead to a decrease in vegetative coverage and even to exposed areas. Erosion, siltation and water pollution problems could then be caused. Changes in the surface drainage patterns could also occur.

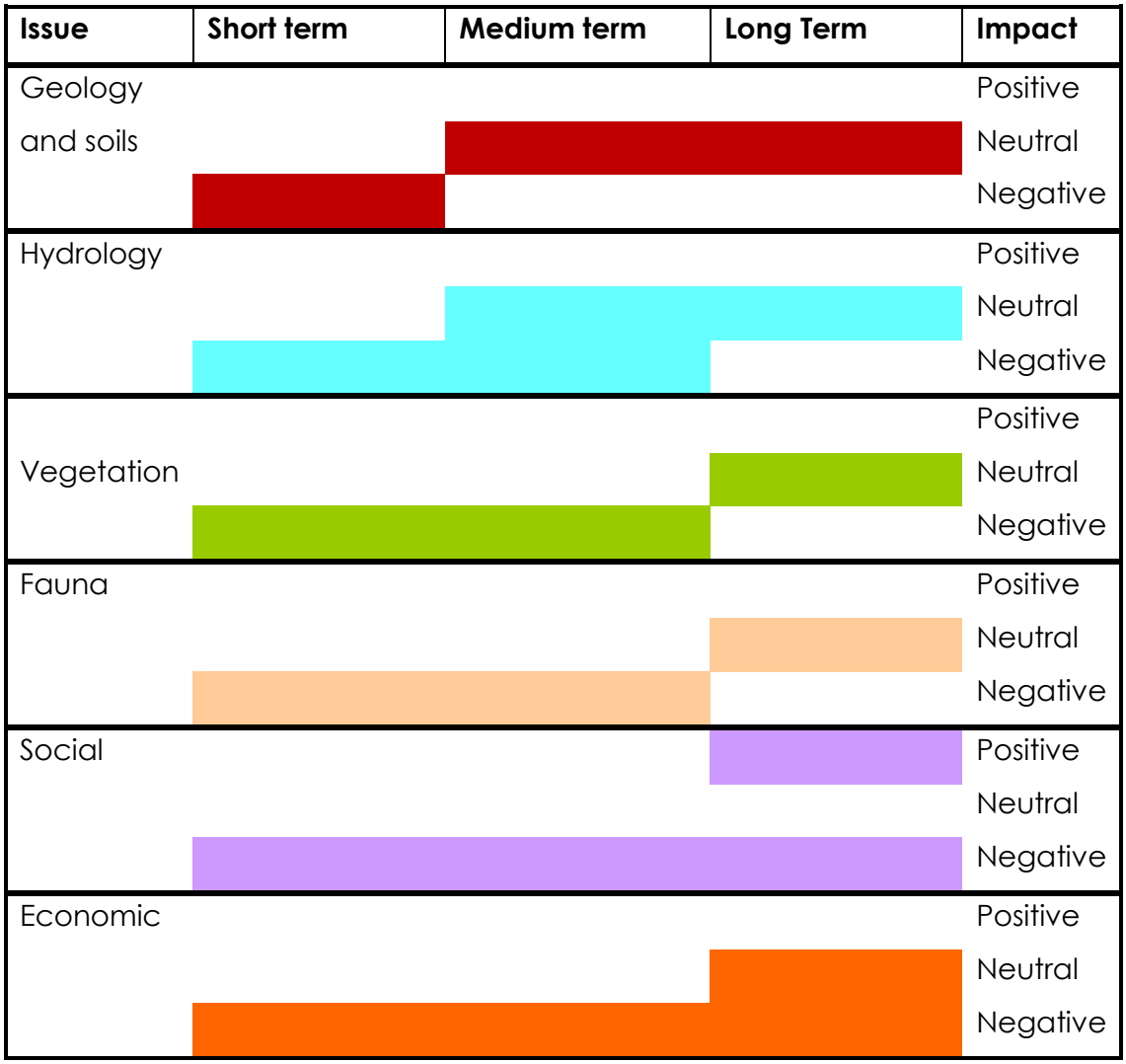
If no development takes place around the linear strip of land earmarked for the K56, the impacts on the fauna and flora and bio-diversity will not be significant. The Century Development is located adjacent to the linear strip of land earmarked for the western section of the K56, and the edge effect could, in the long term, have an impact on the ecological potential and bio-diversity of the vegetation of the western section of the study area.

The No-Go alternative is not supported from a traffic point of view due to the need for an east-west link road in the larger Fourways area.

The No-Go alternative would have a neutral impact on the equine industry and social environment of the Kyalami and Glenferness A.H.

Note: *The "no-go" option is predominantly neutral in the short, medium term and long term, however it could turn negative in the long term.*

Diagram 2: Preliminary Environmental issues of the proposed section of the K56



Note: *It is anticipated that the proposed section of the K56 is predominantly negative in the short and medium term, but turns neutral and even positive in the long term.*

6.2 Alignment Alternatives

Three alternative routes for the involved section of the K56 were investigated by the involved engineers ***(refer to Figures 11 and 12).***

- Alternative 1: to the north of the proposed K56 alignment
- Alternative 2: to the south of the proposed K56 alignment
- Alternative 3: along the alignment of Zinnia and Caracal from Main Road linking to the K46 *(supplied by a member of the public, Mr. Mackenzie)*

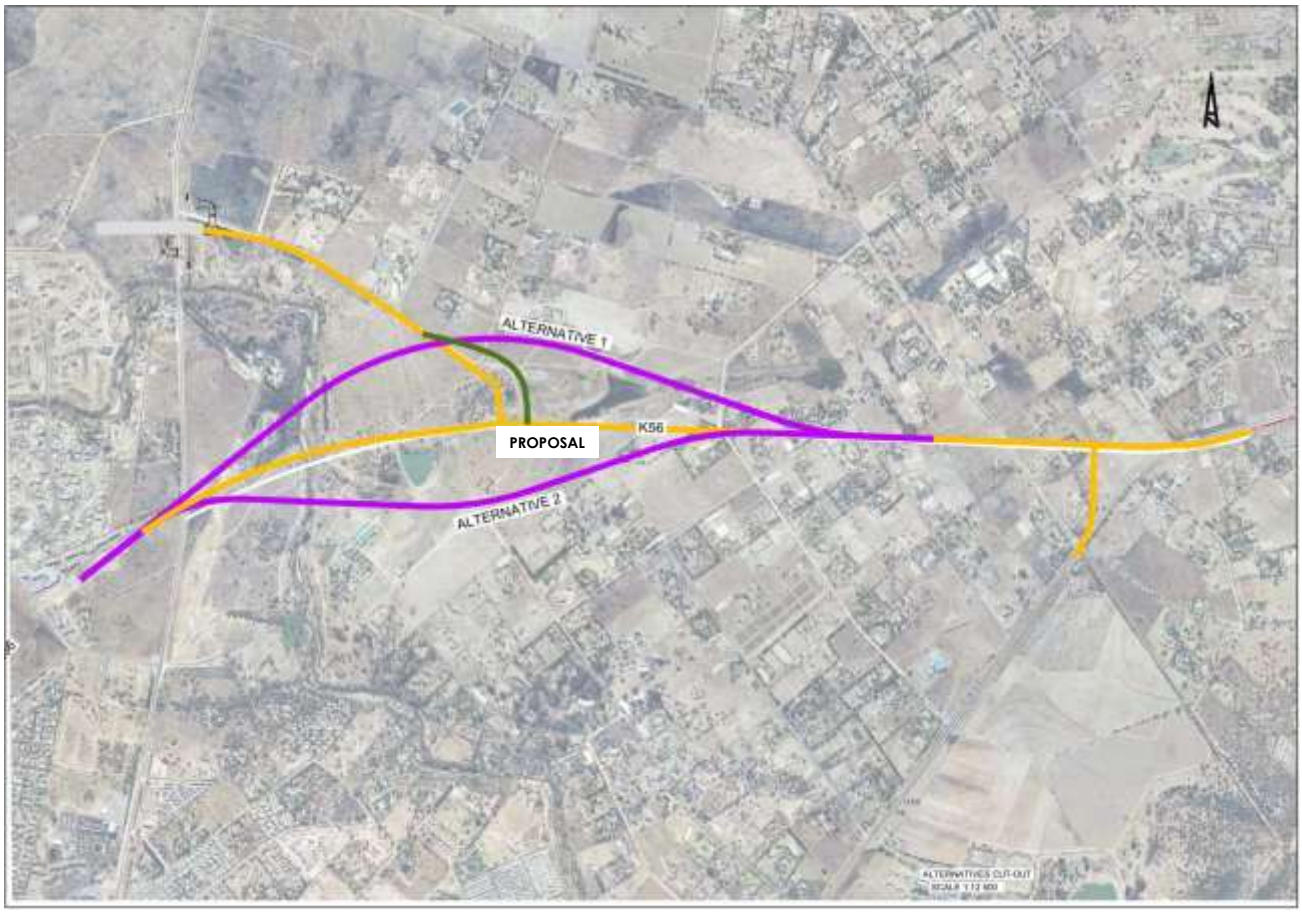


Figure 11 – Alternative Alignments

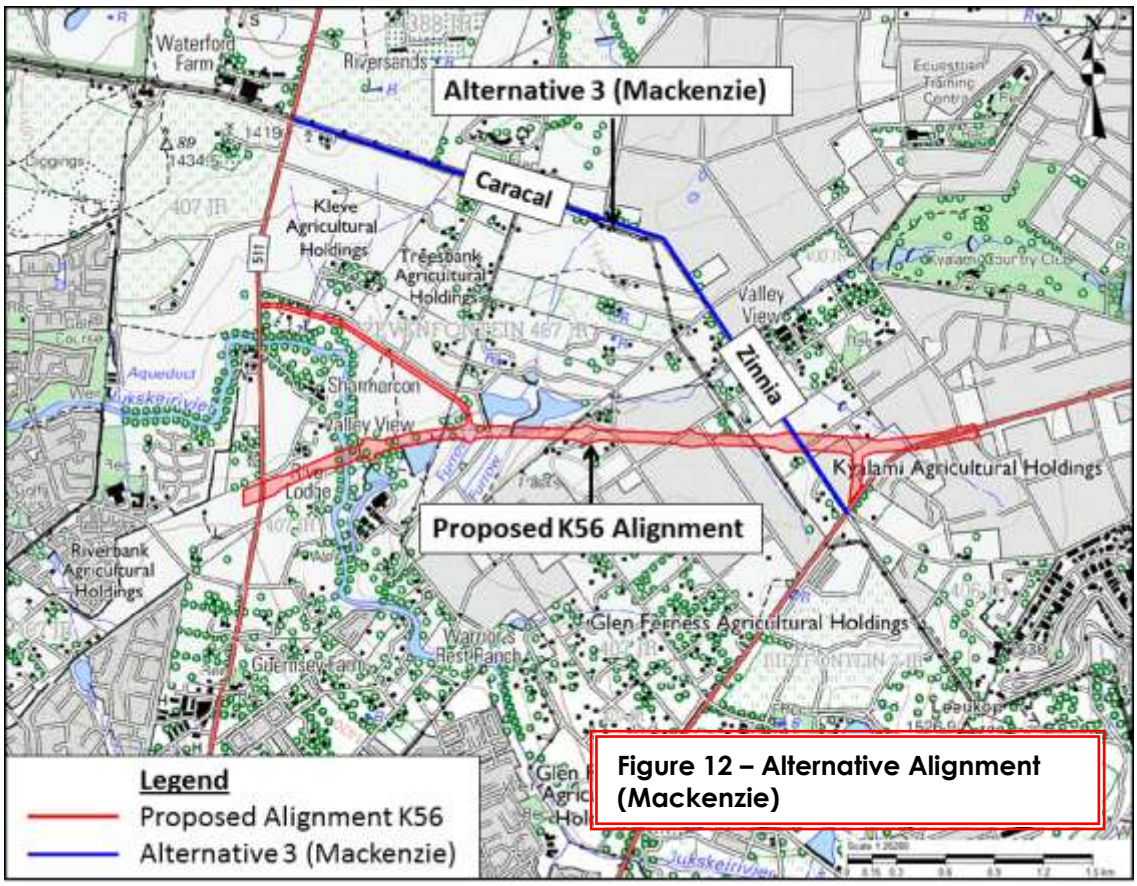


Figure 12 – Alternative Alignment (Mackenzie)

Refer to ***Section 9.3*** for a more detailed (scoping level) preliminary comparison between the proposal and ***Alternatives 1,2 and 3.***

7. THE DESCRIPTION OF THE BIOPHYSICAL ENVIRONMENT *[Regulation 29(c) (d)]*

This section briefly describes the biophysical environment of the study area.

7.1. The Physical Environment

7.1.1 Geology and Soils

According to the information in the Basic Planning Report (Report 1018) the formations encountered along the route consists of granite and granite-gneiss of the Northern Cape-Transvaal belt of the Archaian Complex of the Precambrian System with diabase intrusions. There are many outcrops in this area and it is expected that the residual soils will mainly consist of sand and gravel. Ferricrete was noted in several areas along the route.

It is expected that the hardness of materials over short distances in cuttings and other excavations may vary. Comprehensive blasting will be required.

It is possible that expansive and collapsible materials may occur along the route. In addition a perched water table could develop, which could have an impact on the stability of excavations. These should be confirmed during the detailed planning of the road. Special attention must be given to subsurface drainage during the detail design.

Preliminary Issues Identified

- Collapsible materials and expansive materials
- Excavatability
  Comprehensive blasting will be required.
- Perched water table
  A perched water table can develop and slight seepage may be present during the wet season.

Additional Information or Studies Required for the EIA Phase

- More detailed geotechnical investigations should be conducted during the detail design of the road to confirm the presence of expansive and collapsible materials and a perched water table, and to determine foundation requirements.
- More detailed investigations should be conducted for structures such as bridges and culverts.

7.1.2 Hydrology

(Refer to Figure 13, Hydrology Map).

7.1.2.1 Surface Hydrology

The study area falls within the Highveld Aquatic Ecoregion and is located within the A21C quaternary catchment in the Limpopo catchment.

The route traverses an undulating terrain and slopes towards the Jukskei River which crosses the western section of the involved section of the route.

Floodlines

The involved section of the K56 crosses the Jukskei River, a tributary of the Jukskei River and two non-perennial rivers and is therefore influenced by a number of 1:100 year floodlines. ***Refer to Figure 13, Hydrology Map.***

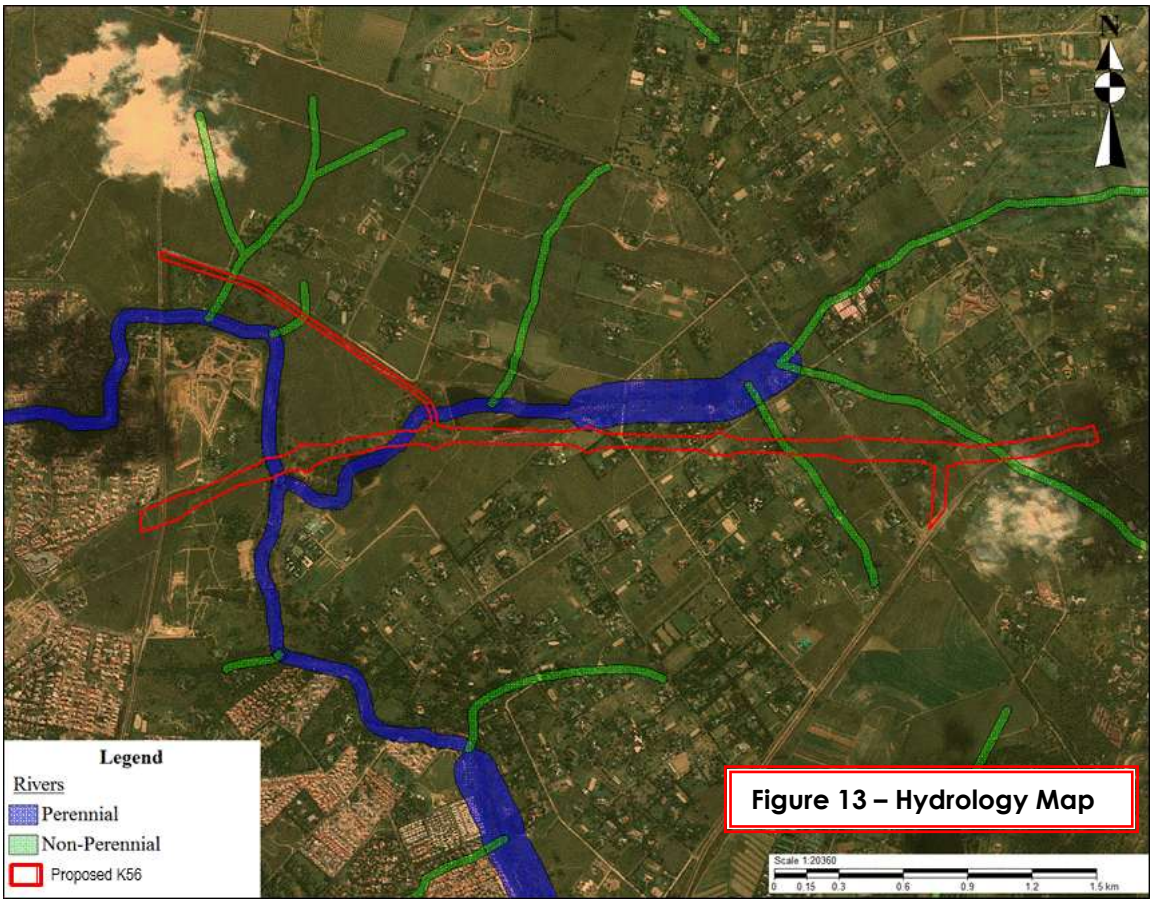


Figure 13 – Hydrology Map

Preliminary Issues Identified

- Pollution, erosion and siltation problems could occur in the Jukskei River and water bodies lower down in the catchment due to a lack of suitable storm water management measures during construction and operational phases;
- More impermeable surfaces will lead to an increase in the speed, quantity and quality of the storm water;
- Damage to / possible destruction of existing wetlands and associated ecological systems;
- Erosion caused at discharge points of storm water; and
- Section 21 Water Use Licenses will be required for construction within floodlines.

7.1.2.2 Sub-Surface Hydrology

According to the information in the ***BP Report (Report 1018)*** the permeability of the surface soil is expected to be high unless clays occur. Local seepage can be expected on the granites, especially where elevated groundwater levels occur due to ferricrete.

The granite is strong water bearing on a relatively shallow depth (at approximately 10m). The involved engineers stated that all the properties adjacent to the route are dependent on boreholes for water provision. This must be taken into consideration during the detail design of the road.

Preliminary Issues Identified

- During the wet season a perched water table can develop;
- Disappearance of wetlands through cut-off trenches, filling and cutting exercises etc.; and
- The presence of boreholes along the route can have an impact on the stability of deep excavations.

Additional Information or Studies Required for the EIA Phase

- The impact of boreholes along the route must be investigated during the detail design of the road.
- It is recommended that a detailed storm water management plan be submitted for assessment and inclusion in the EIA Report;
- The storm water management plan must be designed to:
    - Reduce and/or prevent siltation, erosion and water pollution.
    - Mitigation measures for speed, quantity and quality of stormwater.

7.1.2.3 Wetlands

A preliminary faunal, floral, wetland and aquatic assessment for the proposed K56 had already been conducted during the Scoping Phase. Two wetland features were identified within the study area.

Preliminary Issues Identified

- Impact of proposed road on wetland features.

Additional Information or Studies Required for the EIA Phase

- A wetland and aquatic assessment study had already been conducted and must be included in the EIA report; and
- If necessary the existing wetland report must be updated to address the wetland and ecological issues raised by the I & APs and the authorities.

7.1.3 Topography

The route traverses an undulating terrain and slopes towards the Jukskei River which crosses the western section of the involved section of the route as indicated on ***Figure 13, Hydrology Map.***

According to the GDARD C-Plan, 2011, the involved section of the K56 does not traverse any ridges, however Erling Street traverses a small section of a transformed ridge ***(refer to Figure 14).***

Due to the topography the involved section of the K56 will be visible from the various view sheds that surround the study area. ***Refer to Figure 15, Preliminary Visual Assessment.***

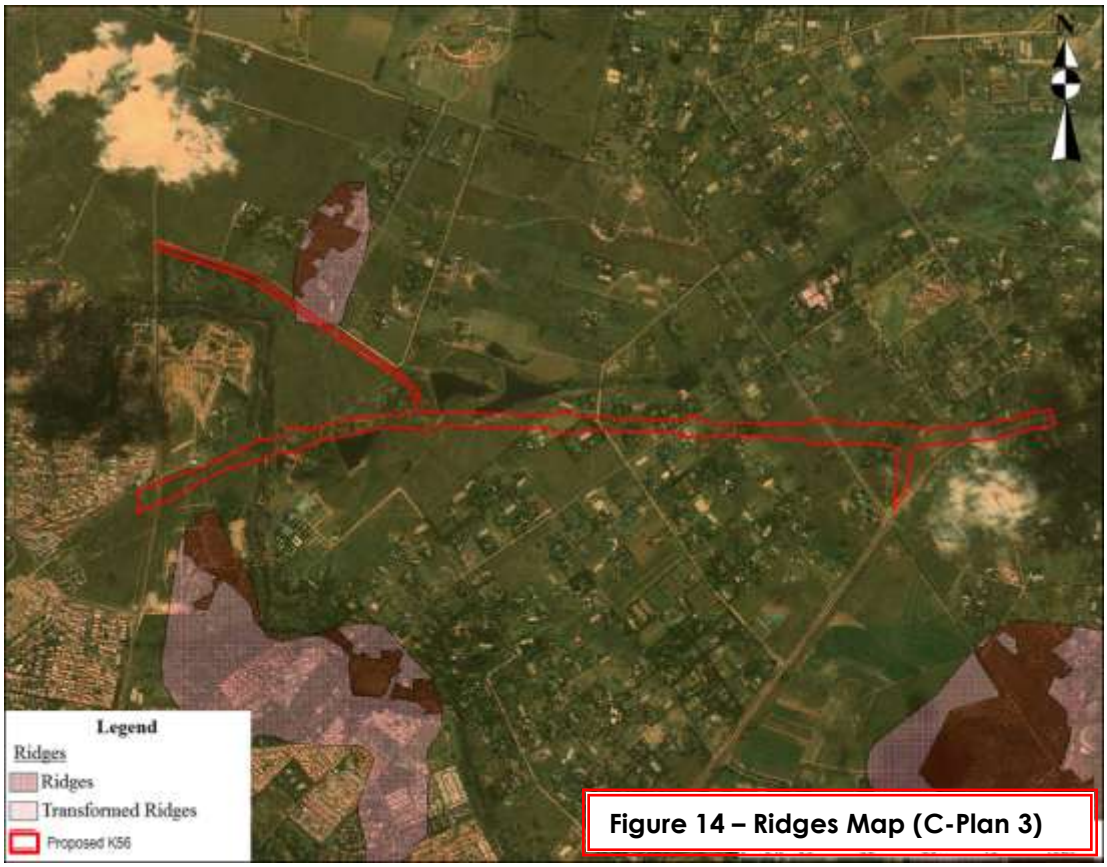


Figure 14 – Ridges Map (C-Plan 3)

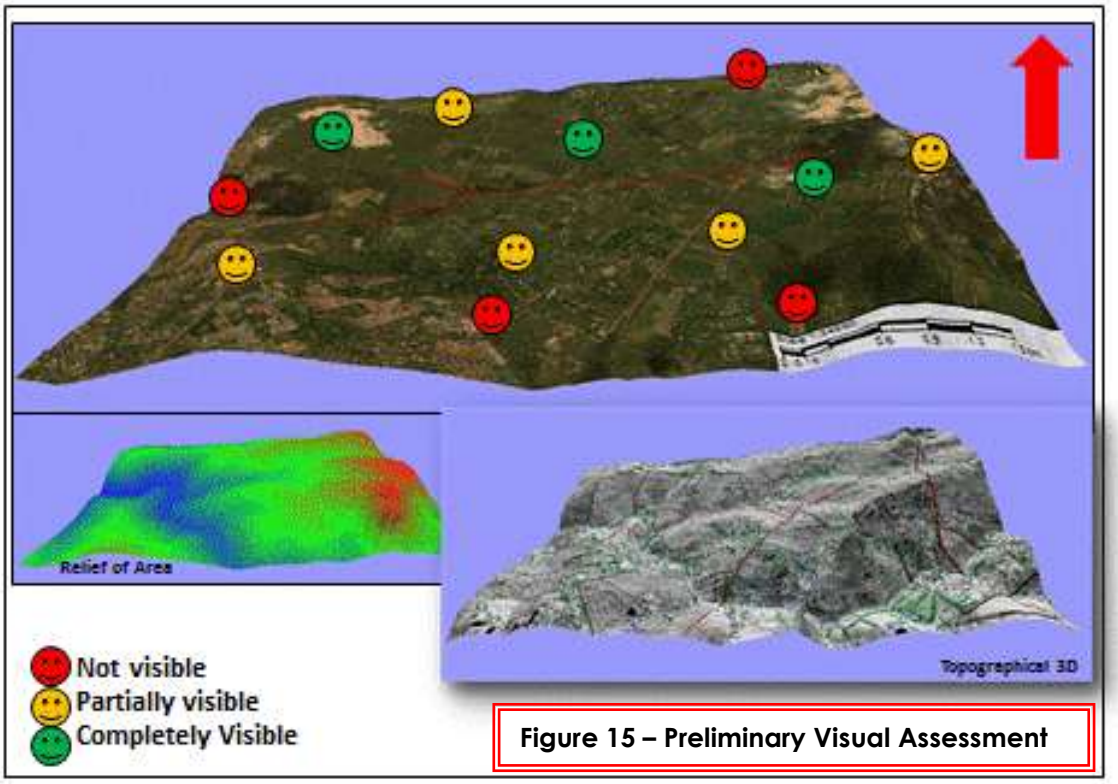


Figure 15 – Preliminary Visual Assessment

Preliminary Issues Identified

- From a road design point of view the slope of the study area is regarded as suitable for the involved section of the K56; and
- The proposed road will be visible from sensitive view-sheds, i.e. Glenferness A.H. and Kyalami A.H.

Additional Information or Studies Required for the EIA Phase

- A more detailed visual impact assessment should be done during the EIA stage to establish the extent of visibility in the surrounding environment;
- Mitigation measures must be supplied for the visual impacts during the EIA Process; and
- A storm water management plan must be compiled for the construction and operational phases of the road and must be included in the EIA Report.

7.1.4 Climate

The climate is typical of the Transvaal Highveld. The summers are mild to hot and the winters mild. It is a summer rainfall region with a mean annual precipitation of approximately 740mm. The Weinert N value is approximately 2.3, which indicates that chemical decomposition is the predominant form of weathering of rock.

The climatological data for the site was taken from the Johannesburg weather office.

Wind

Summer prevailing winds northwest, winter winds southeast.

Temperature °C

Average maximum 26.0 °C, minimum 13.63 °C in summer. Average winter temperature maximum 18.32 C, minimum 5.37°C.

Rain

Average annual rainfall of 740mm.

Preliminary Issues Identified

- Should the construction phase be scheduled for the summer months, frequent rain could cause very wet conditions, which makes road construction and environmental rehabilitation works extremely difficult especially in floodline and wetland areas;
- Such wet conditions often cause delays to building projects and the draining of water away from the construction works (in the case of high water tables) into the water nearby water bodies, could (if not planned and managed correctly) have an impact on the water quality of these water bodies;
- If dry and windy conditions occur during the construction phase, dust pollution could become a problem. During the summer months dust pollution could be carried over the properties to the south-east (i.e. Glenferness A.H. and Kyalami A.H., Century development) and during the winter months dust could be carried over the properties to the north-west (i.e. Glenferness A.H., Kyalami A.H., Fourways X2) as well as the K46.

Additional Information or Studies Required for the EIA Phase

No additional studies are required during the EIA Phase.

7.2 The Biological Environment

7.2.1 Vegetation and Fauna

The study area falls within the Savanna Biome, the Bushveld Basin bioregion and Egoli Grassland Vegetation Type, which is considered to be an endangered vegetation type.

According to GDARD C-Plan 3, 2011 the western section of the proposed alignment crosses irreplaceable site sites ***(refer to Figure 8)*.**

7.2.2 GDARD Biodiversity Information:

According to the information received from GDARD specialist biodiversity studies are required to investigate the following aspects:

- Plants, with specific reference to *Brachycorythis conica*, *Gnaphalium nelsonii* and *Trachyandra erythrorrhiza*.
- Vegetation.
- Wetlands.
- Rivers.

A preliminary faunal, floral, wetland and aquatic assessment had already been conducted during the growing season for the Scoping Phase.

Four habitat units were identified during the assessment, namely the Wetland Habitat Unit, the Rocky Outcrop Habitat Unit, the Open Grassland Habitat Unit and the Transformed Habitat Unit. The Transformed Habitat Unit encompasses the majority of the study area, while the Wetland Habitat Unit occurs within the east, west and central portions of the study area.

No RDL or protected floral species were identified during the assessment. However, the Rocky Outcrop and Wetland Habitat Units may provide suitable habitat to support such floral species;

No GDARD RDL threatened faunal were observed on the subject property. However, the habitat is suited for RDL Bat species, RDL bird species and the Giant Bullfrog (*Pyxicephalus adspersus),* a near threatened species.

A species list for Helderfontein (October 2012) was supplied by Jacqueline Wetselaar (M.Sc Zoology (Wits)) ***(please refer to Annexure E).***

The species list consists of 97 flora and fauna species and according to Ms. Wetselaar it can be noted from this list that it is not any particular species that makes this area valuable (although there are a few red data species in the list), but rather it's the eco-system itself that deserves conservation as Egoli Granite Grassland in its climax condition.

Ms. Wetselaar stated that this system is VERY SENSITIVE and intolerant to frequent impacts such as heavy grazing, ploughing, trampling and general domestic activities due to the granitically derived shallow nutrient poor soils. Road making would be a massive impact on this system. Degradation occurs easily resulting in a change from the climax (high species richness) vegetation to an anthropogenic *Hyparrhenia hirta* (low species richness) dominated vegetation type.

Furthermore, the bottomland areas and wetlands within the Egoli Granite Grassland provide suitable habitat for various sensitive fauna species such as the Grass Owl *Tyto capensis* (Red Listed), Marsh Sylph *Metisella meninx* (Vulnerable), and the Giant Bullfrog *Pyxicephalus adspersus* (Near Threatened).

In an area that has been largely overtaken by pastureland and gardens, where biodiversity has been significantly reduced, here we find a small (almost intact) section of

primary Highveld vegetation. According to Ms. Wetselaar this is indeed a valuable treasure which needs to be conserved. ***Refer to Annexure F for an article by G.J. Bredenkamp, L.R. Brown and M.F. Pfab on the Conservation value of the Egoli Granite Grassland, and endemic grassland in Gauteng, South Africa***

Preliminary Issues Identified

- Impact on fauna and flora species, including possible red data species;
- Loss of Egoli Granite grassland;
- Loss of biodiversity;
- Impact on aquatic and wetland species; and
- Snaring and hunting of fauna species on the study area and on adjacent properties during the construction phase.

Additional Information or Studies Required for the EIA Phase

- The faunal, floral, wetland and aquatic assessments (already conducted) must be updated in order to include and address the issues raised by the I&APs.

8. DESCRIPTION OF THE SOCIAL ENVIRONMENT *[Regulation 29(c) (d)]*

8.1 Cultural and Historical

It terms of the legislation, it is necessary to identify and list the specific legislation and permit requirements, which potentially could be infringed upon by the proposed project. The necessity and possibilities for the implementation of mitigation measures should also be identified.

It should be noted that in terms of the South African Resources Act (Act 25 of 1999) Section 35(4) no person may, without a permit issued by the responsible heritage resources

authority destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or material.

Also important is that Section 34(1) of this act states that no person may alter or demolish any structure or part of a structure, which is older than 60 years without a permit, issued by the relevant provincial heritage resources authority.

Preliminary Issues Identified

- The proposed alignment could traverse structures with cultural and historical value (i.e. there are some buildings and features in the area that are older than 60 years);
- The presence of graves at Helderfontein was noted during the public participation process; and
- If archaeological sites are exposed during construction work, it should immediately be reported to a museum, preferably one at which an archaeologist is available, so that an investigation and evaluation of the finds can be made.

Additional Information or Studies Required for the EIA Phase

- A Cultural Heritage Survey needs to be conducted for the proposed route and the presence of graves at Helderfontein must be confirmed; and
- Comments must be obtained from SAHRA and these comments must be addressed during the EIA process.

8.2 Agricultural Potential

According to GAPA 3 the involved section of route K56 traverses areas ranging from **low agricultural potential soils** and does not falls within an Agricultural Hub, an area identified for agricultural use by GDARD according to the **Draft Policy on the Protection of Agricultural Land (2006).** ***Refer to Figure 16.***

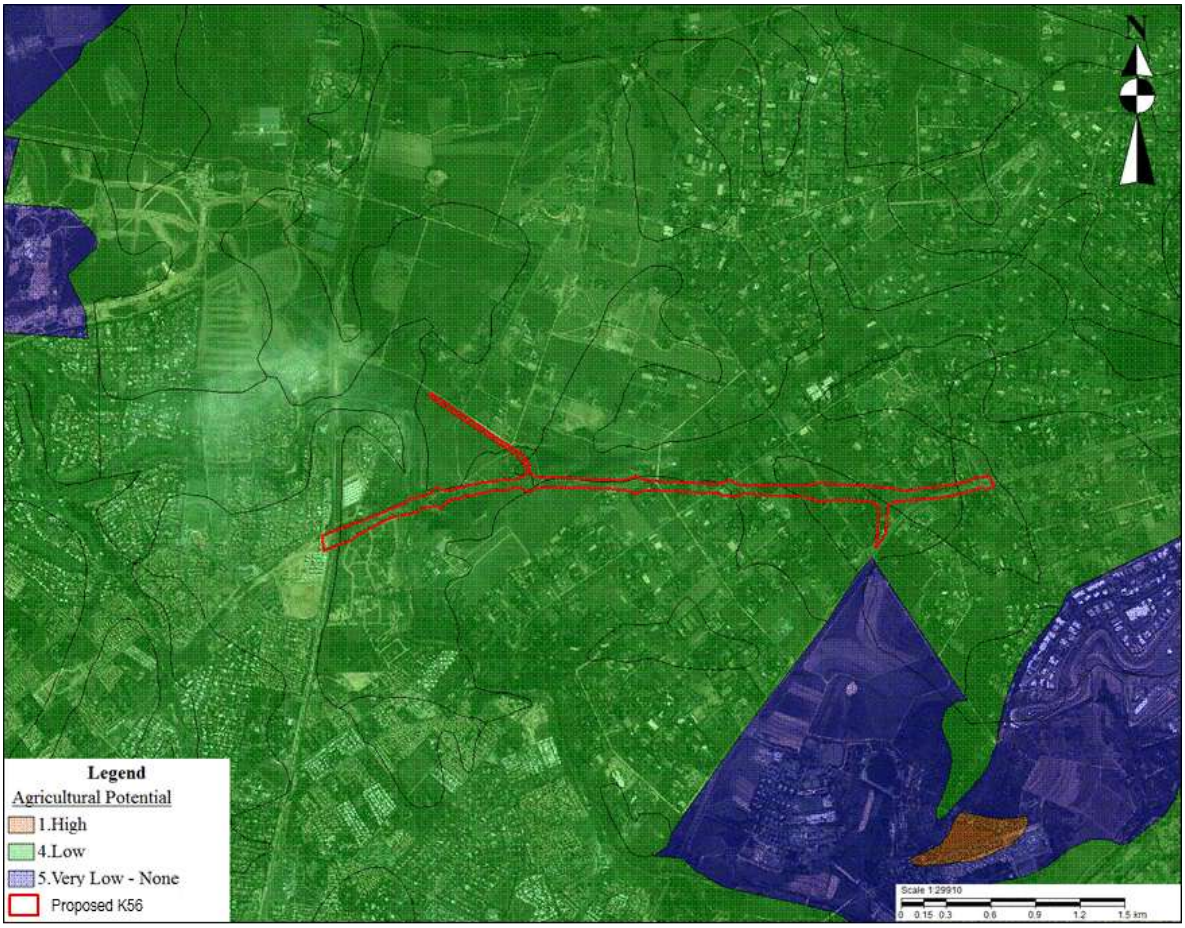


Figure 16 – Agricultural Potential

Preliminary Issues Identified

The proposed route traverses agricultural holdings of which most are used for equestrian purposes.

Additional Information or Studies Required for the EIA Phase

No additional information is required for the EIA Phase.

8.3 Greater Kyalami Conservancy (GEKCO)

The involved section of the K56 traverses the Greater Kyalami Conservancy (GEKCO), which is a green lung of large and small agricultural holdings and open space tucked between Johannesburg and Pretoria ***(refer to Figure 17)***.

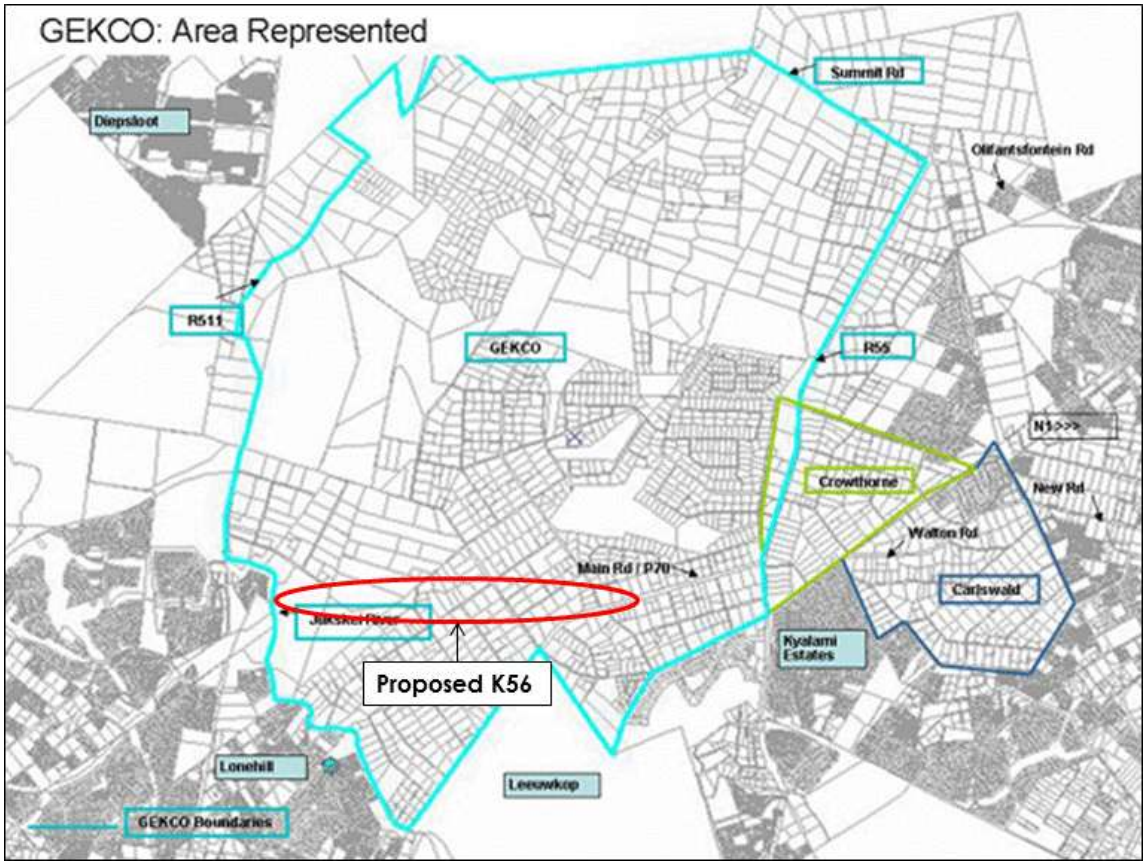


Figure 17 – Locality Map: GEKCO

Please note: the following information was obtained from GEKCO's website

Vision:

The members of the GEKCO Conservancy desire to protect and conserve nature and a relatively rural way of life in an area which sustains several endangered species, wetlands

and ridges as well as one of the highest densities of horses in the Southern hemisphere and a thriving equine industry.

Residents and visitors to Kyalami know the magic of this place – where the call of the jackal can still be heard – where nature continues to enchant! Breathe deeply as you leave the stress of the city behind and discover Kyalami for yourself.

The GEKCO (Greater Kyalami) conservancy is located in the greater Kyalami area (north of Sandton and west of Midrand). The area is encompassed by the Kyalami Ridge to the South, the Braamfontein Spruit and R511 to the West, the R562 to the North and R55 to the East and includes the suburb of Carlswald.

The area has been subject to varying levels of disturbance and several alien plant species are present. However there are nevertheless many noteworthy examples of natural vegetation of the region: There is a major ridge to the south of the area and many hill slope seepage wetland regions; there are a number of water courses that run through the area and several dams are present.

The area is going through a process of rural urbanisation which many residents do not agree with. The conservancy is generally peri-urban with a strong equestrian presence. Development has and is threatening this lifestyle and one of the objectives is to try to slow this tide or at least educate it in ecologically sensitive and equine friendly development. There are still numerous fauna species in the area that are under threat: tortoises, terrapins, scrub hares, black-backed jackal, mongoose, the African Bullfrog etc. There are several red data plant species and over 240 bird species regularly seen in the area. The wetlands form an integral part of the area not only from an aesthetic point of view, but also as filters and sites of species richness and landscape heterogeneity.

Objections:

The objectives represent those of the residents who appreciate the natural habitat within the region and would like to also preserve and conserve a relatively rural way of life. In order to achieve this goal, the following objectives have been identified:

- *Protect and conserve the remnant indigenous habitat and ecological processes, in an effort to maintain the ecological integrity of the conservancy by ensuring the appropriate protection, rehabilitation and management of:*
- *Remnant habitat, particularly that which supports populations of red data species.*
- *Wetlands and waterways in the region.*
- *Ridges in the region.*
- *Promote environmentally sensitive development and technologies in an effort to encourage sustainable development that is aimed at:*
  - *Improving resource efficiencies, including the use of water and electricity.*
  - *Improving waste avoidance, minimisation and recycling.*
  - *Reducing erosion and pollution through effective storm water management.*
- *Encouraging landscaping principles that reduce water use and utilise species indigenous to the vegetation types zones in which they occur.*
- *Protect the character and aesthetic quality of Kyalami, as a semi-rural environment that has been established around the equine industry by:*
- *Influencing property development so that it is sensitive to the character of the Kyalami region and respects the objectives of the conservancy.*
- *Developing the equine industry in a socially responsible and sustainable manner.*
- *Align with the principles of the Johannesburg Metropolitan Open Space System (JMOSS), the Johannesburg Spatial Development Framework and the Johannesburg development principle of a compact city with a mixture of housing densities and lower densities on the periphery.*
- *Raise awareness amongst residents and the public for the need to conserve the environmental resources and character of the region with the aim of:*

- *Actively involving all residents and the public in the endeavours of the conservancy through conservation projects, educational processes and marketing.*
- *Gaining recognition as a bone fide organisation for the aims of the conservancy from the public, business and government.*
- *Affording residents the opportunity to appreciate the fauna and flora of the conservancy and the rural way of life that it characterises.*

Preliminary Issues Identified

- The proposed K56 could have a significant social and economic impact on GECKO

Additional Information or Studies Required for the EIA Phase

- A socio-economic impact assessment study must be conducted to determine the impact of the proposed K56 on GEKCO.

8.4 Qualitative Environment

8.4.1 Noise Impact

The involved section of the K56 traverses rural areas and could have a significant noise impact on the Glenferness and Kyalami agricultural holdings.

Preliminary Issues Identified

- The involved section of the proposed K56 could have a significant noise impact on existing residents and equestrian activities of agricultural holdings traversed by the route. Mitigation measures should be implemented to reduce the noise levels to an acceptable level (50 dBa) in sub-urban areas.

Additional Information or Studies Required for the EIA Phase

A noise impact assessment study must be done during the EIA phase.

8.4.2 Visual Environment

The following visual assessment criteria ***(see Table 6)*** have been used to determine the impact of the proposed development on the state of the environment – the significance is indicated by the respective colour coding for each of the impacts, being high, medium and low:

Table 6: Visual Impact Criteria

	IMPACT		
CRITERIA	**HIGH**	**MEDIUM**	**LOW**
Visibility	**A prominent place with an almost tangible theme or ambience**	A place with a loosely defined theme or ambience	A place having little or no ambience with which it can be associated
Visual quality	A very attractive setting with great variation and interest – no clutter	**A setting with some visual and aesthetic merit**	A setting with no or little aesthetic value
Compatibility with the surrounding landscape	Cannot accommodate proposed road without the development appearing totally out of place – not compatible with the existing theme	**Can accommodate the proposed road without it looking completely out of place**	The surrounding environment will ideally suit or match the proposed road
Character	**The site or surrounding area has a definite character/ sense of place**	The site or surrounding environment has some character	The site or surrounding environment exhibits little or no character/ sense of place
Visual Absorption Capacity	The ability of the landscape not to accept a proposed development because of a uniform texture,	**The ability of the landscape to less easily accept visually a particular type of development because**	The ability of the landscape to easily accept visually a particular type of development because

	flat slope and limited vegetation cover	**of less diverse landform, vegetation and texture**	of its diverse landform, vegetation and texture
View distance	If uninterrupted view distances to the site are > 5 km	**If uninterrupted view distances to the site are < 5 km but > 1 km**	If uninterrupted view distances to the site are > 500 m and < 1000 m
Critical Views	**Views of the site seen by people from sensitive view sheds i.e. farms, nature areas, hiking trails etc.**	Some views of the site from sensitive view sheds	Limited or partial views of the site from sensitive view sheds
Scale	A landscape with horizontal and vertical elements in high contrast to human scale	**A landscape with some horizontal and vertical elements in some contrast to human scale**	Where vertical variation is limited and most elements are related to the human and horizontal scale

From the preliminary visual assessment it is evident that the proposed road will be visible from the various view sheds that surround the study area. ***Refer to Figure 15.***

Preliminary Issues Identified

The involved section of the K56 will be visible from some of the surrounding properties (agricultural holdings). It could have a visual impact on the surrounding environment and should be planned and designed correctly to minimise any impacts in the area.

Additional Information or Studies Required for the EIA Phase

- A more detailed visual impact assessment must be done during the EIA stage; and
- Mitigation measures for the construction and operational phase visual impacts must be supplied during the EIA Process.

8.4.3. "Sense of Place"

The concept of "a Sense of Place" does not equate simply to the creation of picturesque landscapes or pretty buildings, but to recognise the importance of a sense of belonging. Embracing uniqueness as opposed to standardisation attains quality of place. In terms of the natural environment it requires the identification, a response to and the emphasis of the distinguishing features and characteristics of landscapes. Different natural landscapes suggest different responses. Accordingly, settlement design should respond to nature. In terms of the human made environment, quality of place recognises that there are points where elements of settlement structure, particularly the movement system, come together to create places of high accessibility and these places are recognised in that they become the focus of public investment, aimed at making them attractive, user-friendly and comfortable to experience.

The landscape is usually experienced in a sensory, psychological and sequential sense, in order to provide a feel and image of place ("genius loci").

A landscape is an integrated set of expressions, which responds to different influences. Each has its unique spirit of place, or "genius loci". Each landscape has a distinct character, which makes an impression in the mind, an image that endures long after the eye has moved to other settings.

If planned correctly the proposed road could enhance the genius loci of the broader area by establishing infrastructure for the future development of the area.

Sense of Place is the subjective feeling a person gets about a place, by experiencing the place, visually, physically, socially and emotionally. The "Sense of Place" of a property/ area within the boundaries of a city, is one of the major contributors to the "Image of a City/ City Image".

City Image consists of two main components, namely ***place structure*** and ***sense of place***. Place structure refers to the arrangement of physical place making elements within a space, whereas sense of place refers to the spirit of a place. It could be defined as follows:

- ***Place Structure*** refers to the arrangement of physical place making elements within a unique structure that can be easily legible and remembered.
- The ***Sense of place*** is the subjective meanings attached to a certain area by individuals or groups and is closely linked to its history, culture, activities, ambience and the emotions the place creates.

The Kyalami/Glenferness agricultural holdings area has a unique "Sense of Place" and character mainly created by the equestrian activities in this rural area. The section of the proposed K56 which traverses these agricultural holdings could have a significant impact on the "Sense of Place" and tranquillity in this area.

However, today one aspect of South African city life (especially in Gauteng), that adds frustration must be traffic congestion. Most Public meetings for developments are dominated by discussions of traffic and roads. People want development but not more traffic, more roads to be built but not on their properties. In this regard the construction of the involved section of the K56 will enhance the "Sense of Place" of the area.

Preliminary Issues Identified

The proposed K56 could have a negative impact on the "Sense of Place" in the surrounding area.

Additional Information or Studies Required for the EIA Phase

Landscaping/rehabilitation guidelines for the linear strips of land adjacent to the proposed road.

8.5. Institutional Environment *[Regulation 29(E)]*

8.5.1 On an International Level

Relevant International Conventions to which South Africa is party:

- **Convention relative to the Preservation of Fauna and Flora** in their natural state, 8 November 1993 (London);
- **Convention on Biological Diversity**, 1995
  (provided and added stimulus for a re-examining and harmonization of its activities relating to biodiversity conservation. This convention also allows for the in-situ and ex-situ propagation of gene material); and
- **Agenda 21** adopted at the United Nations Conference on Environment and Development (UNCED) in 1992.
  (An action plan and blueprint for sustainable development).

8.5.2 On a National Level

National Environmental Management Act (NEMA), 1998 (Act No 107 of 1998)

In terms of the 2010 Amended NEMA EIA Regulations a Full EIA Process is required for the design and construction of the involved section of the K56 Road. Tables 1 and 2 of this reports lists the various activities that will be triggered by the proposed road development.

The NEMA Act itself furthermore provides for co-operative, environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote co-operative governance and procedures for co-ordinating environmental functions exercised by organs of state; and to provide for matters connected therewith.

This Act formulates a set of general principles to serve as guidelines for land development and it is desirable that:

- The law develops a framework for integrating good environmental management into all development activities;
- The law should promote certainty with regard to decision-making by organs of state on matters affecting the environment;
- The law should establish principles guiding the exercise of functions affecting the environment;
- The law should ensure that organs of state maintain the principles guiding the exercise of functions affecting the environment;
- The law should establish procedures and institutions to facilitate and promote co-operative government and intergovernmental relations;
- The law should establish procedures and institutions to facilitate and promote public participation in environmental governance; and
- The law should be enforced by the State and that the law should facilitate the enforcement of environmental laws by civil society.

If the involved authorities do not take the principles of NEMA into consideration when evaluating an environmental report/ document, the involved authority can be held responsible for any damage to the environment (social, ecological and economical).

The proposed development is listed under the activities as regulated under NEMA.

Integrated Environmental Management

Integrated Environmental Management (IEM) is a philosophy, which prescribes a code of practice for ensuring that environmental considerations are fully integrated into all stages of the development process. This philosophy aims to achieve a desirable balance between conservation and development (Department of Environmental Affairs, 1992). The

IEM guidelines intend endearing a pro-active approach to sourcing, collating and presenting information at a level that can be interpreted at all levels.

The National Water Act, 1998 (Act No 36 of 1998)

The purpose of this Act is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways that take into account, amongst other factors, the following:

- Meeting the basic human needs of present and future generations;
- Promoting equitable access to water;
- Promoting the efficient, sustainable and beneficial use of water in the public interest;
- Reducing and preventing pollution and degradation of water resources;
- Facilitating social and economic development; and
- Providing for the growing demand for water use.

In terms of the Section 21 of the National Water Act, the developer must obtain water use licenses if the following activities are taking place:

a) Taking water from a water resource;
b) Storing water;
c) Impeding or diverting the flow of water in a watercourse;
d) Engaging in a stream flow reduction activity contemplated in section 36;
e) Engaging in a controlled activity identified as such in section 37(1) or declared under section 38(1);
f) Discharging waste or water containing waste into a water resource through a pipe, canal, sewer, sea outfall or other conduit;
g) Disposing of waste in a manner which may detrimentally impact on a water resource;
h) Disposing in any manner of water which contains waste from or which has been heated in any industrial or power generation process;
i) Altering the bed, banks, course or characteristics of a water course;

j) Removing, discharging or disposing of water found underground if it is necessary for the efficient continuation of an activity or for the safety of people; and
k) Using water for recreational purposes.

Section 21 water use licences will be required for any development which may take place within and/or impact any water resource and or floodlines. The National Water Act also required that the 1:50 and 1:100 year flood line be indicated on all the development drawings that are being submitted for approval.

The proposed route traverses the Jukskei River and tributary, non-perennial rivers as well as wetlands. Section 21 water use license applications would therefore be required.

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

This act replaced the Atmospheric Pollution Prevention Act (Act No. 45 of 1965), however Part 2 of the act is still applicable. Part 2 deals with the control of noxious or offensive gases and has relevance to the proposed road.

The purpose of the Act is "To reform the law regulating air quality in order to protect the environment by providing reasonable measures for the prevention of pollution and ecological degradation and for securing ecologically sustainable development while promoting justifiable economic and social development; to provide for national norms and standards regulating air quality monitoring, management and control by all spheres of government; for specific air quality measures; and for matters incident thereto".

Water Services Act, 1997 (Act No 108 of 1997)

The purpose of this Act is to ensure the regulation of national standards and measures to conserve water taking into account, amongst other factors, the following:

- Basic sanitation;
- Basic Water supply;
- Interruption in provision of water services;
- Quality of potable water;
- Control of objectionable substances;
- Disposal of grey water;
- Use of effluent; and
- Quantity and quality of industrial effluent discharged into a sewerage system.

Interruption in provision of water services during the construction phase of the involved section of the proposed K56 must be according to national standards.

Mitigation measures must be implemented to prevent contamination of groundwater due to the construction and operational phase of the road.

National Heritage Resource Act, 1999 (Act No 25 of 1999)

The National Heritage Resources Act legislates the necessity for cultural and heritage impact assessment in areas earmarked for development, which exceed 0.5 ha. The Act makes provision for the potential destruction to existing sites, pending the archaeologist's recommendations through permitting procedures. Permits are administered by the South African Heritage Resources Agency (SAHRA).

It is important to note that in terms of the National Heritage Resources Act, (Act No 25 of 1999) all historical sites and materials older than 50 years are protected. It is an offence to destroy, damage, alter or remove such objects from the original site, or excavate any such site(s) or material without a permit from the National Monuments Council. Gravesites are subject to the requirements of Act 28 of 1969.

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

The purpose of the Biodiversity Act is to provide for the management and conservation of South Africa's biodiversity within the framework of the NEMA and the protection of species and ecosystems that warrant national protection. As part of its implementation strategy, the National Spatial Biodiversity Assessment was developed.

According to the GDARD C-Plan 3, 2011, the involved section of the proposed K56 traverses irreplaceable sites. Specialist ecological assessment studies had been conducted for the study area.

National Spatial Biodiversity Assessment

The National Spatial Biodiversity Assessment (NSBA) classifies areas worthy of protection based on its biophysical characteristics, which are ranked according to priority levels.

According to the GDARD C-Plan 3, 2011, the involved section of the proposed K56 traverses irreplaceable sites. Specialist ecological assessment studies will be conducted for the study area. Specialist ecological assessment studies had been conducted for the study area.

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

The purpose of this Act is to provide the protection, conservation and management of ecologically viable areas representative of South Africa's biological diversity and its natural landscapes.

According to the GDARD C-Plan 3, 2011, the involved section of the proposed K56 traverses irreplaceable sites. Specialist ecological assessment studies had been conducted

for the study area. The status of GECKO in terms of this act must also be determined and addressed.

National Veld and Forest Fire Act, 1998 (Act No. 101, 1998)

The purpose of this Act is to prevent and combat veld, forest and mountain fires throughout the Republic. Furthermore the Act provides for a variety of institutions, methods and practices for achieving the prevention of fires.

Mitigation measures for the prevention of fires must be implemented.

Conservation of Agricultural Resources Act (Act No. 43 of 1983)

This Act provides for control over the utilization of the natural agricultural resources of the Republic in order to promote the conservation of the soil, the water sources and the vegetation and the combating of weeds and invader plants; and for matters connected therewith. The removal of Category 1 Declared Weeds is ***compulsory*** in terms of this Act.

Category 1 Declared weeds must be removed on a continuous basis, as will be indicated in the EMP.

According to GAPA 3 the involved section of the proposed K56 traverses low agricultural potential soils. In addition the study area does not fall within an agricultural hub identified by GDARD.

National Road Traffic Act, 1996 (Act No. 93 of 1996)

This Act provides for all road traffic matters which shall apply uniformly throughout the Republic and for matters connected therewith.

The design and construction of the involved section of the proposed K56 must comply with the National Road Traffic Act.

Mine Health and Safety Act, 1996 (Act 29 of 1996)

This Act introduced the concepts of risk assessment and occupational health and safety (OHS) management systems in the mining industry.

The alignment of the involved section of the proposed K56 must comply with the regulations of the Mine Health and Safety Act with regard to distance from mining operations.

8.5.3 On a Provincial Level

Planning Responsibilities of the Involved Local Authority

The prerogative to plan a development within its jurisdictional area has always constitutionally, in terms of the Local Government Transitional Act, 1993 and recently the Municipal Systems Act, 2000, vested in the local authority involved.

In order to ensure that the proposed developments comply with the standards and requirements of the involved local authority (City of Johannesburg), the relevant officials were involved in the planning of the project from the start.

Gauteng Spatial Development Framework (GSDF)

This document published by the Gauteng Department of Development Planning and Local Government provides a spatial development framework for the whole of the Gauteng Province, and focuses on growth and development on a broad level. This Document identifies several spatial development components, of which the following is relevant to the proposed development:

The GSDF also lists so-called interventions of which the following is applicable to the involved section of the proposed K56:

- Containing and Compacting the City: The infill of vacant land contributes towards the optimizing of municipal infrastructure
- Access and Mobility: The easy access development areas, as well as the densification of the city, also encourage the optimizing of municipal resources.

Gauteng Transport Infrastructure Act, 2001 (Act No 8, 2001)

The purpose of this Act is to consolidate the laws relating to roads and other types of transport infrastructure in Gauteng. It provides for the planning, design, development, construction, financing, management, control, maintenance, protection and rehabilitation of provincial roads, railway lines and other transport infrastructure in Gauteng.

According to this provincial act, the proposed alignments for all the Gautrans roads on the Gautrans Grid Road Network Map must be honoured by planners.

GDARD C-Plan 3, 2011

The environmental data contained in the C-Plan 3, 2011, was taken into consideration during the compilation of the scoping report. According to the C-Plan 3, 2011, the involved section of the proposed K56 traverses irreplaceable sites.

GDARD Draft Red Data Species Policy, 2001

According to the C-Plan 3, 2011, the involved section of the proposed K56 traverses irreplaceable sites. The occurrence of red data species must be confirmed during the EIA phase.

GDARD Draft Ridges Policy, 2001

According to the GDARD Draft Ridges Policy no development should take place on slopes steeper than 8.8%.

The involved section of the proposed K56 does not cut across any ridge according to C-Plan 3, 2011. However, Erling Street crosses a small section of a transformed ridge.

GDARD Biodiversity Requirements, June 2012

The GDARD Draft Biodiversity Requirements, June 2012 will be taken into consideration during the EIA phase of the development.

Environment Conservation Act, 1989 (Act No. 73 of 1989): Gauteng Noise Control Regulations

The involved section of the proposed K56 must comply with the Provincial Noise Control requirements as outlined in the Provincial Notice, 5479 of 1999: Gauteng Noise Control Regulations.

Draft Policy on the Protection of Agricultural Land (2006)

The study area does not lie within an Agricultural Hub that was identified by GDARD in 2006. The Draft Policy on the Protection of Agricultural Land (2006) is therefore not applicable to the proposed road.

8.5.4 On a Local Level

Planning responsibilities of the involved Local Authority

The prerogative to plan development within its jurisdictional area has always constitutionally, in terms of the Development Facilitation Act, 1995, the Local Government Transitional Act, 1993 and recently the Municipal Systems act, 2000 vested in the local authority involved.

In order to ensure that the proposed developments comply with the standards and requirements of the involved local authority, the relevant officials were involved in the planning of the project from the start.

Municipal Systems Act - 2000)

This Act clearly establishes the Integrated Development Plan and Integrated Spatial Development Framework as guidelines to inform development and processes in this regard.

City of Johannesburg Regional Spatial Development Framework (RSDF), 2010/2011: Region A

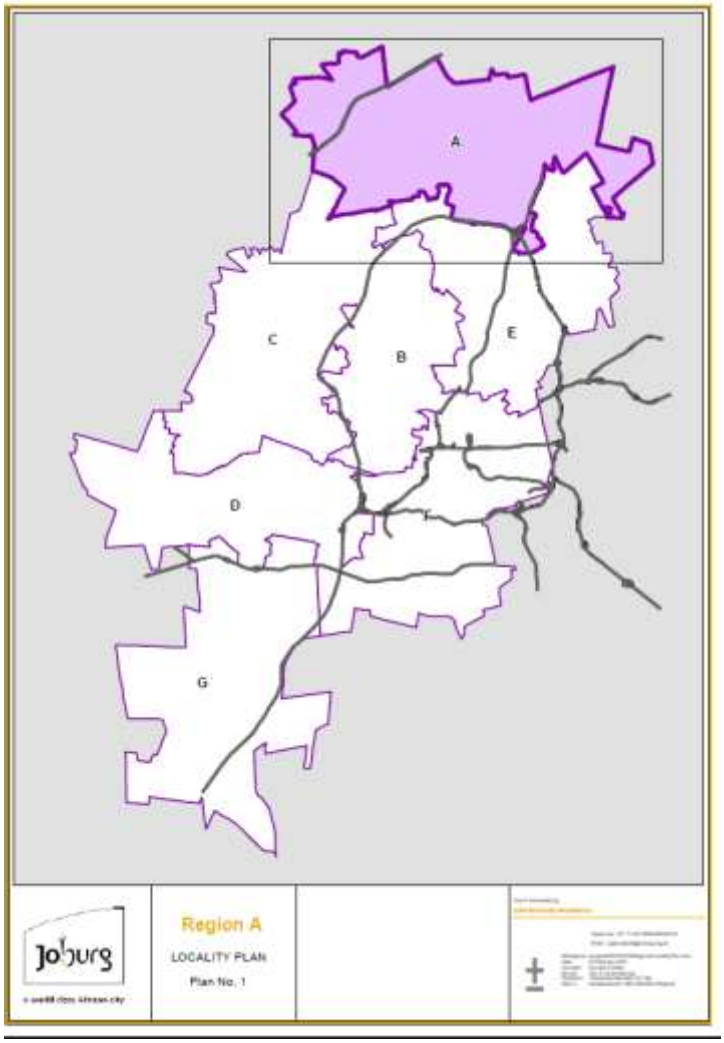
The Regional Spatial Development Framework (RSDF), together with the Spatial Development Framework (SDF), represents the prevailing spatial planning policy within the City of Johannesburg. These spatial planning policy documents are prepared and adopted in terms of the Municipal Systems Act, Act 32 of 2000 as an integral component of the City's Integrated Development Plan (IDP).

This Regional Spatial Development Framework must be read in conjunction with the overarching Spatial Development Framework. The SDF provides a city wide perspective of challenges and interventions within the City and the RSDFs are primarily regional and local implementation tools that:

- Contextualise development trends and challenges within a regional context.
- Prescribe localised development objectives and guidelines (e.g. density, land use etc.).
- Provide a more detailed reflection of the SDF objectives, strategies and policies as they impact on local area planning.
- Reflect localised Precinct Plans and Development Frameworks adopted through official Council protocols.
- Capture the most updated information in terms of regional developmental trends, issues and community needs.

- Add substantive value to the budgeting and spatial development processes within the City by identifying local development interventions.

The study area falls within Administrative **Region A** of City of Johannesburg. Within the larger Gauteng metropolitan area, Region A is bordered by Mogale City Local Municipality to the west, City of Ekurhuleni to the east and City of Tshwane to the north. Within the City of Johannesburg administrative boundary, Region C and Region E form the southern boundaries of Region A.



The following sections of the RSDF are applicable to the proposed K56:

2.1.6 *Road Network*

The east-west linkages are less defined in comparison to the north-south linkages and heavy congestion occurs along the region's major routes due to large traffic volumes travelling through the region daily.

The existing infrastructure within the region is inadequate to cater for the increased developments at the desired densities which indicate that developments must be accompanied by road infrastructure upgrades.

3.1 DEVELOPMENT STRATEGIES

The SDF provides a comprehensive overview of the Spatial Development Strategies and the desired urban form for the City. Therefore this section should be read in conjunction with the SDF (2010/2011).

3.1.1. Growth Management Strategy

In addition to the SDF component, a Growth Management Strategy (GMS) was developed to compliment the seven other SDF strategies. The strategy is detailed in the Spatial Development Framework 2010/2011. The GMS prescribes where, and under what conditions, growth can be accommodated. The future growth of the City must ensure that population and economic growth is supported by complimentary services and infrastructure whilst also meeting spatial and socioeconomic objectives. The two key objectives of the strategy are to:

- *Determine priority areas for short-medium term investment and allocation of future development rights.*
- *Re-direct the respective capital investment programmes of the City's service providers to address the short-term hotspots and strategic priority areas.*

The GMS sets high, medium and low priority areas across the City and describes specific interventions:

Low Priority (i.e. no infrastructure upgrading / provision before 2020)

<u>Peri Urban Areas</u>

Localities beyond the extent of the Urban Development Boundary comprise the Peri-Urban Management Areas. There are no short or medium term obligations or plans to service these areas.

The study area falls within a peri-urban area.

3.1.2 Supporting an Efficient Movement System

The Movement Strategy is premised on the provision and maintenance of a highly accessible movement system and network that supports a range of modes (road, rail and non-motorised transport modes, public and private) and activities at various levels, intensity and scale. It specifically endorses the promotion of public transport as the means to increase accessibility of opportunities to all City users.

Road Network Hierarchy and Management Guidelines

In order to develop an appropriate and functional movement network for the City, a study was commissioned by the Johannesburg Roads Agency and Transportation Planning and Management Directorate, in 2004. The Transportation Department has recently updated this study (February 2010) in order to reflect the current status of the network as well as to align the classification of the City's roads with the official roads policy for planning and development of road infrastructure in South Africa; Road Infrastructure Strategic Framework for South Africa (RISFSA). The updated study focuses on the following elements:

***1.** Road Reclassification: according to the RISFSA classification scheme*

***2.** A Proposed future Road Network based on 5 and 10 year scenarios which include:*

- *·Priorities for implementation (upgrades and implementation of new roads)*
- *Land acquisition associated with the future road network*
- *Protection of road development corridors*
- *City's Freight Network*

Roads provide two types of services, namely the provision of traffic mobility and access.

Generally, major roads in Region A are overburdened and the construction of the following proposed major roads would in future enhance better mobility within the region:

Proposed K46: *North-south route that will follow the alignment of William Nicol Drive, which currently forms the eastern boundary of the Diepsloot settlement.*

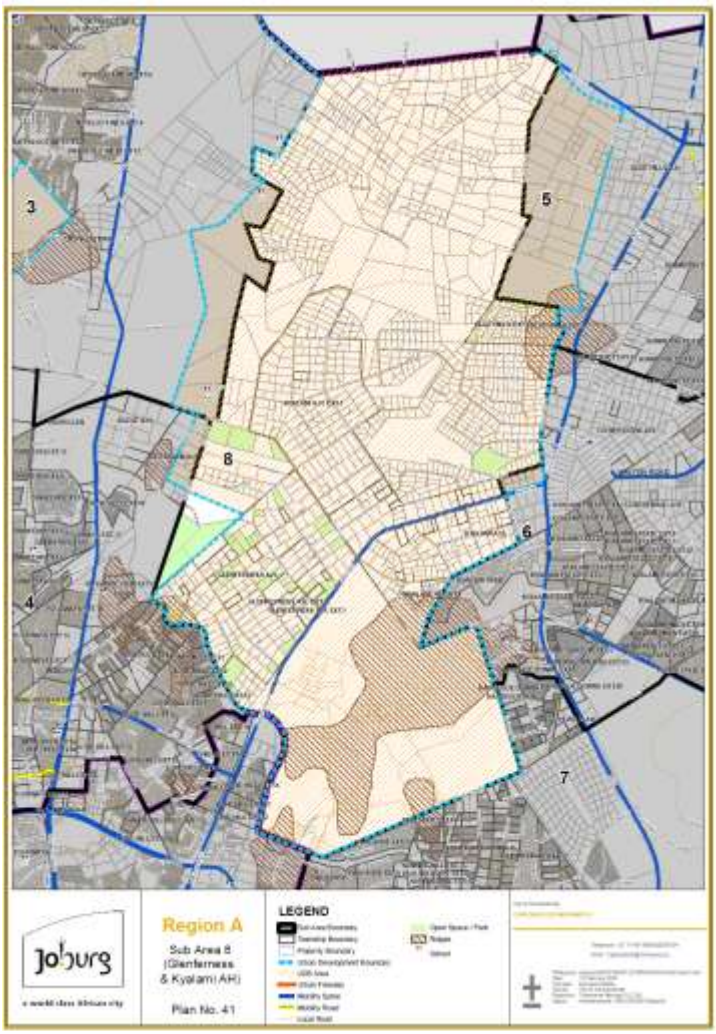
Proposed K56: East-west link that connects the Region to Ekurhuleni and Mogale City. The road will also connect several significant nodes in the Region.

Proposed K54/R562: *East-west route that will run through the centre of the Diepsloot settlement. This route is critical towards the effective functioning of the Diepsloot/Tanganani areas*

Proposed K27: *East-west route that ends at William Nicol Drive and is likely to have an impact on the expansion of Diepsloot.*

Proposed K33*: North South route that traverses the western parts of the Region along Kya Sands toward Lanseria*

Proposed PWV 5 & PWV 9: East west and north south routes respectively through the region.



4.1. Suburbs per sub area

In order to deal with the application of the region-wide goals, objectives and development strategies regarding movement, activity and the environment, it was necessary to divide Region A into 12 Sub Areas, based on the following criteria:

- *The area covered by community submissions.*

- *Homogeneity in residential density and character/requirements.*
- *Land use homogeneity.*
- *Natural/environmental features.*
- *Economic investment.*

The study area falls within **Sub-Area 8 *(refer to Plan 41)*.**

SUB AREA 8 (WITPOORT PRECINCT)

Kyalami A.H., Glenferness A.H. and extensions, Knopieslaagte, **Kyalami A.H. and extensions, Leeuwkop Prison**, **Saddlebrook**

The entire sub area falls outside the Urban Development Boundary. It comprises mainly of environmentally sensitive areas, natural open spaces, agricultural holdings and farm portions. This means that no further township establishments can be supported on any erven within Sub Area 8.

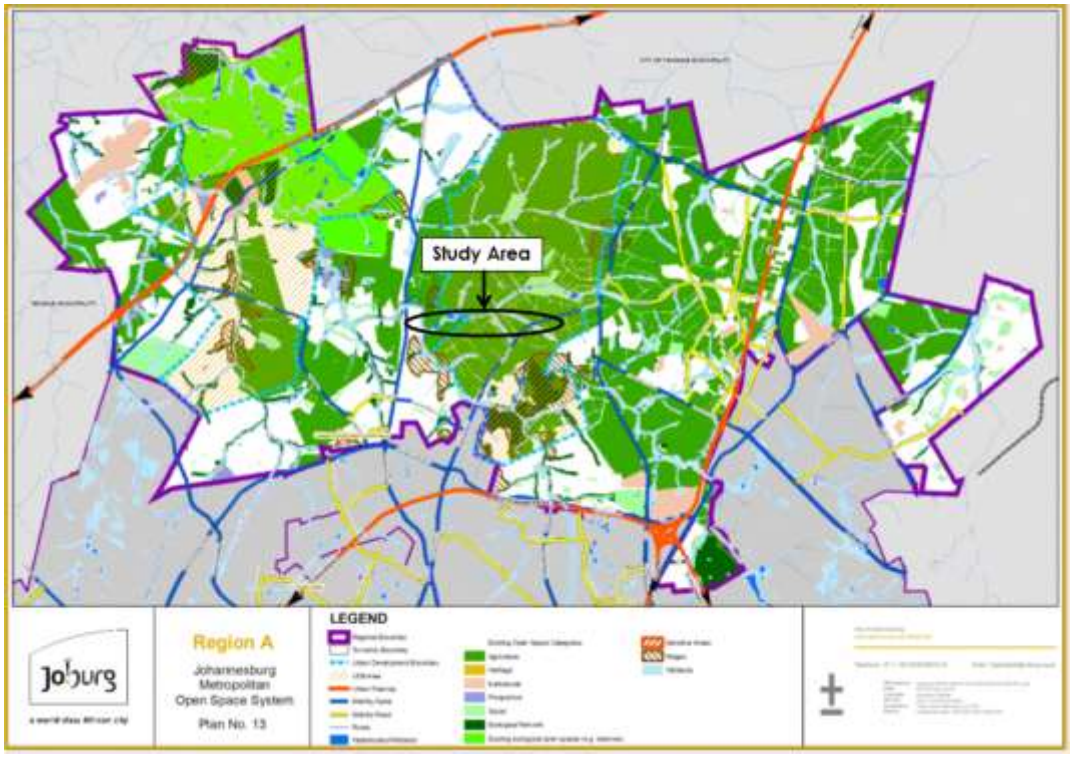
The entire sub area falls within the Greater Kyalami Conservancy (GEKCO) area. Development applications in this sub area are to be assessed in accordance with the Witpoort Development Framework 2020 (2008), which should be read in conjunction with the Growth Management Strategy (GMS), which identifies this area as a Peri Urban Management Area. Unless the availability of infrastructure and other bulk services can be confirmed by the relevant MOEs and core departments, applications for densification, land use intensification and /or other uses will not be supported.

Future planned roads affect this sub area and as such any applications impacted by these future planned roads must be assessed on the merits of the application and impact of the roads to the proposed development.

DEVELOPMENT OBJECTIVE 1 ***Protect environmental qualities and amenities in the sub area***	
1.1 Support low densities and preserve the non-urban residential and agricultural related uses in areas outside the UDB.	*1.1.1 Development of land outside the UDB to be guided by Urban Development Boundary Strategy.* *1.1.2 Allow low residential density between 2units/ha as per the land use zone management table.* *1.1.3 Only support non-urban residential development and compatible hospitality uses e.g. guesthouses, conference and training facilities, nurseries, seed farming, hydroponics, estates, equestrian facilities outside the UDB* *1.1.4 Support institutional and community facilities development.*

Johannesburg Metropolitan Open Space System (JMOSS)

According to the JMOSS the proposed K56 traverses rivers, waterbodies/wetlands and existing open space (agriculture). ***Refer to Plan No. 13, RSDF.***



Witpoort Development Framework, 2020

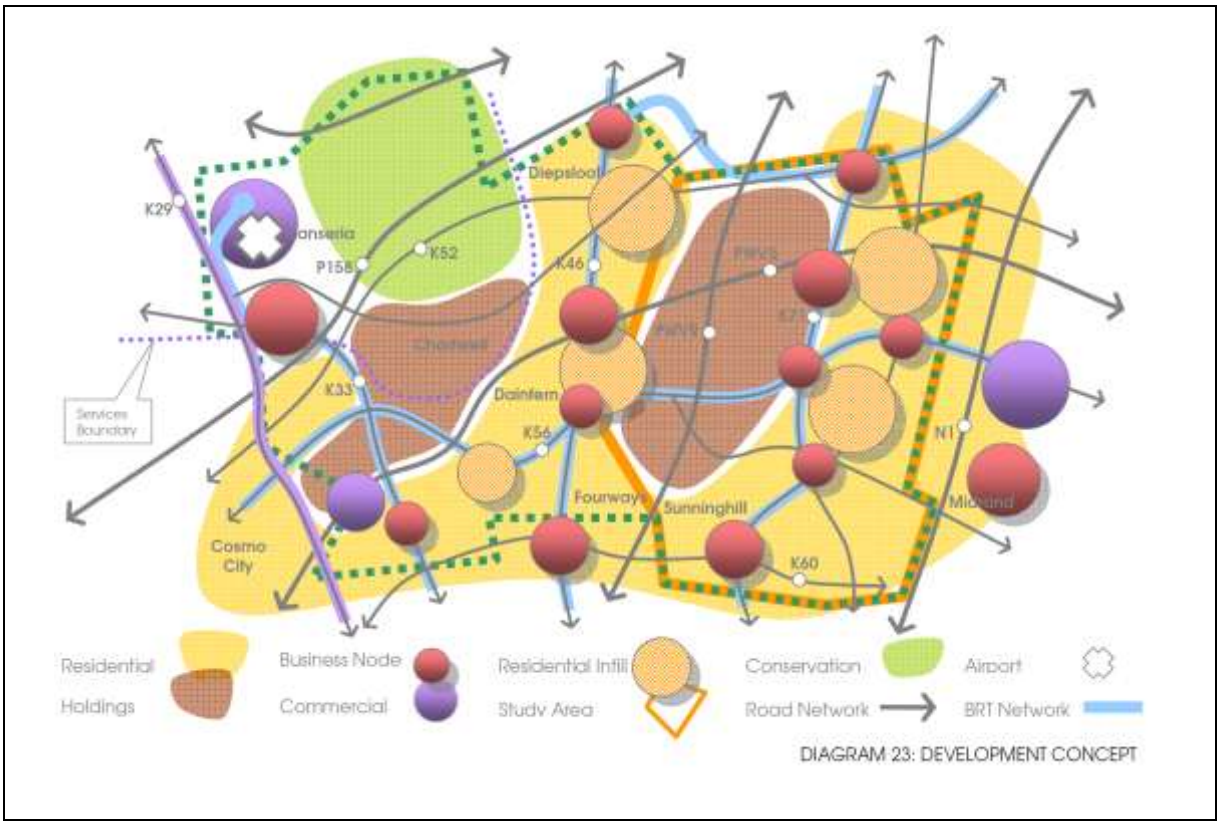
The following sections of the Witpoort Development Framework are applicable to the proposed K56:

5.1.2. DEVELOPMENT CONCEPT

The aim of the Development Concept is to guide spatial development on a sub-regional level, based on the metropolitan spatial perspective set out above. In addition, as suggested by the development vision, the aim of the Development Concept should be to promote the development of a sustainable community within the Eastern Sub-Region. The Development Concept, which is illustrated by the Diagram below, guides spatial development within the Eastern Sub-Region through a set of nodes, corridors and infill areas. The Development Concept is made up of the following elements:

a. *Transportation structure*

The K71 is currently the central road spine linking the Eastern Sub-Region to Woodmead and the rest of Johannesburg. Other significant roads include Lever Road, which runs parallel to the N1 freeway and links the residential areas along the Midrand strip, the K55 (Alandale Road) and the K60 (Witkoppen Road). ***Two roads in particular will improve accessibility within the Eastern Sub-Region. The K73 will link Sunninghill to the Midrand strip and the K56 will link the Eastern Sub-Region westward to Cosmo City. The K71 and the K56 has the potential to link the Eastern Sub-Region to local and regional employment opportunities, social amenities and shopping destinations and should therefore be development as public transportation spines.*** *Two freeway are planned that will link the Eastern Sub-Region regionally. The PWV9 will link the Eastern Sub-Region to the western parts of Tshwane and the PWV5 will link the Eastern Sub-Region to the northern parts of Ekurhuleni.*

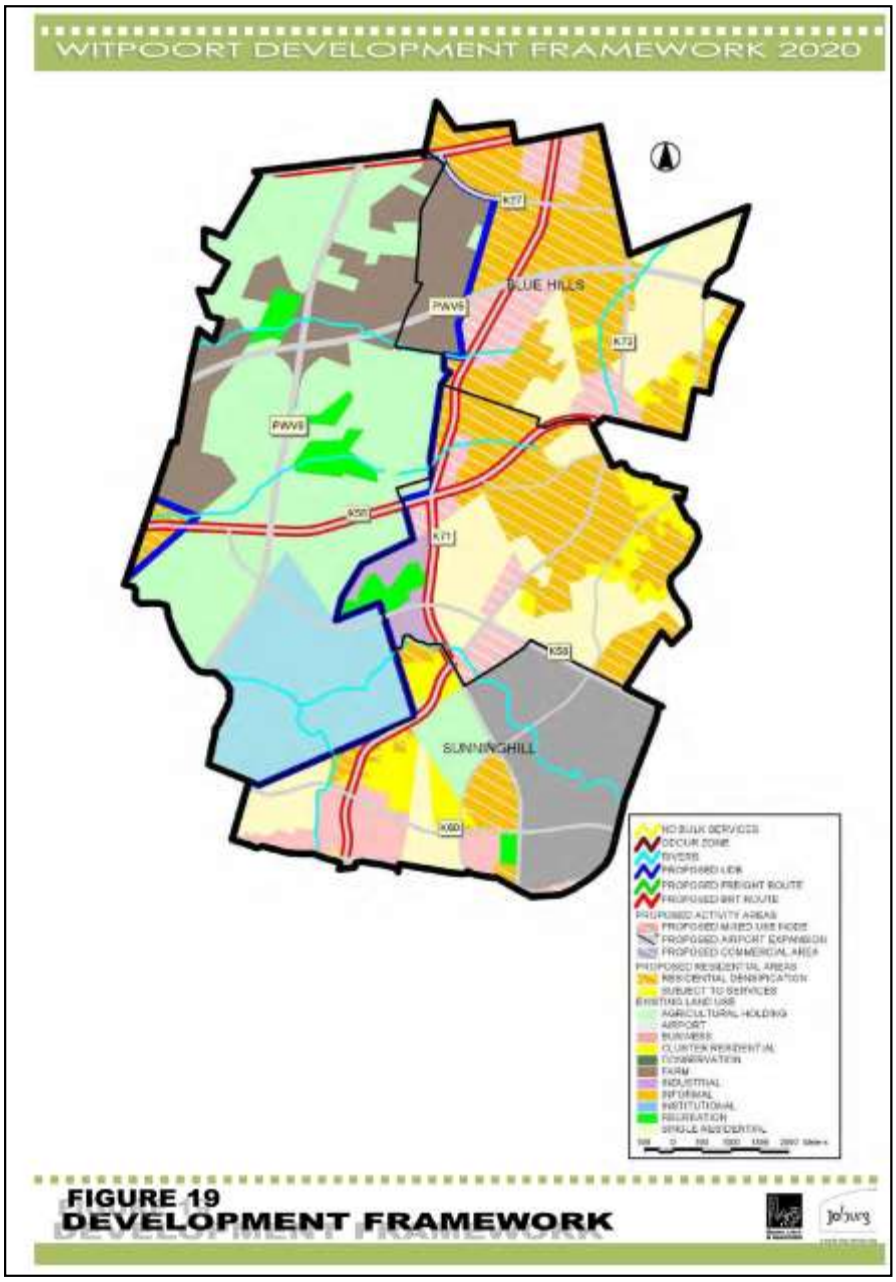


b. Nodal structure

A number of mixed-use nodes can be developed within the Eastern Sub-Region along the spines mentioned above. **The K71 and the *K56* are proposed public transportation spines and are therefore ideally suited as access spines for the nodal structure**. It is also important to develop a hierarchy of node, which would provide different levels and a range of services within the Eastern Sub-Region. In addition to the existing Sunninghill regional mixed-use node, a regional mixed-use node would by suited on the intersection of the K71 and the planned PWV5 freeway. The freeway will provide regional and visual access, whereas the K71 will provide the necessary local and public transportation access.

c. Spatial structure

Currently, the Eastern Sub-Region is characterized by a number of fragmented settlements, mostly straddling the Midrand Strip. To achieve urban consolidation and create a spatial structure that would enable better land use and transportation integration, it is proposed that the existing settlements within the Eastern Sub-Region be consolidated through corridor development along the K71. This will require infill development along this corridor, with higher-density residential development being encouraged along the proposed public transportation spines and nodes within this corridor. The areas abutting the planned PWV9 freeway should preferably be left rural at this stage, until the PWV9 is constructed.



5.1.5. URBAN DEVELOPMENT BOUNDARY

Demarcating an Urban Development Boundary has specific advantages, the primary being to prevent uncontrolled urban sprawl. Urban sprawl is undesirable since it increases pressures on the limited resource of local government, from public transport to water and sanitation infrastructure provision. Demarcating an Urban Development Boundary can also protect valuable agricultural land and ecologically sensitive areas from urban encroachment. But an Urban Development Boundary can also have drawbacks. For example, it can restrict the supply of land for urban development, which could inflate land prices within the boundary. Care should therefore be taken when demarcating an Urban Development Boundary. A balance should be reach between providing enough land for urban development and the need for sustainable and managed urban development.

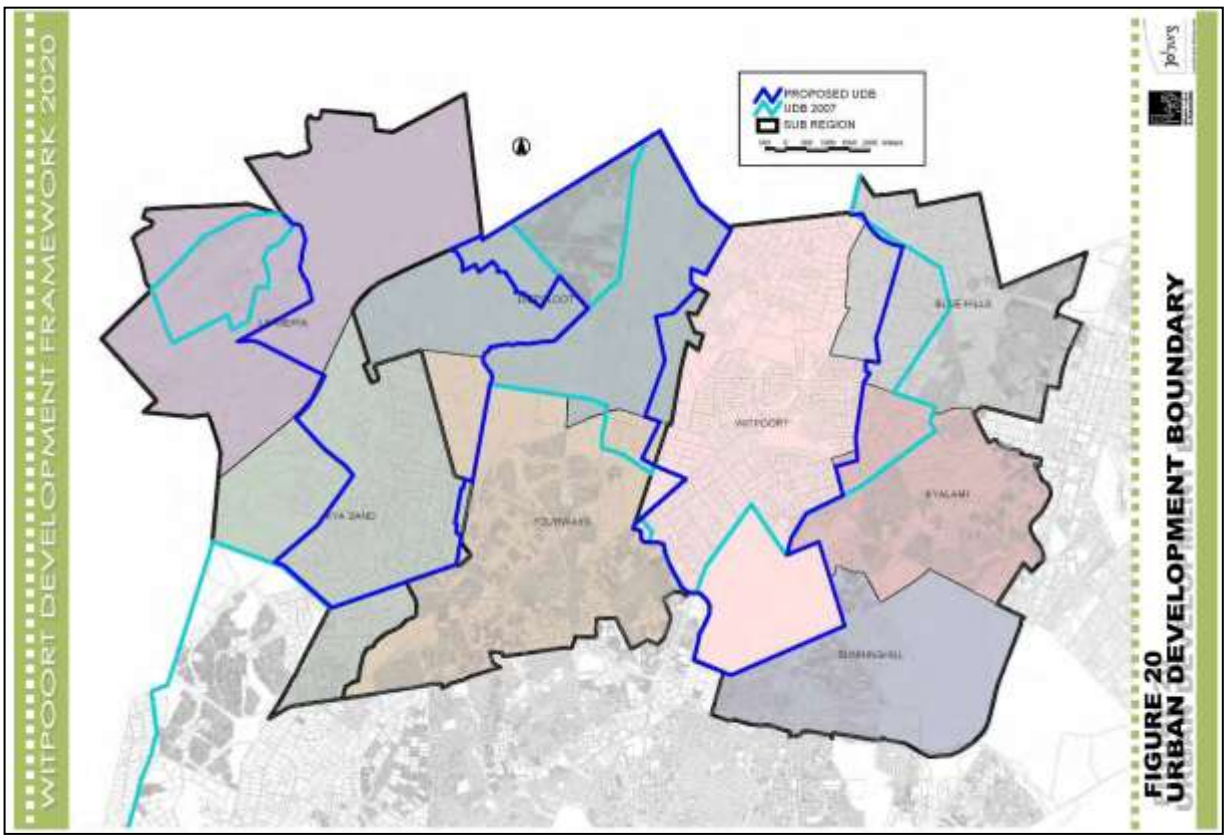
The latest Urban Development Boundary is the 2007 boundary, as depicted on ***Figure 20.*** *Within the Eastern Sub-Region, this boundary includes the Leeukop Correctional Services area, Sunninghill, Mia's land and Kyalami, but excludes the western parts of the Blue Hills area. The result of the later is that the northern parts of the K71 is excluded and the potential of developing this road into a corridor. Reasons for excluding this part of the Blue Hills area may be due to problems experienced in connecting localized areas within the Blue Hills area to the bulks sewer network.*

A new Urban Development Boundary is proposed by this study, which is illustrated on ***Figure 20.*** *The proposed Urban Development Boundary was first and foremost demarcated according to the Land Use Budget estimates for settlement expansion up to the year 2020. In other words, the Urban Development Boundary does not allow the Eastern Sub-Region to sprawl beyond the spatial limits required by the population growth of the Eastern Sub-Region up to the year 2020. Other principles used to demarcate the Urban Development Boundary include the following:*

- *The containment of the urban sprawl and the promotion of infill and densification*
- *The creation of urban corridors along public transportation routes, such as the K71.*

- *The integration of existing and planned affordable housing projects (such as Olievenhoutbosch South) with other urban settlements*
- *The cost implications of establishing new infrastructure for new township developments in remote areas*
- *Taking into consideration unsafe geological conditions where and if applicable*
- *The conservation of environmentally sensitive areas*
- *The protection of high-potential agricultural land where and if applicable*

Compared to the 2007 Urban Development Boundary, the proposed Urban Development Boundary excludes the Leeukop Correctional Services site and rather concentrates this settlement growth potential along the K71, specifically in the Blue Hills area, to establish the K71 corridor. It was argued that the Leeukop site can rather be developed as part of the PWV9 corridor, which would first require the construction of the PWV freeway.



5.1.6.4. DENSIFICATION SPINES

A densification spine is a higher order road, typically used as a public transportation route, accommodating high-density residential development immediately adjacent to it. The following densification spines have been identified within the Eastern Sub-Region and should become the focus of high-density residential development:

- *K71 and K73 (west of K71): The K71 and part of the K73 is proposed as the primary public transportation (BRT) route through the Eastern Sub-Region and should therefore be densified in support of the BRT system.*
- ***K56**: **the K56 is a proposed east-west public transportation linkage, which will ultimately link Cosmo City to Midrand and the Midrand Gautrain Station.***

Infrastructure development often forms of backbone of urban development initiatives. The reason for this is the fact that infrastructure development provides the access, the capacity and the opportunities for urban development.

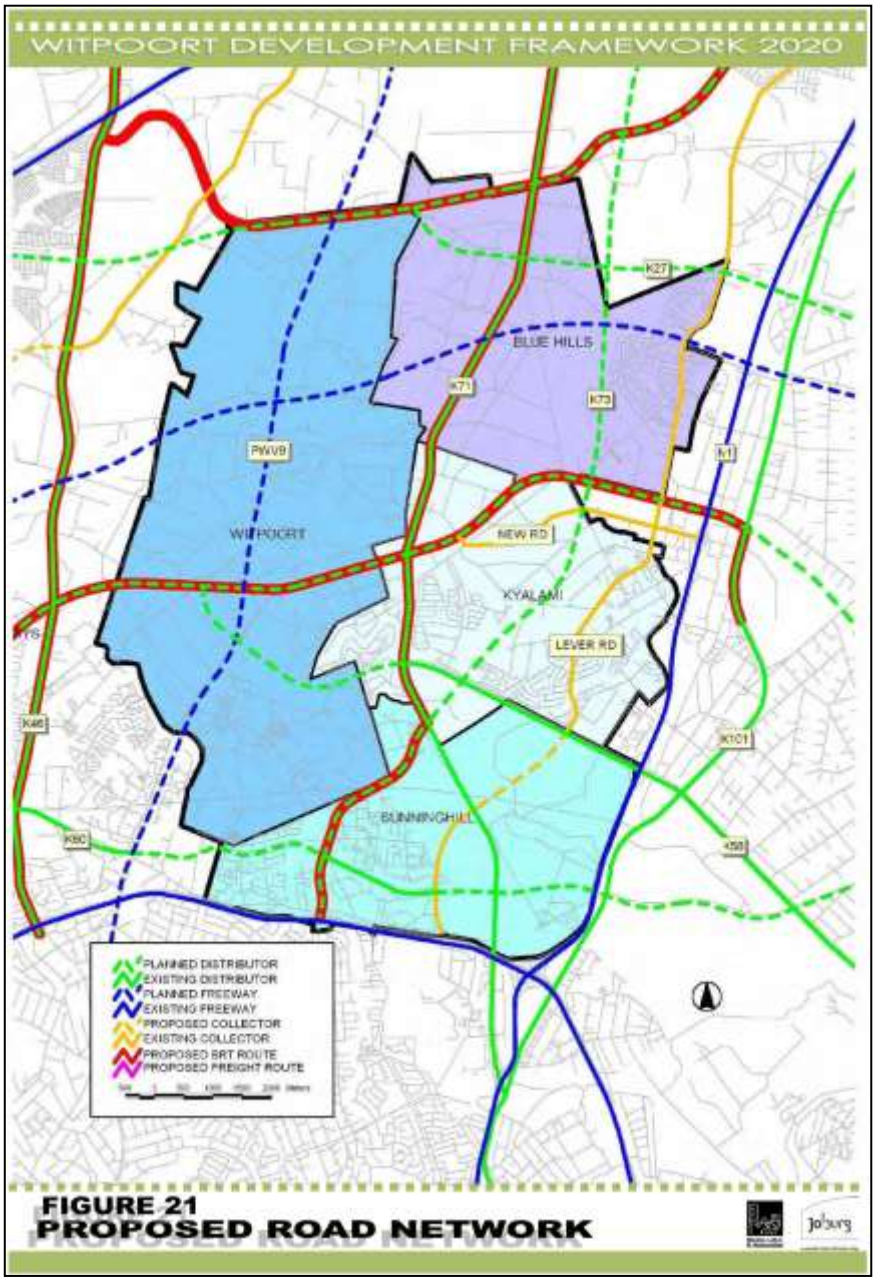


FIGURE 21
PROPOSED ROAD NETWORK

5.2.1. TRANSPORTATION

Developing the Eastern Sub-Region's transportation infrastructure is dealt with in terms of the road network and public transportation network. Whereas the road network primarily refers to provincial and metropolitan roads, transit facilities refer to public transportation routes and stations (bus and rail) that provide access to public transportation systems. ***Figure 21*** *illustrates the transportation infrastructure development proposals made for Eastern Sub-Region.*

5.2.1.1. ROAD NETWORK DEVELOPMENT

An extensive freeway and distributor road network is planned for the Eastern Sub-Region (as was set out in the Status Quo section of this report), characterized by strong north-south and east-west linkages. However, compared to the planned network, the existing network is poorly developed. The reason for this is probably because the Eastern Sub-Region was mostly rural in nature until recently. However, this situation is rapidly changing as the area is urbanized. Consequently, urbanization is exerting pressure for the development of the planned road network or at least parts thereof. Planned freeway and distributor roads that are currently prioritized in terms of provincial planning and developer pressure as follows:

a. Freeway construction

The PWV 9 will most probably be the next freeway to be built within Gauteng, primarily because it needs to serve as an alternative route to the N1 freeway between Johannesburg and Tshwane. Whether the entire route from Sandton to Soshanguve will be constructed is in question, because the section of the road north of the N14 freeway involves tunnelling, through 3 mountain ranges, which is costly. However, the stretch of the PWV9 south of the N14, linking the Sandton to the N14 freeway is feasible and will allow commuter to access Johannesburg via the N14 and the PWV9. In addition to the PWV9, the section of the PWV5 stretching from Cosmo City to Midrand is also considered a priority, as this freeway will relieve pressure on the N1 freeway. Currently, the N1 is carrying all the east-west destined regional traffic within the northern reaches of Johannesburg, but was

actually only intended as the bypass for national traffic. Both the PWV9 and the PWV5 are at detailed design level, the planning level before construction.

There is great concern amongst the residents of the Eastern Sub-Region, in particular the residents of the small holdings located along the planned alignment of the of the PWV9 freeway, on the impact that the freeway will have on the rural residential landscape of the Eastern Sub-Region. As a freeway, the purpose of the planned PWV9 is first and foremost mobility. In other words, the freeway aims to transport large volumes of traffic efficiently over large distances. This purpose impacts on the design of the freeway; usually involving grade separation and interchanges located at 3km intervals, which makes the freeway largely inaccessible from neigbouring properties. As a result, a freeway tends to cut or split communities, creating a buffer between communities, hence the concerns of the communities of the Eastern Sub-Region.

To address the above, it is suggested that the Eastern Sub-Region communities engage with the Provincial Roads Department (Gautrans) to research and considered alternative options for the design and/ or alignment of the PWV9 freeway. Mention was made in the stakeholder meetings that as an alternative, the PWV9 could be replaced by an enlarged K46 (William Nicol Drive) and K71 (Main Road) road design. The proposed BRT routes along these roads can assist in transporting the high commuter volumes. Another alternative would be to maintain the current alignment of the planned PWV9 freeway, but alter its design to negate its impact of the local landscape. For example, it can be developed as a pedestrian-crossable, accessible road, with additional lanes to allow the same traffic volumes and mobility that a typical freeway would be able to accommodate. The additional lanes could the separated to reduce the scale of the road's cross-section in a particular area.

b. Distributor road construction

Two distributor roads in particular are a priority within the Eastern Sub-Region: the ***K56****, the K60 and the K73.* ***The K56 will provide a needed east-west linkage, linking Cosmo City, as well as the northern reaches of Fourways and Kyalami, to Midrand. The development of this***

***road is favoured by private developers as it will open up development within the central parts of the Eastern Sub-Region**. The K60 has partially been constructed in the Sunninghill and Fourways regions. The remaining section of this road between Sunninghill and Fourways needs to be completed. This will provide commuters access to alternative interchanges to the N1 freeway, thus better distributing access to the N1 freeway. Also, the section of the K73, linking Rivonia Road to the K71 (Main Road) needs to be constructed. This will enable the construction of a BRT route that will link to the current BRT route on Rivonia Road and stretches up along the K71 to Olievenhoutbosch. This K73 road link is considered a high priority.*

c. Collector road construction

Compared to the distributor road network, the collector road network is poorly conceived and developed. This creates a situation whereby the internal road network designed to serve small holdings is used to access employment and shopping areas within the region. To address this, it is proposed that Lever Road be extended southwards to link up with Maxwell Drive in Sunninghill. This will create a north-south collector road serving the strip development abutting the N1 freeway. This linkage will cross Mia's Land and will therefore have to be taken into account in the layout design of Mia's Land.

The City of Johannesburg 2040 Growth and Development Strategy

The City of Johannesburg developed its first Growth and Development Strategy (GDS) in 2006, as a long-term strategy – an articulation of Johannesburg's future development path. At the time, there were numerous strategies, including, amongst others: 'Joburg 2030', the Human Development Strategy (HDS), the Integrated Transport Plan and the City Safety Strategy. Each addressed a different angle of the city's development. The GDS provided the opportunity to consolidate all of these into a single cross-City strategy. It also served as the conceptual foundation for the five-year Integrated Development Plan (IDP).

The 2006 GDS specified the need for a five-yearly review of the long-term strategy, allowing for evaluation of progress against goals – and reframing of objectives and priorities as necessary – in the context of new challenges and opportunities. The period between 2006 and 2011 has seen significant socio-economic and political changes, both locally and in the global arena. A review of the 2006 GDS was therefore initiated with the new 2011-2016 term of office, resulting in a refined 'Joburg 2040 GDS' that sets its sights on a desired Johannesburg of the future – a Johannesburg in which all will aspire to live and work.

Joburg 2040 GDS is an aspirational strategy that defines the type of society the city aspires to achieve, by 2040. The strategy restates the City's resolve in confronting the past injustices created during Apartheid, working towards a democratic, non-racial, non-sexist and just City while simultaneously confronting present and future challenges as they emerge. Therefore, the 2040 GDS contains:

- A vision and mission – which serves as a mental picture of Joburg, the city, by 2040;
- Principles – the values held by the City, as first articulated in the 2006 GDS;
- Outcomes – what the City seeks to achieve by 2040;
- Long-term outputs – the deliverables through which the City plans to achieve the desired outcomes; and
- Indicators – the measures through which the City plans to assess progress against its desired outcomes.

Four major outcomes define the Joburg 2040 GDS:

Outcome 1: Improved quality of life and development-driven resilience for all

The City envisages a future that presents significantly improved human and social development realities, through targeted focus on poverty reduction, food security, development initiatives that enable self-sustainability, improved health and life expectancy, and real social inclusivity. By 2040, the City aims to achieve substantially enhanced quality of life for all, with this outcome supported by the establishment of development-driven resilience.

Outcome 2: Provide a resilient, liveable, sustainable urban environment – underpinned by infrastructure supportive of a low-carbon economy

The City plans to lead in the establishment of sustainable and eco-efficient infrastructure solutions (e.g. housing, eco-mobility, energy, water, waste, sanitation and information and communications technology), to create a landscape that is liveable, environmentally resilient, sustainable, and supportive of low-carbon economy initiatives.

Outcome 3: An inclusive, job-intensive, resilient and competitive economy that harnesses the potential of citizens

The City of Johannesburg will focus on supporting the creation an even more competitive, 'smart' and resilient city economy, when measured in relation to national, continent and global performance. The City will promote economic growth and sustainability through the meaningful mobilisation of all who work and live here, and through collaborating with others to build job-intensive long-term growth and prosperity, from which all can benefit.

Outcome 4: A high performing metropolitan government that pro-actively contributes to and builds a sustainable, socially inclusive, locally integrated and globally competitive Gauteng City Region

The City envisages a future where it will focus on driving a caring, responsive, efficient and progressive service delivery and developmental approach within the GCR and within its own metropolitan space, to enable both to reach their full potential as integrated and vibrant spaces.

The City of Joburg has made use of an extensive stakeholder engagement process in the form of the GDS outreach, to include and empower all its key stakeholders – ensuring that the vision of a Johannesburg in 2040 is jointly formulated, and is one in which all want to be a part. Responses were actively solicited, reviewed, analysed and refined for inclusion in the Joburg 2040 GDS.

The GDS emerges with four core outcomes envisaged for 2040 – to serve as guides for short and medium-term planning and implementation. Through the City's future focus on these outcomes, success in realising the Johannesburg of our dreams is envisaged.

The following section of the GDS 2040 is applicable to the proposed K56:

3.8.2 Urban sprawl and traffic congestion

Congestion in the city has increased significantly over time, worsened by the predominance of private cars and private mini-bus taxis, with Johannesburg's sprawl contributing to this congestion (as noted above). The decentralisation of business from the city centre, to other locations such as Sandton and Midrand, has further compounded congestion around major business nodes, very often not designed for the current volumes. The movement of freight from rail to road has also had a major impact on our road system, both in terms of congestion and maintenance. In addition, Johannesburg's placement within the GCR means that there is a continual interface with other road networks and cities, with a constant flow of people and goods in and out of the city, as part of a daily commute.

The GCR's road network has to cope with an annual traffic increase rate of seven percent, with 1,8 million drivers and 2,8 million registered vehicles (Chakwizira 2007). This has seen an annual increase of traffic on the M1/N1 corridor of roughly seven percent, with this annual increase witnessed for the past ten years. The average travel time to work in the region has increased from 41,5 minutes in 1995, to 50 minutes in 2003 (i.e. a 17 percent increase over eight years). By 2040, it is anticipated that Johannesburg will have an extra 2,5 million inhabitants. The existing system, with its dominant mode of private vehicle use, is unsustainable. A larger population with more cars means more congestion – with negative effects for the quality of life of residents, let alone the impact on the environment and the sustainability of Johannesburg's infrastructure.

Preliminary Issues Identified

- All relevant legislation, policies and guidelines must be taken into consideration during the planning phases of the route; and
- The proposed route is in line with the future planning for the area.

Additional Inputs or Studies Required

- Ecological studies to determine the presence of red data species and delineation of wetlands are required during the EIA phase.

8.6 Services and Infrastructure

The involved section of the K56 intersects with other important routes including K46, future K58 and PWV 9. A section of the proposed route follows the alignment of Main Road.

The proposed route crosses a number of electrical cables, telephone cables, sewer lines and water pipelines.

Preliminary Issues Identified

- The crossing/intersection with existing and planned roads;
- Servitudes registered across the area to be traversed by the route;
- Eskom Transmission's (Tx's) Craighall Minerva 275 kV powerline is affected by the proposed road;
- The crossing of telephone cables, sewer lines and water pipelines; and
- Social impacts associated with the relocation of services or the disruption to services.

Additional Inputs or Studies Required during the EIA process

- Details on bridge structures and intersections must be included as part of the EIA;
- Eskom requested that a formal application must be submitted for Eskom Tx's response and direct reply before any construction work commences in the vicinity of Eskom Tx's services; and
- Servitudes must be indicated in Engineering drawings to be included as part of the EIA document.

8.7 Properties Affected

The following properties area affected by the involved section of the K56:

- **Farm Zevenfontein 407-JR:**

The Remainder, Portions 156, 14, 5, 11, 202 and 8 of the Farm Zevenfontein 407-JR.

- **Kyalami Agricultural Holdings Area**

Erven 91, 76, 75, 40, 42, 56, 74, 80, 81, 82, 83, 72 and 73, and Portion 1 Kyalami Agricultural Holdings.

- **Glenferness Agricultural Holdings**

Erven 118, 116, 115, 114, 113, 110, 100, 99 and Portion 1, Glen Ferness Agricultural Holdings

- **Glenfox area**

Erven 15, 17, 19, 20, 21, 22, 25 and 27 Glenfox

- **Road Reserves/Servitudes affected by the proposed K56 Road**

Ash Road, Lynx Street, Chattan Road, Macgregor Road, Zinnia Road, Macinnes Road, Macgillivray Road, Salvia Road, Pine Road, Campoloni Road, Macintyre Road, Erling Road, William Nicol Drive (R511), Dunmaglass Road, Maple Road and Main Road (M71).

A section of K56 road reserve had already been secured (proclaimed). ***Refer to Figure 18 for an illustration of the properties which had already been expropriated.***

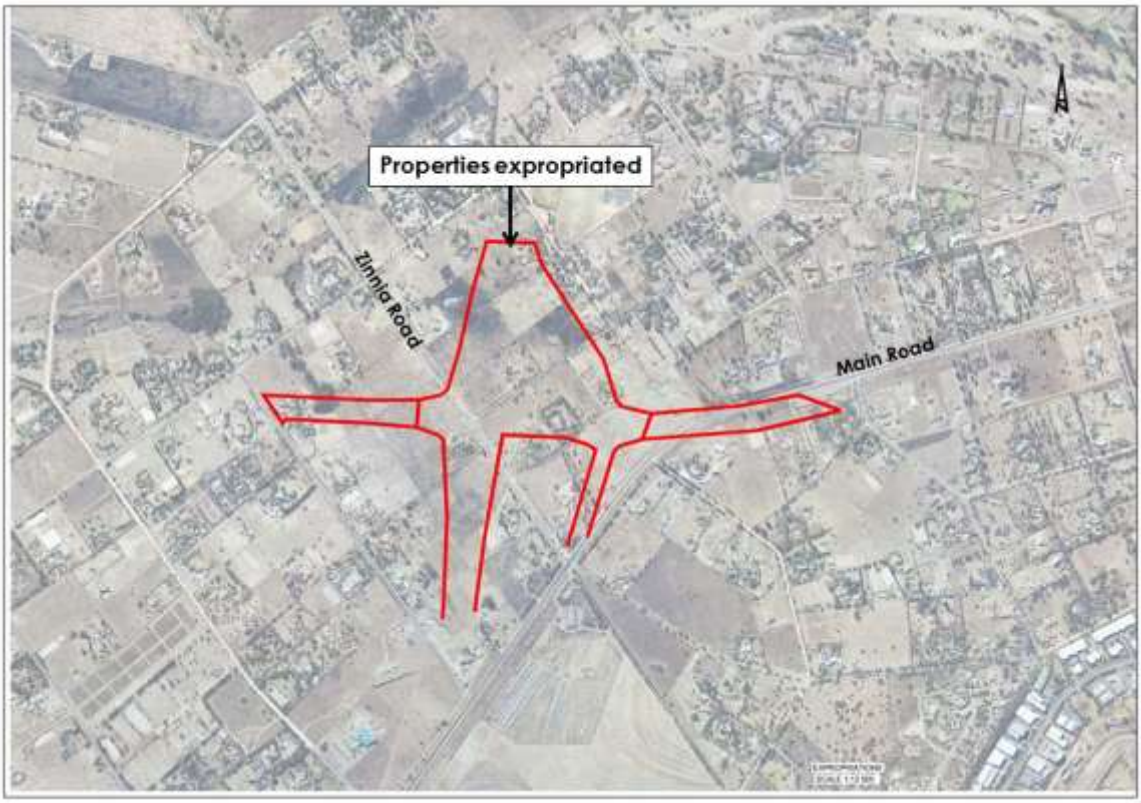


Figure 18 – Properties Expropriated

The following properties had been expropriated:

Erven 110, 113, 114, 116, 118, 120, 122, 124, 121 and 125 Glenferness Agricultural Holdings
Erven 72, 7374, 56, 42, 82, 81, 83, 86, 84, 85, 111 and 112 Kyalami Agricultural Holdings

Preliminary Issues Identified

The involved section of the K56 will require the expropriation of a large number of properties, some of which had already been expropriated.

Additional Inputs Or Studies Required during the EIA process

The expropriation of properties to be finalized during the Detail Design and Construction Phase of the proposed route.

8.7 Public Participation

(Refer to Annexure G for Public Participation)

Public Participation is a cornerstone of any environmental impact assessment. The principles of the National Environment Management Act, 1998 (Act No. 107 of 1998) govern many aspects of environmental impact assessments, including public participation. These include provision of sufficient and transparent information on an ongoing basis to the stakeholders to allow them to comment and ensuring the participation of previously disadvantaged people, women and youth.

Effective public involvement is an essential component of many decision–making structures, and effective community involvement is the only way in which the power given to communities can be used efficiently. The public participation process is designed to provide sufficient and accessible information to interested and affected parties (I&APs) in an objective manner to assist them to:

- Raise issues of concern and suggestions for enhanced benefits.
- Verify that their issues have been captured.
- Verify that their issues have been considered by the technical investigations.
- Comment on the findings of the EIA.

In terms of the Guideline Document for Environmental Impact Assessment (EIA) Regulations promulgated in terms of the National Environmental Management Act (Act No.107 of 1998), stakeholders (I&AP's) were notified of the Environmental Evaluation Process through:

1) An advertisement was placed in the **Fourways Review** newspaper on 22 February 2012 ***(Annexure G (i)).***
2) A site notice that was erected (at prominent points on and around the study area) on 22 February 2012 ***(Annexure G (ii)).***
3) On 22 February 2012 public notices/ flyers were distributed to the councillor and neighbouring properties and estates/ developments that may be affected by the proposed section of the K56 ***(Annexure G (iii)).***
4) A public meeting was held on 7 March 2012. ***Refer to Annexure G (iv) for Minutes of Meeting and Annexure G (v) for Issues and Attendance Register.***
5) A focus group meeting was held on 9 May 2012. ***Refer to Annexure G (vi) for invitations and Annexure G (vii) for the Minutes.***
6) A second Public Meeting was held on 10 October 2012. ***Refer to Annexure G (viii) for invitations, Annexure G (ix) for the Minutes and Annexure G (x) for the Issues and Attendance Register.***

More than 1000 persons/organisations registered as I & APs ***(refer to Annexure G (xi) for a list of I&APs) and Annexure G (xii) for correspondence received from I & APs.***

Issues Raised by I&APs received during Public Participation process (prior to Public Meeting):

- Impacts on tranquil and rural lifestyle;
- Impacts on fauna and flora;
- Impacts on wetlands and ecosystems;
- Impacts on hydrology;
- Impacts on services and infrastructure;
- Loss of jobs;
- Traffic congestion;
- Why not upgrade the existing sub-standard roads?

- The road cuts across various private properties; questions regarding expropriation, remuneration, negotiations etc.;
- Impacts on prime equestrian areas; and
- Impact on property values.

Questions asked during First and Second Public Meeting *(Refer to Annexure G (v) and Annexure G (x) for Attendance and Issues Registers)*

Questions answered by Francois van Rensburg (WSP)

Q. *Why is there suddenly an urgent need for the road?*

A. Modelling has indicated that the road network cannot cope with the existing and future demand.
East/West linkages are required

Q. *Who are the beneficiaries of the road?*

A. General public, all road users

Q. *Will there be access points along the road?*

A. Yes. As per the Basic Planning report.

Q. *If Steyn City is not developed – will there still be a need for the road?*

A. Yes, as indicated in table below Steyn City will only be responsible for 5% of the traffic on K56.

K56 Traffic Apportionment	
Northern Farms	3%
Steyn City	5%
Century	6%
Background	86%

Q. *The size of the road/number of lanes?*

A. Dual Carriageway (2 lanes per direction)

Q. *Why is only a section of the K56 to be constructed? Will cause traffic congestion at either ends.*

A. The portion under consideration will provide an initial East-West link.
It will assist in traffic redistribution and intersections on either side will need to be upgraded.

Q. *What impact on community if only the said section is constructed?*

- *Dissection of large rural residential area*
- *Impact on horse riding in area*
- *Divides existing properties into two sections*

A. To be addressed in EIA

Q. *When will the rest of the K56 be constructed?*

A. As and when funds become available.
Development pressure

Q. *What provision is made for storm water discharge?*

A. Necessary provisions will be determined in the detailed design

Q. *Has a traffic study been conducted for this road and the access roads (R511 and Main road)?*

A. Yes. A Transport Modelling Report was conducted by WSP.

Q. *Have other routes been considered?*

A. Yes

Q. *Have Alternatives been investigated?*

A. Yes, two alternatives ***(refer to Figure11)***

Q. *Expropriation of properties?*

A. Certain already done ***(refer to Figure 18)***
Balance to be done in accordance with the GTIA.

Q. *The correct route of PWV9?*

A. Refer to ***Figure 9***

Q. *Has the PVW5/K58/K60 route been scraped?*

A. No, reconfirmed in the Gauteng Road Network Review, 2010

Q. *The funding of the route*

A. Joint funding between Province and the Private Sector – Common approach

Q. *Route K56: has the cloverleaf interchange been changed to a diamond design so it can be tolled?*

A. No.

Q. *What influence does Steyn City have on the design? Century City?*

A. Minimal

Q. *Upgrading of existing roads rather than the construction of the K56?*

A. None of existing roads fulfil the same desire lines as K56

Q. *Is the involved section of the K56 within the Urban Edge?*

A. The western section of the involved section of the K56 is located within the Provincial Urban Edge, 2010, while the eastern section is located outside the Urban Edge***. Refer to Figure 3.***

Presentations by members of the public during the 2nd Public Meeting:

1. A video and presentation on THE UNIQUE AREA OF KYALAMI – AN EQUESTRIAN COMMUNITY (refer to Annexure G (xiii))

The following points were discussed during the presentation by **Kristin Kallesen, Chairperson Just Environmental Action:**

The Greater Kyalami Conservancy (GEKCO) is completely opposed to the construction of the K56 as it will destroy wetlands, wildlife corridors and the highly endangered Egoli Granite Grasslands. It will have knock-on effects of further infrastructure for development, the equestrian land use will no longer be viable and very quickly the fabric of the Kyalami community will be destroyed.

The K56 road was introduced in 1972 as a roads planner was drawing lines on a map to accommodate traffic through the province. At the time, Johannesburg and Pretoria had lots of open space, or "vacant land" as it was seen between the cities. This was the era of apartheid and environmental laws such as NEMA did not exist. Nothing was thought of building through wetlands and grasslands – their true value had not yet been identified.

Move forward to 2012 – 40 years later. These vacant lands are now homes, schools, churches, highly endangered grasslands and some of the few remaining wetlands in Gauteng that have not already been destroyed. This is valuable habitat and provides wildlife corridors for otters, hedgehogs, porcupine, genet, bullfrogs, jackal and a host of birds – which is unusual to find so near to the urban environment.

The cities of the world and specifically Southern Africa are expected to grow rapidly; and we have always thought of "development" or the construction of houses, shopping centres and roads as a given – a fait accompli. We have lost numerous species of wildlife, birds and vegetation types – gone forever to this belief. At some point, humanity must stop

and re-think our decisions. We must instead look to development that supports human life and nature - for the two are bound together.

The Growth and Development Strategy 2040 of the City of Johannesburg states…"Environmental sustainability is often viewed as an afterthought, but should, in essence, drive the City's developmental and growth agenda. Changing the mindset of both external stakeholders and those who operate from within the City is essential, if the City is to realise its vision for environmental sustainability…"

The Gauteng Land Transport Framework (GLTF) which is the overriding document for provincial roads such as the K56 states - "Private transport in the form of cars has the capability to increasingly transform cities into places of congestion and pollution. The dilemma lies in the fact that the private car has become an expensive necessity for peripheral livelihoods and an easily accessible luxury for the middle-class, whilst being one of the major contributing factors to environmental degradation."

MMC of Transport for the City of Johannesburg, Clr. Rehana Moosajee held a lecture with Mr. Gil Penalosa – an internationally recognized expert on using non-motorised transport to improve quality of life and solve traffic congestion. Mr. Penalosa stated "to build roads to alleviate traffic congestion is like loosening your belt to curb obesity" - it does not solve the problem. The City of Johannesburg and Gauteng are looking to public transport and non-motorised transport as the only solution to the high levels of traffic, high dependence on fuel and the resulting pollution and environmental destruction.

In the Kyalami area, the Greater Kyalami Conservancy (GEKCO) and the Residents Associations have been developing the GREEN NEIGHBOURHOOD PROJECT. A GREEN NEIGHBOURHOOD is an internationally recognized community drive for sustainability. It promotes recycling and energy efficiency, public transport and healthy living through cooperation within the community. The Kyalami GREEN NEIGHBOURHOOD PROJECT is lobbying for cycling lanes to be incorporated on the current William Nicol upgrade, is holding workshops to educate residents on the state of water in the country and the need

to protect our water resources. It also seeks to uplift our neighbour, Diepsloot through clean up days and tree planting initiatives.

The Kyalami community (including the suburbs of Glenferness, Sun Valley, Kyalami A.H., Beaulieu, Saddlebrook, Treesbank and Bridle Park) is a passionate community that shares an appreciation for nature and open space and is held together by the equestrian culture of the area. The equestrian industry is worth well over a billion rand, provides employment for thousands of people, and in many cases provides housing for employees and their families. Horse riding is far more than a hobby, it has developed over thousands of years and the equestrian training in the area has produced Olympic standard athletes, has provided rehabilitation for people with physical and intellectual disabilities, and at risk youth. The interaction between humans and horses is well documented and recognized as a healing practice.

The open space required by the equestrian community currently sustains the wetlands, endangered Egoli Granite Grasslands, and endangered species. With education and cooperation this sustainability can be enhanced. This area offers outdoor recreation activites such as mountain biking, trail running and birding in an area with few public parks and is a green lung for the City of Johannesburg.

Please see the video below on the unique area, Kyalami – an equestrian community.

(http://www.youtube.com/watch?v=RX0Uwbrl7mc&feature=youtu.be)

2. A presentation by Mr. Paul Fairall on the Devastation to the Environment by the proposed K56 route *(refer to Annexure G (xiv) for the presentation)*

The presentation addressed the negative impacts of the proposed K56 on the wetlands traversed by the route as well as the Giant bullfrog which occurs in the area.

Issues/Objections Raised during 1st and 2nd Public Meeting:

Ecological

- The rights of the environment not given the consideration they deserve
- Cuts across wetlands, rivers and non-perennial streams servicing the Jukskei River
- Loss of sensitive Fauna & Flora
  - Breeding grounds and home to the Giant African Bullfrogs
  - Endangered fauna i.e. hedgehogs and white tailed mice
  - Other wild life: Grass owls, , Fish Eagles, King Fisher, Grey Hornbill
  - Destruction of wildlife corridors
  - Impact on migration area of butterflies
  - Destruction of highly endangered Egoli Granite Grasslands
  - 30 year old trees will be lost
  - Destruction of wetlands
  - Loss of Green Lung contributes to heating and climate change
  - Proclaimed and recognized "green belt" is being infringed
- Every aspect of the environment must be considered instead of focusing on a single species. It is the sensitivity of the ecosystem as a whole which needs to be preserved; any loss of biodiversity (flora or fauna) would lead to the ultimate degradation of the area and possible collapse of a functioning ecosystem.
- Fragmentation of natural ecosystems is a major conservation problem with resulted biodiversity loss.
- This pristine green area is also a haven and direct channel for wildlife movement to the Jukskei river which is a highly sensitive area. We believe the size of the current portion of veld at Helderfontein (including the damaged area) is part of the reason for the health of the relatively intact areas.
- There will also be increased noise pollution (traffic noise). Kyalami and Glenferness A.H. have all those animal species because they feel the area is safe, if there is high vehicle traffic and noise pollution this will change.

- The Egoli Granite Grassland is a very sensitive biome. The road will not only bring a significant increase in cars, it will also bring increased foot traffic into the area. Right now because of the mounds along the edges and the fact that Erling Road is a cul-de-sac, there is not much traffic in the area or though the veld. The entire piece of land will be MUCH more exposed if the road is constructed.
- Not any safe way to introduce roads of this nature without producing "unnecessary barriers in migratory corridors". Main roads are always associated with increased road deaths of both domestic and wild animals. Particularly as the proposed roads would break up the existing natural area into three and so disturb existing migratory routes.
- Construction of roads in Gauteng is not considered as illustrated in development of roads in Gauteng for the past 3 months observed by an I&AP.

Response:

A Faunal, floral, wetland and aquatic assessment had already been conducted. The results of the assessment will be addressed in the EIA Phase and be included in the EIA Report. Mitigation measures supplied by the specialists will be included in the EIA Report.

- Road falls within the *Greater Kyalami Conservancy (*GECKO).
  - GEKCO objects to the proposed K56.
  - GECKO is not to receive any infrastructure upgrade for the next 10 years. If the road falls within the Conservancy is this not a fatal flaw?
  - A petition containing 121 signatures was submitted by GEKCO ***(refer to Annexure G (xv))***

Response:

Ms. Lizelle Gregory had a meeting with Ms. Kristin Kalleson and Ms. Margie Donde (GEKCO) on 5 November 2012 regarding the objection and concerns raised by GEKCO. During the meeting Ms. Lizelle Gregory stated that Bokamoso will

recommend that a socio-economic impact assessment be conducted during the EIA phase to determine the socio-economic impact of the proposed K56 on GEKCO, with specific reference to the equine industry.

- Road traverse ridges

Response:

According to GDARD C-Plan 3 the involved section of the proposed road does not traverse any ridges ***(refer to Figure 14).***

- Impact on Butterfly farm on Plot 37 and Butterfly Route

Response:

Will be assessed in the EIA Phase.

Socio-Economical

- **Impact on equine industry**
  - As home owners who bought specifically in this area to ride horses move away, more and more development will be allowed and every horse owner is potentially at risk of either giving up horse riding or moving much further a field to accommodate their sport;
  - Horse riders who dare to continue to ride near the roads risk harm and even death to themselves and their horses with this road that will have high traffic volumes at high speed.
  - As riders give up riding massive job losses will be on the cards for horse grooms, those who erect stables, horse arenas, horse riding instructors, riding yards, feed merchants, saddlery shops as well as the many vet surgeries in the area.
  - The Lipizzaner Centre would have to move resulting in a severe threat to the

viability of the Gauteng Horse Society in Kyalami which holds approximately 100 shows a year with approximately 3200 members.

- Loss of sustainable jobs, construction jobs are temporary. It is estimated that the equestrian industry in Kyalami employs approximately 1600 horse grooms, many of whom live on the premises. It is therefore estimated that these jobs sustain ±6400 dependants as per a survey taken in 2008. These horse grooms are only qualified to work with horses and in many instances have no other training
- It will no longer be possible to ride horses for recreational purposes across the whole area as the proposed K56 road will prevent this activity.
- Horse owners traverse across the whole of this rural residential area on a regular basis in pursuing equestrian activities, for example, to attend equestrian events at a number of equestrian venues in the area (such as Kyalami Equestrian Park near Beaulieu, Inanda Country Base in Kyalami, Burlington Stables in Sun Valley, Riba Stables in Kyalami, Ascot Stables in Glenferness, to name a few).
- The proposed K56 road will make it difficult for members of the Gauteng Horse Society who live on the Lonehill side of the proposed K56 road from accessing Kyalami Equestrian Park (which is adjacent to Beaulieu) when they wish to attend equestrian events at Kyalami Equestrian Park. Kyalami Equestrian Park is the premier venue for holding equestrian events in South Africa and hosts equestrian events almost on a weekly basis.
- This will result in vehicle drawn horse trailers having to use Main Road (which is currently a very busy road), William Nicol and the proposed K56 road to access Kyalami Equestrian Park and the other equestrian venues in this rural residential area.
- The proposed K56 road will use up a large part of the rural residential area which currently houses equestrian properties.
- The road will dissect the large rural residential area which houses a large equestrian community and industry.

Response:

A Socio-Economic Impact Assessment to assess the impact of the proposed K56 on the equine industry will be conducted during the EIA Phase and will be included in the EIA Report.

- The Strategic Road Network had not been reconsidered or updated for current conditions. At the time the road was drafted wetlands were not protected and it declared the area "vacant land" with no mention of environmental factors at all.

Response:

The Gauteng Strategic Road Network had been reconsidered and updated recently i.e. The Gauteng Strategic Road Network Review, 2010.

- **Institutional**
  - K56 not in line with Johannesburg Growth and Development Strategy (GDS 2040) The GDS 2040 states that our current situation of traffic congestion is a result of urban sprawl and reliance on private vehicles, and that building new roads will not alleviate traffic congestion. "Continued urban sprawl has also created conditions for more intensive private car use." "The existing system based on the dominance of private cars is unsustainable. More people, means more cars and more congestion ultimately negatively affecting the quality of life of residents." - Increased traffic and pollution in a relatively rural area. - The surroundings roads are inadequate to sustain more traffic as most are not tarred. This is sufficient for the current rural and equestrian nature of the suburb. It is not at all sufficient for feeding onto a Main road and the consequent traffic and pollution in the suburb will be unbearable for the residents. - Loss of Geen Lung contributes to heating and climate change. - The GDS 2040 recognizes that climate change has already begun and we need immediate interventions to curtail it. Increased built areas increase the heating which reduces rainfall and accelerates climate

change. The heat island effect is best curtailed through greening. The green lung which is the Kyalami area is absolutely vital to retain for the urban environment to remain liable. - Shortsighted approach of "development at all costs".

- The proposal makes a mockery of the stated policies and plans of local, provincial & national government.
- The proposal makes a mockery of the stated changes in policy and plans by national government regarding public transport and multi-lane highways.
- The Glenferness Integrated Management and Development Plan, Adopted - June 2005, Updated – 10 November 2005 must be taken onto consideration

Response:

All relevant institutional frameworks will be addressed in the EIA Phase.

The proposed K56 had been included in the RSDF, 2010/2011 and the Witpoort Development Framework, 2020. It had also been included in the planning of Gautrans (now known as GDRT) since 1976 and had been adopted as part of the Gauteng Strategic Road Network. The need for the involved section of the K56 had been confirmed in the Gauteng Strategic Road Network Review, 2010. The K56 will supply east-west mobility in the larger Fourways area.

- The K56 is a road financed by two luxury developments to provide for their own needs at the cost of the environment and the needs of existing landowners. - Development has been given priority over the environment for the last 100 years or so. We are now realizing our short-sighted approach is quickly destroying our planet. Once a road has been built and virgin land ploughed there is no going back. The consultants and the decision makers are urged to take this responsibility to heart.

Response:

There is a proven need for the K56 to supply east-west mobility in the larger area i.e. linking Fourways and Kyalami to Midrand, linking Cosmo City to Midrand. The Traffic Analysis conducted by WSP indicated that the traffic created by Steyn City and Century Development will account for only 11% of the traffic on K56.

- **Loss of sustainable jobs**

A large number of job losses will occur, mainly associated with the equine industry. Jobs associated with schools and businesses to be closed as a result of the proposed K56 will also be lost.

Response:

As already mentioned a socio-economic impact assessment will be conducted in the EIA phase.

- **Qualitative Environment**

  - Increase in noise levels.
  - Increased lightning levels.
  - Impact on Sense of Place.
  - Visual impact
  - Pollution from vehicles.
  - Quality of life of residents
  - Total removal of established lifestyle.

Response:

A noise impact assessment will be conducted during the EIA phase.

A visual impact assessment will be conducted during the EIA phase.

All above mentioned impacts will be assessed in the EIA phase.

- **Impact on existing schools**
  - Impacts on Pre-School situated within 200m from K56 alignment. Could result in its closure due to noise (both construction and operational phase) and safety. Needs to give a school calendar notice to parents of closure of school. Job losses and education of children in jeopardy due to school closure.
  - Road cuts through Cedarwood Remedial School and will result in its closure.
    - Cedarwood School has been in existence for some 16 years, servicing the area and the community with a much needed remedial school.
    - Over 220 pupils from Grade R-11 (first Grade 12 in 2013) benefit from an environment that affords them to "be the best that they can be" both in the classroom and on the sports field and in cultural activities. Pupils follow the mainstream curriculum with a high level of support, both academic and emotional, which includes small classes, remedial, occupational, Speech, physio and psycho-therapy.
    - Most importantly, our beautiful country setting in the midst of pristine equine country, offers pupils fresh air, space to play and run (our sporting facilities are excellent) and observe the abundant wildlife that is part and parcel of our success. We have open, sprawling spaces - no high rise "school" like buildings here! Staff often comment that they don't feel like they are at work as the environment is so safe, peaceful and beautiful, with peacocks calling and horses grazing contentedly on the neighbouring properties. The nurturing, caring and inclusive ethos of the school is supported by the surrounding community and validated by our excellent reputation within the educational field and our long waiting lists for admission. There is a strong sense of "family" with many families moving specifically into the area so their child can receive the specialised and unique education that Cedarwood offers.
    - The impact of a major road coming through our property is devastating. Staff who have been with the school since it's inception will lose their housing, and

comments directly from the children include; "we will lose our memories of the happiest days of our lives".

- Facts: 220 pupils (Potentially 800 eg. parent, siblings). Cedarwood school employs 65 people. There are an additional 35 people who work on the campus who could potentially lose their businesses.
- Parents of remedial high school pupils will be without an alternative school within a 20km radius (nearest alternatives are in Blairgowrie, Parktown and Pretoria).
- **Find another route, give the K56 the boot!!!!!**
- **Road affecting over 800 people involved with our school, specialised remedial school servicing this area.**

Response:

As already mentioned a socio-economic impact assessment will be conducted during the EIA phase.

- **Cultural/Heritage**
  - Graves on Helderfontein will be destroyed.
  - Protection of heritage

Response:

A cultural/heritage survey will be conducted during the EIA.

- **Safety and Security**
  - Increase in crime.
  - Safety and disruption during construction.
  - Safety of cyclists and horse riders
  - Increased foot traffic into the area.

Response:

Will be assessed in the EIA phase

- **Property Devaluation**

  Property devaluation/impact on property valuation.

  Response:

  Will be assessed in the EIA phase

- **Expropriation of properties**

  At what price will properties be expropriated?

  Response:

  Expropriation to done in accordance with the GTIA.

- **Alternatives**
  - The proposal does not consider well thought out alternatives which will also cater for the needs of the greedy developers.
  - Alternative alignment proposed: From Main Road -Zinnia and Caracal- William Nicol / Crowethorne- Krugersdorp motorway to be listed and assessed as an alternative/ alternative route at the top of the hill past Summit College
  - No-Go alternative supported.

  Response:

  Alternatives, including alternatives supplied by I & APs, will be investigated in detail in the EIA phase.

- **Public Transport**
  - Introduce a better form of public transport
  - What public transport is linked to road K56?

Response:

Will be addressed in the EIA phase.

- **Increase in traffic**
  - Increased traffic / traffic congestions.
  - Increased traffic will arrive at the Crowthorne shops/R55(K71)/K56 (Main Road) traffic jam which will add to current traffic problems in Crowthorne namely:
    - ❖ Even higher traffic both in numbers and axle load on streets designed for light residential traffic causing further collapse of these streets in particular Mercury and the tarred portion of Jupiter, both of which are already packing up.
    - ❖ The untarred portions are causing a lot of dust as it is.
    - ❖ The solution would be to include in this contract, as a minimum, the portion of the K56 between the T-Junction at the R55 and the Plant Park Nursery.

Response:

Will be addressed in the EIA phase.

- **Lack of maintenance of existing infrastructure**

Response:

Upgrading of existing infrastructure will not replace the need for the K56 since none of existing roads fulfill the same desire lines as K56.

- **Only a section of K56 constructed**
  - Environmental authorisation applied for only a section of K56 – will be detrimental in the short/medium term until the whole K56 is aligned and in the long term if the whole K56 is not constructed (or is constructed but along different routes and does not align with this section of K56).
  - The construction of the proposed section of K56 will cause traffic congestion at either ends (i.e. Main Road/R71 and William Nicol/R511). A study should be undertaken to assess this impact.
  - Road must be built in its entirety to serve a purpose.

Response

The portion under consideration will provide an initial East-West link. It will assist in traffic redistribution and intersections on either side will need to be upgraded.

- **Urban Edge**

Urban Development Boundary (Urban Edge) – impact on future densification - will facilitate the development of this area for purposes which are not rural residential purposes. Will bring on major developments in this area zoned as peri-urban. Will result in urban sprawl.

Response

Will be addressed in the EIA Phase.

- **Timeline**

What is the timeline of the proposed road?

Response

The EIA Process could take approximately 18 months.

If authorisation for the road is granted by GDARD, WSP must start the detailed design and the expropriation process. It could take at least 4-5 years down the line.

- **Existing road and urban developments**
  - The proposal ignores the road and urban developments which have occurred over the past 50 years.
  - The proposal does not recognise the inevitable expansion of Main, William Nicol, Zinnia & Maple roads.
  - The proposal is superficial in content.
  - The proposal is out of context with the established infrastructure of Kyalami, Glenferness and surrounds.
  - The road is not going to serve much purpose for any residents in the area

Response

Will be addressed in the EIA Phase.

- **Need for proposed K56**
  - During public participation meetings (since the 1980's) it was illustrated that the public never wanted the proposed PWV9, PWV5 & K56 roads.
  - The proposal serves the benefit of greedy property developers at the expense of existing residents.
  - The proposal is flying a kite for a generally unnecessary road development.

Response

Modelling has indicated that the road network cannot cope with the existing and future demand and that East/West linkages are required

- **Costs**
  - Bridge needs to be built at great expense.

- **Erling Street**

  How far along Erling street is the interchange considered to go?

  Response

  Refer to Figure 19 for an illustration of the interchange at K46.

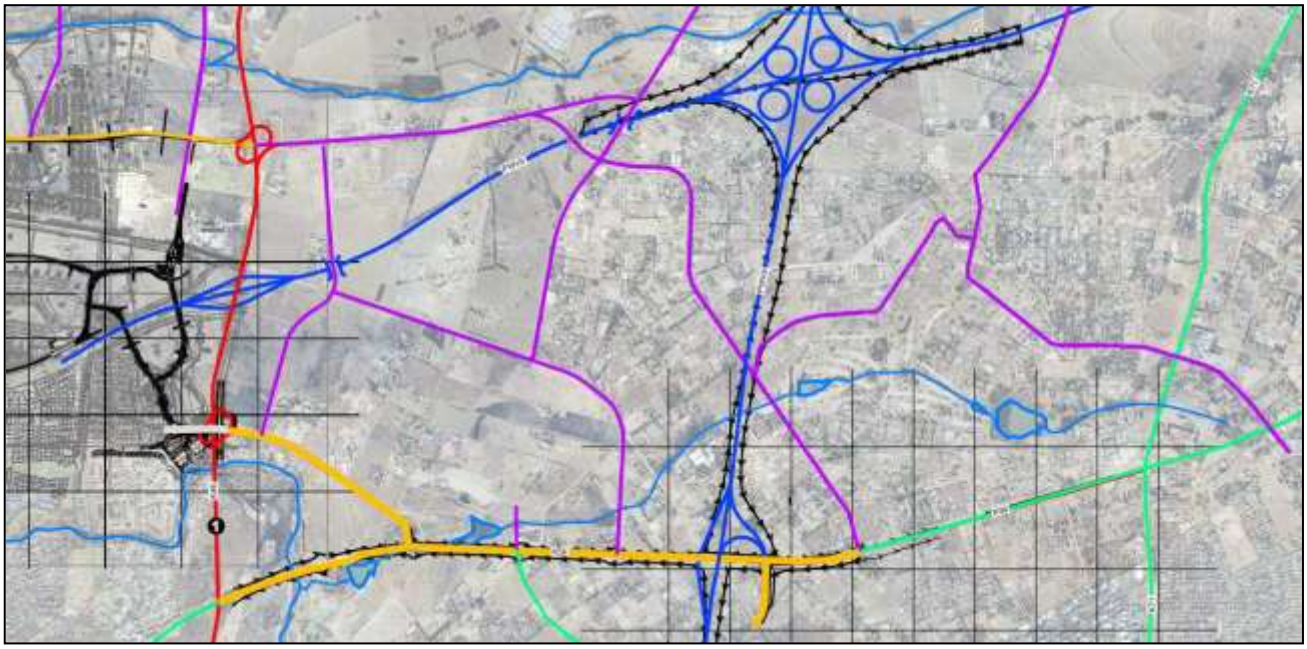


Figure 19 – Road Network

- **Dissection of properties**

  Properties divided into 2 sections with water & electricity on the opposite side of the proposed road – continuance of services a concern.

  Response

Will be addressed in the EIA phase.

- **Existing Services**
  - Inadequate capacity of sewerage and electricity plants for current load.
  - Poor quality water at the moment, need to improve.
  - Restraining of power consumption.
  - Glaring inefficiencies in services provided by government.

Response

Not applicable to the proposed K56

- **Loss of Agricultural land**

  Total destruction of an agricultural area.

Response

Will be addressed in the EIA phase.

- **Impact on Orchard and Bonsai Centre (largest in South Africa) and proposed Butterfly Farm on Plot 73 due to K56/ Main Road link.**

  The new road linking Main Road and the K56 traverse the centre of Plot 73 which had been developed into a prime visitor centre in Gauteng. Planning is completed for a large Butterfly Farm withy an enclosed section (1 200m²) which will house butterflies from all over the world and the open section (250m²) will be constructed on the "Butterfly Route" to facilitate and promote the indigenous butterflies which are under threat.

  The owner of plot 73 respectfully requested to the alignment of the on-ramp joining Main Road and the K56 to be re-considered due to the following reasons:
  - The cost of duplicating that section of road will be expensive – more so as both roads are only temporarily until the PWV 9 is constructed.

- Traffic flow on both the K56 and Main road will be more smoother without the re-aligned "on-ramp"
- Damage to Plot 73, the Butterfly route and the Giant African bullfrog would be minimal.
- The employment of 18 people would be secured.

Response

Will be addressed in the EIA phase.

- **Will Leeukop be proclaimed as high density residential and what will impact be?**

Response

Will be addressed in the EIA phase.

- **Have the cumulative effects of the road been investigated?**

Response

Will be addressed in the EIA phase.

- **Impact on tourism in the area**

Response

Will be addressed in the EIA phase.

- **Buildings already in buffer zone?**

Response

Will be addressed in the EIA phase.

- Eskom Transmission's (Tx's) Craighall-Minerva 275 kV powerline is affected by the proposed road construction ***(refer to Annexure G (xv) for correspondence from Eskom).*** It is stated that Eskom Tx will raise no objection to the proposed EIA process provided that Eskom's rights and services are acknowledged and respected at all times. It is requested that a formal application must be submitted for Eskom's Tx's response and direct reply before any construction work commences in the vicinity of Eskom's Tx's services.

Issues identified during the 2nd Public Meeting

- ***Funding model and existing zoning (Andy Bicks)***
  - Developers are putting up funding which creates a big conflict of interest where the needs of the developer carry more weight than that of the community
  - Developers buy properties for cheap prices, rezone it and sell it to developers – unethical way for doing business.

  Response

  The RSDF and Urban Edge need to be taken into consideration.

- ***Margie Donde (GEKCO)***
  - R800 million funding from the private sector. The private sector is paying for this road and therefore they are going to build the road otherwise why will they fund it? That is unfair!
  - East-west traffic – K56 will bring more traffic to K46 and R55 which both need to be upgraded.
  - PWV9 and PWV5 – the community do not know what the status of these roads is and whether these roads will be tolled.
  - The route is a line drawn on a map – this is a community around the horse industry. When the road is approved and built, whether along Zinnia or anywhere

else, developers will buy properties along the road and development will take place until the whole area is gone. Animals will be killed and it will kill the equestrian industry. The present community will have to move with their horses/sell their horses.

- **Public transport is needed (Judith Taylor)**

Public transport is needed. We cannot afford these roads – it will kill everything. Please look at what is needed and not what is nice to have.

Reponse (Francois van Rensburg)

Mr. van Rensburg stated that he does not say this road must be built, all that he says from an engineering point of view there is a need for a road. Whether it is in your background or the next person's back yard, there is going to be a road somewhere. We need the balanced road network. On the public transport yes, international, everybody accepts that there's got to be public transport in place. Public transport is supported from an engineering point of view; however you have to take a lot into consideration. When you look at the international transport system - it's high density, most of the buildings you walk through are 7 – 9 stories high, you walk through little streets. That is how public transport works internationally. We are in a country of development and you got to support these developments. Where do we put the person that needs to be in a car? Mr. van Rensburg stated that he asks himself the question every day: "why don't I use a bus"? Why don't more people use the Gautrain busses? There is excellent security, better than first world services?

Response (Lizelle Gregory)

Ms. Gegory commented that the Gautrain is a good start, however there are a lot of areas to improve. She stated that she has got meetings in different places so she cannot take the train.

- **Expropriation of properties (Ellen, Blue Hills Resident)**

We are now in the Scoping phase - how can properties be expropriated?

Response (Francois van Rensburg)

The expropriation has been done in the 80's or 90's, in the previous legislation. All Mr. van Rensburg wanted to illustrate to everybody was to show some of the land had been secured years ago.

- **Invitations to Public Meeting (Connie de Lange)**
  - It was mentioned in the meeting that 1700 emails were received. Were all those people invited to the meeting? Ms. De Lange did not receive an invitation.
  - Specific detail on a fatal flaw was requested.

Response

- Bokamoso did send emails to all registered I & APs. Ms. Gregory apologised for the fact that she did not receive an invitation.
- A fatal flaw is for example if a road goes through an area where red data species had been found (i.e. bullfrog area) or through buffer areas of red data species that have been found. In this case the community have a very strong social mobilisation against the road. If you look at the sustainable development principles the ecological, social, economic and institutional environments have to be equally addressed. It is a very difficult task to identify a fatal flaw from a social point of view.

- **Need for access to the Kyalami area (Redmond Taggard)**

  Mr. Taggard stated that he is very sensitive to the issues here, however he is looking at the big picture. It takes 30 minutes from K101 to Kyalami Main road/R55. This road was on the map before most of the people bought properties here and some of the people had already been compensated for

their properties. He does not believe that the proposed road will have any huge impact. This road is needed and will allow access in this area. People living in other areas need this road.

- **Impact on community (Patrick Kaye)**

  The community does not want to make themselves uncomfortable for people living in other areas that need this road. They don't want to move for whoever it is.

- **Impact of K60 on traffic count (Sean Smith)**

  Was the K60 going through Sunninghill taken into account in the traffic modelling? If K60 is built will there still be 3300 cars?

Response (Francois van Rensburg)

Yes, the K60 was taken into consideration in the modelling.

- **EIA process Gracepoint Church (Anette Deppe, Ward Councillor)**

  Ms. Deppe said that The Gracepoint Church was approved by GDARD and stated that the EIA process was flawed. The Church was built on rocky outcrops, rocky ridges and was approved by GDARD. She said that the system doesn't always work in favour of the community and just by listening to what was said, that we probably will come out with a no-go option.

- ***Cedarwood Remedial School (Duncan Turner)***

  I noticed that Cedarwood Prep was noted up there, I would like you to make a special effort to look at the schools, it is a special need and it is the only one in the area and we talking about endangered species, those little people are

endangered species, the proposed alignment plans to wipe out the school to the entire field and that is totally unacceptable for the school.

- **Neutrality requested (Pierre Hefer)**

  Mr. Hefer stated that the community want to work with Bokamoso and want neutrality. They requested that Bokamoso help the community to motivate why the road should not be constructed.

  Response

  Bokamoso was appointed as **independent** Environmental Consultants.

Comments received in support for K56

- Mr. Gillespie, the major shareholder or director of all the companies / properties on the attached list attached as ***Annexure G (xvi)*** stated that he is very much in favour of the much needed East/West road, the K56. All these properties are within close proximity of the K56. He stated that he would have said something at the second public meeting but there was an element there that would not let anyone speak in favour of the road. The guy who tried to speak in favour of the road was not given an uninterrupted opportunity to speak. According to Mr. Gillespie there were many other people in favour of the road.

- A Glenferness resident stated that the area is anything but a "quiet rural" area. She lives on a road that is already accommodating two schools and a large nursery with a lot of traffic. She is in support of the road ***(refer to Annexure (xi))*.**

- **Need for the road *(refer to Annexure (xi))***
  - Clearly this road has to be built, but it will only serve its purpose if it is built in its entirety. Anything less defeats its purpose.
  - It is understood that people object to the road traversing their area. The acid test has to be whether they purchased their properties after it was proclaimed and put onto the map in the 1970's. Anyone who purchased their properties after this date (and I suspect that this will be the overwhelming majority) did so with the full knowledge that this was a proposed road in their area. The fact that this road was on the books would have been factored into the price that they paid for their properties. To now come along after the fact and claim all manner of rights to the alignment of the road holds no water. A simple test would be to say to those who want the road realigned onto someone else's property, this action will undoubtedly increase the value of their property, those benefiting from improved value must logically then pay the increase in value of their property to the owners of the property that would be affected by any realignment (I cannot see them accepting this, therefore how can they realistically expect those affected by any realignment to be any more accepting than they were). Those property owners who have owned the property prior to the proclamation of the roads must be treated as a special case as they do have a legitimate case for compensation for loss of value. However I suspect that they will be very few and far between.
  - There is potentially a silver lining for property owners whose properties are affected by the road, that is the council typically looks favourably on applications for commercial rights along a corridor next to such roads to act as a buffer between busy roads and residential areas. This would undoubtedly increase the value of these properties as it has done with many of the properties along the Gautrain route.
  - The only legitimate gripe residents may have that bought their properties

after the proclamation of these roads could be over environment issues where rare and endangered species habitats could be destroyed. I hope that this points offer a more balanced perspective to what has clearly become an emotional issue.

- **Advantages of the route *(refer to Annexure (xii))***
  - The additional bridge over the Jukskei river will relieve traffic on both existing bridges on Main and William Nicol/K46.
  - The present routing will be less disruptive to the horse/equestrian industry that going via Zinnia/Caracal roads. It is assumed that safe crossings of one or other design will be provided for anyway.
  - Knowing that all this will only happen in 4 or 5 years time, this should give all concerned parties enough time to develop alternative habitats for bull-frogs and other species.
  - The present routing also is shorter than going via Zinnia road.

The Draft SR will be available for review by I & APs for a period of 40 days**.** Comments received from I & APs will be addressed in the Final Scoping Report.

Additional Inputs Or Studies Required during the EIA process

Due to the large number of registered I&APs and objections received a complete public participation process will be conducted during the EIA process. The draft EIA Report will be available for review by I & APs for a period of 40 days and comments received will be addressed in the final EIA Report.

9. ENVIRONMENTAL SCOPING *[Regulation 29(f) (g)]*

9.1 Preliminary Environmental Issues and Sensitivity Map

Refer to Figure 20 for the Preliminary Sensitive Issues Map

From the preliminary information available, the following environmental issues were identified:

- **Geotechnical:**
  - The route is underlain by granites and comprehensive blasting will be required.
  - Collapsible materials and expansive materials.
  - A perched water table can develop and slight seepage may be present during the wet season.

- **Hydrology:**
  The proposed alignment traverses the Jukskei River and tributaries as well as wetlands.

- **Fauna and flora:**
  - Possible red data flora and fauna species: According to GDARD C-Plan 3, 2011 the proposed alignment traverses irreplaceable sites.
  - The proposed alignment traverses Egoli Granite grasslands.
  - Wildlife corridors affected by the proposed route

- **Cultural:** Possible cultural/historic artefacts or graves affected by the proposed alignment.

- **Noise Impact:** The proposed alignment of the K56 could have noise impacts on surrounding residents.

- **Visual Impact:** The proposed alignments could have visual impacts on the surrounding view sheds during the construction and operational phases and mitigation measures should be implemented.

- **Air pollution:** The increase in traffic through the area will result in an increase in air pollution from vehicles.

- **Sense of Place:** The proposed alignment of the K56 will have a significant impact on the Sense of Place and tranquillity of Glenferness A.H. and Kyalami A.H.

- **Impact on GEKCO:** The proposed alignment of the K56 traverses the GEKCO and could have a significant ecological, social and economy impact on the conservancy.

- **Socio-Economic impact on equine industry:** The proposed alignment of the K56 will have a significant impact on the equine industry i.e. job losses, safety of horse riders, Lipizzaner Centre, Gauteng Horse Society, equestrian events, dissection of large rural residential area which houses a large equestrian community and industry, etc.

- **Loss of schools:**

  Two schools (a Pre-School and Cedarwood Remedial School) are affected by the proposed alignment of the K56 which could result in the closure of these schools.

- **Safety and crime**

  The proposed road could result in an increase in safety and crime in the area both during the construction and operational phases.

- **Property devaluation**

  The proposed alignment of the K56 could have a negative impact on property values, especially those properties dissected by the route.

- **Expropriation of properties**

  A large number of properties need to be expropriated.

- **Increase in traffic**

  The involved section of the K56 will result in an increase in traffic at both ends of the road.

- **Impact on existing roads and developments**

  The proposed alignment of the K56 will have an impact on existing roads and developments in the area.

- **Need for the K56**

  There is a proven need for the K56 to supply east-west linkage in the area.

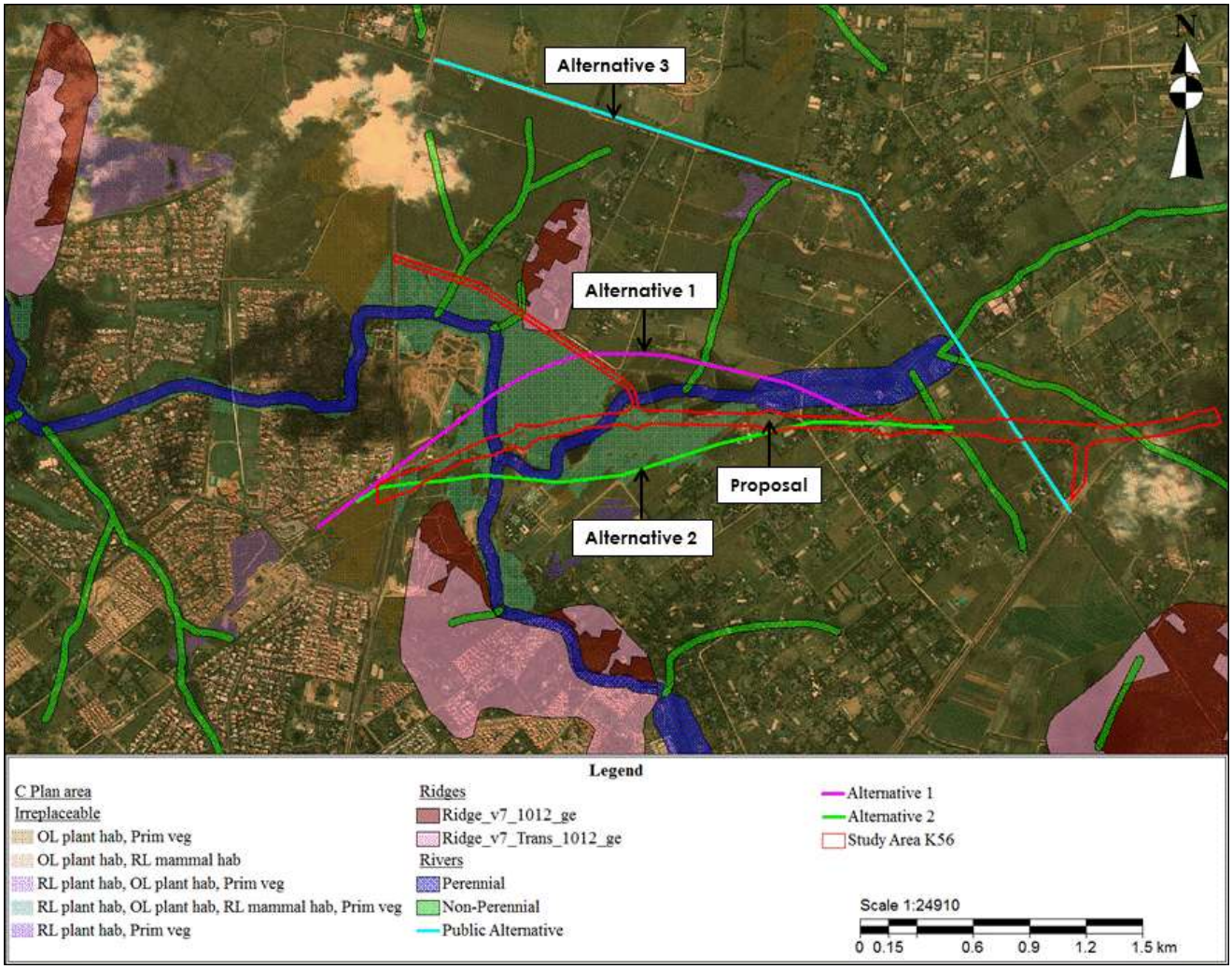


Figure 20 – Preliminary Sensitivity Map

9.2 Anticipated impacts, including cumulative impacts

The impacts/ aspects (beneficial and adverse) of the proposed section of the K56 (Proposal, Alternative 1, Alternative 2 and Alternative 3) on the receiving environment were identified. The above impacts, as well as the affected environmental characteristics, are indicated in **Tables 7 and 8** below.

Table 7: Comparative Assessment between impacts of the K56 Proposal and Alternatives 1, 2 and 3

Environmental Aspects **Key to impacts:** ☺ l– Lower positive ☺ m– Medium positive ☺ h– Higher positive ☹ l– Lower negative ☹ m–Medium negative ☹ h– Higher negative 😐 - Neutral	**Physical**				**Biological**		**Socio-Economical**									**Institutional**				**Total of Impacts**
	Geology and Soils	Hydrology	Topography	Climate	Fauna	Flora	Qualitative Environment Visual, Noise, Pollution, Security	Compatibility of Land-Use	Availability of municipal services	Upgrading of Municipal Services	Economical Impact Local Authority	Economical Impact I&AP's	Economical Impact Private Sector	Cultural and Historical	Impact on high agricultural potential land	In line with IDP	In line with SDF or other frameworks And open space plans	In line with policies and guidelines	In line with Acts and other legislation	
CONSTRUCTION PHASE **Preliminary Issues and Impacts**																				
Proposal	☹ h	☹ h	😐	☹ m	☹ h	☹ h	☹ h	☹ h	😐	😐	😐	☹ h	☹ h	☹ m	☹ m	☺ h	☺ h	☺ h	☺ h	☺ h x 4 ☹ h x 8 ☹ m x 3 😐 x 4
Alternative 1	☹ h	☹ m	😐	☹ m	☹ h	☹ h	☹ h	☹ h	😐	😐	😐	☹ h	☹ h	☹ m	☹ m	☺ h	☺ h	☺ h	☺ h	☺ h x 4 ☹ h x 7 ☹ m x 4

																			😐 x 4
Alternative 2	☹ h	☹ m	😐	☹ m	☹ h	☹ h	☹ h	☹ h	😐	😐	😐	☹ h	☹ h	☹ m	☹ m	☺ h	☺ h	☺ h	☺ h	☺ h x 4 ☹ h x 7 ☹ m x 4 😐 x 4
Alternative 3	☹ m	☹ l	😐	☹ m	☹ l	☹ m	☹ m	☺ m	😐	😐	😐	☹ l	☹ l	😐	😐	☺ h	☺ h	☺ h	☹ h	☺ h x 3 ☹ h x 1 ☹ m x 4 ☹ l x 4 😐 x 6

OPERATIONAL PHASE **Preliminary Issues and Impacts**																			
	Geology/ soils	**Hydrology**	**Topography**	**Climate**	**Fauna**	**Flora**	**Qualitative Env**	**Compatibility of Land-Use**	**Municipal Serv**	**Upgrading of Mun Serv**	**Econ Impact LA**	**Econ Impact I & AP's**	**Econ Impact Priv Sector**	**Cult & Hist**	**Agric Potential**	**IDP**	**SDF, Open Space Plan**	**Policies/ Guidelines**	**Acts other legislation**	

Proposal	☹ h	☹ h	😐	☹ l	☹ h	☹ h	☹ h	☹ h	😐	☺ h	☺ h	☹ h	☹ h	☹ m	☹ m	☺ h	☺ h	☺ h	☺ h	☺ h x 6 😐 x 2 ☹ h x 8 ☹ m x 2 ☹ l x 1
Alternative 1	☹ h	☹ m	😐	☹ l	☹ h	☹ h	☹ h	☹ h	😐	☺ h	☺ h	☹ h	☹ h	☹ m	☹ m	☺ h	☺ h	☺ h	☺ h	☺ h x 6 😐 x 2 ☹ h x 7 ☹ m x 3 ☹ l x 1
Alternative 2	☹ h	☹ m	😐	☹ l	☹ h	☹ h	☹ h	☹ h	😐	☺ h	☺ h	☹ h	☹ h	☹ m	☹ m	☺ h	☺ h	☺ h	☺ h	☺ h x 6 😐 x 2 ☹ h x 5 ☹ m x 3 ☹ l x 1
Alternative 3	☹ h	☹ l	😐	☹ l	☹ m	☹ m	☹ l	☹ l	😐	☺ h	☺ h	☹ l	☹ h	😐	😐	☺ h	☺ h	☺ h	☹ h	☺ h x 5 😐 x 4 ☹ h x 3 ☹ m x 2 ☹ l x 5

Table 8: Comparative Assessment between impacts of the K56 Proposal and Alternatives 1, 2 and 3 after Mitigation

Environmental Aspects **Key to impacts:** ☺ l– Lower positive ☺ m– Medium positive ☺ h– Higher positive ☹ l– Lower negative ☹ m–Medium negative ☹ h– Higher negative 😐 - Neutral	**Physical**				**Biological**		**Socio-Economical**									**Institutional**				**Total of Impacts**
	Geology and Soils	Hydrology	Topography	Climate	Fauna	Flora	Qualitative Environment Visual, Noise, Pollution, Security	Compatibility of Land-Use	Availability of municipal services	Upgrading of Municipal Services	Economical Impact Local Authority	Economical Impact I&AP's	Economical Impact Private Sector	Cultural and Historical	Impact on high agricultural potential land	In line with IDP	In line with SDF or other frameworks And open space plans	In line with policies and guidelines	In line with Acts and other legislation	
CONSTRUCTION PHASE **Preliminary Issues and Impacts**																				
Proposal	☹ l	☹ h	😐	☹ l	☹ h	☹ h	☹ h	☹ h	😐	☺ h	😐	☹ h	☹ h	☹ m	☹ m	☺	☺	☺	☺	☺ h x 5 😐 x 3 ☹ l x 2 ☹ m x 2 ☹ h x 7
Alternative 1	☹ l	☹ m	😐	☹ l	☹ h	☹ h	☹ h	☹ h	😐	☺ h	😐	☹ h	☹ h	☹ m	☹ m	☺	☺	☺	☺	☺ h x 5 😐 x 3 ☹ l x 2

																			☹ m x 3 ☹ h x 6
Alternative 2	☹ l	☹ m	😐	☹ l	☹ h	☹ h	☹ h	☹ h	😐	☺ h	😐	☹ h	☹ h	☹ m	☹ m	☺ h	☺ h	☺ h	☺ h	☺ h x 5 😐 x 3 ☹ l x 2 ☹ m x 3 ☹ h x 6
Alternative 3	☹ l	☹ l	😐	☹ l	☹ l	☹ l	☹ l	☹ l	😐	☺ h	😐	☺ m	☺ m	😐	😐	☺ h	☺ h	☺ h	☹ h	☺ h x 4 ☺ m x 5 😐 x 5 ☹ l x 7 ☹ h x 1
OPERATIONAL PHASE **Preliminary Issues and Impacts**																				
	Geology/ soils	**Hydrology**	**Topography**	**Climate**	**Fauna**	**Flora**	**Qualitative Env**	**Land-Use**	**Municipal Serv**	**Upgrading of Mun Serv**	**Econ Impact LA**	**Econ Impact I & AP's**	**Econ Impact Priv Sector**	**Cult & Hist**	**Agric Potential**	**IDP**	**SDF, Open Space Plan**	**Policies/ Guidelines**	**Acts other legislation**	
Proposal	☹ l	☹ m	😐	😐	☹ h	☹ h	☹ h	☹ h	😐	☺ h	😐	☹ h	☹ h	☹ l	☹ l	☺ h	☺ h	☺ h	☺ h	☺ h x 5 ☹ l x 3

																				☹ m x 1 ☹ h x 6 😐 x 4
Alternative 1	☹ l	☹ l	😐	😐	☹ h	☹ h	☹ h	☹ h	😐	☺ h	😐	☹ h	☹ h	☹ l	☹ l	☺ h	☺ h	☺ h	☺ h	☺ h x 5 ☹ l x4 ☹ h x 6 😐 x 4
Alternative 2	☹ l	☹ l	😐	😐	☹ h	☹ h	☹ h	☹ h	😐 😐	☺ h	😐	☹ h	☹ h	😐	☹ l	☺ h	☺ h	☺ h	☺ h	☺ h x 5 ☹ l x 3 ☹ h x 6 😐 x 5
Alternative 3	☹ l	☹ l	😐	😐	☹ l	☹ l	☹ l	☺ l	😐	☺ h	😐	☺ m	☺ m	😐	☹ l	☺ h	☺ h	☺ h	☹ h	☺ h x 4 ☺ m x 2 ☺ l x 1 ☹ l x 6 ☹ h x 1 😐 x 5

9.3 Comparative Assessment between Proposal and Alternatives 1, 2 and 3

The Tables above are preliminary comparative assessments based on the issues identified in the Scoping Report. The issues identified are based according to the status quo information that was available for the Scoping Phase and the scoping report already identified the aspects that must be investigated in more detail during the EIA phase.

The purpose of the preliminary issues identification and comparative assessment process is

1) To identify "fatal flaws" that could prevent the project from happening at an early stage;
2) To identify specialist studies and plans to be done for the EIA phase of the application;
3) To identify the mitigation possibilities of the preliminary issues identified; and
4) To compare (already at an early stage) the workable alternatives identified with each other before and after mitigation.

The comparative assessment will assist the EAP with the identification of the preferred alternative. The environmental issues and the results of the comparative assessment are however only preliminary results that must be still confirmed during the EIA phase. Some of the specialist studies done during the EIA phase could identify additional issues to be addressed and it could even identify "Fatal Flaws" that could prevent the project from happening/ place restrictions (i.e. buffers around red data species identified) that could have a significant impact on the alternatives identified and the alignment of the proposed section of the road.

Due to the fact that many of the high impact issues identified in the above mentioned tables can be mitigated to more acceptable levels, the issues ratings before and after mitigation could differ considerably. In many cases, high impact issues (mostly related to the construction phase of a development) can be mitigated completely. The

comparative assessment after mitigation (Refer to table above) will therefore give a more accurate indication of the preliminary preferred alternative for the project.

Table 9: Summary - Comparative Assessment between K56 Proposal and Alternatives 1, 2 and 3 before Mitigation

Environmental Aspects	Physical	Biological	Socio-Economic	Institutional
Proposal	☺ l x 0 ☺ m x 0 ☺ h x 0	☺ l x 0 ☺ m x 0 ☺ h x 0	☺ l x 0 ☺ m x 0 ☺ h x 2	☺ l x 0 ☺ m x 0 ☺ h x 8
	☹ l x 1 ☹ m x 1 ☹ h x 4	☹ l x 0 ☹ m x 0 ☹ h x 4	☹ l x 0 ☹ m x 4 ☹ h x 8	☹ l x 0 ☹ m x 0 ☹ h x 0
	😐 x 2	😐 x 0	😐 x 4	😐 x 0
Alternative 1	☺ l x 0 ☺ m x 0 ☺ h x 0	☺ l x 0 ☺ m x 0 ☺ h x 4	☺ l x 0 ☺ m x 0 ☺ h x 2	☺ l x 0 ☺ m x 0 ☺ h x 8
	☹ l x 1 ☹ m x 3 ☹ h x 2	☹ l x 0 ☹ m x 4 ☹ h x 0	☹ l x 0 ☹ m x 4 ☹ h x 8	☹ l x 0 ☹ m x 0 ☹ h x 0
	😐 x 2	😐 x 0	😐 x 4	😐 x 0
Alternative 2	☺ l x 0 ☺ m x 0 ☺ h x 0	☺ l x 0 ☺ m x 0 ☺ h x 0	☺ l x 0 ☺ m x 0 ☺ h x 2	☺ l x 0 ☺ m x 0 ☺ h x 8
	☹ l x 1 ☹ m x 3 ☹ h x 2	☹ l x 0 ☹ m x 0 ☹ h x 4	☹ l x 0 ☹ m x 4 ☹ h x 8	☹ l x 0 ☹ m x 0 ☹ h x 0

	😐 x 2	😐 x 0	😐 x 4	😐 x 0
Alternative 3	☺ l x 0 ☺ m x 0 ☺ h x 0	☺ l x 0 ☺ m x 0 ☺ h x 0	☺ l x 0 ☺ m x 1 ☺ h x 2	☺ l x 0 ☺ m x 0 ☺ h x 4
	☹ l x 3 ☹ m x 3 ☹ h x 0	☹ l x 1 ☹ m x 3 ☹ h x 0	☹ l x 5 ☹ m x 1 ☹ h x 1	☹ l x 0 ☹ m 0 1 ☹ h x 4
	😐 x 2	😐 x 0	😐 x 8	😐 x 0

Table 10: Summary - Comparative Assessment between K56 Proposal and Alternatives 1, 2 and 3 after Mitigation

Aspects	**Physical**	**Biological**	**Socio-Economic**	**Institutional**
Proposal	☺ l x 0 ☺ m x 0 ☺ h x 0	☺ l x 0 ☺ m x 0 ☺ h x 0	☺ l x 0 ☺ m x 0 ☺ h x 2	☺ l x 0 ☺ m x 0 ☺ h x 8
	☹ l x 3 ☹ m x 1 ☹ h x 1	☹ l x 0 ☹ m x 0 ☹ h x 8	☹ l x 2 ☹ m x 2 ☹ h x 8	☹ l x 0 ☹ m x 0 ☹ h x 0
	😐 x 3	😐 x 0	😐 x 4	😐 x 0
Alternative 1	☺ l x 0 ☺ m x 0 ☺ h x 0	☺ l x 0 ☺ m x 0 ☺ h x 0	☺ l x 0 ☺ m x 0 ☺ h x 2	☺ l x 0 ☺ m x 0 ☺ h x 8
	☹ l x 4 ☹ m x 1 ☹ h x 0	☹ l x 0 ☹ m x 0 ☹ h x 4	☹ l x 2 ☹ m x 2 ☹ h x 8	☹ l x 0 ☹ m x 0 ☹ h x 0

	😐 x 3	😐 x 0	😐 x 4	😐 x 0
Alternative 2	☺ l x 0 ☺ m x 0 ☺ h x 0	☺ l x 0 ☺ m x 0 ☺ h x 0	☺ l x 0 ☺ m x 0 ☺ h x 2	☺ l x 0 ☺ m x 0 ☺ h x 8
	☹ l x 4 ☹ m x 1 ☹ h x 0	☹ l x 0 ☹ m x 0 ☹ h x 4	☹ l x 1 ☹ m x 2 ☹ h x 8	☹ l x 0 ☹ m x 0 ☹ h x 0
	😐 x 3	😐 x 0	😐 x 5	😐 x 0
Alternative 3	☺ l x 0 ☺ m x 0 ☺ h x 0	☺ l x 4 ☺ m x 0 ☺ h x 0	☺ l x 1 ☺ m x 4 ☺ h x 2	☺ l x 0 ☺ m x 0 ☺ h x 4
	☹ l x 5 ☹ m x 0 ☹ h x 0	☹ l x 0 ☹ m x 0 ☹ h x 0	☹ l x 4 ☹ m x 0 ☹ h x 0	☹ l x 0 ☹ m x 0 ☹ h x 4
	😐 x 3	😐 x 0	😐 x 7	😐 x 0

Summary

From the comparison of the alternatives, based on the available information, it can be concluded that the ecological impact of the proposal is the highest due to irreplaceable sites traversed and the number of river and wetland crossings. Alternative 3 has the lowest ecological impact since it follows the alignment of an existing route.

The proposal and Alternatives 1 and 2 will have a more significant socio-economic impact on Glenferness and Kyalami Agricultural Holdings, the equestrian industry and GEKCO. Alternative 3 is the preferred alternative from a socio-economic point of view. However, Alternative 3 is not supported from a road planning point of view. At this stage the proposal is the preferred alternative from a road planning point of view.

A detailed comparison of the Proposal and Alternatives will be included in the EIA document.

10. METHODOLOGY OF ASSESSING IMPACTS THAT HAVE BEEN IDENTIFIED

Significance Description Methodology

The significance of Environmental Impacts will be assessed in the EIA process in accordance with the following method:

Significance is the product of probability and severity. Probability describes the likelihood of the impact actually occurring, and is rated as follows:

- Improbable - Low possibility of impact to occur either because of design or historic experience.
  Rating = 2
- Probable - Distinct possibility that impact will occur.
  Rating = 3
- Highly probable - Most likely that impact will occur.
  Rating = 4
- Definite - Impact will occur, in the case of adverse impacts regardless of any prevention measures.
  Rating = 5

The severity factor is calculated from the factors given to "intensity" and "duration". Intensity and duration factors are awarded to each impact, as described below.

The Intensity factor is awarded to each impact according to the following method:

Low intensity - natural and man made functions not affected – Factor 1

Medium intensity - environment affected but natural and man made functions and processes continue -Factor 2

High intensity - environment affected to the extent that natural or man made functions are altered to the extent that it will temporarily or permanently cease or become dysfunctional - Factor 4

Duration is assessed and a factor awarded in accordance with the following:

Short term - <1 to 5 years - Factor 2

Medium term - 5 to 15 years - Factor 3

Long term - impact will only cease after the operational life of the activity, either because of natural process or by human intervention - Factor 4.

Permanent - mitigation, either by natural process or by human intervention, will not occur in such a way or in such a time span that the impact can be considered transient - Factor 4.

The severity rating is obtained from calculating a severity factor, and comparing the severity factor to the rating in the table below. For example:

The Severity factor = Intensity factor X Duration factor
= 2 x 3
= 6

A Severity factor of six (6) equals a Severity Rating of Medium severity (Rating 3) as per table below:

TABLE 11: SEVERITY RATINGS

RATING	FACTOR
Low Severity (Rating 2)	Calculated values 2 to 4
Medium Severity (Rating 3)	Calculated values 5 to 8
High Severity (Rating 4)	Calculated values 9 to 12
Very High severity (Rating 5)	Calculated values 13 to 16
Severity factors below 3 indicate no impact	

A Significance Rating is calculated by multiplying the Severity Rating with the Probability Rating.

The significance rating should influence the development project as described below:

- Low significance (calculated Significance Rating 4 to 6)
  Positive impact and negative impacts of low significance should have no influence on the proposed development project.

- Medium significance (calculated Significance Rating >6 to 15)
  Positive impact: Should weigh towards a decision to continue
  Negative impact: Should be mitigated to a level where the impact would be of medium significance before project can be approved.

- High significance (calculated Significance Rating 16 and more)

Positive impact: Should weigh towards a decision to continue, should be enhanced in final design.

Negative impact: Should weigh towards a decision to terminate proposal, or mitigation should be performed to reduce significance to at least medium significance rating.

In correspondence received from GDARD some officials was of the opinion that the significance methodology used by Bokamoso applies a simple mathematical formula to environmental aspects with significantly different sensitivity values, which might or might not give an inaccurate final significance value.

The significance methodology used by Bokamoso was prescribed to environmental consultants in courses in impact assessments. No methodology can be accurate to a numerical value where the environment is concerned, because it cannot be measured. Numerical values are only an indication of the significance or severance of impacts. If we do not agree with the outcome of the assessment, we will adjust the numerical value to reflect a more realistic significance. The methodology only acts as an aid to the environmental consultant and the consultant need to use his/her experience in the field together with the methods in order to reach a realistic significance of impacts. Bokamoso, in particular Ms. Lizelle Gregory, has extensive experience in the field of impact assessments. Ms. Mientjie Coetzee, Bokamoso, attended a presentation by Dr. Pieter Aucamp on "Tools that Environmental Practitioners (EAPs) can use in an Environmental Impact Assessment (EIA)" at an IAIA meeting. Dr. Aucamp is the author of a book "Environmental Impact Assessment – A practical Guide for the Discerning Practitioner". Dr. Aucamp agrees that impact assessment methods are not 100% accurate; however it is accurate in identifying significant impacts.

11. PLAN OF STUDY FOR ENVIRONMENTAL IMPACT ASSESSMENT

(Refer to Annexure H: Plan of Study for EIA)

The plan of study for Environmental Impact Assessment which sets out the proposed approach to the environment impact assessment of the application include:

- A description of the tasks that will be undertaken as part of the environmental impact assessment process, including any specialized processes, and the manner in which such tasks will be undertaken;
- An indication of the stages at which the competent authority will be consulted;
- A description of the proposed method of assessing the environmental issues and alternatives, including the option of not proceeding with the activity;
- Particulars of the public participation process.

12. CONCLUSION

The purpose of the scoping process was to do a status quo analysis of the study area, to investigate the alternatives considered for the project, to identify the most significant environmental issues associated with the proposed project, to determine the impact of the proposed development on the social environment and to identify (already at an early stage) possible "fatal flaws" that could prevent the project from happening.

It is important to note that the scoping process identified other crucial issues that must be addressed in more detail during the EIA process and it is requested that the authorities responsible for evaluation of the scoping report (GDARD and the involved local authority) examine the issues listed under each environment and where possible add issues to/remove issues from the issues lists. The mitigation possibilities of the issues listed were also identified in this scoping report and we (Bokamoso) are of the opinion that it will be possible to mitigate all the detrimental issues completely or to more acceptable levels.

However, the issues listed will be assessed in more detail during the EIA phase and detailed mitigation measures to reduce or prevent the issues/impacts will be supplied and incorporated as part of an Environmental Management Plan (EMP) for the preconstruction, construction and/or operational phases of the project.

13. RECOMMENDATIONS

Based on the above-mentioned information supplied and the conclusions that were made, it is suggested that the Scoping Report be accepted, that the Plan of Study for EIA be approved and that the applicant be allowed to commence with the EIA for the project.

The completed EIA must include the following information/comply with the following documents:

- The approved Plan of Study for EIA;
- The specialist reports listed by Bokamoso in this Scoping Report and in the Plan of Study for EIA;
- Additional specialist inputs and other relevant information listed by the relevant authorities; and
- An Environmental Management Plan.