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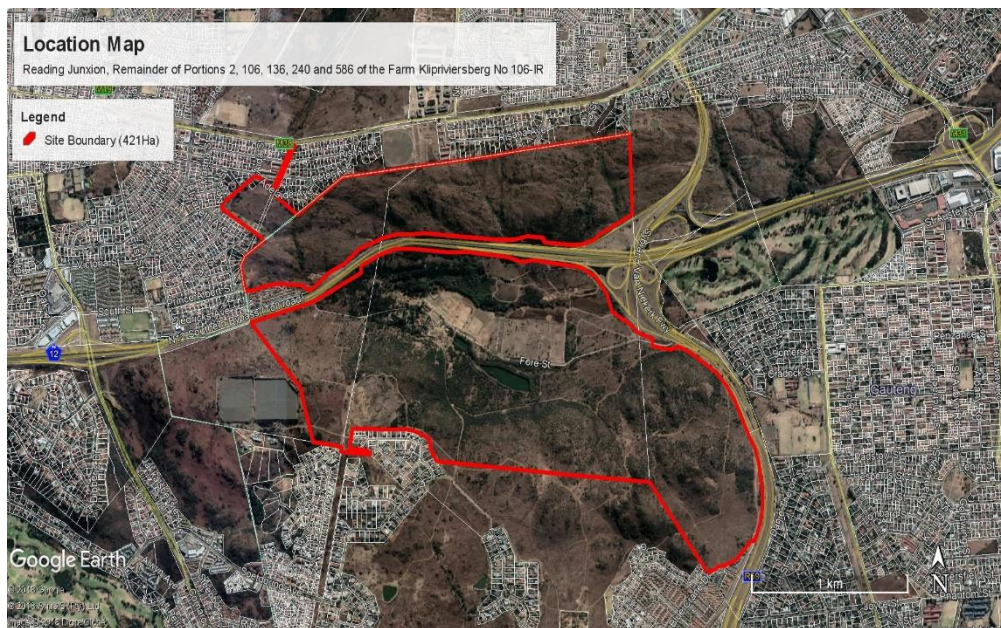
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November 2018

Environmental Summary

For the proposed Mixed-Use development and associated Infrastructure to be known as Reading Junxion on Portions 2, 106,136, 240 and 586 of the Farm Klipriviersberg 106-IR within the City of Ekurhuleni, Gauteng Province



Prepared by:

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Herewith a description of the physical environment as required in terms of the Spatial Planning and Land Use Management Act.

(i). Introduction

It is the intention of applicant to establish a Mixed-Use development and associated Infrastructure to be known as Reading Junxion on Portions 2, 106,136, 240 and 586 of the Farm Klipriviersberg 106-IR within the City of Ekurhuleni, Gauteng Province. The site is approximately 421 hectares:

(ii). Environmental Summary

- (i). Is the development a “listed activity” in terms of the National Environmental Management Amended Act, 2004 (Act 8 of 2004), with specific reference to the Regulations promulgated under Section 24 (5). The applicant must submit proof that comments from the relevant provincial departments: Gauteng Department of Agriculture, and Rural Development (GDARD) have been requested.**

In terms of the National Environmental Management Act (NEMA) 2014 regulations, Environmental Authorisation is required in respect of the proposed Mixed-Use development and associated Infrastructure to be known as Reading Junxion on Portions 2, 106,136, 240 and 586 of the Farm Klipriviersberg 106-IR within the City of Ekurhuleni, Gauteng Province.

Indicate the number of the relevant Government Notice: Activity No (s) (relevant notice): e.g. Listing notices 1, 2 or 3 Describe each listed activity as per the wording in the listing notices:

GN. R 983 8 December 2014 as amended by GN. R 327 7 April 2017	Listing Notice 1 Activity 9	The development of infrastructure exceeding 1 000 metres in length for the bulk transportation of water or storm water— (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more;
GN. R 983 8 December 2014 as amended by GN. R 327 7 April 2017	Listing Notice 1 Activity 10	The development and related operation of infrastructure exceeding 1 000 metres in length for the bulk transportation of sewage, effluent, process water, waste water, return water, industrial discharge or slimes – (i) with an internal diameter of 0,36 metres or more; or (ii) with a peak throughput of 120 litres per second or more;
GN. R 983 8 December 2014 as amended by GN. R 327 7 April 2017	Listing Notice 1 Activity 12	The development of- (i) dams or weirs, where the dam or weir, including infrastructure and water surface area, exceeds 100 square metres; or (ii) infrastructure or structures with a physical footprint of 100 square metres or more; where such development occurs (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback exists, within 32 metres of a watercourse, measured from the edge of a watercourse.
GN. R 983 8 December 2014 as amended by	Listing Notice 1 Activity 19	The infilling or depositing of any material of more than 10 cubic metres into, or the dredging, excavation, removal or moving of soil, sand, shells, shell grit, pebbles or rock of more than 10 cubic metres from

GN. R 327 7 April 2017		a watercourse;
GN. R 984 8 December 2014 as amended by GN. R 325 7 April 2017	Listing Notice 2 Activity 15	The clearance of an area of 20 hectares or more of indigenous vegetation.
GN. R 985 8 December 2014 as amended by GN. R 324 7 April 2017	Listing Notice 3 Activity 4	The development of a road wider than 4 metres with a reserve less than 13,5 metres. c. Gauteng iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans;
GN. R 985 8 December 2014 as amended by GN. R 324 7 April 2017	Listing Notice 3 Activity 12	The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous. c. Gauteng ii. Within Critical Biodiversity Areas or Ecological Support Areas identified in the Gauteng Conservation Plan or bioregional plans.
GN. R 985 8 December 2014 as amended by GN. R 324 7 April 2017	Listing Notice 3 Activity 14	The development of— (i) dams or weirs, where the dam or weir, including infrastructure and water surface area exceeds 10 square metres; or (ii) infrastructure or structures with a physical footprint of 10 square metres or more; where such development occurs— (a) within a watercourse; (b) in front of a development setback; or (c) if no development setback has been adopted, within 32 metres of a watercourse, measured from the edge of a watercourse; (c) Gauteng iv. Sites identified as Critical Biodiversity Areas (CBAs) or Ecological Support Areas (ESAs) in the Gauteng Conservation Plan or in bioregional plans;

(ii). If relevant, the following information if an Environmental Impact Assessment (EIA) process has been initiated:

(a) Date initiated:

The process will be initiated in November 2018.

(b) Name and details of environmental consultant:

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(c) What process has been initiated?

A Scoping / Environmental Impact Assessment Report will be submitted to Gauteng Department of Agriculture and Rural Development (GDARD).

(d) Relevant Provincial Reference number assigned:

GAUT 002/18-19/E2314

(iii). Environmental Description

It can be seen that there is an association with ridge, wetland and riverine habitat units.

(a) Ridges;

The CBA's are regarded as "irreplaceable sites for biodiversity" and are generally located toward the ridge habitat in the south, where primary vegetation and habitat for both RDL and Orange Listed flora has been identified. The Klipriviersberg Ridge complex within the area is regarded as a Class 3 ridge (GDARD, 2010), which eludes to a certain percentage of development/transformation and a corresponding level of loss of ecological functioning. Class 3 ridges include ridges of which 35% or more, but less than 65%, of their surface area has been converted to urban development, quarries and/or alien vegetation (GDARD, 2006). Refer to the Wetland and Rivers & Ridges Map **Figure 1** below.



Figure 1a: GDARD rivers, wetlands and ridges (Source: GDARD)

(b) Watercourses - indicating 1:50 and 1:100-year flood lines;

According to GDARD rivers, wetlands and ridges policies, there is a larger proportion of the proposed development site falls within a valley-bottom.

There is a parallel ridge located on the far side of the N12 Highway (the northern boundary of the site), which has seen valley formation. The valley includes a wetland complex with a defined watercourse. Much of the flatter valley-bottom areas have been historically (and presently) utilised for horse-based activities, with grazing paddocks, formal arenas and stables being commonplace with the associated landscaping, and transformation of habitat and floral features.

The watercourse enters the property at the north-western side after originating within the ridge areas to the nearby north. There is a formal impoundment along the watercourse within the north-western area. Disturbance features have seen encroachment of exotic vegetation along the watercourse, with the result that most of the watercourse and adjacent riparian/wetland zones associated with the watercourse are dominated by a variety of invasive floral species. Refer to **Figure 1** above.

The wetland and riparian units associated with the site suffer degradation and ecological transformation, with the greatest driver of ecological change being vegetation transformation. The vast majority of the units are dominated by exotic vegetation. Surrounding present land use also has had an impact on the ecological functionality of the wetland and riparian units.

○ **Buffer Zones**

The proposed development site does have an association with wetland habitat units and therefore conservation buffer zones are applicable. The wetland habitat units associated with the proposed development area performs vital functions within the landscape and should be regarded as being ecologically sensitive features. Conservation of this habitat unit forms an integral part of the conservation of the surface water resources throughout the catchment area. According to GDARD (2010), the site falls inside of the urban edge. The wetlands associated with the site would therefore normally be designated a 30 m buffer zone.

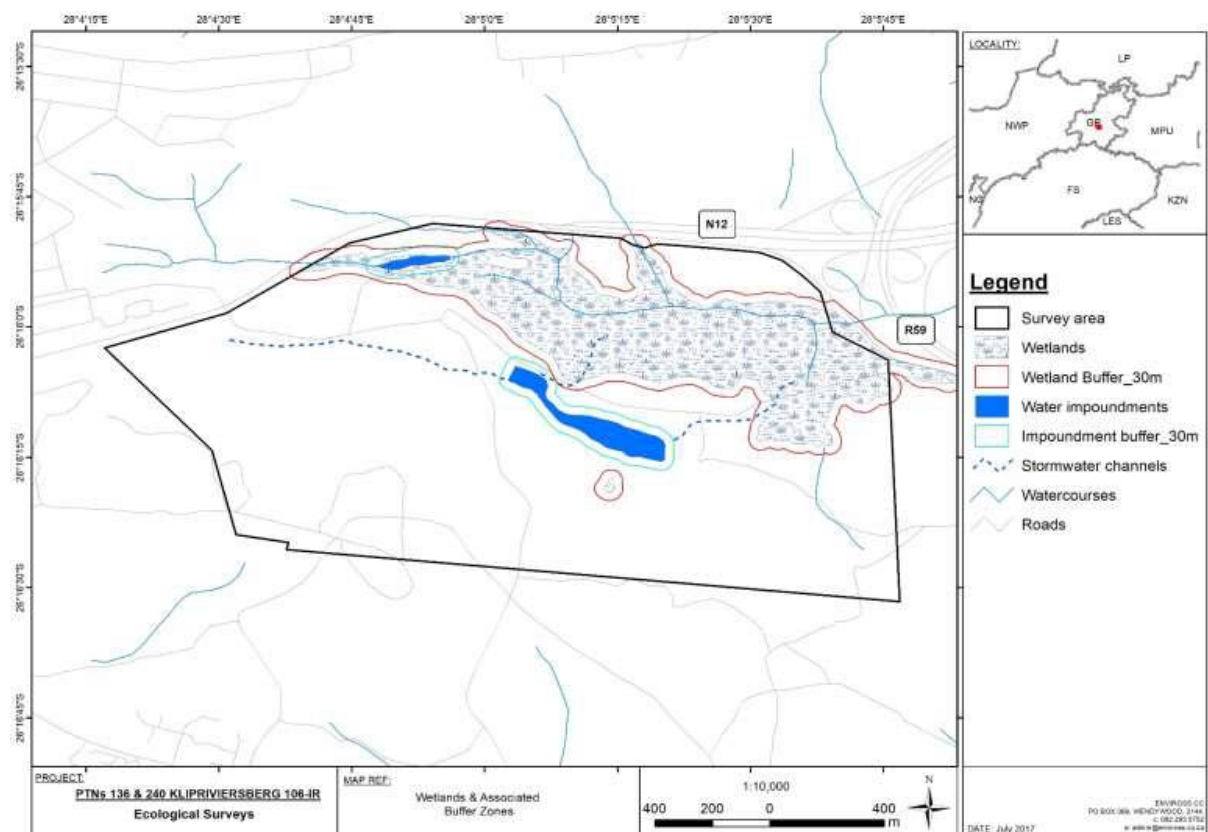


Figure 1b: The wetland delineation and associated conservation buffer zones for the wetlands associated with the proposed development site

(c) Red Data Species:

According to GDARD C-plan 3.3 and a desktop survey the region is regarded as Red Data Listed, namely the vulnerable *Cineraria Longipes* (Asteraceae). Three near threatened species also have been recorded from the region, namely *Stenostelma umbelluliferum* (Apocynaceae), *Trachyandra erythrorrhiza* (Asphodelaceae), *Lithops lesliei* subsp. *lesliei* (Mesembryanthemaceae), and *Habenaria bicolor* (Orchidaceae). Refer to **Figure 2** below.

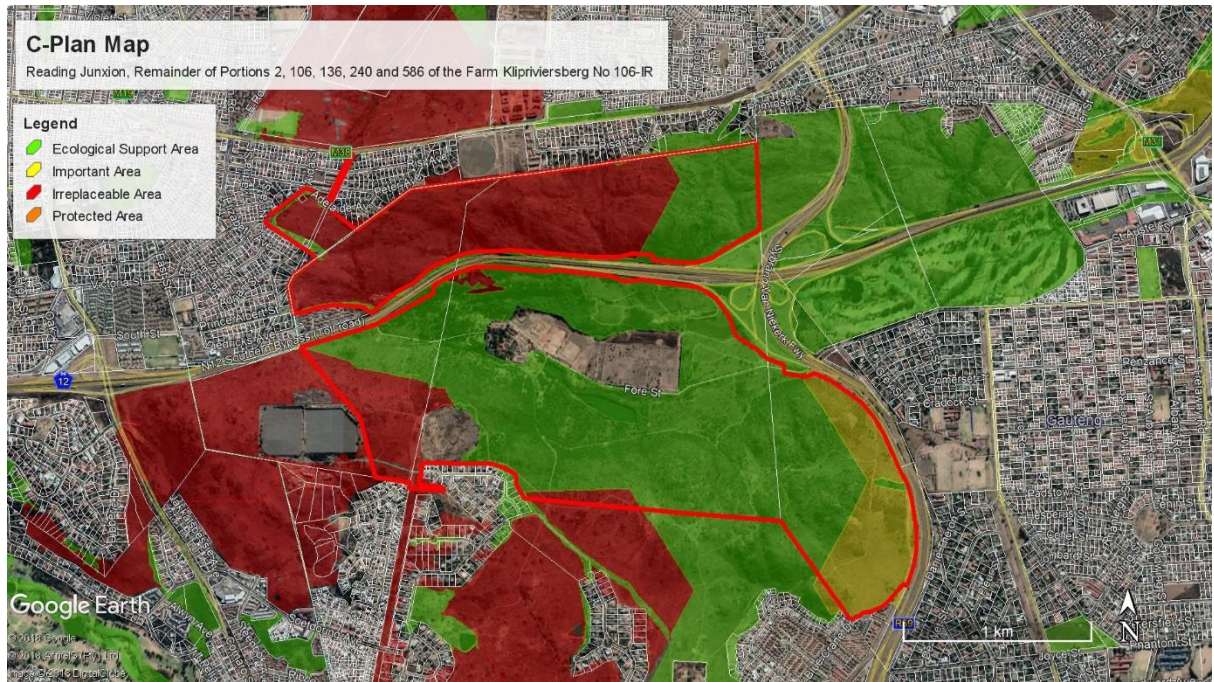


Figure 2a: GDARD C-Plan 3 (Source: GDARD)

- **Floral Features**

- **Floral endemism**

Centres of floral endemism refer to areas that have characteristics that allow for a high degree of incorporation of endemic (specific to only that region, climatic zone, topographical features or other defining feature) floral species. The survey area does not fall within or near any centres of plant endemism.

- **Vegetation types and floral community structures**

The proposed development site falls within the Savanna biome and the Central Bushveld bioregion. The dominant vegetation unit represented at the site is Andesite Mountain Bushveld, which is considered a least threatened vegetation type as it is generally associated with steep topography, rocky areas, which are not conducive to general development nor agriculture. It is also a vegetation type that is protected within various reserves (Mucina & Rutherford, 2006). Some aspects of Highveld Alluvial Vegetation (an azonal biome of the freshwater wetlands bioregion) occur in association with watercourses within the area as well as the valley bottom, flatter areas of the proposed development site.

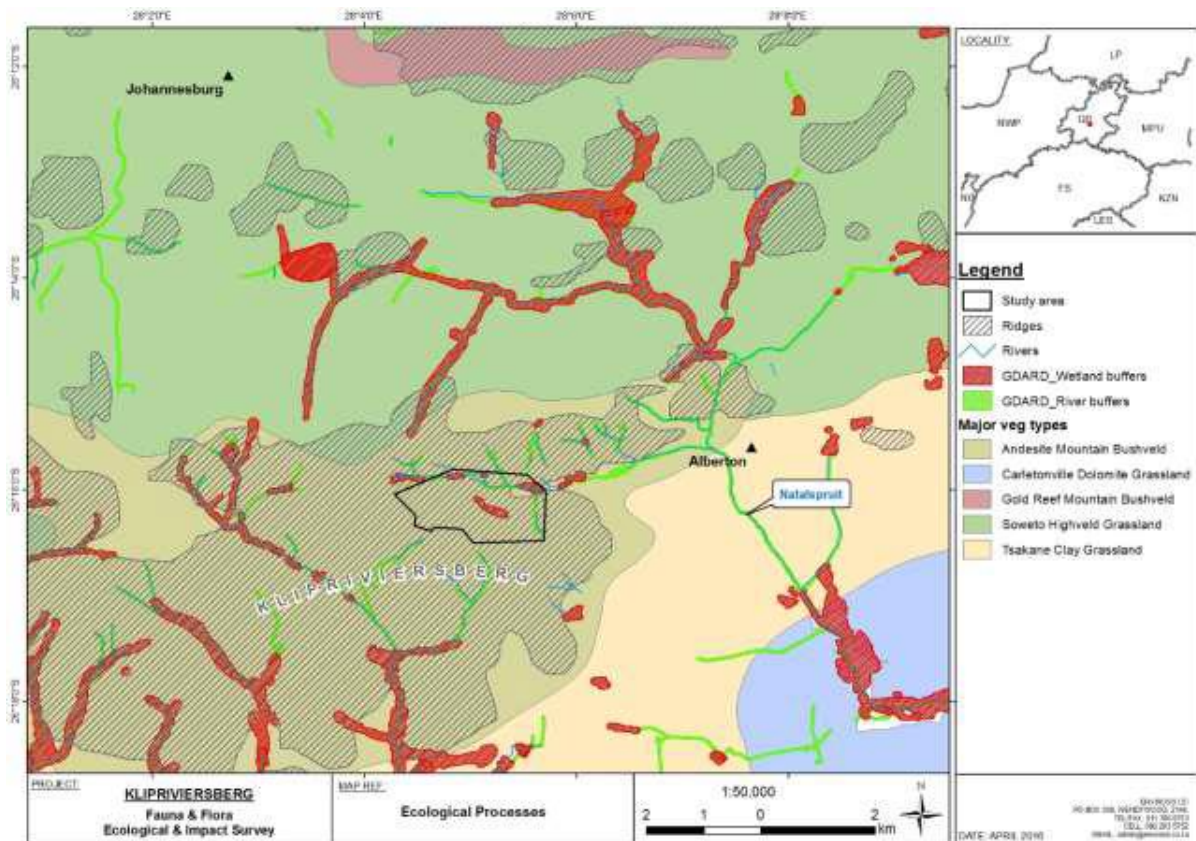


Figure 2b: Vegetation mapping and the association with wetlands and rocky ridges for the site.

- **Habitat units**

- **Wetland and riparian areas**

There is a main watercourse that enters the survey area from the northwest, with an impoundment occurring soon thereafter. The riparian areas of this watercourse are almost entirely dominated by exotic trees, with *Acacia mearnsii*, *Acacia dealbata*, *Eucalyptus camaldulensis*, *Populus deltoides*, *Populus nigra-italica*, *Salix babylonica*, *Solanum mauritianum* and *Populus x canescens* being the most dominant species. Grass After the impoundment, the watercourse is supplemented by seep zones and stormwater runoff from the N12 highway (the northern boundary of the site) as well as some smaller tributaries from the rocky ridge habitat located to the adjacent north of the highway. Within this area, *Populus x canescens* dominates almost exclusively, but *Populus deltoides*, *Eucalyptus camaldulensis*, *Ligustrum lucidum*, *Melia azedarach* also occur.

Sporadic occurrences of *Cyathea dregei* (tree fern) occurred within this densely-wooded area. As the watercourse leaves the densely-wooded area, there is a dominant stand of the exotic *Gleditsia triacanthos*, with *Salix babylonica* also becoming more prevalent along the watercourse. From there the watercourse is dominated by sedges such as *Bulbostylis hispidula*, *Carex austro-africana*, *Cyperus congestus*, *Cyperus denudatus*, *Cyperus laevigatus*, *Cyperus marginatus*, *Eleocharis dregeana*, *Pycreus nitidus* and *Schoenoplectus corymbosus*; reed species such as *Phragmites australis* and *Typha capensis*, and wetland grasses such as *Imperata cylindrica*, *Leersia hexandra*, *Hemarthria altissima*, *Paspalum urvillei*, *Agrostis lachnantha* and *Arudinella nepalensis*, until the eastern boundary of the property where exotic trees again dominate. *Kikuyu* (*Pennisetum clandestinum*) forms a major component of the vegetation biomass within these areas.

There is also a series of two impoundments located close together within the central southern section of the survey area. These impoundments are fed from stormwater runoff as part of the stormwater management of the areas of infrastructure pertaining to the site, via a series of canals. Again, the dominant vegetation was noted to be largely exotic, with *Acacia dealbata*, *Acacia decurrens* and *Acacia mearnsii* being dominant.

There is a small seep zone wetland located to the south of these impoundments, which is dominated by a seasonal/temporary zone indicator grass species, namely *Imperata cylindrica*.

○ **Open areas - disturbed**

The disturbed open areas include that have been subject to historical and/or ongoing vegetation transforming activities (cutting and maintenance of grass and removal/thinning of the tree component), but where no largescale vegetation stripping has taken place. Largely indigenous species dominate these areas.

The dominant land use throughout the survey area focuses on accommodating horse activities. This includes husbandry (stabling), grazing paddocks and various sport events. Areas that were previously woodland dominated have been transformed to improve grazing potential by thinning out or removing the woody components. Resulting grasslands are also either routinely maintained as a means to curb the risk of fire, snakes, etc (anything that poses a threat to horses within a confined area) and/or harvested for fodder.

Therefore, although floral communities represent a lot of indigenous species, the floral species community structures are not regarded as natural and therefore not representative of primary vegetation. Species noted within these areas included *Eucalyptus camaldulensis* as the dominant tree species, with kikuyu (*Pennisetum clandestinum*) forming a major component. *Vachellia* (*Acacia*) *karroo* forms a major component within the more natural areas. Grass species noted to be dominant included *Cynodon dactylon*, *Pennisetum clandestinum*, *Sporobolus africanus*, *Hyparrhenia hirta*, various *Aristida* and *Eragrostis* species, *Digitaria eriantha*, *Paspalum dilatatum*, *Urochloa mossambicensis*, and other species regarded as being agricultural weeds such as *Cyperus esculentus*, *Agrostis montevidensis*, *Brachiaria eruciformis*, *Bromus catharticus* and *Eleusine coracana*. As much of this area fell within a transition zone between terrestrial and wetland habitat, an increase in frequency and density of facultative wetland species and weeds was also noted. *Berkheya setifera*, *Berkheya radula*, *Verbena bonariensis*, *Helichrysum nudifolium*, *Senecio inornatus* and *Pseudognaphalium luteo-album* were also noted.

○ **Open areas - natural**

The survey area includes a section of the northern foothills of the Klipriviersberg Ridge complex and the flatter, valley areas to the adjacent north. The vast majority of the ridge-type habitat (areas of steeper topography) are regarded as natural and near-natural, with only minimal disturbance features being noted.

These areas remain representative of the vegetation type (Andesite Mountain Bushveld) and has retained primary vegetation features throughout most of its occurrence.

Floral species noted within these areas included trees and shrubs such as *Euclea crispa*, *Zanthoxylum capense*, *Protea caffra*, *Senegalia caffra*, *Ziziphus mucronata*, *Searsia pyroides*, *Diospyros lycioides* subsp *lycioides*, *Rhoicissus tridentata*, *Ficus ingens*, *Ficus abutilifolia*, *Dombeya rotundifolia*, *Rhamnus prinioides*, *Asparagus larcinus*, *Vachellia karroo*, *Heteromorpha trifoliata*, *Buddleja salviifolia*, *Buddleja saligna*, *Tapiphyllum parvifolium*, *Vangueria infausta*, *Gymnosporia polyacantha*, *Combretum molle*, *Celtis africana*,

Searsia lancea, *Searsia leptodictya*, *Searsia rigida*, *Senegalia ataxacantha* and *Cussonia paniculata*. Smaller shrubs/forbs included *Aloe greatheadii*, various *Commelina* species, *Leonotis leonurus*, *Triumfetta sonderi*, *Ledebouria cooperi*, *Ledebouria revoluta*, *Isoglossa grantii* and *Gladiolus crassifolius*. Grasses included *Digitaria eriantha*, *Themeda triandra*, *Setaria sphacelata*, *Elionurus muticus*, *Panicum maximum*, *Eragrostis curvula*, *Eragrostis superba*, *Eragrostis chloromelas*, *Hyparrhenia hirta*, *Cymbopogon pospischilii*, *Tristachya rehmannii*, *Tristachya leucothrix*, *Cymbopogon validus*, *Loudetia simplex*, *Diheteropogon amplexans*, *Urelytrum agropyroides*, *Microchloa caffra*, *Aristida adscensionis* and *Aristida congesta*.

○ **Buildings & infrastructure areas**

These areas include areas covered by existing infrastructure as well as adjacent cultivated gardens, access roads, etc. Almost entire habitat transformation has taken place within these areas and therefore are of limited ecological

value. Cultivated gardens, although largely composed of exotic floral species do, however, provide habitat for birds (especially) and small reptiles. Opportunistic species can also utilise and exploit infrastructure and the microhabitats that it presents (e.g. rock walls used by lizards, rubble piles used by reptiles and small mammals, etc.).

The grass basal layer was almost entirely dominated by kikuyu (*Pennisetum clandestinum*) and important weeds (outside of cultivated gardens) included *Mirabilis jalapa*, *Tagetes minuta*, *Datura stramonium*, and various *Conyza* species.

- **Faunal features**

The survey area falls within a region of increasing urbanisation and development, where open spaces are being transformed to accommodate surrounding development, which is also creating increasing ecological isolation and habitat fragmentation. Habitat connectivity is offered by the association that the site has with an interconnected wetland and ridge complexes, but connectivity to surrounding terrestrial habitat is limited by surrounding development, including a major highway. The proposed development site does, however, offer relatively large areas that have retained natural habitat features as well as habitat units such as wetlands and rocky ridges that are known to support a high biodiversity.

- **Mammals**

There are 92 mammalian species that have been historically recorded from the region pertaining to the proposed development site. This includes all historical distribution data so unrealistic expectations of ungulates, and larger predators are not relevant to the site. There are 28 species regarded as being of conservational significance (0 critically endangered, 2 endangered, 1 vulnerable, and 12 near threatened) and 13 as data deficient. The remaining 64 (70%) of the species are regarded as least concern.

The remainder of the species that are considered to have a low-medium probability of occurrence are limited to those small rodent and insectivorous species that are regarded as being Data deficient. These species are noted as having a relatively wide distribution range and cosmopolitan habitat preference. To effectively mitigate the negative impacts relating to these groups of species, attention needs to be given to reducing the general impacts on the habitat units (i.e. minimising the construction footprints, etc.). Even though disturbance factors will play a role in displacing certain more sensitive species, the proposed development activities are not thought to pose significant long-term impacts on the conservation of these species.

There are populations of area-unique mammalian species that were noted within the boundaries of the proposed development site. A population of Rock hyrax (*Procavia capensis*) was noted within the rocky area located just to the north of the impoundment at the north-west corner of the site. Another population was also noted to inhabit the rocky areas of the land to the norther of the highway and it is assumed that these are two interactive populations. Although the highway poses a significant ecological barrier to these two communities, there is a tunnel beneath the highway that would allow access. It is assumed, however, that, for the most part, that these two communities are isolated from one another. Indiscriminate development of the proposed area will impact on this species. The open space that is afforded the proposed development site, together with the habitat diversity, including rocky ridges and watercourses/wetlands means that general species diversity would be presumably high. Although the vast majority of these species are not of conservational significance, habitat transformation, fragmentation and destruction is regarded as the leading cause of species decline, especially within the urban environment. Transformation of the proposed development site will lead to species decline (in both diversity and numbers) within the local area.

- **Avifauna**

There are 374 avifaunal species recorded from the region, 29 of which are regarded as being of conservational concern. There are no species regarded as critically endangered recorded from the region. Five species are regarded as Endangered, whilst 10 species are regarded as Vulnerable. There are a further 15 species that are regarded as Near threatened. Species with the higher-ranking conservation status are largely limited to larger raptors that are

under threat due to habitat loss and fragmentation, leading to loss of habitat range and hunting or scavenging areas. A major threat to vultures, in particular, is deaths through poisoning, where stock farmers lay poison for vermin and small carnivores and vultures suffer either secondary poisoning or non-target, unintentional poisoning. Perhaps a larger threat to these species is target poisonings for body part use on the traditional medicine trade. The proposed development site does not offer viable habitat to support vulture species. Siting's of Cape Vultures are still expected, however, within the region as a viable breeding colony remains, located approximately 40 km away and it is possible to periodically see these birds soaring within the local area. The proposed development site would not be utilised for breeding, roosting nor hunting however.

The avifaunal species of conservational concern are cross referenced with their geographical distribution, habitat type availability, connectivity with surrounding habitat, viability of the available and extent of the habitat types. This then allows for a probability of occurrence (POC) to be allocated to each species, which will then allow for an impact rating to be designated to each species. It can be seen that none of these species are considered to have a high probability of occurrence at the site, with two medium POC species, namely the Lanner Falcon (*Falco biarmicus*) and Black Eagle (*Aquila verreauxii*) that could occur there – both being classified as Vulnerable. It is thought that there would be chance encounters with these two species within the scope of the proposed development site rather than any dependency, although the Black eagle is often observed within the Klipriviersberg Conservancy area and the nesting within the cliff faces near the top of the ridge is being promoted. The African grass owl (*Tyto capensis*) is also known to occur within grassland-dominated wetland areas within the region. There is a wetland complex associated with the proposed development site, but the extent and type of habitat, as well as connectivity to other similar habitat types, is not entirely suited to the nesting requirements of this species. It is therefore thought that the site may support sporadic occurrences of this species, but not any breeding activity. The remaining RDL species recorded from the region have a low POC and therefore are thought to not suffer any detrimental impacts imposed by the proposed development activities.

Avifaunal conservation in general is largely dependent on habitat availability and habitat integrity, which includes connectivity to surrounding habitat. The rocky ridge and associated open woodlands/rocky grasslands associated with the proposed development site have generally retained a relatively good ecological state, making these areas of greater relevance to avifauna, together with the permanent/seasonal zones of the wetland complex.

○ **Reptiles**

There are 37 known reptile species that have a distribution range that correlates to the proposed development site (SANBI, 2017), with one species, namely *Homoroselaps dorsalis* (Striped harlequin snake) being regarded as near threatened. This species is known to inhabit rocky Highveld grasslands and therefore could occur within the scope of the proposed development site. The site has a relatively high reptilian biodiversity, and this is because the site falls within a rocky ridge complex, which is a habitat type known to support a high diversity of reptiles. From species counts (ADU, 2016), the greatest densities of species are those that are particularly dependent on rocky ridge habitat and therefore get displaced through habitat transformation and destruction.

The region also includes the Klipriviersberg Nature Reserve where active reptile counts are undertaken, which also accounts for the region's relatively high reptilian diversity.

Commonly-occurring reptile species for the habitat type and area, namely *Agama atra* (Southern rock agama), *Gerrhosaurus flavigularis* (Yellow-throated plated lizard), *Pseudocordylus melanotus melanotus* (Common crag lizard), *Trachylepis punctatissima* (Speckled rock skink) and *Lagodactylus capensis capensis* (Common dwarf gecko) were observed on the site during the field assessment. No snake species were noted, but this is by no means an indication of the potential reptile diversity list for the property as this does not represent a long-term comprehensive reptile survey. The rocky ridge habitat in particular was noted to be rich in reptilian diversity and remains an important habitat type for the conservation of this taxa within the region. Wetland species such as those dependent of amphibians as a prey item of water snakes would occur within the seasonal to permanent wetland areas. Ecological isolation of the site leads to the perception that the potential reptile diversity list would be limited, however.

Greenspace and ecologically sensitive areas have been proposed to aid in ongoing reptile conservation within the area. With this taken into consideration during the planning phase of the proposed development, it is perceived that the proposed development would result in limited impact significance to the ongoing conservation of reptile species known to occur within the area.

○ **Amphibians**

Habitat loss, in all its many forms, was cited as the most pervasive threat facing amphibians and was listed for all species during the analysis for the frog atlas project (Minter, et al., 2004) and therefore habitat destruction should be limited to the absolute minimum throughout the survey area. This is especially pertinent to riparian and wetland habitat units. Amphibians have been shown to be steadily declining as a world-wide phenomenon. Care should therefore be practised in conserving all suitable habitats to aid in abating declines in amphibian numbers and diversity.

There are 11 amphibian species recorded from the area, none of which are regarded as conservational threatened (Minter, et al., 2004; du Preez & Carruthers, 2009 and ADU, 2015). The wetland zones associated with the wetland complex running through the site, and further afield, should be observed as an ecologically sensitive habitat feature to support amphibian diversity in general. Species noted during the survey included *Bufo gutturalis* (Guttural toad), *Schismaderma carens* (Red toad), *Xenopus laevis* (Common platanna) and *Amietia angolensis* (Common river frog). These are all commonly-occurring and widespread species. The main wetland area and impoundments, as well as the vegetated periphery of these impoundments are all habitat units important to amphibian conservation and should be treated as ecologically sensitive areas. Corridors to ensure migratory connectivity between these habitat units should also be ensured as part of the layout planning.

○ **Fish**

Evaluation of the fish species within the proposed development site was not applicable to the project, but it is assumed that fish do inhabit the farm dams, probably through translocation for recreational angling.

Popular angling species such as exotic common carp and/or bass would be expected to occur. Indigenous species such as *Pseudocrenilabrus philander* (Southern mouth brooder), *Tilapia sparrmanii* (Banded tilapia), and *Barbus paludinosus* (Straightfin barb) are some species that could occur within the dams and local watercourse.

○ **Invertebrates**

The invertebrate taxa that are of conservational concern include the Mygalomorph spiders, scorpions, certain butterfly (Lepidoptera) and dragonfly and damselfly (Odonata) species. Mygalomorph spiders as a taxon, includes various families of trapdoor and baboon spiders. This is a poorly studied taxon nationally, making accurate distribution data difficult to source. The family of Theraphosidae (baboon spiders) are a nationally protected taxa under CITES, prohibiting collection, trade and destruction without the applicable permits (subject also to provincial legislation). Mygalomorphs are all generally sedentary in habit. The females establish variations of burrows where they generally remain throughout their lifetime. Males, especially during mating seasons, are generally free-roaming. The females are therefore especially vulnerable to habitat destruction and transformations as disturbances that destroy burrows often destroy the inhabitant, or, if displaced from the burrow, the females have difficulty in establishing new burrows or finding adequate refugia. Conservation of this taxon therefore relies on intact habitat functionality. Care should therefore be practised to minimise the construction footprints for each tower and not to cause undue destruction of habitat.

Mygalomorph spiders inhabit virtually all the habitat types that are represented throughout the survey area, including transformed habitat and various species have been recorded from the Klipriviersberg Ridge complex. General habitat conservation is therefore the most viable mitigation measure to abate undue impacts on these species – as is applicable to all biodiversity within the region.

Red Data Listed butterfly species are also recorded from the region, and include the two vulnerable species,

namely *Aloeides dentatis dentatis* (Roodepoort copper) and *Metisella meninx* (Marsh sylph). *Aloeides dentatis* is known to occur along the Witwatersrand Ridge and Klipriviersberg Ridge complexes and is therefore vulnerable to habitat transformation of this habitat unit. *Metisella meninx* is known to occur in seasonal wetlands that incorporate the grass species *Leersia hexandra*, which was a species recorded within the seasonal wetland habitat. Conservation of the overall ecological integrity of the wetland unit associated with the proposed development site is therefore thought imperative to supporting the ongoing conservation of this species. Neither of these species were, however, encountered during the field survey. Relative ecological isolation of the habitat units that occur within the proposed development site also reduces the likelihood of these species occurring in viable numbers. Ecologically sensitive areas have been proposed for the proposed development site. Adherence to these recommendations will aid in overall invertebrate conservation within the region.

(d) High potential agricultural land

According to GDARD Gauteng Agricultural Potential Atlas (GAPA) the site has been classified as having low and moderate agricultural potential on the site. Refer to **Figure 3** below. The site has suffered varying degrees of vegetation transformation.

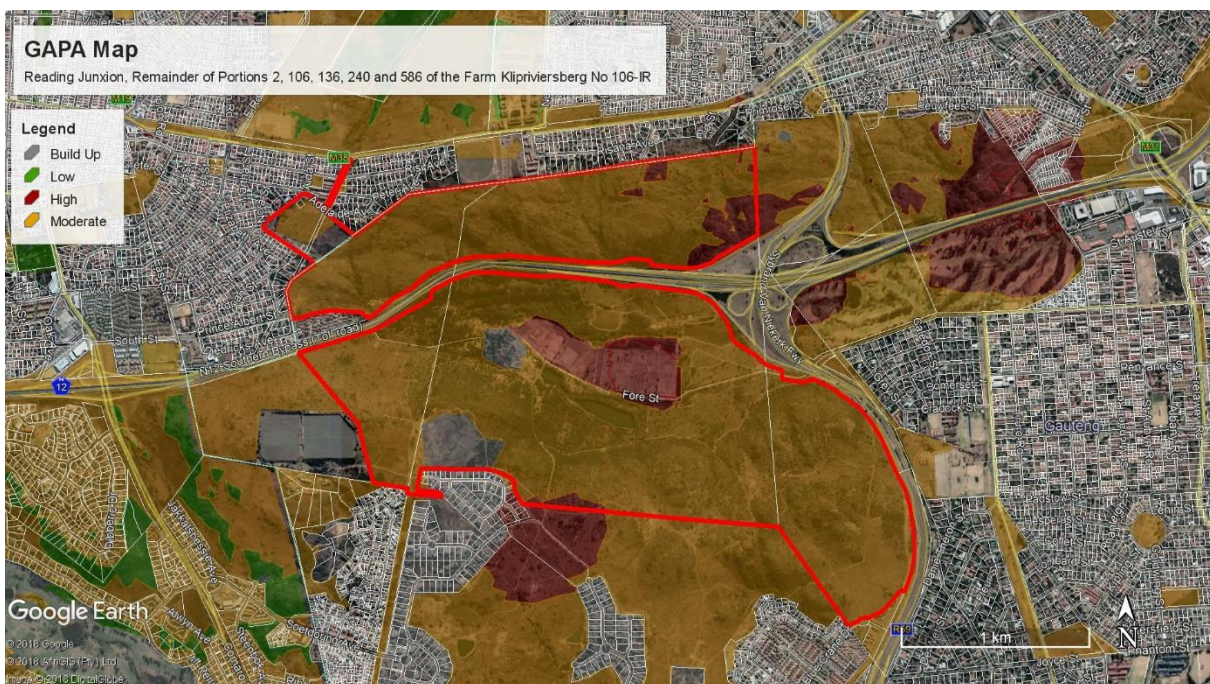


Figure 3: Gauteng Agricultural Potential Atlas (Source: GDARD)

- (iv). **Should the Environmental Impact Assessment (EIA) process not be relevant:**
An Environmental Impact Assessment and Environmental Management Programme (EMPr) will be conducted.
- (v). **Why is a Water Use Licenses Required?**
In terms of Section 21 of the National Water Act (NWA) (Act No 36 of 1998) the proposed development will require a Water use license for the following activities:
 - (a) Storing water;
 - (c) impeding or diverting the flow of water in a watercourse; and
 - (i) altering the bed, banks, course or characteristics of a watercourse.
- (vi). **Why is Heritage Impact Assessment required?**
In terms Section 38(1) of the South African Heritage Resources Act (25 of 1999) the proposed development will require heritage study for the following activities:
 - Development or barrier exceeding 300 m in length;

- (a) Construction of a road, wall, power line, pipeline, canal or other similar form of linear**
- (b) Construction of a bridge or similar structure exceeding 50 m in length; and
- (c) Any development, or other activity which will change the character of an area of land, or water –**
 - (1) Exceeding 10 000 m² in extent;**
 - (2) Involving three or more existing erven or subdivisions thereof; or**
 - (3) Involving three or more erven, or subdivisions thereof, which have been consolidated within the past five years;or
- (d) The costs of which will exceed a sum set in terms of regulations; or
- (e) Any other category of development provided for in regulations.