


# Environmental Screening Assessment

## Upgrade and Expansion of the Ikhethelo Secondary School, eMondlo, Abaqulusi Municipality



January 2021

Project Name:	Ikhethelo Secondary School		
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## Table of Contents

1. Introduction and project background .....	1
2. Project Details.....	7
3. Baseline Receiving Environment.....	8
3.1 Locational information .....	8
3.2 Climate.....	8
3.3 Regional geology .....	10
3.4 Topography.....	10
3.5 Surface water resources .....	10
3.5.1 Catchment and Drainage.....	10
3.5.2 Freshwater resources [informed by Scott-Shaw, 2020].....	13
3.6 Vegetation types [informed by Goode & Scott-Shaw, 2020] .....	14
3.6.1 Grassland & Forb Composition .....	15
3.6.2 Woody Tree Composition .....	17
3.6.3 Alien and/or ornamental plants.....	17
3.6.4 General flora overview.....	18
3.7 Conservation Characteristics.....	18
3.8 Landcover.....	19
3.9 Air Quality.....	24
3.10 Noise .....	24
3.11 Heritage Resources .....	24
4. Legislative Review .....	26
4.1 National Environmental Management Act, 1998.....	26
4.2 National Water Act, 1998 .....	26
4.2.1 General Authorisations .....	27
4.3 National Heritage Resources Act, 1999 .....	27
5. Conclusion.....	28
6. References.....	29

## List of Figures

Figure 1-1:	Locality Plan.....	2
Figure 1-2:	Existing facility layout.....	3
Figure 1-3:	View of proposed development site from main school entrance/gate (facing southeast) ..	4
Figure 1-4:	View of proposed development site from south-western boundary line (facing northeast)	5
Figure 1-5:	View of proposed development site from south-western boundary line (facing northeast)	6
Figure 1-6:	View of proposed development site from south-eastern boundary line (facing northwest).	7
Figure 3-1:	Site development plan.....	9
Figure 3-2:	Regional topography .....	11
Figure 3-3:	Surface water resources.....	12
Figure 3-4:	Dominant forb species found on-site (from left: <i>Ledoboria apertiflora</i> , <i>Acalypha punctata</i> , <i>Tephrosia purpurea</i> , <i>Pelargonium luridum</i> ).....	15
Figure 3-5:	Dominant grass species found on-site (From left: <i>Melinis repens</i> , <i>Paspalum notatum</i> , <i>Bromus pectinatus</i> , <i>Eragrostis curvula</i> ).....	15
Figure 3-6:	Vegetation Types (Ezemvelo KZN Wildlife) .....	16
Figure 3-7:	Indigenous woody species found on-site (From left: <i>Vachellia siberiana</i> , <i>Erythrina humeana</i> , <i>Dombeya rotundiflora</i> , <i>Albizia versicolor</i> ).....	17
Figure 3-8:	Examples of alien vegetation found on site (from left: <i>Melia azedarach</i> , <i>Lantana camara</i> , <i>Acacia melanoxylon</i> and <i>Jacaranda mimosifolia</i> ).....	17
Figure 3-9:	Protected and Expansion Strategy Areas .....	20
Figure 3-10:	Systematic Conservation Management Plan (C-Plan) regional classifications .....	21
Figure 3-11:	Endangered and Critically Endangered Ecosystems.....	22
Figure 3-12:	Department of Environment, Forestry and Fisheries Land Cover (2018) .....	23
Figure 3-13:	South African Heritage Resources Agency's Fossil Sensitivity Map .....	25

## List of Tables

Table 3-1:	Property central coordinates.....	8
Table 3-2:	Rainfall and temperature annual averages.....	8
Table 3-3:	Summary of National Freshwater Ecosystem Protected Areas (NFEPA) and desktop PES/EIS for major rivers .....	13
Table 3-4:	Details of the hillslope seepage wetland .....	13
Table 3-5:	Hydrology module for the hillslope seepage wetland .....	14
Table 3-6:	List of species identified at Ikhethelo Secondary School .....	18
Table 3-7:	South African National Standard SANS 10103: 2008.....	24
Table 4-1:	Relevant General Authorisations .....	27

## Acronyms and Abbreviations

C-Plan	Conservation Management Plan
CBA	Critical Biodiversity Area
CMA	Catchment Management Agency
DWS	Department of Water and Sanitation
EIA	Environmental Impact Assessment
EIS	Ecological Importance and Sensitivity
EMP	Environmental Management Plan
FEPA	Freshwater Ecosystem Priority Area
GA	General Authorisation
MAP	Mean Annual Precipitation
NFEPA	National Freshwater Ecosystem Priority Area
NEMA	National Environmental Management Act, 1998 (Act No. 107 of 1998)
NEM:PAA	National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003)
NWA	National Water Act, 1998 (Act No. 36 of 1998)
NHRA	National Heritage Resources Act, 1999 (Act No. 25 of 1999)
PES	Present Ecological Status
PSP	Professional Service Provider
SANBI	South African National Biodiversity Institute
SG	Surveyor General
SANS	South African National Standards
WMA	Water Management Area

## 1. Introduction and project background

In 2020, a consortium of professional service providers (PSP) was appointed by the Coega Development Corporation to provide consulting services to undertake an assessment of several learning institutions in KwaZulu-Natal to understand their facility compliance with the South African Schools Act, 1996 (Act No. 84 of 1996).

Included in the scope of works was an assessment of the Ikhethelo Secondary School, in eMondlo, northern KwaZulu-Natal (See Figure 1-1) and entailed an investigation into the following aspects:

- State of the structures (internal and external state of the buildings);
- Terrain (ground) conditions;
- Services available:
  - Water supply;
  - Sanitation services;
  - Electricity & telecommunication availability;
- Usability & of the facilities:
  - Grounds;
  - Ablutions;
- Capacity & accommodation thereof;
- Security; and
- Surroundings.

iNhlaba Consulting has been appointed to undertake an environmental screening assessment of the proposed upgrade and expansion of Ikhethelo Secondary School to identify any environmental sensitivities and ensure compliance with South Africa's environmental legislative frameworks.

The layout below (Figure 1-2), along with photographs (Figure 1-3 to Figure 1-6), provide an understanding of the existing School and its facilities.



Figure 1-1: Locality Plan



Figure 1-2: Existing facility layout





**Figure 1-3: View of proposed development site from main school entrance/gate (facing southeast)**

Note: Existing classrooms (Block 6; left-hand side); girl's ablutions (Block 11; right-hand side); and, line of jacaranda trees (centre).



**Figure 1-4: View of proposed development site from south-western boundary line (facing northeast)**

Note: Deteriorating concrete platform upon which a portion of the combi court (foreground) and a portion of the paved driveway and parking lot (background) are earmarked for development.



**Figure 1-5: View of proposed development site from south-western boundary line (facing northeast)**

Note: The blue container (right-hand side) and the line of trees (left-hand side), between which, the new Administration and Garden Store building (Block 8) is earmarked for development.



**Figure 1-6: View of proposed development site from south-eastern boundary line (facing northwest).**

Note: Existing staff residency (Block 10; left-hand side), which is earmarked for demolition and replacement with brick-and-mortar structure.

## 2. Project Details

By carrying out the above assessments, the PSPs were able to gauge the status quo of each of each of the schools, identifying all their features and characteristics to determine all upgrades and/or additions that may be required to bring each school to an acceptable standard as per the Department of Education South African Schools Act, 1996 (Act No. 86 of 1996) Minimum Uniform Norms and Standards for Public School Infrastructure Regulations (GN. R 920 of 2013). The Regulations promote safe and good working environments for teachers and learners; compliance with regulations, building codes and bylaws. Ensuring that the school meets these standards will assist in the avoidance of possible consequences that range from long-term property damage to a loss of life.

To ensure that the Ikhethelo Secondary School is able to meet these standards, the following expansion and upgrades are proposed:

- Administration Block (Block A);
- Lower grade classroom block (Block B);
- All ablution blocks (Block E, G & H) – The removal of asbestos roofing is to be done in accordance with the requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993);
- Teachers' cottage (Block I);
- Guardhouse – demolition and reconstruction (Block J); and,
- Combi court to accommodate multiple sporting codes.

Additionally, the following new facilities are proposed:

- SNP & Team-teaching block;
- Refuse area;

- Covered walkways between the internal blocks; and,
- Covered parking.

The following conversions are also proposed:

- Reduce classroom block to six classes & convert one class into a counselling office & Head of Department (HOD) (Block B);
- Convert higher grade classrooms to computer room, physical science, media centre, store and HOD (Block F);
- Existing Nutrition block to storerooms (Block C); and,
- Existing multipurpose block to an upgraded multipurpose and hospitality suite (Block D).

The proposed layout of the Ikhethelo High School, including existing and additional structures, is provided in Figure 3-1.

### 3. Baseline Receiving Environment

The purpose of the following section is to provide a brief overview of the environmental setting of the proposed project and to outline any potential environmental sensitivities.

#### 3.1 Locational information

The project is in Ward 16 which form part of the Abaqulusi Local and Zululand District Municipalities in the KwaZulu-Natal Province.

The project site is located within the urban edge and town planning scheme of eMondlo on Erf 972 (NOHT0540000097200000) (See Figure 1-1). The central coordinates for the site are provided in Table 3-1.

**Table 3-1: Property central coordinates**

Coordinates	Latitude	Longitude
Ikhethelo Secondary School	27°59'47.42"S	30°43'35.85"E

#### 3.2 Climate

The Ikhethelo Secondary School is located within the summer rainfall region of South Africa, receiving more than 80% of the annual rainfall from October to March, the highest average occurring during December -January (Table 3-2).

**Table 3-2: Rainfall and temperature annual averages**

	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec	Annual
Mean Rainfall (mm)	108.1	83.5	71.8	31.8	12.4	12.5	12.2	22.3	34.0	76.8	83.9	95.2	635
Mean Temp (°C)	21.4	20.3	17.9	14.9	12.2	12.2	14.4	17.3	18.2	19.6	20.8	21.1	17.6

The rainfall generally occurs in the form of convectional thunderstorms and is usually accompanied by lightning, heavy rain, strong winds and sometimes hail. The rainfall events are highly localized and can vary markedly over short distances.

The gross annual A-pan evaporation for the region is 1 831mm.

The annual prevailing wind direction, during the day, summer and winter months is north-westerly, while during the equinoctial period (March - May) and during night-time the prevailing winds are from the east.



Figure 3-1: Site development plan

### 3.3 Regional geology

The site formation is within the Ecca Group of the Karoo Supergroup (Karoo Basin). Ecca shale is typically dark-coloured as they are carbon rich due to the high vegetation content of the original sediments. Fine bedding or laminations may also be noted, and the shales tend to easily crumble. Overlying the shale is a thick sequence dominated by light grey sandstones, called the Vryheid Formation.

### 3.4 Topography

The town of eMondlo, is located centrally along a spur which slopes from the north west to the south east. The Ikhethelo Secondary School is located centrally along the spur at approximately 1 150 m above-mean sea level. Figure 3-2 provides an illustration of the regional topography and the situation of the school along the spur.

### 3.5 Surface water resources

Surfaces water resources located near to the project site are shown in Figure 3-3.

#### 3.5.1 *Catchment and Drainage*

Being located on a spur, the Ikhethelo Secondary School is located approximately 1 000 m upslope of two unnamed non-perennial streams (Ogogo System and Mtunjwayo System), which drain into the perennial Mvunyane System. These rivers form part of the DWS Quaternary Catchment W21D; and fall under the Usutu/Phongolo/Mfolozi Water Management Area (WMA), and are not managed by a waterboard.

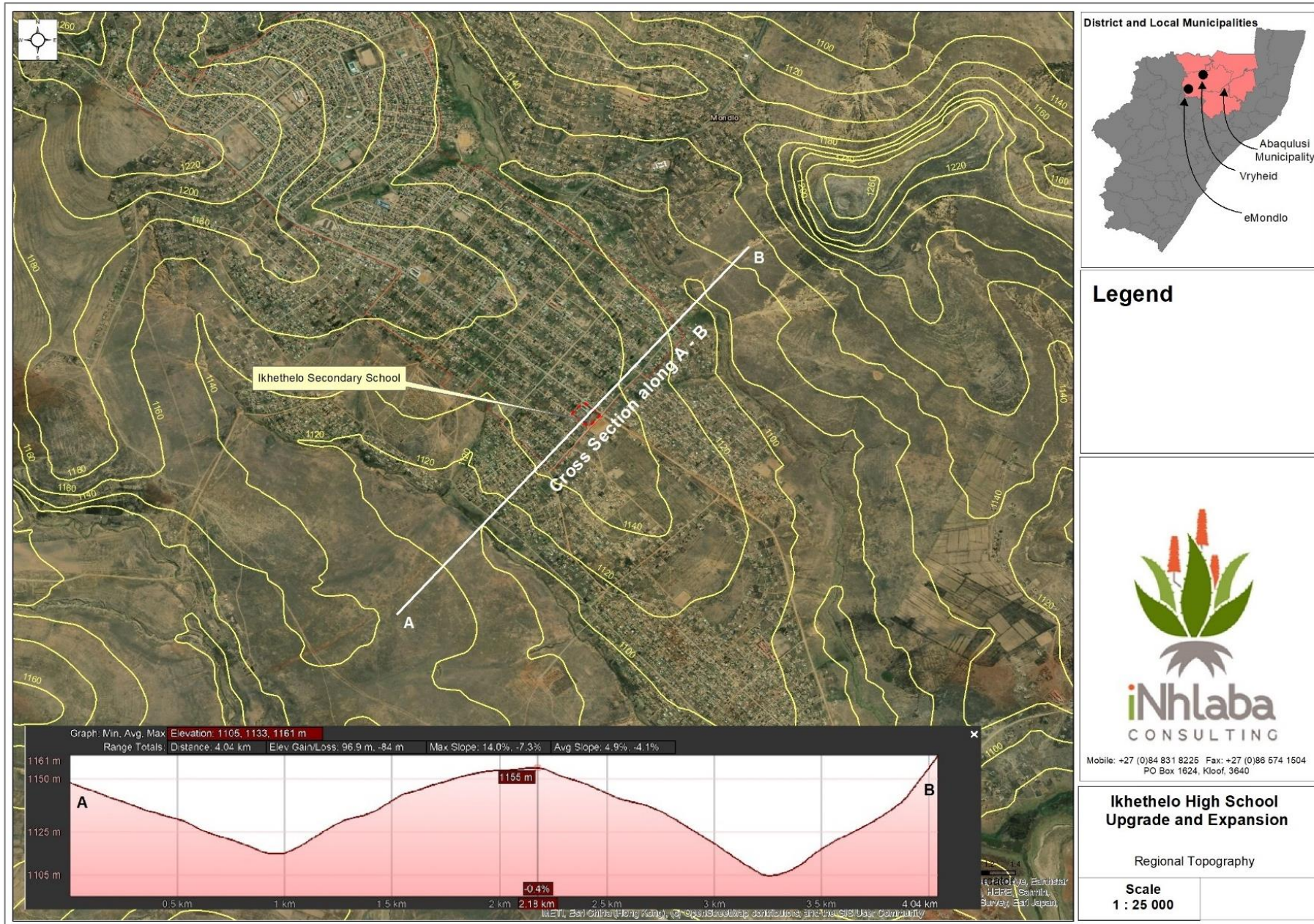


Figure 3-2: Regional topography



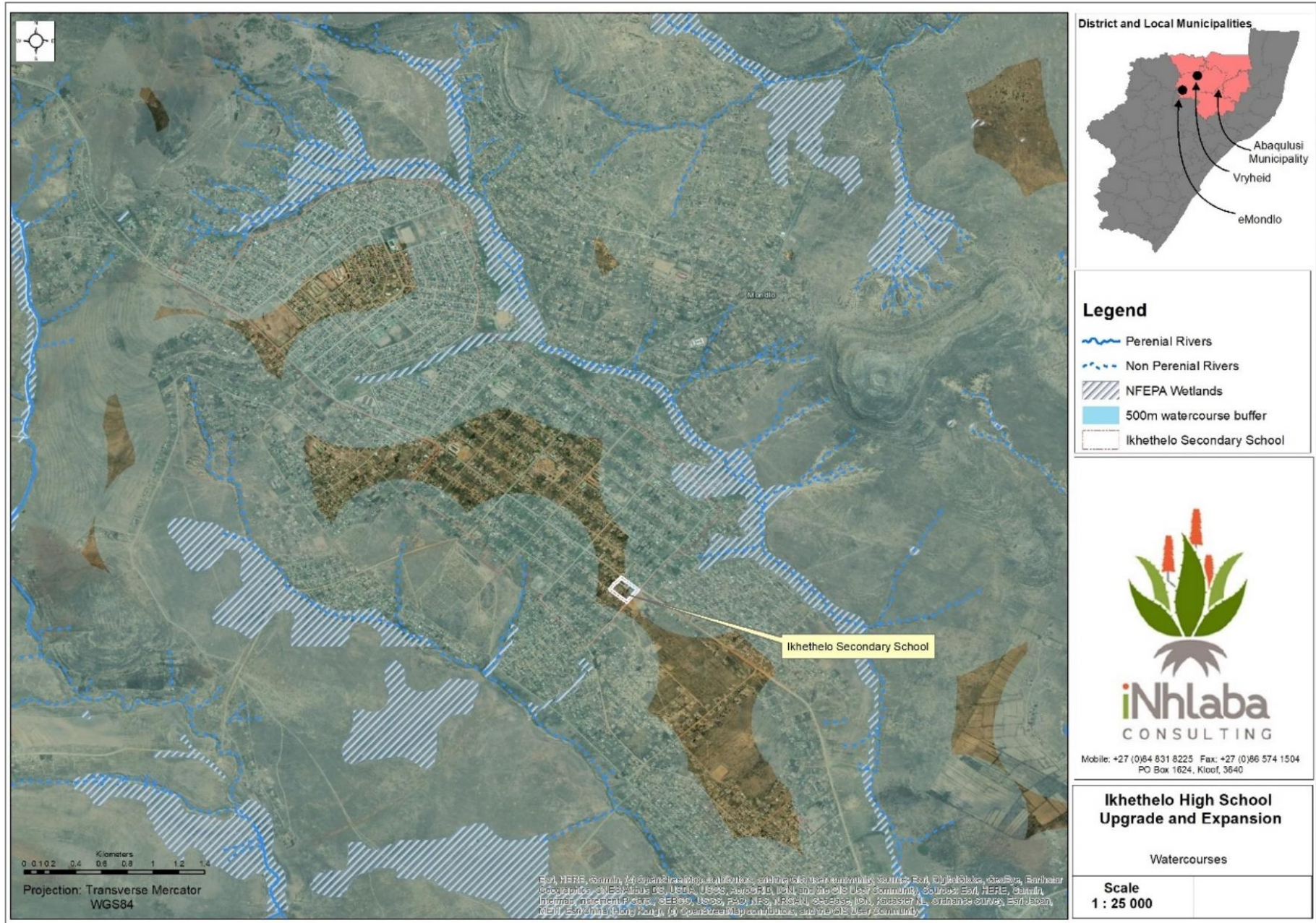


Figure 3-3: Surface water resources

### 3.5.2 *Freshwater resources (informed by Scott-Shaw, 2020)*

Regionally, information on river systems in the study area was limited, with only Present Ecological Status (PES) and Ecological Importance and Sensitivity (EIS) available. (Table 3-3).


**Table 3-3: Summary of National Freshwater Ecosystem Protected Areas (NFEPA) and desktop PES/EIS for major rivers**

General details			Desktop PES/EIS (DWS 2014)	
Quaternary Catchment	Reach Code	River Name	PES	EIS
W21C	W21C-02599	Sandspruit	C	High
W21D	W21D-02676	Mvunyane	B	Moderate

The site just falls within 500 m of a recognized seepage wetland, which forms a small non-perennial tributary of the Ogogo system, which indicates that this system is a national freshwater conservation priority.

No FEPA wetlands were identified within the development footprint. The layer codes for River FEPAs and associated sub-quaternary catchments, Fish Support Areas and associated sub-quaternary catchments and Upstream Management Areas (Scott-Shaw, 2020). Details of the Hillslope seepage wetland are provided in Table 3-4.

**Table 3-4: Details of the hillslope seepage wetland**

Feature	Wetland/ Riparian/ Artificial	Description & Vegetation	Soil Character	On-site images
Hillslope Seepage (HGM 1)	Wetland	Slopes on hillsides, characterized by the colluvial movement of materials. Outflow is usually via a well-defined stream channel connecting the area directly to a stream channel	<b>Mottle % - 2-5%</b> <b>Hue - 7,5YR</b> <b>Value - 5</b> <b>Chroma - 1 (Dark Gray)</b> <b>Depth sampled: 0-0.5m.</b>  High Organic matter content in the upper layer	

A WET-Health Assessment (Macfarlane *et al.*, 2008) was undertaken for the wetlands found within 500 of the proposed school upgrade. Wetlands that are part of the same system but have split due to developments were grouped together in the health assessments.

- **Hydrology:**

The Hillslope seepage wetland on site is severely encroached and modified. There was little to no variation in soil form, terrain and the vegetation surrounding the wetlands. The present hydrological state of the Hillslope seepage wetland was given a score of D, meaning that impact of the modifications is detrimental to hydrological integrity. The MAP: PET ratio indicates that the wetlands are not dependent on direct precipitation falling onto the wetland, depending on flow from upstream to a greater extent, making these wetlands more vulnerable to reduced flows. There is a significant amount of grey water entering this system.

The key factors influencing hydrological impacts on the wetland is the encroachment by humans and discharge from toilets. Natural water distribution and retention patterns are altered as a result of impeding structures across the wetlands, such as the roads and plots for houses that have resulted in hardened surfaces and therefore greater runoff as the surface roughness is altered.

It is important to note, that while the wetland scores relatively low for Hydrology, there are also severe localized impacts in the vicinity of the settlements which are not adequately reflected when combined with the state of the total wetland.

Table 3-5: Hydrology module for the hillslope seepage wetland

Hydrology module	Hillslope Seepage
Extent of the wetland (ha)	0.4
MAP:PET	0.4 – 0.49
Vulnerability factor	0.9
Combined score for increased and decreased flows	7.3
Intensity of impact of factors potentially altering flow patterns	2 – small
Magnitude of impact of canalisation and stream modification	0.07
Magnitude of impact of impeding features	0
Magnitude of impact of altered surface roughness	0.1
Impact of direct water losses	1.60
Magnitude of impact of recent deposition, infilling or excavation	0
Combined magnitude of impact of on-site activities	5.8 – Large
Combined magnitude score as a result of impacts on hydrological functioning	7
Overall hydrological health	The impact of the modifications is clearly detrimental to the hydrological integrity. Approximately 50% of the hydrological integrity has been lost.
Present hydrological state of the HGM unit	D
Trajectory of change of wetland hydrology	(→)

- Vegetation:

The present state of wetland vegetation of the wetland been given a class E as the vegetation composition has been mostly transformed. Many areas within the original wetland area have been developed over while other areas have been encroached by alien plants. The invasion of the wetland catchment has resulted in the reduction of characteristic indigenous wetland species and human disturbances have resulted in an alteration of introduced, alien and or increased ruderal species.

The majority of surface water runoff from the site will flow toward the west (Mvunyane catchment) with only a limited amount being directed to the Sandspruit system. Because of the sites flat topography, the vegetative coverage, high evaporation rates and highly permeable soils, there is limited, if any, risk to the surrounding watercourses.

### 3.6 Vegetation types [informed by Goode & Scott-Shaw, 2020]

The Ezemvelo KZN Wildlife Pre-Transformation Vegetation Type Map (2011) notes the site as being located within the Income Sandy Grassland (See Figure 3-6).

The Income Sandy Grassland (KZN Veg type 10 or SANBI Veg Type Gs 7) occurs in a large triangle between Newcastle, Vryheid and Dundee and larger polygon in the Wasbank area in northern KwaZulu-Natal at an altitude range of 880 – 1 340 m (mainly 1 120 – 1 240 m) (Mucina and Rutherford, 2006).

The vegetation unit occurs in very flat extensive areas with generally shallow, poorly drained, sandy soils supporting low, tussock-dominated sourveld forming a mosaic with wooded grasslands (with *Acacia sieberiana* var. *woodii*) and on well-drained sites with the trees *A. Karroo*, *A. Nilotica*, *A. Caffra* and *Diospyros lyciodes*. On disturbed sites *A. Sieberiana* var. *woodii* can form sparse woodlands. *Aristida congesta*, *Cynodon dactylon* and *Microchloa caffra* are common on shallow soils.

Its historical coverage is 463 487.24 ha with 44.59% natural habitat remaining.

The vulnerable conservation status is due to the fact that the conservation target of 23.56% has not been attained as none of the vegetation type is conserved in statutory conservation areas. Some 55.41% has been transformed for cultivation, plantations and by urban sprawl. A small portion of the area has been

lost to the building of dams (Klipfontein, Mvunyane). No serious infestations of invasive alien plants have been observed, probably due to the low nutrient status of soils.

### 3.6.1 *Grassland & Forb Composition*

Some small areas of grassland exist within the school. These areas are used as play areas and/or sports grounds. The forb and grassland species is typical for this area. *Ledoboria* and *Acalypha* are common forb species found throughout the site. Similarly, grass species such as *Melinis*, *Bromus* and *Eragrostis* were common throughout the site. It is likely that this grass is cut back every few months and there is no evidence of the grass areas being burnt.



Figure 3-4: Dominant forb species found on-site (from left: *Ledoboria apertiflora*, *Acalypha punctata*, *Tephrosia purpurea*, *Pelargonium luridum*)



Figure 3-5: Dominant grass species found on-site (From left: *Melinis repens*, *Paspalum notatum*, *Bromus pectinatus*, *Eragrostis curvula*)



### 3.6.2 *Woody Tree Composition*

Although the site consists of mostly alien tree species, some indigenous species were noted although these were isolated to individual trees. *Trema orientalis* (Pigeon Wood), *Erythrina*, *Albizia* and *Dombeya* were the key species identified on site. These species indicate that they would be the most suitable trees to plant for future management as they grow well under these conditions and are indigenous to the area. Some *Cussonia* species were found outside of the site and would be a good ornamental replacement for the school.



Figure 3-7: Indigenous woody species found on-site (From left: *Vachellia siberiana*, *Erythrina humeana*, *Dombeya rotundiflora*, *Albizia versicolor*)

### 3.6.3 *Alien and/or ornamental plants*

Ikhethelo Secondary School has historically been planted with ornamental trees, as was common during the period of its inception (Figure 3-8). The current vegetation cover consists predominantly of alien and pioneer tree species. The site is dominated by *Jacaranda mimosifolia*, *Lantana camara*, *Acacia melanoxylon* and *Melia azedarach*.

Subsequently several other alien invasive species have colonised both the boundary and the property overall.



Figure 3-8: Examples of alien vegetation found on site (from left: *Melia azedarach*, *Lantana camara*, *Acacia melanoxylon* and *Jacaranda mimosifolia*)

### 3.6.4 General flora overview

A complete list of species (indigenous and alien) identified on site is provided as Table 3-6.

**Table 3-6: List of species identified at Ikhethelo Secondary School**

Species name	Common name	Growth form	Category
* <i>Agave sisalana</i>	Sisal	Shrub/Tree	2
* <i>Bidens pilosa L.</i>	Black jack	Herb	
* <i>Bougainvillea glabra</i>	Paper flower	Shrub	
<i>Pelargonium luridum</i>	Variable stork's bill	Forb	
<i>Paspalum urvillei</i>	Vasey Grass	Grass	
<i>Ledoboria apertiflora</i>	Desert African hyacinth	Forb (red data)	
<i>Acalypha punctata</i>	Sticky Brooms and Brushes	Forb (red data)	
<i>Melinis repens</i>	Natal Red Top	Grass	
<i>Paspalum notatum</i>	Bahiagrass	Grass	
<i>Bromus pectinatus</i>	Hawergras	Grass (red data)	
<i>Eragrostis curvula</i>	Weeping love grass	Grass	
* <i>Lantana camara L.</i>	Tick berry	Shrub	1b
* <i>Melia azedarach</i>	Syringa	Tree	3
* <i>Acacia longifolia</i>	Long leaved wattle	Tree	1b
* <i>Acacia melanoxylon</i>	Australian Balckwood	Tree	2
<i>Albizia versicolor</i>	Large-leaved False-thorn	Tree	
* <i>Casuarina equisetifolia</i>	Horsetail tree	Tree	2
<i>Chamaecyparis lawsoniana</i>	Lawson cypress	Tree	
<i>Dombeya rotundifolia</i>	Wild pear	Tree	
<i>Erythrina humeana</i>	Coral Tree	Tree	
* <i>Jacaranda mimosifolia</i>	Jacaranda	Tree	1b (in KZN)
* <i>Schinus molle</i>	Peruvian pepper	Tree	
* <i>Schinus terebinthifolius</i>	Brazilian Pepper Tree	Tree	1b (in KZN)
<i>Syagrus romanzoffiana</i>	Queen palm	Tree	
<i>Trema orientalis</i>	Pigeon Wood	Tree	
<i>Vachellia sieberiana</i>	Paperbark thorn	Tree	

\*Denotes alien species

Several category invasive species were identified, some of which have shown signs of redistributing (species of particular concern include *Lantana camara* and *Melia azedarach*). These species should be removed or ringbarked on the site.

## 3.7 Conservation Characteristics

The conservation characteristics of the study area, extracted from available literature resources and databases, are summarised below:

- The site is not protected in terms of the National Environmental Management: Protected Areas Act, 2003 (Act No. 57 of 2003) (NEM:PAA). The nearest protected area is the Vryheid Nature Reserve, located more than 25 km north of the site. The study area does not fall within a focus area as per the National Protected Areas Expansion Strategy (2009), however areas to the north east of the eMondlo urban edge have been identified as potential future conservation areas (Figure 3-9).

- There are no Important Bird Areas within 5 km of the site (the nearest is ~ 20 km to the north west of the site).
- The Ezemvelo KZN Wildlife Systematic Conservation Management Plan (C-Plan) and the South African National Biodiversity Institute (SANBI) *Endangered and Critically Endangered Ecosystems* databases do not consider the site or its immediate surrounds to hold any species of concern (See Figure 3-10 and Figure 3-11).
- It is however noted an area to the north of the site (approx. 1 500 m) is classified by SANBI as *Vulnerable*.
- Areas to the north of the site are also classified as Critical Biodiversity Area (CBA) 1 (i.e. highest classification) based on several species of conservation concern potentially being located within these areas (*Ourebia ourebi*, *Scelotes bourquini*, *Midland Floodplain Grassland*, *Income Sandy Grassland*, *Cochlitoma simplex*, *Cochlitoma simplex*).
- The habitat suitability for *Ourebia ourebi* is noted in the Department of Environment, Forestry and Fisheries (DEFF) Screening Tool, which despite the unlikelihood of the antelope occurring on the site, denotes the site as having a *Medium* sensitivity (Refer to Appendix B).

### 3.8 Landcover

While the Vegetation types (Section 3.6) references the region as being within the Income Sandy Grassland and conservation concerns are noted in Section 3.7, the Department of Land Affairs and Rural Development Land Cover spatial database confirms the sites transformation from natural areas to an "Urban" land use (See Figure 3-12).



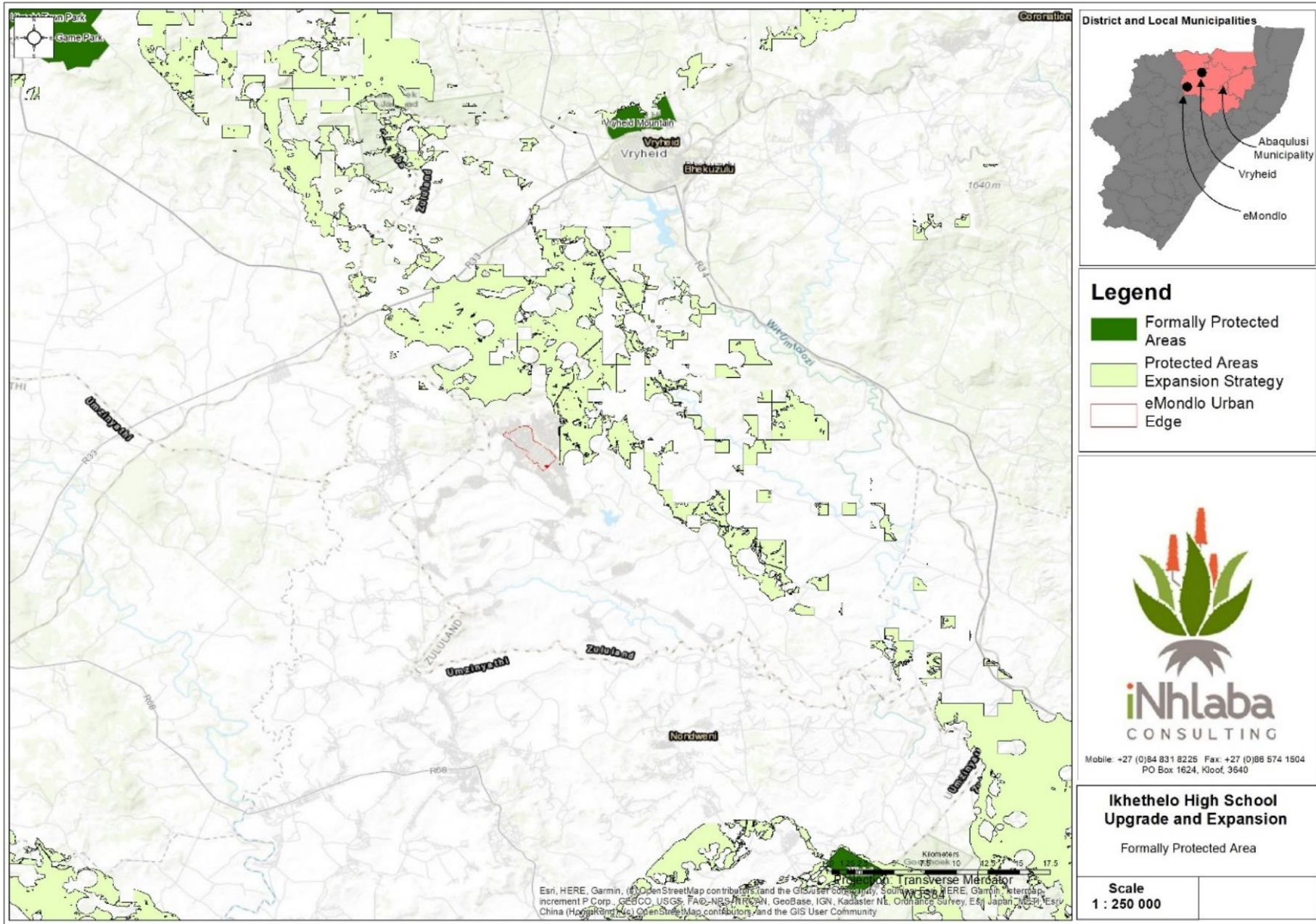


Figure 3-9: Protected and Expansion Strategy Areas

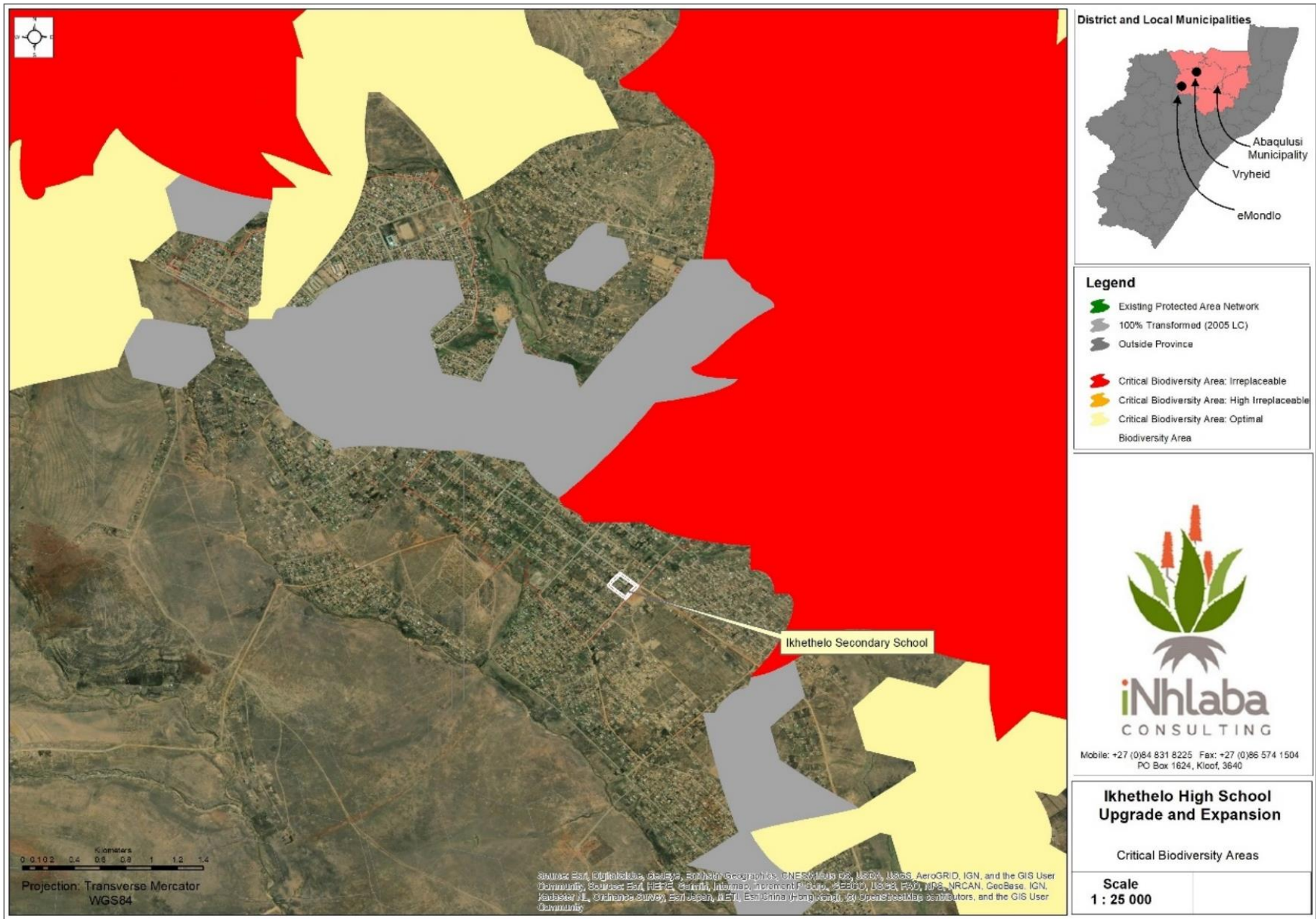


Figure 3-10: Systematic Conservation Management Plan (C-Plan) regional classifications

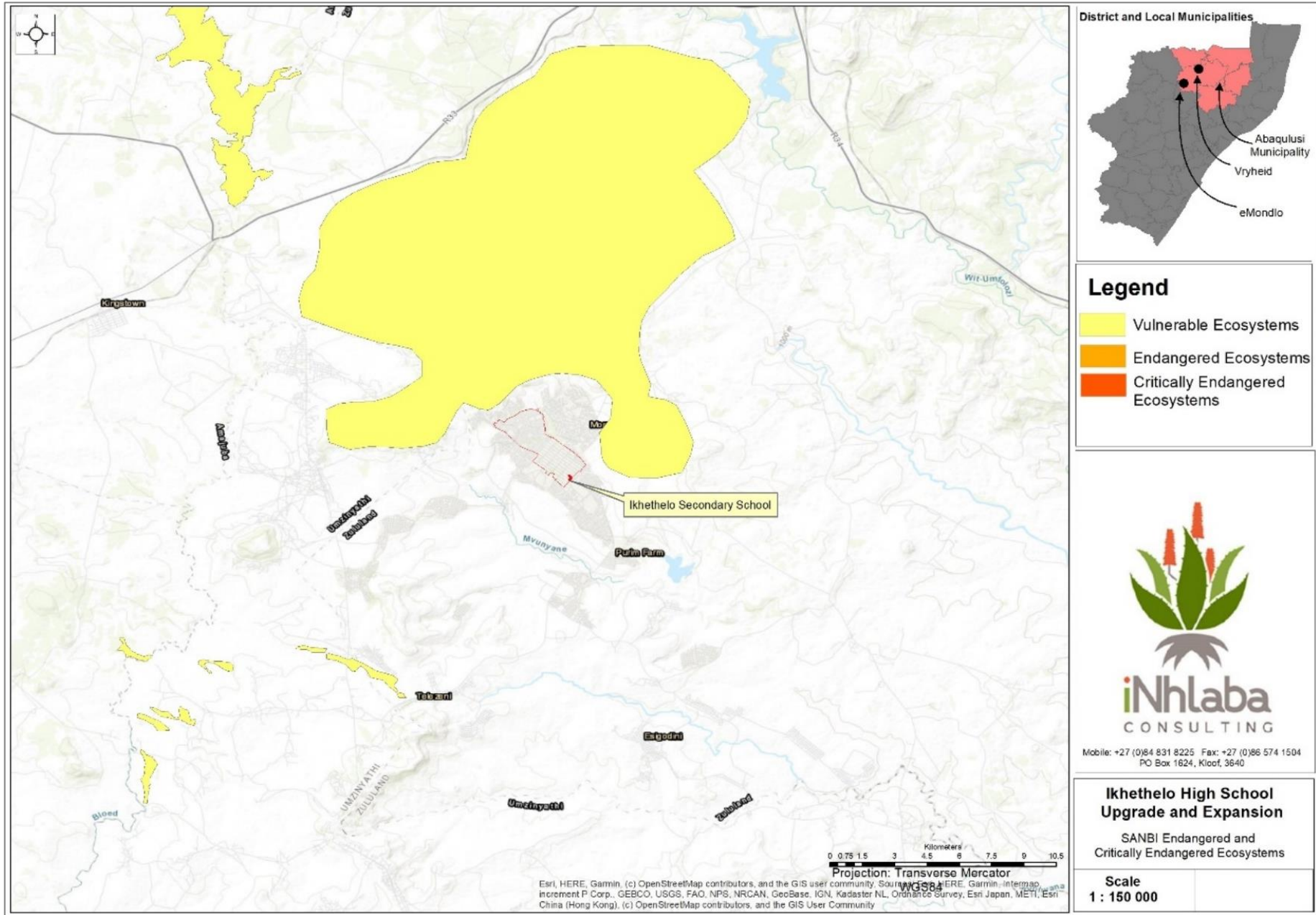


Figure 3-11: Endangered and Critically Endangered Ecosystems



Figure 3-12: Department of Environment, Forestry and Fisheries Land Cover (2018)

### 3.9 Air Quality

The site is located within a predominantly peri-urban to urban settling within the town of eMondlo. The town does not contain any significant industry or large emission sources and as a result the air quality at the site and its surrounds is expected to be good. Localized impacts on ambient air quality would result from vehicle emissions, cooking fires, ambient dust and seasonal fires.

### 3.10 Noise

As with air quality, the locality of the site within a rural to peri-urban to urban settling implies that ambient noise levels would be low and expected to conform to the South African National Standards (SANS) Noise Standards (SANS 101003: 2008) for (b) suburban districts with little road traffic (see bold in Table 3-7).

**Table 3-7: South African National Standard SANS 10103: 2008**

Equivalent Continuous rating level LReq,T for ambient noise dBA						
Type of district	Outdoors			Indoors, with open windows		
	Day-night	Daytime	Night-time	Day-night	Daytime	Night-time
a) Rural districts.	45	45	35	35	35	25
<b>b) Suburban districts with little road traffic.</b>	50	50	40	40	40	30
c) Urban districts	55	55	45	45	45	35
d) Urban districts with some workshops, with business premises and with main roads.	60	60	50	50	50	40
e) Central business district	65	65	55	55	55	45
f) Industrial districts	70	70	60	60	60	50

### 3.11 Heritage Resources

Based on the activities which have been undertaken on site and the transformation which has occurred, it is unlikely that any artefacts of cultural heritage significance remain on the site.

It is, however, noted that the South African Heritage Resources Agency's Fossil Sensitivity Map indicates that the project area is situated in an area shaded red that indicates an area of very high paleontological / fossil sensitivity (see Figure 3-13). This is largely driven by the understanding that the shales and sandstones of the Vryheid Formation have been known to contain fossilized remains, in particular fossilized imprints of the plants of the *Glossopteris* flora.

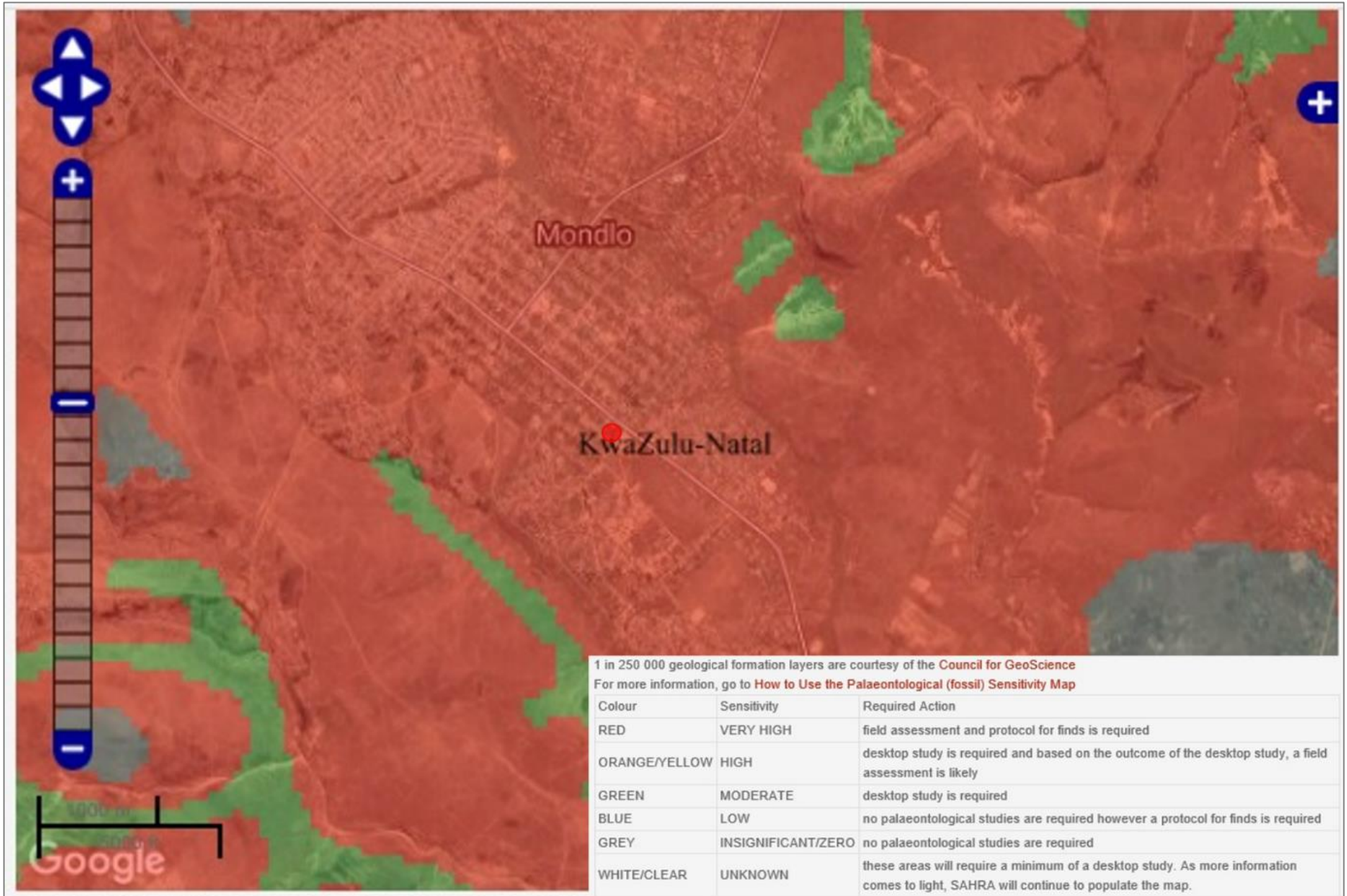


Figure 3-13: South African Heritage Resources Agency's Fossil Sensitivity Map

## 4. Legislative Review

The following screens the scope of the proposed development in terms of the National Environmental Management Act, 1998 (Act No. 107 of 1998) (NEMA), the National Water Act, 1998 (Act No. 36 of 1998) (NWA) and the National Heritage Resources Act, 1999 (Act No. 25 of 1998) (NHRA).

### 4.1 National Environmental Management Act, 1998

The NEMA aids in providing for co-operative environmental governance by establishing principles for decision-making on matters affecting the environment, institutions that will promote cooperative governance and procedures for coordinating environmental functions exercised by organs of state.

Section 24 (a) of the Act allows the (current) Minister of Environment, Forestry and Fisheries with the authority to gazette activities considered to present a risk to the environment. Undertaking a listed activity is prohibited from occurring without an environmental authorisation. The Minister most recently gazetted the Environmental Impact Assessment (EIA) Regulations, 2014 (as amended) along with the EIA Regulation Listing Notices 1, 2 and 3.

The locality of the proposed development within a transformed landscape and away from any water resources precludes the development from requiring environmental authorisation (See Appendix A for a brief review of applicable EIA Regulation Listing Notices).

Despite the proposed upgrade and expansion not requiring environmental authorisation it does not absolve the developer from the overarching requirement to exercise a *Duty of Care* as provided for in Section 28 of NEMA. Section 28 outlines that:

*Every person who causes, has caused or may cause significant pollution or degradation of the environment must take reasonable measures to prevent such pollution or degradation from occurring, continuing or recurring, or, in so far as such harm to the environment is authorised by law or cannot reasonably be avoided or stopped, to minimise and rectify such pollution or degradation of the environment.*

In order to provide due care for the environment, this environmental screening report includes an Environmental Management Programme (EMPr) which incorporates management actions recommended to safeguard against environmental impacts (see Appendix C).

### 4.2 National Water Act, 1998

The purpose of the NWA is to ensure that the nation's water resources are protected, used, developed, conserved, managed and controlled in ways which take into account amongst other factors: promoting equitable access to water; redressing the results of past racial and gender discrimination; promoting the efficient, sustainable and beneficial use of water in the public interest; facilitating social and economic development; protecting aquatic and associated ecosystems and their biological diversity; meeting international obligations.

Water rights are administered in terms of the NWA where the only entitlement to water rights is for basic human needs and the maintenance of ecosystem functions. Except for the water required for this environmental reserve and basic human needs use, all other water uses must be authorized by the Department of Human Settlements, Water and Sanitation (DHSWS) or a Catchment Management Agency.

Section 21 of the National Water Act lists eleven (11) consumptive and non-consumptive activities that are considered water uses which include:

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

#### 4.2.1 General Authorisations

A General Authorisation (GA) replaces the need to apply for a water use licence in terms of the NWA, provided that the water use is within the limits and conditions of the specific GA. Table 4-1 lists the GAs applicable to the proposed upgrades and explains their relevance.

**Table 4-1: Relevant General Authorisations**

General Authorisation	Relevance to the proposed project
General Authorisation in terms of Section 39 of the National Water Act, 1998 (Act No. 36 of 1998) for water uses defined in Section 21 (c) and (i) (GN. 509 of 2016).	<p>The Ikhethelo Secondary School is located within the "regulated area of watercourse" (i.e. within 500 m of a wetland seep) as illustrated in Figure 3-3.</p> <p>Given that:</p> <ul style="list-style-type: none"> <li>• The site is situated approximately 353 m from the nearest wetland;</li> <li>• The flat topography of the site which would limit runoff from the site. Resulting run off would be predominantly directed to the west, away from the wetland;</li> <li>• The vegetative cover currently established on site would promote infiltration; and</li> <li>• The highly permeable soils would further promote infiltration.</li> </ul> <p>It is unlikely that a water use in terms of Section 21 (c) and (i) would result.</p>
Revision of the General Authorisation for the taking and storing of water (GN. 538 of 2016).	GN. 538 of 2016 permits the abstraction of a maximum of 80 000 m <sup>3</sup> per annum from the Mvunyane and Sandspruit Rivers respectively (W21C and W21D).
The General Authorisation in terms of Section 39 of the National Water Act, 1998 (GN. 399 of 2004)	<p>Section 3 of the GA provides for the registration of a Section 21 (g) water use for <i>disposing of waste in a manner which may detrimentally impact on a water resource</i> subject to the limitations outlined in the GA.</p> <p>Domestic wastewater (including effluent) can pose a risk and detrimentally impact on surface and ground water resources if inappropriately managed.</p> <p>Based on available information, it is understood that wastewater is to be directed via municipal waterborne sewer system to the Abaqulusi Municipality wastewater treatment works, where it will finally be disposed of. Directing wastewater to sewer does not trigger the need to apply in terms of the National Water Act, 1998.</p>

The relevance of these activities should be confirmed with the provincial office of the DWS who function as the Catchment Management Agency for the Pongola-Mtamvuna WMA.

### 4.3 National Heritage Resources Act, 1999

The NHRA aims to promote good management of the national estate, and to enable and encourage communities to nurture and conserve their legacy so that it may be bequeathed to future generations.

Management of heritage resources is complex undertaking as it relates to places, objects that are considered to be part of the national estate. Because of the tangible and intangible nature of items of cultural significance, the national estate has a wide-reaching definition and includes, but is not limited to places, buildings, structures and equipment of cultural significance; historical archaeological and paleontological sites and graves and burial grounds.

While no structures or equipment of archaeological significance, archaeological sites or graves are considered to be at risk from the proposed upgrade and expansion of the Ikhethelo Secondary School, the site is underlain by a geological formation known to contain fossilized remains. Notice of the proposed upgrade and expansion should be provided to the provincial heritage authority in terms of Section 38 of the National Heritage Resources Act, 1999 (Act No. 25 of 1999) informing them of the proposed development.



## 5. Conclusion

The Coega Development Corporation has proposed the upgrading and expansion of the Ikhethelo Secondary School in eMondlo, in line with the South African Schools Act, 1996 (Act No. 86 of 1996) Minimum Uniform Norms and Standards for Public School Infrastructure Regulations (GN. R 920 of 2013).

To ensure that the Ikhethelo Secondary School is able to meet these Regulatory requirements, the following expansion and upgrades are proposed:

- Administration Block (Block A);
- Lower grade classroom block (Block B);
- All ablution blocks (Block E, G & H) – The removal of asbestos roofing is to be done in accordance with the requirements of the Occupational Health and Safety Act, 1993 (Act No. 85 of 1993);
- Teachers' cottage (Block I);
- Guardhouse – demolition and reconstruction (Block J); and
- Combi court to accommodate multiple sporting codes.

Additionally, the following new facilities are proposed:

- SNP & Team-teaching block;
- Refuse area;
- Covered walkways between the internal blocks; and
- Covered parking.

This environmental screening assessment included for a review of available desktop information, literature as well as a site inspection. The assessment confirmed that site is not located within an area of particular sensitivity but is subject to certain considerations in terms of the NEMA, NWA and NHRA, namely:

- No activities described in the EIA Regulation Listing Notices (Listing Notices 1, 2 or 3 of 2014) are triggered, and as a result the project implementation is not subject to obtaining an Environmental Authorisation. Nonetheless, this report is being submitted to DEFF for the purpose of confirming this interpretation.
- Despite not requiring Environmental Authorisation, NEMA obligates Developers to exercise a duty of care for the environment. An EMPr has been included as Appendix C for use during construction.
- The Ikhethelo Secondary School is located within the regulated area of a watercourse as defined in GA 509 of 2016 as a result of a hillslope seepage wetland being located approximately 350 m down slope of the site. The construction activities associated with the proposed upgrade and expansion are expected to result in a low, if any, risk to water resource quality objectives and should be eligible for registration in terms of the GA (509 of 2016). The scope of the proposed project must be discussed with the Department of Water and Sanitation to confirm their requirements.
- The project is not expected to result in any risks to archaeological or cultural heritage resources. Its locality within the Vryheid geological formation, which is known to contain fossilized plant imprints, is however noted. It is therefore recommended that the South African Heritage Resources Agency is notified of the proposed upgrade and expansion.

## 6. References

GOODE, R & SCOTT-SHAW, B. 2020. Terrestrial vegetation assessment for the proposed upgrade of the Ikhethelo High School situated in Vryheid, Abaqulusi Local Municipality, Zululand District, KwaZulu-Natal. NatureStamp (Pty) Ltd, Hilton

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MUCINA, L & RUTHERFORD, M.C. 2006. The vegetation of South Africa, Lesotho and Swaziland. South African National Biodiversity Institute, Pretoria.

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**APPENDIX A: REVIEW OF THE EIA REGULATION LISTING NOTICES 1, 2 AND 3 OF 2014 (AS AMENDED)**

Activity	Discussion Review
<b>EIA Regulation Listing Notice 1, 2014</b>	
<b>1 - 17</b>	<p>The definition of "<i>development</i>" per the EIA Regulations, 2014 <i>means the building, erection, construction or establishment of a facility, structure or infrastructure, including associated earthworks or borrow pits, that is necessary for the undertaking of a listed or specified activity, but excludes any modification, alteration or expansion of such a facility, structure or infrastructure, including associated earthworks or borrow pits, and excluding the redevelopment of the same facility in the same location, with the same capacity and footprint</i>;</p> <p><b>The Ikhethelo Secondary School is an existing facility and the proposed upgrades and expansion conform to the exclusion outlined in the definition of "development" (See Figure 1-2).</b></p>
<b>18</b>	<p>This activity relates to the planting of vegetation or placing of any material on dunes or exposed sand surfaces of more than 10 square metres, within the littoral active zone, for the purpose of preventing the free movement of sand, erosion or accretion.</p> <p><b>Not applicable based on the projects scope and its location (See Figure 3-3).</b></p>
<b>19</b>	<p>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 a watercourse;</p> <p><b>The nearest watercourse is located more than 400 m from the Ikhethelo Secondary School (See Figure 3-3) . This activity is not applicable.</b></p>
<b>19A</b>	<p>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 of more than 5 cubic metres from -</p> <ul style="list-style-type: none"> <li>(i) the seashore;</li> <li>(ii) the littoral active zone, an estuary or a distance of 100 metres inland of the highwater mark of the sea or an estuary, whichever distance is the greater; or</li> <li>(iii) the sea;</li> </ul> <p>Excluding .....</p> <p><b>Not applicable as the site is not located coastal zone (See Figure 3-3).</b></p>
<b>20-22</b>	<b>Not applicable as these activities regulate mining related activities being undertaken in terms of the Minerals and Petroleum Resources Development Act, 2002 (Act No. 28 of 2002).</b>
<b>23-25</b>	<b>Not applicable as these activities again regulate the "<i>development</i>" of (See discussion regarding activities 1-17 above).</b>
<b>26</b>	<p>Residential, retail, recreational, tourism, commercial or institutional developments of 1 000 square metres or more, on land previously used for mining or heavy industrial purposes;</p> <p><b>Not applicable as this activity relates to the development of land previously used for mining or heavy industry.</b></p>
<b>27</b>	<p>The clearance of an area of 1 hectares or more, but less than 20 hectares of indigenous vegetation, except where such clearance of indigenous vegetation is required for -</p> <p><b>The total area required to be cleared to affect the upgrade and expansion is less than 3 000m<sup>2</sup> which is less than the specified threshold (See Figure 1-2 and Figure 3-1). This activity is not applicable</b></p>
<b>28</b>	<p>Residential, mixed, retail, commercial, industrial or institutional developments where such land was used for agriculture, game farming, equestrian purposes or afforestation on or after 01 April 1998 and where such development:</p> <p><b>Not applicable as the scope of the proposed project is excluded in terms of the definition of "<i>development</i>"(See discussion regarding activities 1-17 above).</b></p>
<b>29</b>	<p>The release of genetically modified organisms into the environment.</p> <p><b>Not applicable as this activity relates to the release of genetically modified organisms (See Section 2).</b></p>
<b>30</b>	<p>Any process or activity identified in terms of section 53(1) of the National Environmental Management: Biodiversity Act, 2004 (Act No. 10 of 2004).</p> <p><b>The proposed upgrade and expansion of the Ikhethelo Secondary School does not entail undertaking a "threatening process" and is located outside of identified "<i>Vulnerable, Endangered or Critically Endangered Ecosystems</i>" (See Section 3.7 and Figure 3-11). The activity is not applicable.</b></p>
<b>31</b>	<b>Not applicable as Activity 31 relates to the decommissioning infrastructure and/operations (refer to Section 2).</b>
<b>32</b>	<p>The activity relates to continuation of any development where the environmental authorisation has lapsed.</p> <p><b>The development of the Ikhethelo Secondary School would not have held an environmental authorisation. This activity is not applicable.</b></p>

Activity	Discussion Review
33	This activity relates to underground gasification and is not applicable to the proposed scope of works (refer to Section 2).  <b>This activity is not applicable.</b>
34	The scope of the proposed project will not result will result in the need for a permit or licence or an amended permit or licence in terms of national or provincial legislation governing the release of emissions, effluent or pollution.  <b>This activity is not applicable.</b>
35	The scope of Activity 35 relates to the expansion of residential, retail, recreational, tourism, commercial or institutional developments on land previously used for mining or heavy industrial purposes,  <b>The Ikhethelo Secondary School is not located on land previously used for mining or heavy industrial purposes. This activity is not applicable.</b>
36-37	Activities 36 and 37 regulate the expansion of facilities for the generation of power.  <b>These activities are not applicable (See description in Section 2).</b>
38-43	Activities 38 to 43 relate to the expansion of agri and aquacultural facilities.  <b>These activities are not applicable (See description in Section 2).</b>
44	Regulates the expansion of cemeteries  <b>This activity is not applicable (See description in Section 2).</b>
45-46	Activity 45 and 46 relate to expansion of infrastructure for the bulk transportation of water, stormwater and wastewater.  <b>These activities are not applicable (See description in Section 2).</b>
47	Activity 47 regulates the expansion of infrastructure for the transmission and distribution of electricity.  <b>This activity is not applicable (See description in Section 2).</b>
48	Activity 48 regulates: The expansion of - (i) infrastructure or structures where the physical footprint is expanded by 100 square metres or more; or (ii) dams or weirs, where the dam or weir, including infrastructure and water surface area, is expanded by 100 square metres or more; where such expansion 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.  <b>The proposed expansion of the Ikhethelo Secondary School is located approximately 350 m upslope from the nearest watercourse (See Error! Reference source not found.).</b>  <b>This activity is not applicable.</b>
50	Activity 50 regulates the expansion of infrastructure for off-stream storage of water.  <b>This activity is not applicable (See description in Section 2).</b>
51	Activity 51 regulates the expansion of facilities for the storage of dangerous goods.  <b>The proposed Ikhethelo Secondary School does not include for the storage of dangerous goods. This activity is not applicable (See description in Section 2).</b>
52	Activity 52 regulates the expansion of structures in the coastal public property where the development footprint will be increased by more than 50 square metres.  <b>This activity is not applicable (See description in Section 2 and Figure 3-3)</b>
53	Activity 53 regulates the expansion and related operation of facilities for the desalination plants.  <b>This activity is not applicable (See description in Section 2).</b>
54-55	Activities 54 and 55 regulates the expansion of structures and infrastructure within the marine coastal zone, including estuaries.  <b>These activities are not applicable (See description in Section 2 and Figure 3-3).</b>
56-67	The activities from 56 to 67 regulate several activities which do not relate to the project description (Section 2).  <b>These activities are not applicable (See description in Section 2).</b>

Activity	Discussion Review
<b>EIA Regulation Listing Notice 2, 2014</b>	
<b>1 - 29</b>	<p>The description of the proposed upgrade and expansion of the Ikhethelo Secondary School does not meet the description of any of the activities listed in EIA Regulations Listing Notice 2, 2014.</p> <p><b>None of these activities are applicable (See description in Section 2).</b></p>
<b>EIA Regulation Listing Notice 3, 2014</b>	
<b>1 - 11</b>	<p>The description of the proposed upgrade and expansion of the Ikhethelo Secondary School does not meet the description activities 1-11 of the activities listed in EIA Regulations Listing Notice 3, 2014.</p> <p><b>None of these activities are applicable (See description in Section 2).</b></p>
<b>12</b>	<p>The clearance of an area of 300 square metres or more of indigenous vegetation except where such clearance of indigenous vegetation is required for maintenance purposes undertaken in accordance with a maintenance management plan.</p> <p>d. KwaZulu-Natal</p> <p>iv. Within any critically endangered or endangered ecosystem listed in terms of section 52 of the NEMBA or prior to the publication of such a list, within an area that has been identified as critically endangered in the National Spatial Biodiversity Assessment 2004;</p> <p>v. Critical biodiversity areas as identified in systematic biodiversity plans adopted by the competent authority or in bioregional plans</p> <p><b>The proposed site is not located with a critically endangered or within a critical biodiversity area (See Figure 3-10 and Figure 3-11).</b></p>
<b>13 - 26</b>	<p>The description of the proposed upgrade and expansion of the Ikhethelo Secondary School does not meet the description activities 1-11 of the activities listed in EIA Regulations Listing Notice 3, 2014.</p> <p><b>None of these activities are applicable (See description in Section 2).</b></p>

## APPENDIX B: RESULTS OF THE DEFF SCREENING TOOL REVIEW

## APPENDIX C: CONSTRUCTION ENVIRONMENTAL MANAGEMENT PROGRAMME (EMPR)



## APPENDIX D: SPECIALIST REPORTS