8.5 FAUNA

8.5.1 Faunal habitats

There are varying faunal habitats. These habitats vary from being anthropogenically transformed open grassland areas to largely natural rocky ridge habitats and secluded riparian areas (see section 8.3.3).

8.5.2 Mammals

The mammal species observed within and surrounding the proposed Lalini and Ntabelanga Dams are considered to be mostly common species, found throughout South Africa, that are adaptable to changing and transformed habitats, as well as being known to occur around human settlements. None of the observed species are considered to be threatened on a national level or provincial level. Currently mammal species within the study area are subjected to high levels of impact from subsistence hunting as well as habitat loss and transformation.

Figure 41: *Procavia capensis* (Rock hyrax) on the left with spoor of *Atilax paludinosus* (Water mongoose) on the right (DWS, 2014b)

8.5.3 Avifauna

A large diversity of avifaunal species was observed in the study area. The majority of avifauna observed was within the mountain bushveld, rocky outcrop and riparian habitat zones.

The mountain bushveld habitat unit located near the dam wall of the Lalini Dam is a unique habitat with a varying number of woody species, providing a large diversity of avifaunal species breeding habitat.

The flowering shrubs and aloes in these habitats provide a food source for many of the smaller specialized avifaunal feeders, notably the sunbirds as well as the small insectivorous birds such as the flycatchers.

One of the avifaunal species that is of concern is that of *Balearica regulorum* (Grey-Crowned Crane) (**Figure 42**). This species was observed foraging in the grassland/ transformed habitat units alongside the river system in the vicinity of the Ntabelanga Dam. Cranes throughout South Africa are already threatened with extinction due to habitat loss, and this will further exasperate conservation efforts to protect and

increase this species numbers. *B.regulorum* is listed as endangered by the IUCN, and with a rapidly decreasing population.

A second avifaunal species of concern within the study area and surrounds is *Gyps coprotheres* (Cape Vulture) (**Figure 42**). This species is listed as Vulnerable by the IUCN, and also listed as an endangered and protected species by NEMBA (Act 10 of 2004), and is endemic to South Africa.

Although none were observed during the time of assessment, NFEPA has indicated that the study area is a recognized breeding and foraging area for protected crane species, namely *Anthropoides paradisea* (Blue crane) and *Grus carunculatus* (Wattled crane). Both these species are listed as Vulnerable by the IUCN, and are listed protected species by NEMBA (Act 10 of 2004). *A. Paradisea* (Blue Crane) is of particular concern as it is indigenous to South Africa, as well as being South Africa's national bird.

Figure 42: On the left *Gyps coprotheres* (Cape Vulture) pair seen flying above the Lalini Dam study area; and on the right *Balearica regulorum* (Grey Crowned Crane) flock seen in the vicinity of Ntabelanga Dam study area (DWS, 2014b)

8.5.4 Reptiles

Reptiles are notoriously hard to detect in the field due to the shy nature, and as such an intensive search was undertaken within suitable reptile habitat, specifically in the mountain bushveld and rocky outcrop habitat units. Due to the habitat availability and study area location, a high diversity of reptiles was not expected to occur. The reptiles that were observed are commonly occurring species in the region. The rocky ridge outcrop and mountain bushveld habitat units are most suited to inhabitation by reptile species.

Figure 43: *Agama atra* (Southern Rock Agama) observed in the mountain bushveld habitat

8.5.5 Amphibians

A very low diversity of amphibians was observed at both the dams and surrounding areas. Although the dams presented a low diversity of amphibian species, the species that were observed were in fairly high numbers. The fairly isolated nature of the study area from surrounding amphibian populations in other active rivers, as well as the Titsa waterfall presenting an unsurpassable obstacle may be contributing factors to the low species diversity in the rivers. The mountains surrounding the river system and the waterfall would have limited amphibian colonisation of the river systems, resulting in only a few of the hardier and more far ranging common species being present in the river systems.

Figure 44: *Afrana angolensis* (Common river frog) observed throughout the study area.

8.5.6 Invertebrates

A wide variety of invertebrates was observed at both dam locations, and to a lesser extent along the proposed pipelines and power line routes as these predominantly followed existing roads. No NEMBA or Eastern Cape SoER (2004) listed invertebrates were observed during the site visit. As expected, the mountain bushveld, rocky outcrops and riparian zones provided the highest diversity of

invertebrate species, with the transformed grassland areas providing habitat for common grasshoppers and locusts that are better suited to those habitats.

Figure 45: *Onthophagus taurus* (Dung Beetle) on the left; *Zonocerus elegans* (Elegant Grasshopper) on the right.

8.5.7 Spiders and scorpions

Only four species of spiders were observed during the site visit; however it is expected that more species do inhabit the study areas. Due to their reclusive nature when faced by a threat as well as their ability to camouflage themselves well, they are very hard to locate. None of the spider species observed are considered to be threatened or of conservation value, nor are any endangered species thought to persist within the study areas.

One scorpion was located in the mountain bushveld habitat near the dam wall of the Lalini Dam (**Figure 46**). The scorpion belongs to the Genus *Hadogenes* (Rock scorpion), of which all species in this genus are listed under NEMBA (Act10 of 2004). *Hadogenes* sp fall under the category of nationally protected species, and are an indigenous species of high conservation value or national importance that require national protection. The mountain bushveld habitat located by the Lalini Dam wall will invariably provide habitat for many of these scorpions, as well as other scorpion species. When the Lalini Dam reaches full supply level, and in the process of reaching such, the habitat availability for the scorpions will be greatly reduced. At full supply level, the scorpions would be restricted to the higher rocky areas on the mountainside. Although the higher mountainside does is of suitable habitat for the *Hadogenes* (Rock scorpion), the habitat size that remains may be a limiting factor, along with the increased rates of predation on the scorpions.

Figure 46: *Hadogenes sp* (Rock scorpion) observed near the Lalini Dam wall

8.5.8 RDL species

RDL species taken into consideration for calculation of the Red Data Sensitivity Index Score (RDSIS) are listed below:

- *Balearica regulorum* (Crowned Crane);
- *Hadogenes sp.*(Rock Scorpions);
- *Eupodotis caerulescense* (Blue Korhaan);
- *Anthropoides paradiseus* (Blue Crane);
- *Gyps africanus* (Cape Vulture);
- *Ciconia ciconia* (Black Stork);
- *Tyto capensis* (Grass Owl); and
- *Sagittarius serpentarius* (Secretarybird).

The species listed above were then used to calculate the RDSIS for the entire study area, the results of which are presented in **Table 18**.

Table 18: RDSIS score attained

Red Data Sensitivity Index Score	
Average Total Species Score	**84**
Average Threatened Taxa Score	**84**
Average (Ave TSS + Ave TT/2)	**84**
% Species greater than 60% POC	**8%**
RDSIS of Site	**46%**

Table 19: Species with a probability of occurrence of >60%

Common name	Scientific Name	Threatened Status	POC
Black Stork	*Ciconia nigra*	NT	60.67
Secretary bird	*Sagittarius serpentarius*	NT	100.00
Blue Crane	*Anthropoides paradiseus*	VU	61.67
Blue Korhaan	*Eupodotis caerulescens*	NT	65.00
Grass Owl	*Tyto capensis*	VU	64.00
Cape Vulture	*Gyps coprotheres*	VU	100.00
Rock scorpion	*Hadogenes sp*	VU	100.00
Crowned crane	*Balearica regulorum*	VU	100.00

VU = Vulnerable, NT = Near Threatened, LC = Least Concern, NYBA = Not Yet Been Assessed, EN = Endangered

The RDSIS assessment of the study areas potential RDL fauna yielded a score of 46%, indicating a medium importance with regards to RDL faunal species conservation within the region. All species with a Probability of Occurrence (POC) of 60% or more have an increased probability of either permanently or occasionally inhabiting the study area. The species that have a POC of 100% are those species that were directly observed at the time of the site visit. The species listed in **Table 19** are the only species that attained a POC of greater than 60%.

The majority of the above listed species would have a greater possibility of occurring at the Lalini Dam than the Ntabelanga Dam, as the Lalini Dam site provides more intact faunal habitats with lower levels of anthropogenic activities.

8.6 SURFACE WATER RESOURCES

The study area falls within the South Eastern Uplands Aquatic Ecoregion and the Mzimvubu to Kieskamma Water Management Area (WMA) (**Figures 47** and **48**). The subWMA indicated for the study area is Mzimvubu.

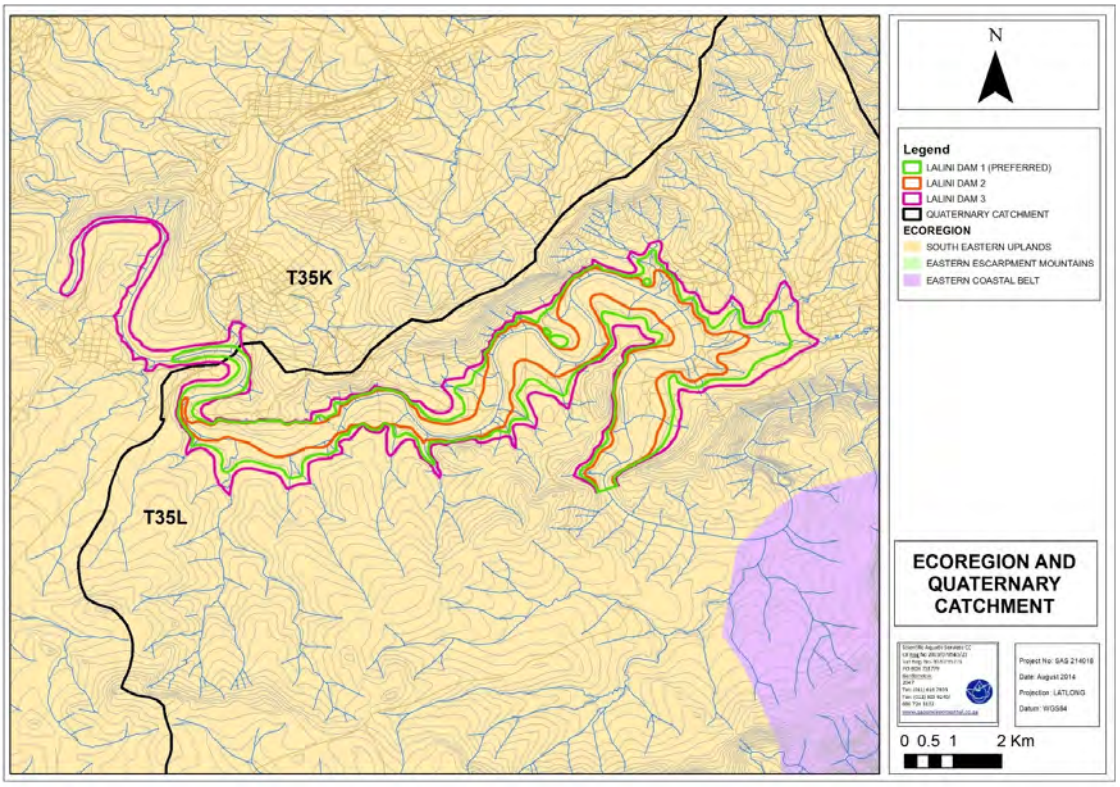

Figure 47: Aquatic Ecoregion and quaternary catchment associated with the Lalini Dam

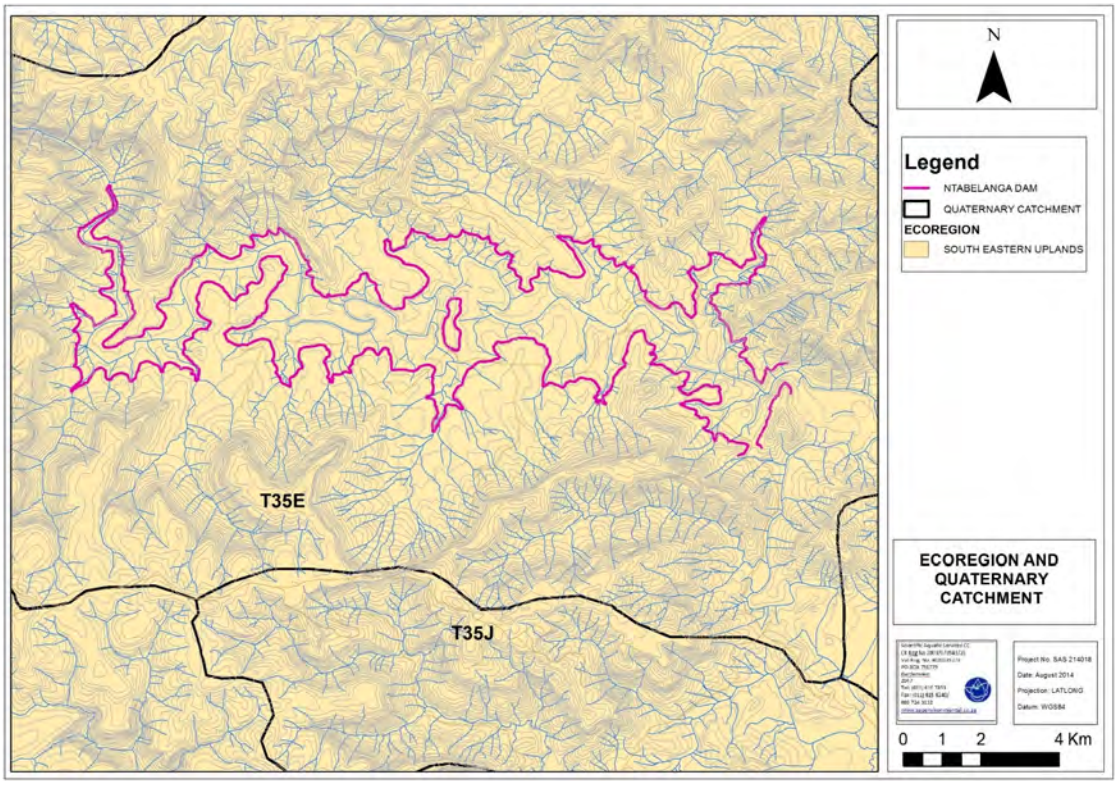

Figure 48: Ecoregion and quaternary catchment associated with the Ntabelanga Dam and the road upgrades

The Lalini Dam is located within the T35L and T35K Quaternary Catchments, whilst the Ntabelanga Dam and road upgrades are located within the T35E quaternary catchment and the particular river resource in the area is the Upper Ntata, Mzimvubu River. The pipelines traverse over several quaternary catchments, namely T20B, T34H, T34 J, T35E, T35H and T35K.

The PES Category of the various river systems in the affected quaternary catchments varies between PES B and PES C. The Tsitsa River, specifically, is classified as a PES Category B river, whilst the Inxu is considered to be in a PES Category C. All systems are considered to have a 'moderate' Ecological Importance (EI) whilst the Ecological Sensitivity (ES) varies between High to Medium sensitivity. The Tsitsa River is considered to be of moderate sensitivity whilst the Inxu River is deemed to be highly sensitive. The default Ecological Class of the river systems in these quaternary catchments, based on the median PES and highest of EI or ES means is considered to be either a Class B or a Class C. The Tsitsa River is deemed to be a Class C, and the Inxu is deemed to be a Class B system.

The Tsitsa River is tributary of the Mzimvubu River and will be partially inundated by both dams. It is a perennial river that is classified in Category C condition (Moderately modified), indicating that loss and change of natural habitat and biota have occurred, but the basic ecosystem functions are still largely unchanged.

The northern pipelines cross the Thina River which is classified as being in Category C condition (moderately modified). The Thina River is regarded as an important fish sanctuary, translocation and relocation zone and is classified as being a fish support area.

The north-eastern areas of WMA12 catchment have the highest rainfall in the Eastern Cape Province. The mountain/highland grasslands in these areas maintain high water quality and yield, which is critical for the neighbouring rural communities and also for downstream consumption. This catchment therefore provides goods (water quantity) and services (clean water) to the downstream communities. These areas are however degraded and are characterised by severe soil erosion.

Although soil erosion is a natural process, in the Mzimvubu and Tsitsa River catchments is exacerbated by human activities and affects ecosystem health. Land degradation therefore negatively impacts the majority of downstream rivers, which are characterised by high turbidity and increased siltation. This phenomenon is dominant in the catchments that will yield water to the proposed Ntabelanga dam namely T35A (Upper Tsitsana), T35D (Pott Tsitsa), T35C (Mooi River), T35B (Pott River), and T35E.

Wetlands in the project area provide important ecological services in the way of sediment trapping, nutrient cycling and toxicant assimilation, flood attenuation and biodiversity maintenance. In view of the extensive erosion within the catchment, sediment trapping is especially important.

Water quality is currently not a major concern in this catchment.

The subWMA, in which the proposed Lalini Dam will be located, is regarded as important with regards to fish corridors for movement of threatened fish between habitats and for the conservation of crane species and falls within the Sub-escarpment Savanna wetland vegetation group. The wetlands in the vicinity of the proposed Lalini Dam are classified as channelled-valley bottom wetlands in Category Z1 condition (critically modified) (**Figure 49**). This sub-WMA is classified as a FEPA system, with a rank of 2 indicating that the majority of its area is within a sub-quaternary catchment that has sightings or breeding areas for threatened *Balearica regulorum (*Grey Crowned Crane) and *Anthropoides paradiseus* (Blue Crane).

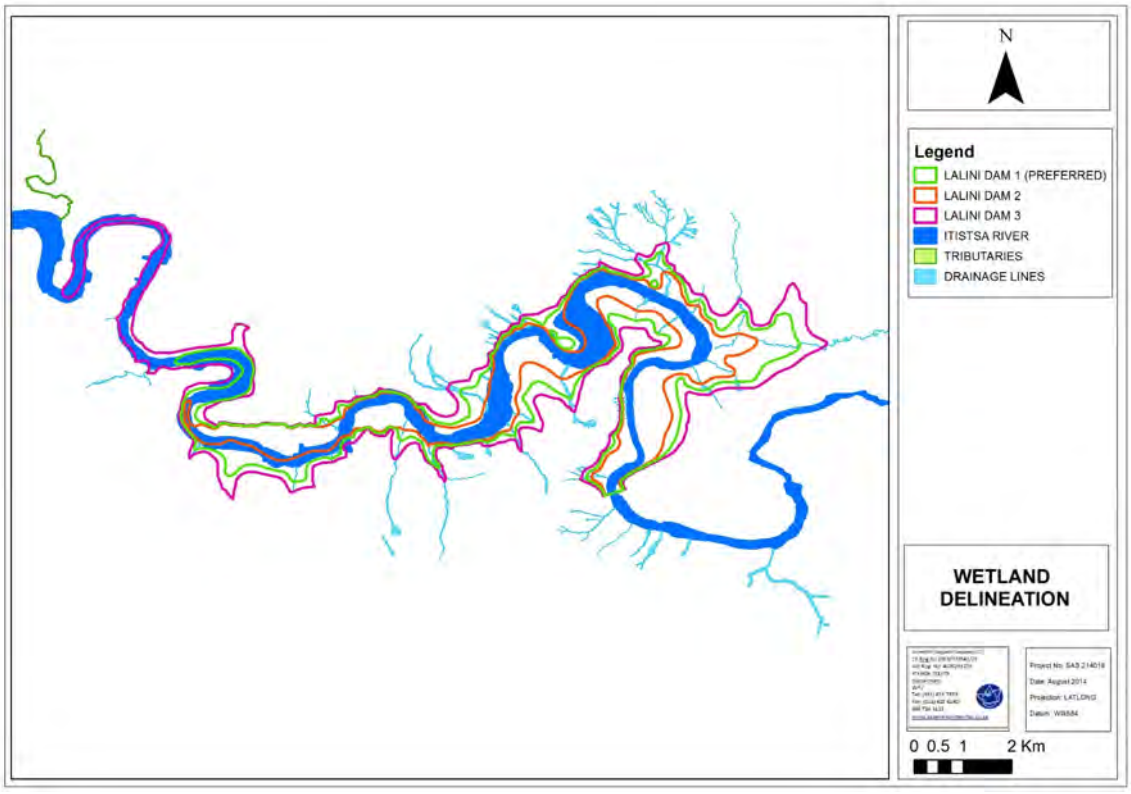

Figure 49: Wetland features identified within the study area, in relation to the proposed Lalini Dam site (DWS, 2014d)

The subWMA, in which the proposed Ntabelanga Dam will be located, is regarded as important in terms of the conservation of crane species and the wetland vegetation group is identified as Sub-escarpment Grassland Group 6. Wetland features identified in the Ntabelanga Dam area are indicated in **Figure 50**.

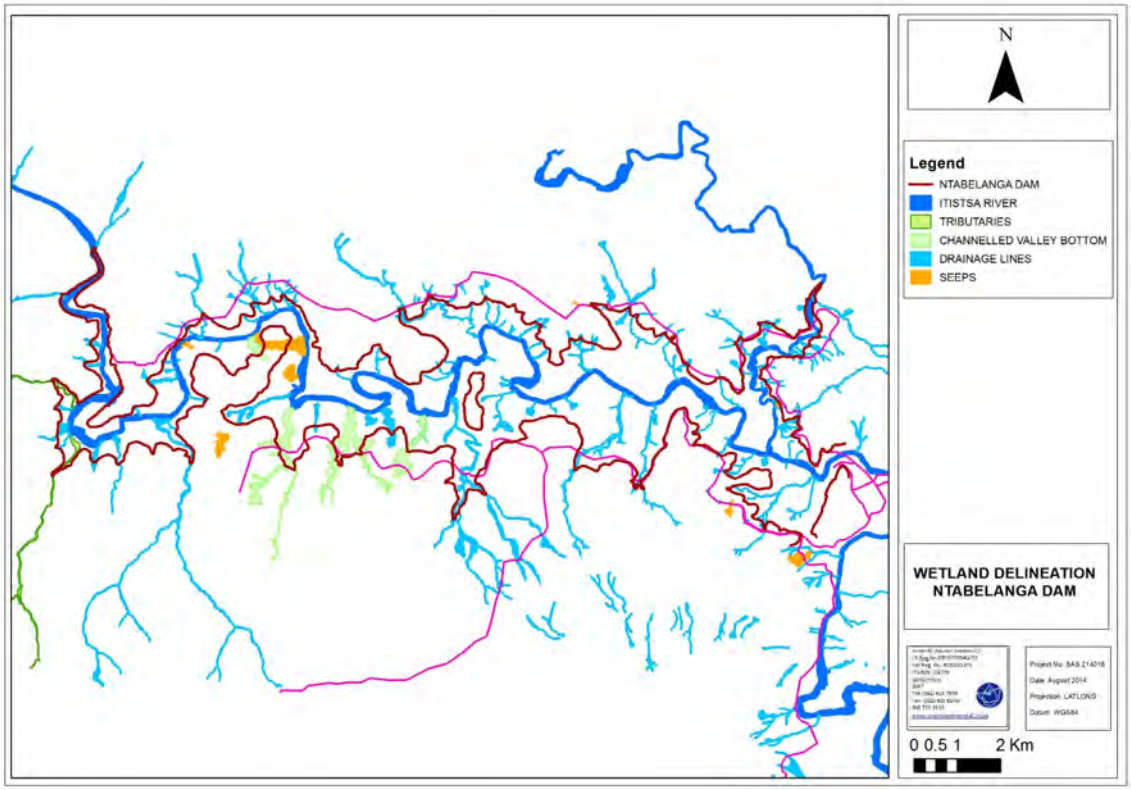

Figure 50: Wetland features identified within the study area, in relation to the proposed Ntabelanga Dam site (DWS, 2014d)

Roads and pipelines traverse wetland features. Effective mitigation (such as ensuring the design of crossings allows for the retention of wetland soil conditions) is therefore necessary to reduce the level of impacts on the wetland features. Wetland sensitivity maps are included in **Figures 51** and **52**.

The Ntabelanga and Lalini Dams will have the greatest impact on wetland and riparian habitat, as wetland habitat will be permanently due to inundation. This will lead to loss of habitat for wetland-dependent faunal and floral taxa and/or alteration of the aquatic and riparian resources. Due to the nature of the development, this cannot be avoided.

The anticipated cumulative loss of riparian and wetland habitat arising from the construction of the dams is estimated to be 1034.30 hectares; overall this is deemed to be a relatively insignificant fraction of the wetland resources within the Mzimvubu subWMA.

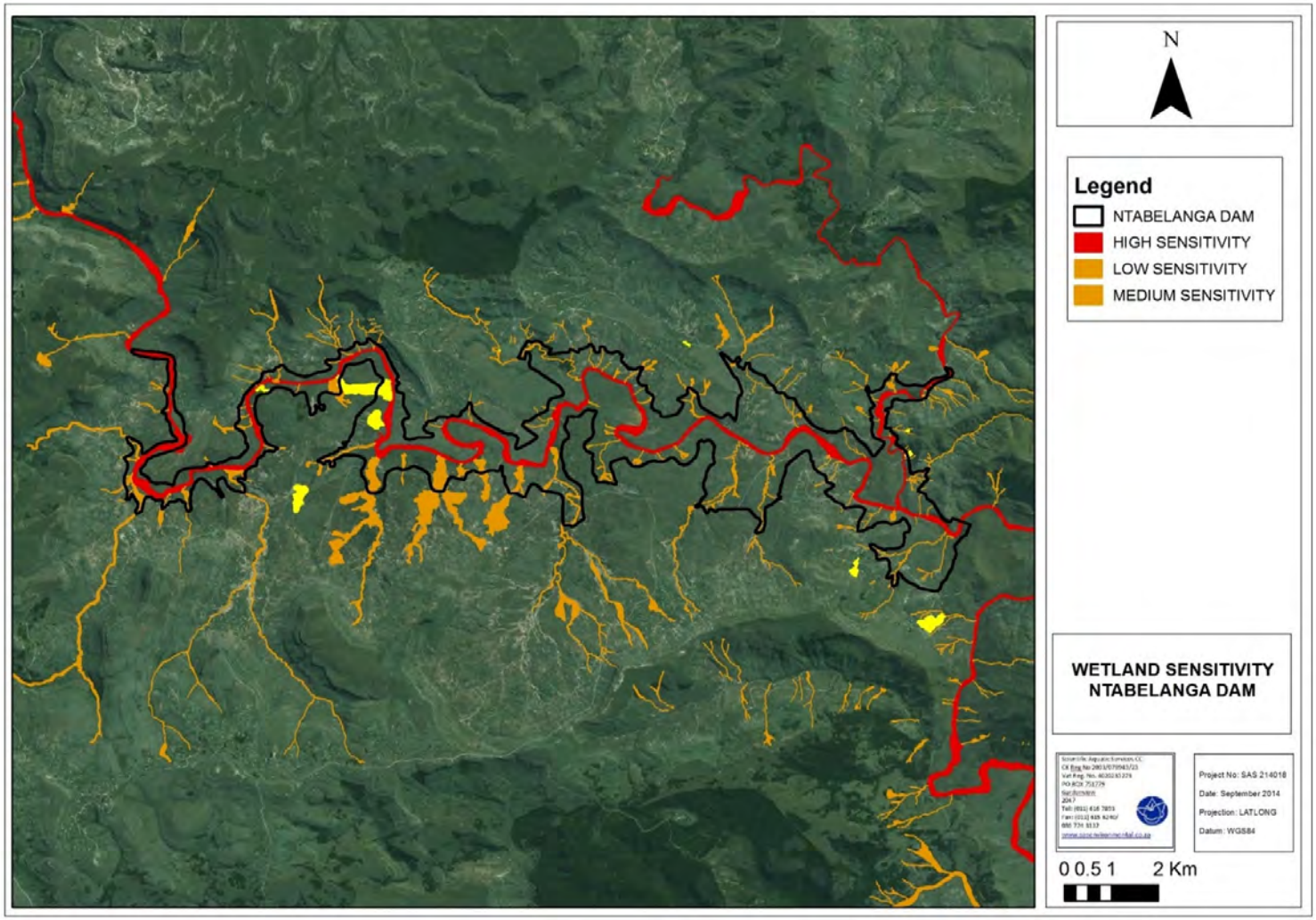

Figure 51: Conceptual representation of the sensitivity of wetland and riparian features associated with the proposed Ntabelanga Dam (DWS, 2014d)

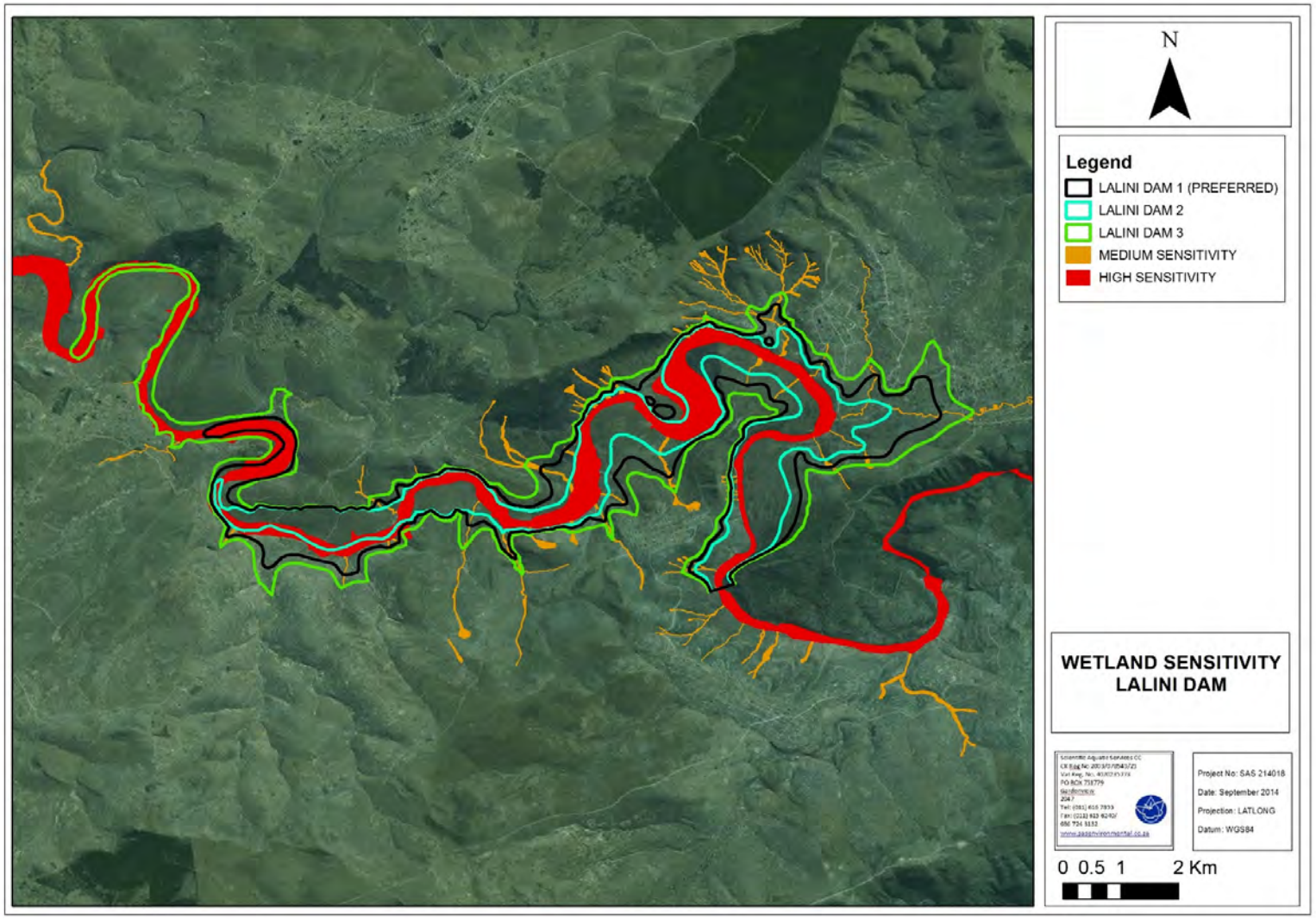

Figure 52: Conceptual presentation of the sensitivity of the wetland and riparian features associated with the proposed Lalini Dam (DWS, 2014d)

8.7 CONSERVATION IMPORTANCE

The Eastern Cape Biodiversity Conservation Plan (ECBCP) (2007) is a broad scale-biodiversity plan based on identifying Critical Biodiversity Areas (CBAs) and associated land use guidelines. It recommends limits to the total amount of land transformation that should be allowed if biodiversity is to be conserved. The approach rests on the concept of Biodiversity Land Management Classes (BLMCs). Each BLMC sets out the desired ecological state that an area should be kept in to ensure biodiversity persistence. Only land use types that are compatible with maintaining this desired state should be allowed.

Large areas within the project area have been identified as Critical Biodiversity Areas (CBAs) in terms of the ECBCP (**Figures 53** and **54**). These areas are of conservation importance due to the presence of Red Data species, endemic species and potential habitat for these species to occur.

The bulk of the project area falls within a Terrestrial CBA 2 (BLMC 2 - *Near Natural landscape)* while sections of the pipelines traverse terrestrial and aquatic CBAs 1 (BLMC 1- *Natural Landscape*).

According to the ECBCP's land use guidelines, while the conversion of virgin land to irrigated agriculture is not permissible in areas identified as CBAs 2, irrigated agriculture on existing and fallow cultivated land is allowed, on condition that an Environmental Authorisation is granted. Most of the areas earmarked for irrigated agriculture are cultivated, although many fields have not been planted in the recent past (DWA, 2013a).

There are no formal or informal protected areas within the project area. However, the National Protected Areas Expansion Strategy (NPAES) identified two Focus Areas in the north and east of the project area: Pondoland and Southern Berg Griqualand. A gauging station, and possibly a section of the Lalini Dam tunnel and the power line fall within the Pondoland Focus Area, while a section of the secondary distribution lines in the north of the study area falls within the Southern Berg Griqualand Focus Area (**Figure 55**).

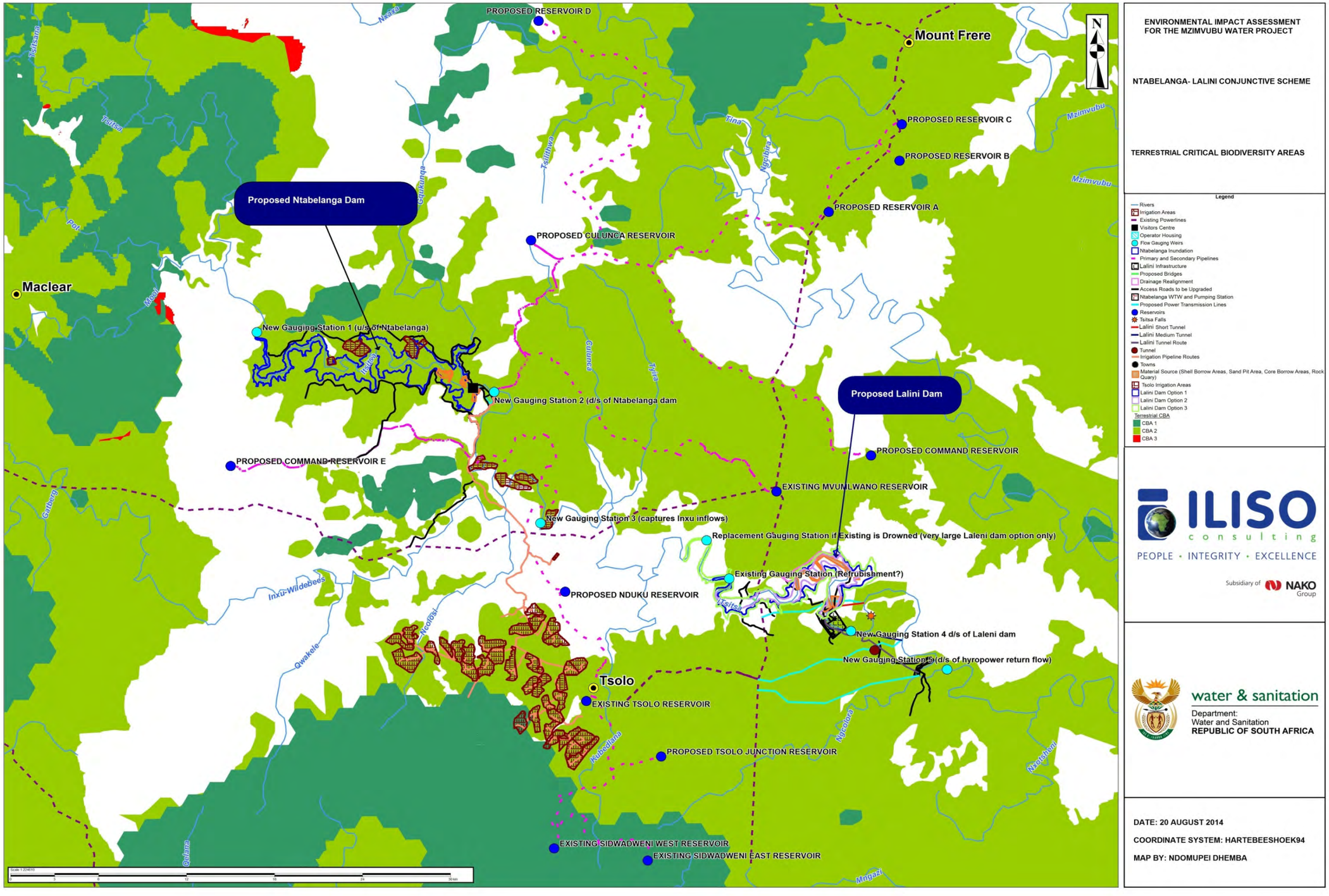

Figure 53: Terrestrial Critical Biodiversity Areas (CBAs)

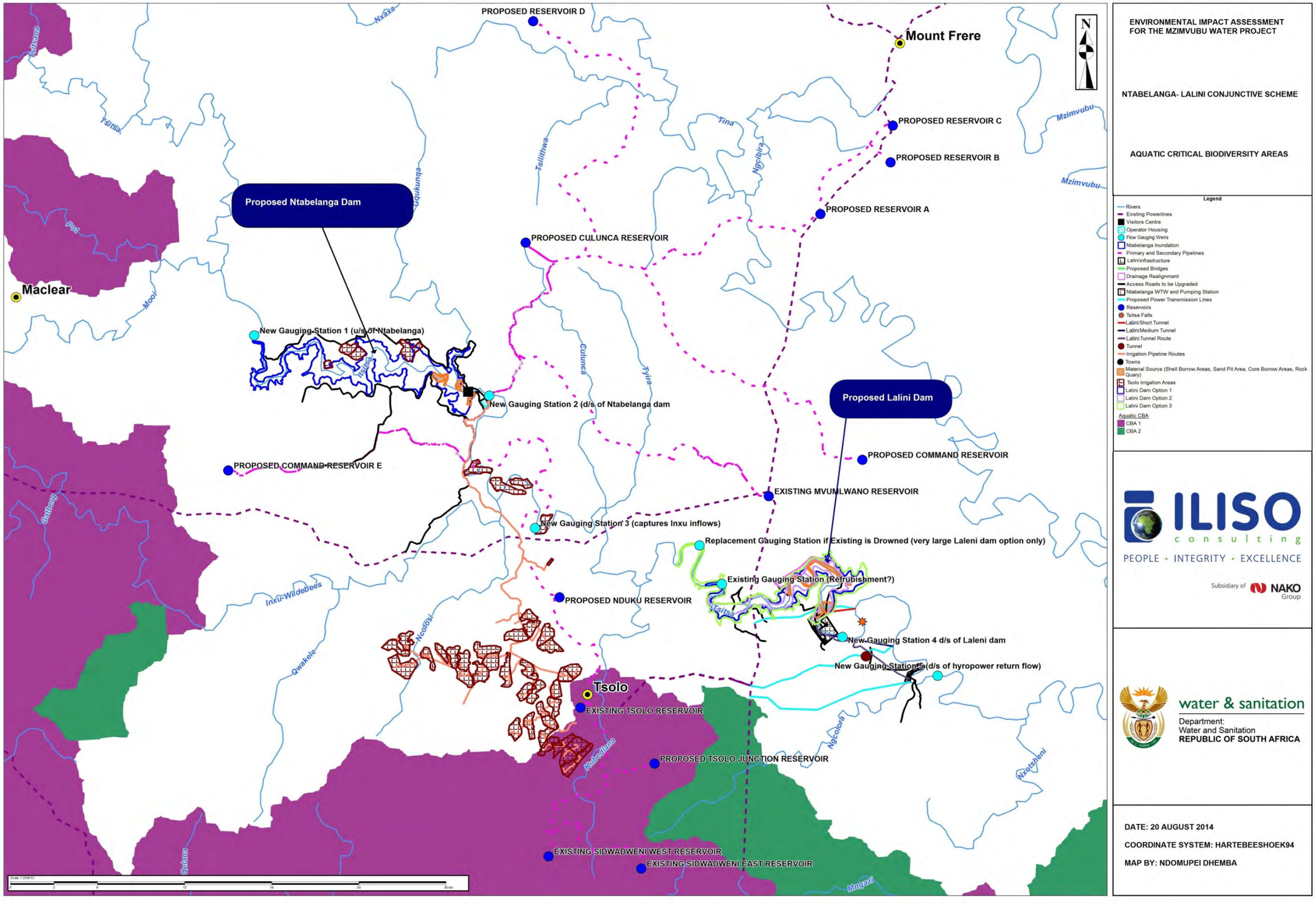

Figure 54: Aquatic Critical Biodiversity Areas (CBAs)

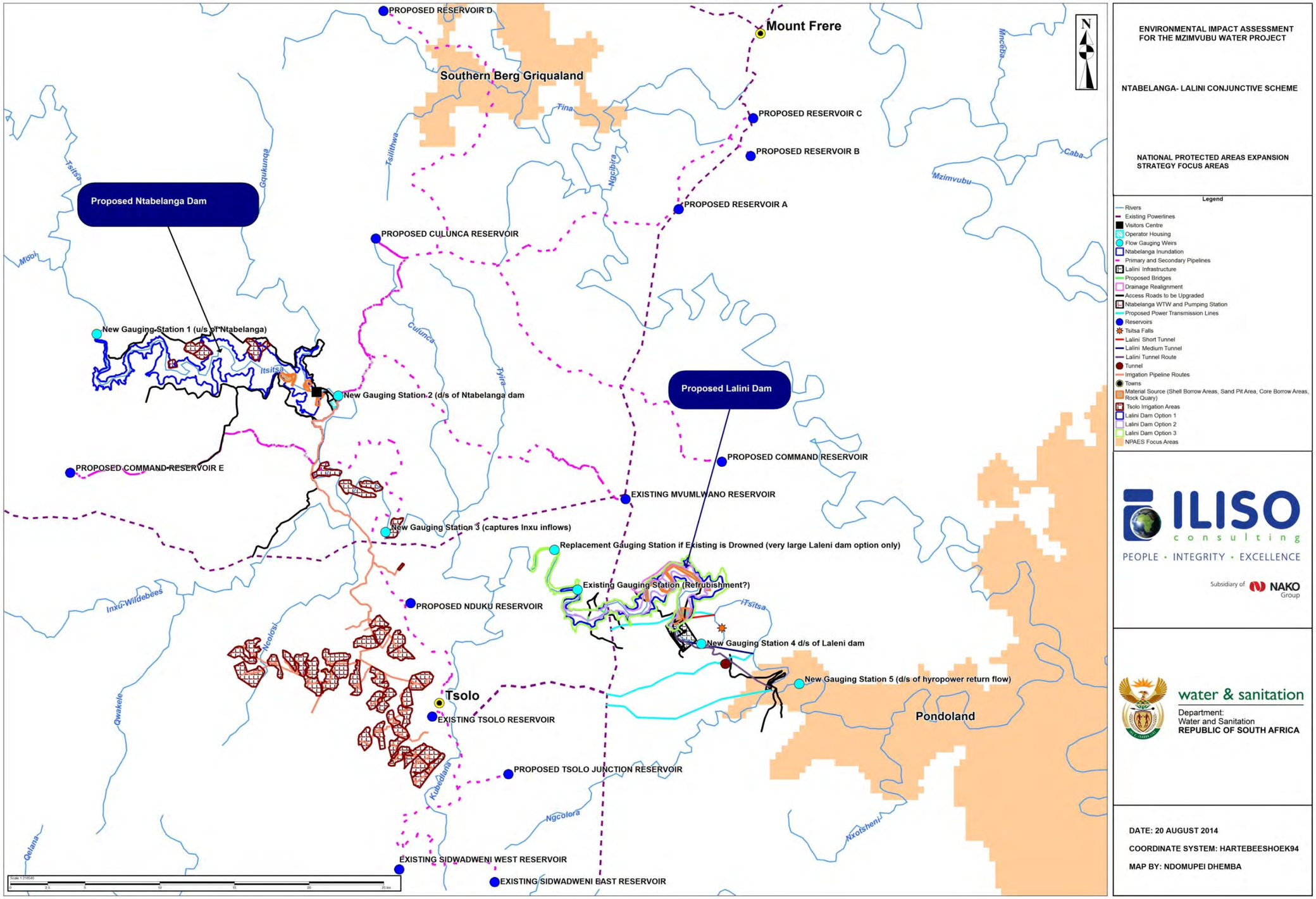

Figure 55: National Protected Areas Expansion Strategy Focus Areas