

FIGURE 42: VEGETATION UNIT MA

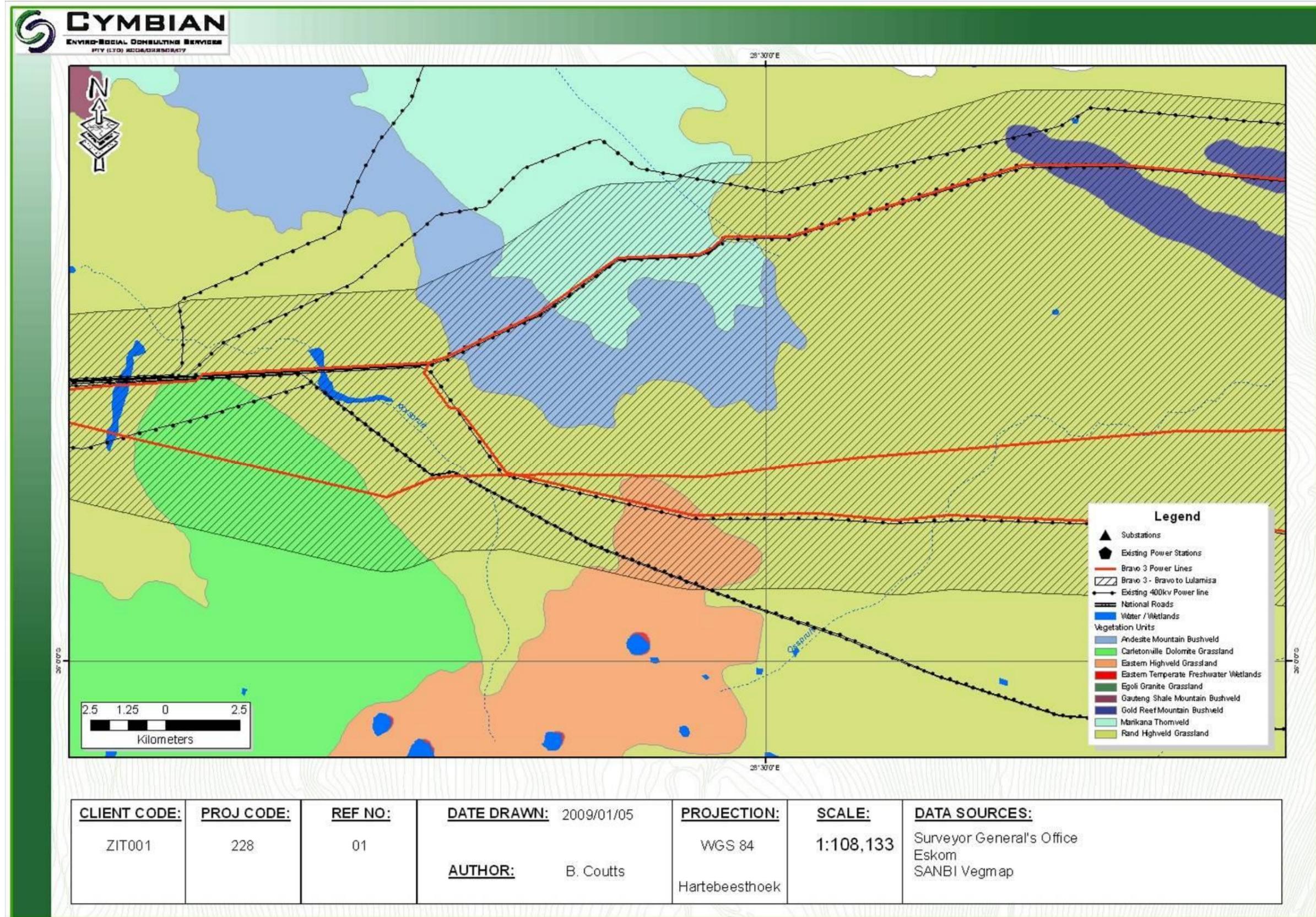


FIGURE 43: VEGETATION UNIT MAP

ZITHOLELE CONSULTING

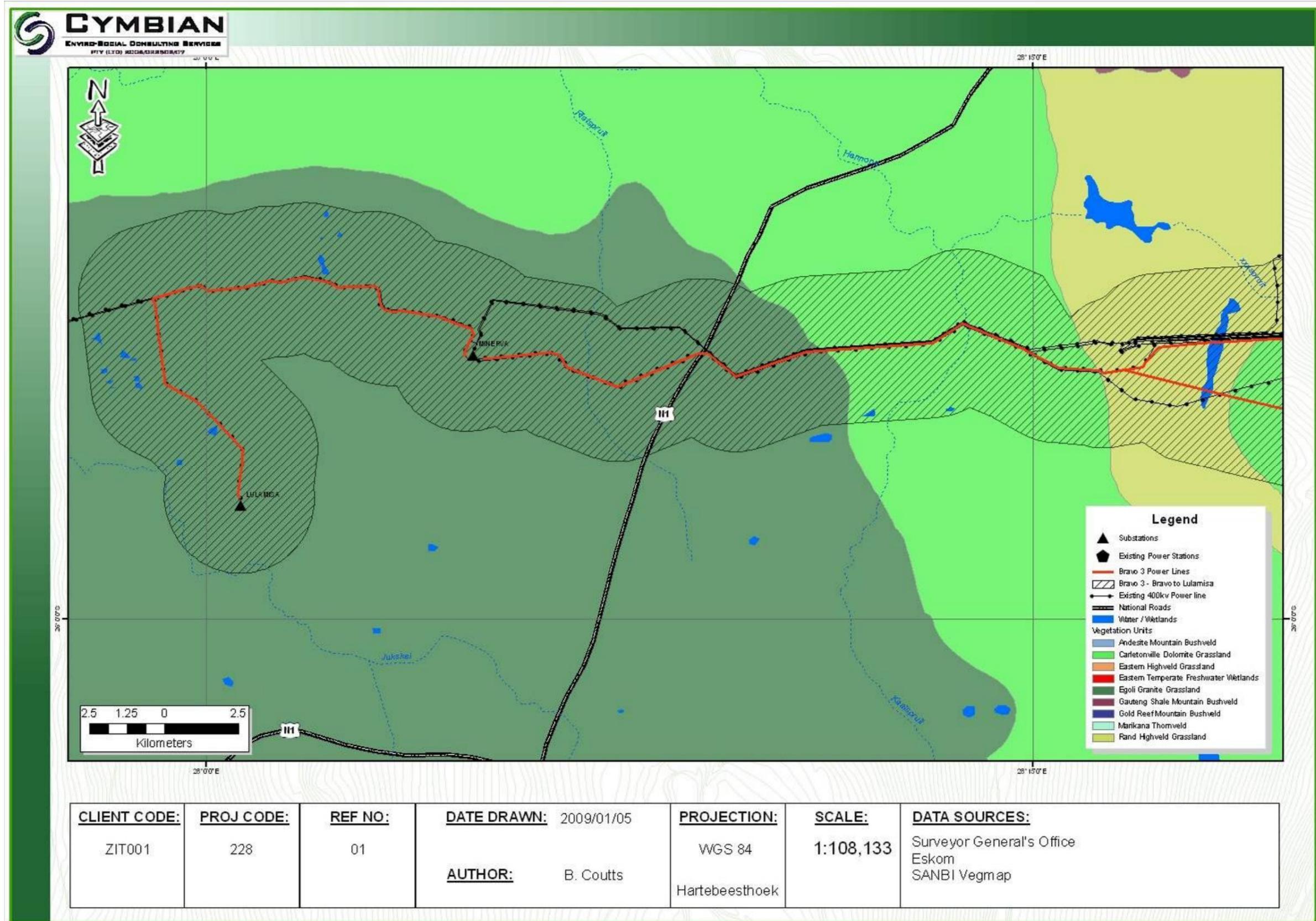


FIGURE 44: VEGETATION UNIT MAP

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Site Description

At the time of the site visit it was found that large sections of the area were being used for cultivation of crops, livestock and grazing lands, which can be seen from Figure 49, Figure 50 and Figure 51. Portions of the site were located on ridges where natural vegetation had very little disturbance in terms of grazing from livestock.

Three additional vegetation management units were identified; namely, cultivated fields/grazed pastures wetland/riparian zones, and disturbed areas. Each of these vegetation units are described in more detail below and illustrated in Figures below. The species list for the site is attached in Appendix Q. The species that could occur in the quarter degree grid was obtained from the Plants of Southern Africa (POSA) online database upheld by the South African National Botanical Institute (SANBI) and supplemented with field notes

Egoli Granite Grassland

The Egoli Granite Grassland vegetation type is found the Gauteng Province in the region between Johannesburg in the south, Muldersdrift in the west, Centurion in the north and Tembisa in the east. The moderately undulating plains and low hills support tall grassland, usually dominated by *Hyparrhenia hirta* with some woody species on rocky outcrops.

The vegetation type is listed as endangered as the vegetation type has a conservation target of 24 % conserved, while only 3 % is currently conserved. More than two thirds of the unit has already undergone transformation mostly by urbanisation, cultivation or by building of roads. Current rates of transformation threaten most of the remaining unconserved areas. There is no serious alien infestation in this unit, although species such as *Eucalyptus grandis*, *E. camaldulensis* and *E. sideroxylon* are commonly found. A species list with all the species identified for each vegetation type is attached in Appendix Q and photos are given Figure 45 below. Approximately 25 % of the corridors fall within this vegetation unit.



FIGURE 45 PHOTOS OF EGOLI GRANITE GRASSLAND VEGETATION ALONG THE CORRIDORS

Rand Highveld Grassland

Rand Highveld Grassland is found in the highly variable landscape with extensive sloping plains and ridges in the Gauteng, North-West, Free State and Mpumalanga Provinces. The vegetation type is found in areas between rocky ridges from Pretoria to Witbank, extending onto ridges in the Stoffberg and Roossenekal regions as well as in the vicinity of Derby and Potchefstroom, extending southwards and northeastwards from there. The vegetation is species rich, sour grassland alternating with low shrubland on rocky outcrops. The most common grasses on the plains belong to the genera *Themeda*, *Eragrostis*, *Heteropogon* and *Elionurus*. High numbers of herbs, especially *Asteraceae* are also found. In rocky areas shrubs and trees also prevail and are mostly *Protea caffra*, *Acacia caffra*, *Celtis africana* and *Rhus spp.*

This vegetation type is poorly conserved (approx 1 %) and has a target of 24 % of the vegetation type to be conserved. Due to the low conservation status this vegetation type is classified as endangered. Almost half of the vegetation type has been transformed by cultivation, plantations, urbanisation or dam-building. Scattered aliens (most prominently *Acacia mearnsii*) are present in the unit. Approximately 60 % of the corridors traverse Rand Highveld Grassland, thus the largest section of the route comprises this vegetation type. Photos are provided in Figure 46 below.

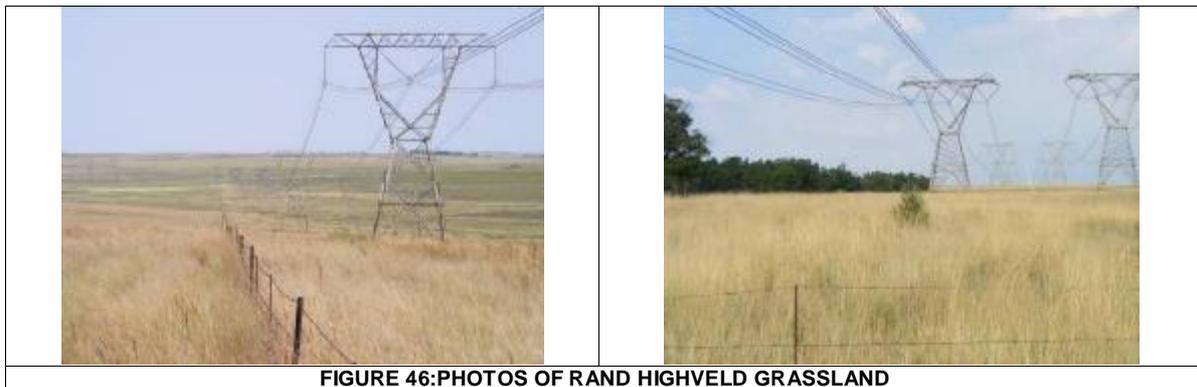


FIGURE 46:PHOTOS OF RAND HIGHVELD GRASSLAND

Eastern Highveld Grassland

The Eastern Highveld Grassland is found in the Mpumalanga and Gauteng Provinces on the plains between Belfast in the east and the eastern side of Johannesburg in the west and extending southwards to Bethal, Ermelo and west of Piet Retief. The landscape is dominated by undulating plains and low hills with short dense grassland dominating belong to the genera *Themeda*, *Aristida*, *Digitaria*, *Eragrostis*, *Tristachya etc.* Once again woody species are prevalent on the rocky outcrops.

In terms of conservation and disturbance, 44 % of the vegetation type is already transformed by cultivation, plantations, mines, and urbanisation. No serious alien invasion, but *Acacia mearnsii* can dominate in certain areas. For a complete species list, please refer to Appendix Q. Approximately 1.5 % of the route is covered by Eastern Highveld Grassland.

Carletonville Dolomitic Grassland

The Carletonville Dolomitic Grassland, as indicated by the name, is limited to the dolomitic regions of Potchefstroom, Ventersdorp and Carletonville, extending westwards to the vicinity of Ottoshoop, but also

occurring as far east as Centurion and Bapsfontein in the Gauteng Province. This vegetation type is found on slightly undulating plains dissected by prominent ridges. Species rich grasslands forming a complex mosaic patterns dominate the vegetation type.

This vegetation type is poorly conserved (1.8 % and rated as vulnerable) and almost a quarter of the vegetation type is already transformed by cultivation, urban sprawl or by mining activities.

Marikana Thornveld

The Marikana Thornveld vegetation type occurs on plains from the Rustenburg area in the west, through Marikana and Brits to the Pretoria area in the east. The vegetation type is typified by open *Acacia karroo* woodland occurring in the valleys and undulating plains. Shrubs are denser along drainage lines and it is common for the drainage lines to be infested with aliens. Refer to Figure 47 for photos of the Marikana Thornveld encountered along the route.

Marikana Thornveld is considerably impacted, with 48 % of the vegetation type being transformed, mainly due to cultivated and urban or built-up areas. Most agricultural development of this unit is in the western regions towards Rustenburg, while in the east (near Pretoria) industrial development is a greater threat of land transformation. This vegetation type is rated as endangered as only 0.7 % of the unit is conserved. Approximately 2.5 % of the route is covered by Marikana Thornveld.

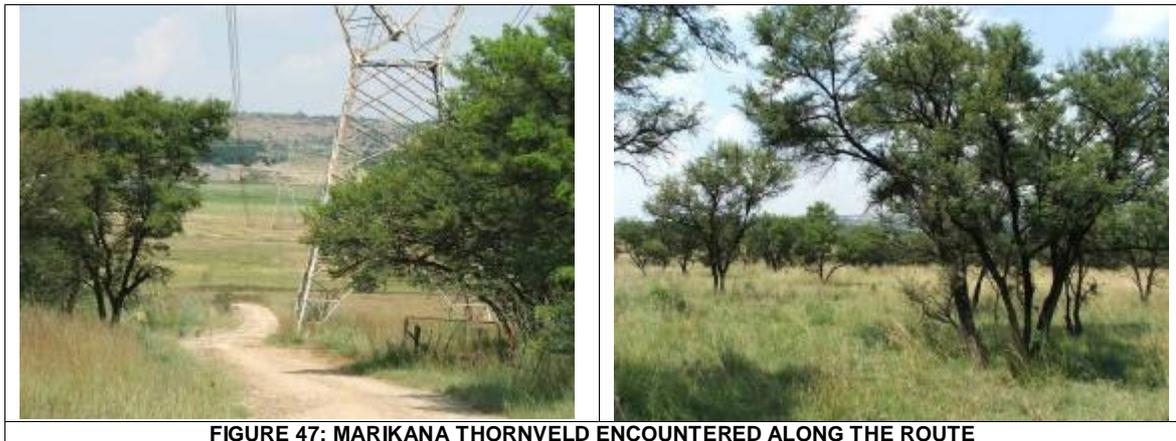


FIGURE 47: MARIKANA THORNVELD ENCOUNTERED ALONG THE ROUTE

Gold Reef Mountain Bushveld

Occurs along rocky quartzite ridges of the Magaliesberg and the parallel ridge to the south, from around Boshhoek and Koster in the west to near Bronkhorstspuit in the east. The west-east-trending ridge of the Witwatersrand from around Krugersdorp in the west, through Roodepoort and Johannesburg to Bedfordview (Germiston District). Inner ridges (e.g. Dwarsberg and Witkop) of the Vredefort Dome on the Vaal River northwest of Parys and part of the Suikerbosrand and some other hills around Heidelberg.

The unit is typical mountain vegetation that is woodier than the surrounding plains, often with more dense woody vegetation on the south-facing slopes with distinct floristic differences. About 15 % of the unit is transformed by cultivation and urban built-up areas. Some areas have dense stands of the alien *Melia azedarach* which is often associated with drainage lines. Some 22 % of the unit is conserved and therefore

the unit is rated as least threatened. Approximately 2.5 % of the route is covered by Gold Reef Mountain Bushveld.

Andesite Mountain Bushveld

The Andesite Mountain Bushveld vegetation unit is found in several separate occurrences of which the main are: the Bronberg Ridge in eastern Pretoria extending to Welbekend; from Hartebeesthoek in the west along the valley between the two parallel ranges of hills to Atteridgeville; hills in southern Johannesburg; several hills encompassing Nigel, Willemsdal, Coalbrook and Suikerbosrand (in part); and the outer ring of ridges of the Vredefort Dome and some hills to the northwest around Potchefstroom. The unit is typified by dense, medium-tall thorny bushveld with a well developed grass layer.

The unit is rated as least threatened due to the conservation of 6.8 % of the unit. The main sources of transformation are cultivation and urban development. Approximately 2.5 % of the route is covered by Andesite Mountain Bushveld.

Eastern Temperate Freshwater Wetlands

This vegetation unit is found throughout the Northern Cape, Eastern Cape, Free State, North-West, Gauteng, Mpumalanga and KwaZulu-Natal Provinces as well as in neighbouring Lesotho and Swaziland. It is based around water bodies with stagnant water (lakes, pans, periodically flooded vleis, and edges of calmly flowing rivers) and embedded within the Grassland Biome. These water bodies support zoned systems of aquatic and hygrophilous vegetation of temporary flooded grasslands and ephemeral herblands.

Due to the recent efforts of organisations such as Ramsar, this vegetation unit is now 4.6 % conserved and rated as least threatened. The following aliens are encountered in this type of wetland: *Bidens bidentata*, *Cirsium vulgare*, *Conyza bonariensis*, *Oenothera rosea*, *Physalis viscosa*, *Plantago lanceolata*, *Rumex crispus*, *Sesbania punicea*, *Schkuhria pinnata*, *Stenotaphrum secundatum* (native on South African coast, alien on Highveld), *Trifolium pratense*, *Verbena bonariensis*, *V. brasiliensis*, and *Xanthium strumarium*. Approximately 1 % of the route traverses through areas that could be classified as Wetlands (Refer Figure 48 below for photographs).

Areas around drainage lines/seepage areas were also added to this unit because of the similar vegetation that may occur in these areas. Seepage areas are seasonally wet areas that occur in sandy areas where water seeps into lowlying drainage lines after rains. These areas are usually covered by hygrophytes such as sedges and reeds. The dominant sedge in the study area is *Juncus rigidus*. Sometimes bulrush (*Typha capensis*) and reeds (*Phragmites australis*) also occurs.

Wetlands are of a more permanent nature and occur in low-lying areas such as tributaries of streams and rivers. Here hydrophytes can be found. Typical plants are the Orange River Lily (*Crinum bulbispermum*), bulrush (*Typha capensis*) and reeds (*Phragmites australis*), sedges of the *Cyperus*, *Fuirena* and *Scirpus* genera also occur. The site had many drainage and seepage lines running into large streams and into dams. Many of the site drainage and seepage lines had associated wetland and riparian flora. This made these areas have a high species diversity in terms of both plants and animals and makes them have a high conservation level.



FIGURE 48:WETLANDS FOUND ALONG THE POWER LINE CORRIDORS

Cultivated Fields

This was the main vegetation type found upon the site visit, where 80% of the site was cultivated land.

Majority of the crops were maize and were being prepared for plantation of seeds. Very little to no natural occurring vegetation was located within the cultivated fields, besides invasive species such as *Tagetes minuta* (Langkakiebos).

Disturbed areas/vegetation

This area was located in areas that were highly disturbed from anthropogenic causes, such as overgrazing and bad land use management. Some of the species that exist in these plantations are *Acacia decurrens* (Sliver wattle) and *Acaia mearnsii* (Black wattle). These two species were originally used in the commercial field to produce tannins (Bromilow 2001). Like these species and other invasive trees that have become invaders of veld and indigenous bush, these plants are hard to remove and are fast growing. Invasive trees use a lot of water, which is already a valuable resource. Around these areas very little indigenous vegetation grew because of the dense forest these invaders can form. Other areas that were included are urban and industrial areas.

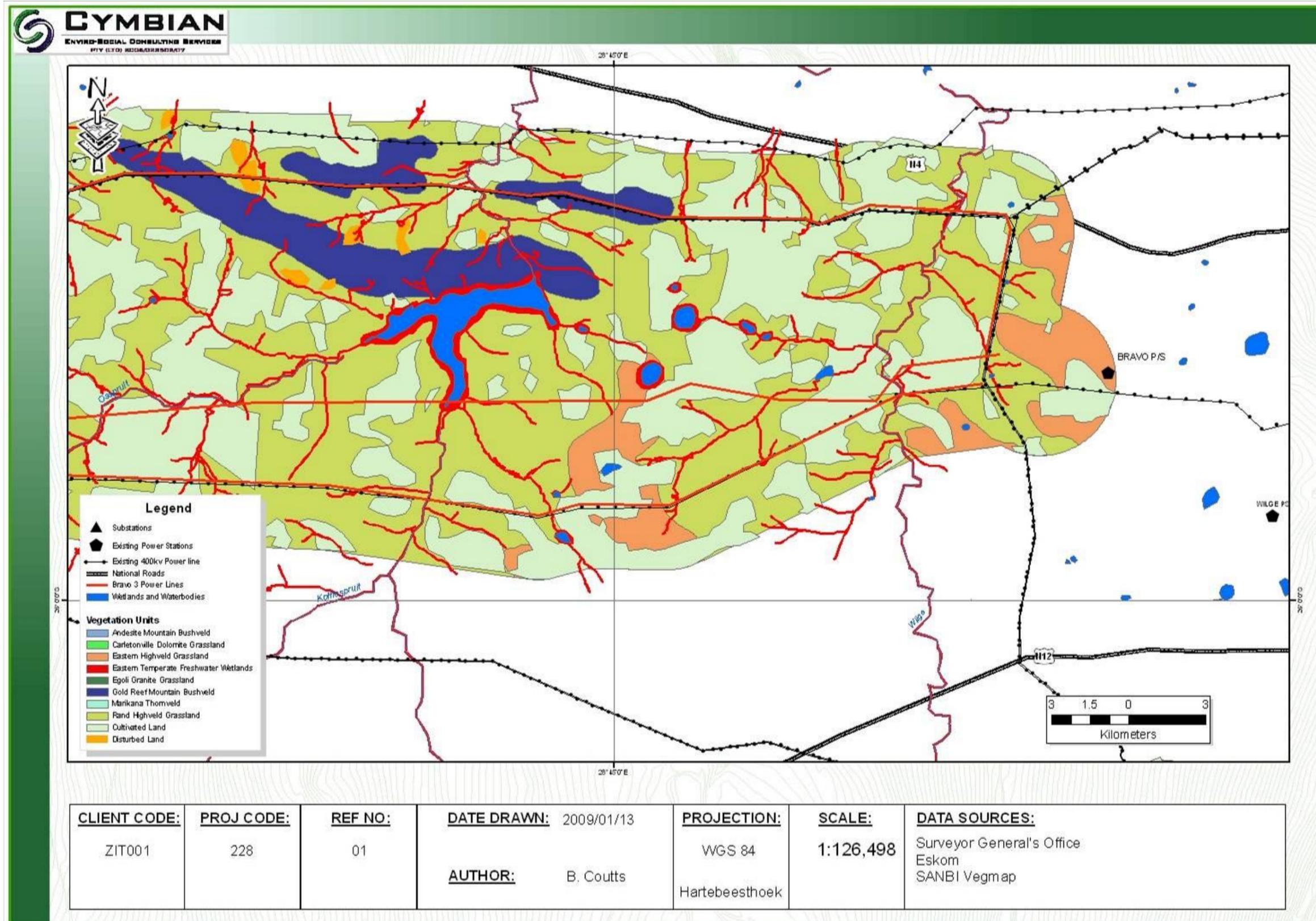


FIGURE 49: WESTERN VEGETATION

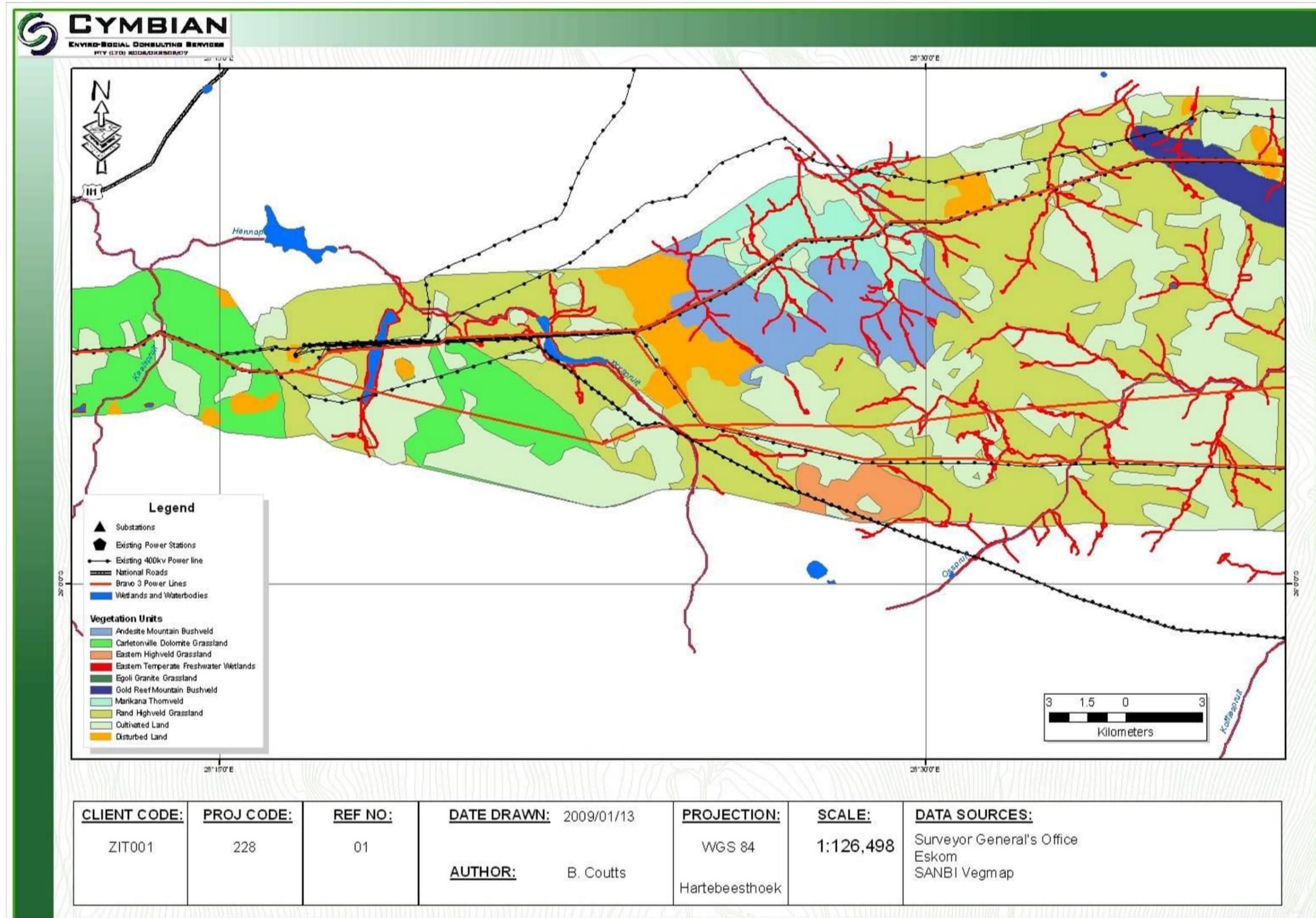


FIGURE 50: CENTRAL VEGETATION

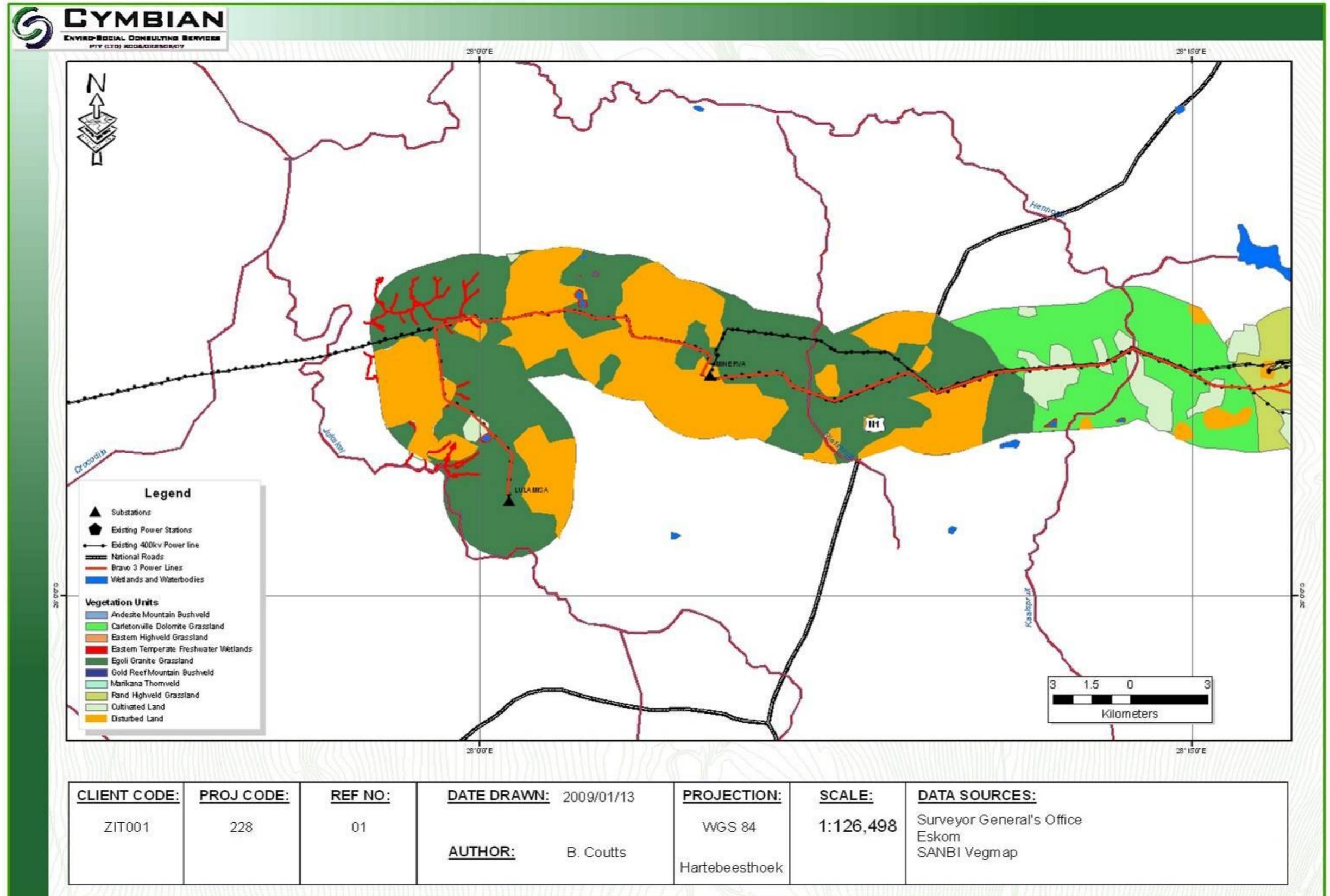


FIGURE 51: WESTERN VEGETATION