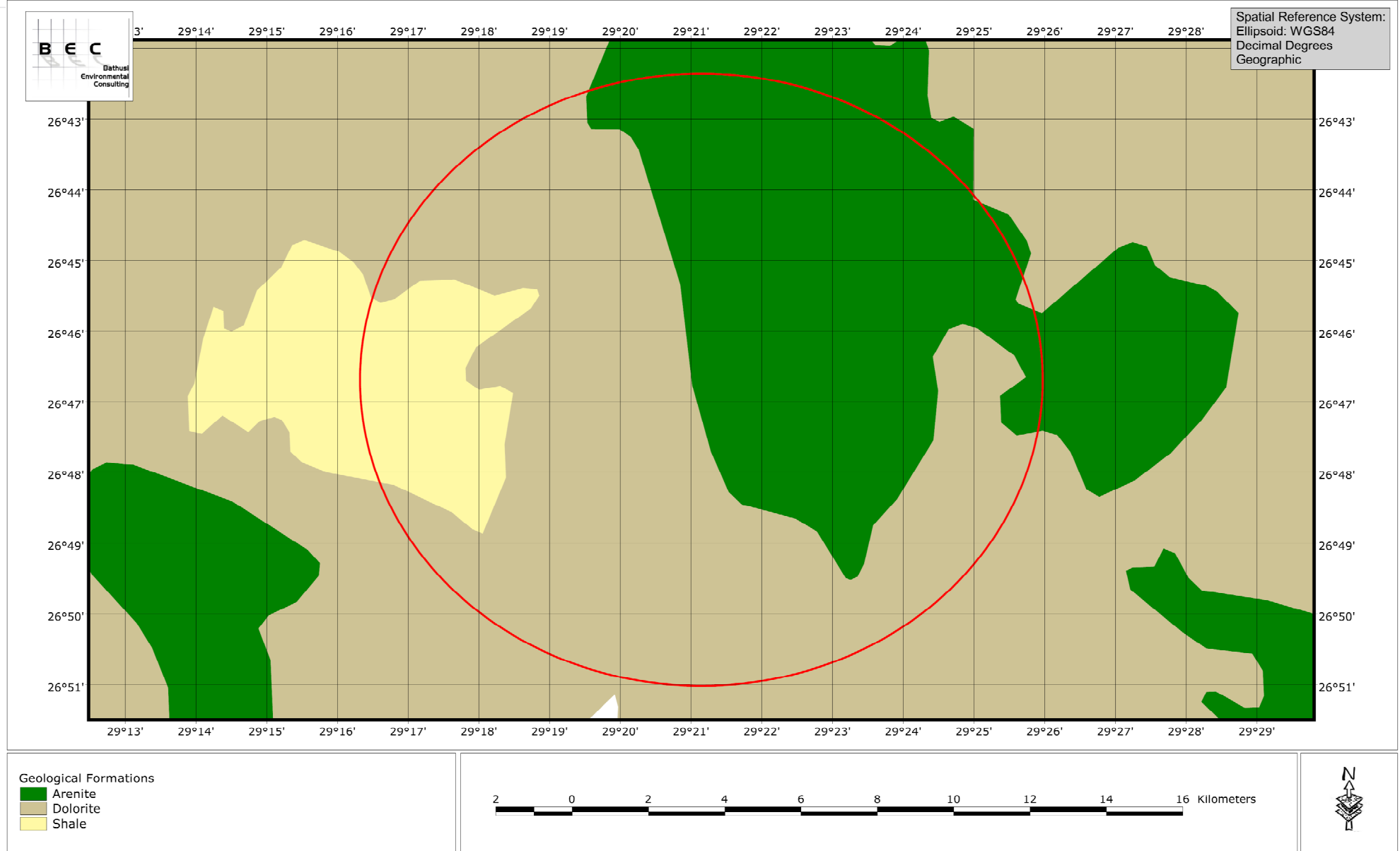


Figure 6: Broad geological patterns of the study area



8.4 Land Types

Although it is not in the scope of this report to present a detailed description of the soil types of the area, a basic description will suffice for this assessment as the association of habitat types and land types (soils) are typical of grassland vegetation.

The preferred site is situated within the Ea17 land type unit. E land type units indicate land with a high base status, dark coloured and/ or red soils, usually clayey, associated with basic parent materials. A land type more than half of which is covered by soil forms with vertic, melanic and red structured diagnostic horizons qualifies for inclusion in unit Ea, provided that it does not qualify for inclusion in units A, B or C. Land types in which these soils cover less than half of the area may also qualify for inclusion (i) where duplex soils occur in the non-rock land but where unit Ea soils cover a larger area than the duplex soils, or (ii) where exposed rock cores more than half the land type.

8.5 Mpumalanga Biodiversity Conservation Plan

8.5.1 *Terrestrial Biodiversity Sensitivities on a Local Scale*

The local and regional designation of Mpumalanga Terrestrial Biodiversity Conservation Categories (MBCP) is illustrated in Figure 7.

The mandate for conserving biodiversity lies with state agencies at national, provincial and local levels of government, forming part of a wider responsibility for the environment and the sustainable use of natural resources. Constitutional and national laws require these environmental issues to be dealt with in cooperative, participatory, transparent and integrated ways. The MBCP is the first spatial biodiversity plan for Mpumalanga that is based on scientifically determined and quantified biodiversity objectives. The purpose of the MBCP is to contribute to sustainable development in Mpumalanga.

The MBCP maps the distribution of Mpumalanga Province's known biodiversity into six categories (Lötter & Ferrar, 2006). These are ranked according to ecological and biodiversity importance and their contribution to meeting the quantitative targets set for each biodiversity feature. The categories are:

- 1 Protected areas - already protected and managed for conservation;
- 2 Irreplaceable areas - no other options available to meet targets—protection crucial;
- 3 Highly Significant areas - protection needed, very limited choice for meeting targets;
- 4 Important and Necessary areas - protection needed, greater choice in meeting targets;
- 5 Ecological Corridors – mixed natural and transformed areas, identified for long term connectivity and biological movement;
- 6 Areas of Least Concern – natural areas with most choices, including for development;
- 7 Areas with No Natural Habitat Remaining – transformed areas that do not contribute to meeting targets.

The study area comprises two of these categories (refer Figure 7), namely:

- Highly Significant;
- Important & Necessary;
- No Natural Habitat Remaining; and
- Least Concern.

Land included in the **'Highly Significant'** category should be maintained as natural vegetation cover. Permissible land uses should be limited to those that are least harmful to biodiversity, i.e. Land-Use Types 1 – 4. All cultivation-based agriculture and all urban/industrial development (Land-Use Types 5 – 15) should not be permitted. If development is unavoidable, it must be made sufficiently dispersed (sometimes clumped) and of the right scale to be as biodiversity friendly as possible. Specialist ecological advice will be required in such cases to reinforce standard EIA procedures³. 'Biodiversity reinforced EIA procedures' require that a specialised biodiversity study be undertaken as part of the EIA. This requires a survey by an experienced and locally knowledgeable biodiversity expert. Destruction of biodiversity on HIGHLY SIGNIFICANT land may result in remaining areas being moved into the IRREPLACEABLE category.

The category of **'Important & Necessary'** is significantly important areas of natural vegetation that play an important role in meeting biodiversity targets. Their designation as IMPORTANT AND NECESSARY seeks to minimise conflict with competing land uses and represents the most efficient selection of areas to meet biodiversity targets. No significant increase in the occurrence of Land-Use Types 5 – 9, should be permitted (refer Footnote 3). Every opportunity to revert to economic options using natural land cover should be taken. Some agricultural land uses may be permitted but with best-practice guidelines made conditional and aimed at benefiting the biodiversity assets and reducing the vulnerability of each site.

Areas of **'No Natural Habitat Remaining'** comprise approximately 35.8% of the Province. This category has already lost most of its biodiversity and ecological functioning. In the remnants of natural habitat that occur between cultivated lands and along river lines and ridges, residual biodiversity features and ecological processes do survive, but these disconnected remnants are biologically impoverished, highly vulnerable to damage and have limited likelihood of being able to persist. The more transformed a landscape becomes; the more value is placed on these remnants of natural habitat. Areas with no natural habitat remaining are preferred sites for developments, taking the potential presence of lands with high agricultural potential into consideration.

Biodiversity assets in landscapes categorized as **'Least Concern'** contributes to natural ecosystem functioning, ensuring the maintenance of viable species populations and providing essential ecological and environmental goods and services across the landscape. This category comprises approximately 25.5% of the Mpumalanga Province. Although these areas contribute the least to the achievement of biodiversity targets, they have significant environmental, aesthetic and social values and should not be viewed as wastelands or carte-blanche development zones. Development options are widest in these areas. At the broad scale, these areas and those where natural habitat has been lost serve as preferred sites for all forms of development. It is still required to consider other environmental factors such as socioeconomic efficiency, aesthetics and the sense-of-place in making decisions about development. Prime agricultural land should also be avoided for all non-agricultural land uses. Land-use and administrative options for positive biodiversity outcomes include:

- Where this category of land occurs close to areas of high biodiversity value, it may provide useful ecological connectivity or ecosystem services functions, e.g. ecological buffer zones and corridors or water production. Encouragement needs to be given to biodiversity-friendly forms of management and even restoration options where appropriate;
- Develop incentives to reverse lost biodiversity for selected parcels of land where buffer zones and connectivity are potentially important;

³ Undertake specialist studies according to MTPA's 'Requirements for Assessing and Mitigating Environmental Impacts of Development Applications' document.