

**Proposed Victoria Mother and Child Hospital development on
Erf 9194 Pietermaritzburg:**

**Comments on potential effects of this development on the
adjacent Queen Elizabeth Park grassland**

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Queen Elizabeth Park Grassland with Hilton daisies.

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BACKGROUND

I have been studying the Hilton daisy (*Gerbera aurantiaca*), its biology and its habitat for several years as part of a doctoral thesis and I have an understanding of the conditions necessary to maintain populations of this species in a viable state. I have also carried out a number of grassland condition assessments in Midlands Mistbelt grassland, initially under the guidance of the late Rob Scott Shaw, former botanist at Ezemvelo KZN Wildlife. I therefore believe that I am qualified to make these comments.

The Queen Elizabeth Park (QEP) grassland (lat -29.57289; long 30.328463; elevation approx. 900 m) is situated in Pietermaritzburg, KwaZulu-Natal. The proposed Victoria Mother and Child Hospital would be situated in the adjoining Erf 9194 (see map below) with the plan in the BID document indicating that some of the buildings will be placed very close to the boundary fence. The grassland and associated flora and fauna within the QEP boundary are extremely sensitive to anthropogenic disturbance.



Map showing the boundaries of Erf 9194, the QEP grassland and the Hilton daisy population location.

PLANT SPECIES OF THE QEP GRASSLAND

Of particular and major concern is that the QEP area of Midlands Mistbelt Grassland contains one of the few remaining populations of the endangered grassland daisy, *Gerbera aurantiaca*, better known as the ‘Hilton daisy’. This species is regarded as an indicator of pristine Mistbelt grassland and its presence therefore serves to emphasize the high conservation value of this fragment. Any activities that cause direct or indirect harm to the condition of this grassland will be of major concern to the long-term conservation of this flagship species.



The Hilton daisy *Gerbera aurantiaca*.

The QEP Midlands Mistbelt Grassland is rich in plant species with more than 160 species having been recorded: in terms of IUCN criteria two species are classified as Endangered and two as Vulnerable. Four species are restricted to KwaZulu-Natal, two of which are Mistbelt grassland endemics (SANBI Redlist of South African Plants 2016).

It therefore has a very plant high conservation value.

VEGETATION TYPE AND CONDITION OF THE QEP GRASSLAND

Although the vegetation type of the QEP grassland site is mapped as Moist Hinterland Grassland (Mucina & Rutherford 2006, Scott Shaw & Escott 2011) it must be noted that at the scale at which these maps were compiled vegetation boundaries were often not ground-truthed. Therefore the boundaries are unlikely to be precise enough for the scale at which a development, like the proposed hospital, has been compiled.

Consequently, given the “coarseness” of the scale used by Mucina & Rutherford (2006) and Scott Shaw & Escott (2011), it is not surprising that vegetation scientists, who have carried out in-depth studies of the grassland on the slopes below World’s View, are of the opinion that the site is more correctly classified as Midlands Mistbelt Grassland.

Applying criteria developed by the International Union for the Conservation of Nature (IUCN), Midlands Mistbelt Grassland is categorised as Endangered (Scott Shaw & Escott 2011). This categorisation arises from the fact that more than 75% of the area originally occupied by this grassland type has been transformed and fragmented by extensive commercial afforestation, agriculture and urban development (Jewitt 2014). Concern for the remaining areas of this grassland are heightened by the fact that many of the remaining fragments are threatened by uncontrolled overgrazing by livestock and invasion by a wide variety of alien problem plant species such as wattle, lantana, bugweed and American bramble.

The QEP grassland is one of the few remaining areas of Midland Mistbelt Grassland within the municipal boundary that is actively managed, i.e. it is not used for grazing domestic livestock; it has an active fire management programme and invasive plants are controlled. It is also used as a teaching and research facility by students and staff of UKZN.

Conservation of the QEP Mistbelt Grassland is vitally important as it represents an important remnant of this Endangered vegetation type within our municipal area.

IMPORTANCE OF THE QEP GRASSLAND FOR SCIENTIFIC RESEARCH

Mention has already been made of the role which the QEP grassland plays as a teaching and research site for students and staff of UKZN.

The indigenous plants which occur in this grassland, with their associated suite of insect species, have been the subjects of a number of ongoing scientific studies.

Studies on plant pollination undertaken by South African and international researchers, under the guidance of Prof. Steve Johnson of UKZN (Pmb campus), have been published in highly-regarded scientific journals. Prof. Johnson, who is recognised as an international leader in the field of pollination biology and evolutionary ecology, holds a Research Chair at UKZN and is a Fellow of the University. His research attracts visiting local and international scientists of high standing to Pietermaritzburg, and is dependent on healthy grassland ecosystems. Many insightful grassland ecology studies were also undertaken in the QEP grassland fragment by the late Rob Scott-Shaw when he was on the staff of EKZNW. The proximity of this well-maintained grassland to the city and its local scientists makes it an important and convenient site for grassland studies that continue to inform grassland management and conservation as a whole.

COMMENTS AND RECOMMENDATIONS

In the event that the hospital development is permitted, it is imperative that the following issues are adequately addressed.

1. **BOUNDARY BUFFER ZONE:** A boundary buffer zone within Erf 9194, at least 50m wide, must be permanently established between the fence around the grassland and any proposed structures associated with the hospital. This item is deemed to be essential.
2. **SHADING:** The position and height of any buildings or structures will have to be such that any shading caused by these structures falls outside of the outer boundary of the 50m-wide buffer. This is essential because the grassland requires full sun throughout the year.
3. **BURNING OF QEP GRASSLAND AND FIREBREAKS:** **Annual** burning of adequate firebreaks (time of year to be determined by Ezemvelo KZN Wildlife ecologists) and the **biennial** burning of the grassland in late winter must continue because the grassland is a fire-maintained climax vegetation type; i.e. the indigenous species which occur in it have developed adaptations over eons which enable them to avoid the harmful effects of fire occurring at certain times of the year. The resultant smoke and wind-blown ash and dust which will follow burning will have to be accommodated by the proposed hospital. Should the grassland not be burnt regularly (every second year in late winter), woody species, especially alien problem plant species, and tall grasses will rapidly invade the area. This will not only lead to the loss of many of the indigenous species, including the Hilton Daisy, but will also result in an increased fire load which will pose a serious fire hazard to the proposed hospital and surrounding property.
4. **LANDSCAPING PLANT SPECIES:** Only locally endemic plant species may be used for landscaping around the proposed hospital to prevent contamination of the grassland.
5. **FENCING:** Adequate fencing must be in place to prevent pedestrian and vehicle access from the hospital to the grassland. However, the fence must be gated with lockable gates to facilitate access in the event of an emergency.
6. **RUNOFF:** Any storm water drainage from the hospital buildings or hardened surfaces must be diverted away from the grassland.
7. **CONSTRUCTION:** Prior to commencement of construction, the contractor must agree to abide by all items in the contract relating to the adjacent QEP Midlands Mistbelt Grassland: throughout the construction period, the area (including the buffer

zone) may not be used for dumping spoil, disposal of litter, or erecting temporary structures (e.g., offices and toilets). These instructions must also stipulate that any fire, whether accidental or set deliberately by the contractor or sub-contractor to this grassland, is a legal infringement and constitutes a serious threat to the security of the buildings of EKZNW and private vehicles of staff and visitors who work or visit EKZNW and others who seek recreation on the land on which EKZNW is situated.

The onus must be on the applicant to prove that these issues are adequately addressed by an appropriately qualified and experienced specialist. It is requested that a suitably qualified and experienced person be appointed to undertake a vegetation/biodiversity assessment of the site and adjacent area. This must be done at a scale which will be sufficiently detailed for the designer/s to be able to compile plans which will allay all the concerns which have arisen, i.e. that the proposed development poses a major threat to the integrity of the area of QEP Midlands Mistbelt Grassland which adjoins Erf 9194.

To this end I hereby offer my services, *pro bono*, for the drawing up of the Terms of Reference for the vegetation/biodiversity assessment referred to above.

Should this offer be unacceptable I nevertheless request that I be given the opportunity to comment on any such Terms of Reference.

REFERENCES

- Ezemvelo KZN Wildlife (2011). *EKZNW Protected Area Boundaries 2011*. Unpublished GIS Coverage [kznpabnd11], Biodiversity Conservation Planning Division, Ezemvelo KZN Wildlife, P. O. Box 13053, Cascades, Pietermaritzburg, 3202.
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