



**10 May 2018**

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Dear Guillaume

**FRESHWATER ECOSYSTEMS SITE SCAN FOR "DURBANVILLE GARDENS"  
ASSISTED LIVING RESIDENTIAL DEVELOPMENT PROPOSAL**

***Background and terms of reference***

Guillaume Nel Environmental Consultants (GNEC) is currently facilitating an EIA process for the proposed "Durbanville Gardens" Assisted Living Residential Development, on a site situated adjacent to Vissershok Road in Durbanville. The development proposal is to consolidate and rezone five properties (Erven 56(RE), 4144, 4145, 15736 and 10853) to allow for the construction and establishment of the proposed assisted living residential development.

According to the information available at this stage, the proposed development will cover a total extent of approximately 2.5 ha. This area will consist of underground and above-ground parking bays, semi-detached cottages, a clubhouse with associated bowling green, a frail care facility, internal private access roads, sectional title apartment units, a communal swimming pool, stormwater detention ponds and two entry/exit points. Portions of the eastern side of the proposed development area will fall within the 1:100 year floodline of a tributary of the Mosselbank River that flows into the Uitkamp Wetland Area. The only sections of the proposed development that will fall within this 1:100 year floodline will apparently be one of the two proposed stormwater detention ponds, parking areas and a small corner of the proposed bowling green. It is understood that none of the proposed residential units will be located within the 1:100 year floodline.

Comments received from various commenting Authorities and during a formal meeting with the Department of Water and Sanitation (DWS) have raised a number of concerns relating to the potential impacts of the proposed development on existing wetland areas on and adjacent to the site. In particular, potential impacts on the Uikamp Wetland located within the Uitkamp Wetland Nature Reserve a short distance downstream of the proposed development site have been highlighted as an issue of concern. To address these concerns, the Project Team decided to attain the input of an Aquatic Specialist and Dean Ollis of the Freshwater Consulting cc was appointed to provide the required input.

The terms of reference for the specialist input requested from the Freshwater Consulting cc were as follows:

- Delineate the wetlands that are present on and adjacent to the subject properties;
- Provide a professional opinion as to whether the proposed development would be likely to result in negative impacts of high significance on the delineated wetlands; and
- Recommend mitigation measures to minimise the potentially negative impacts on wetlands and other freshwater ecosystems that could result from the proposed development.

A detailed assessment of the Present Ecological State of the wetlands identified to be present on and adjacent to the proposed development site was specifically excluded from the terms of reference for the input by the Freshwater Consulting cc at this stage of the application, as was a formal assessment of the significance of the potential impacts of the proposed development on freshwater ecosystems.

### **Approach taken to the study**

The approach taken to meeting the above-mentioned terms of reference was as follows:

- Background information and existing documentation relating to the proposed development was reviewed.
- A preliminary meeting was held with other members of the Project Team to discuss the context of the project and the details of the specialist input required at this stage.
- Relevant existing maps, aerial photos and biodiversity conservation plans for the study area were examined. These included the maps of the 2011 National Freshwater Ecosystem Priority Areas (NFEPA) project<sup>1</sup> and the most recent GIS layers available for the City of Cape Town's Wetlands Map and accompanying Biodiversity Network<sup>2</sup>.
- A desktop-based map was compiled of potential "watercourses" (i.e. rivers, wetlands, open waterbodies) located on and adjacent to the proposed development site, using GIS.
- A site visit was undertaken on 4 April 2018 to delineate the location and approximate extent of wetlands and other "watercourses" in relation to the proposed development. Wetlands were delineated following standard field-based procedures for the identification and delineation of wetlands (after DWAF 2005)<sup>3</sup>, which are based on the observation of landscape setting, landform, vegetation and soil moisture characteristics (using a soil auger to check the soil for signs of permanent or periodic saturation at selected points). The definition of "wetland" adopted for this investigation was that of the National Water Act (Act No. 36 of 1998), whereby a wetland is defined as "*land which is transitional between terrestrial and aquatic systems, where the water table is usually at, or near the surface, or the land is periodically covered with shallow water and which land in normal circumstances supports, or would support, vegetation adapted to life in saturated soil.*"
- A ground-truthed map was compiled of the "watercourses" confirmed to be present on and adjacent to the proposed development site by updating the preliminary desktop-based map, using GIS, based on the findings of the site visit.
- A follow-up meeting was held with the development proponent and representatives from GNEC to discuss the feasibility of the proposed development in the light of the findings of the freshwater ecosystems site scan.
- Recommendations were formulated for minimising the potential impacts on wetlands that could result from the proposed development.
- The current letter-report was compiled to summarise the findings of the freshwater ecosystems site scan that was completed by the Freshwater Consulting cc.

### **Contextual setting of the site**

The proposed site, consisting of five private properties that would be consolidated and rezoned, is situated alongside Vissershok Road in Durbanville, within the Northern Suburbs of the City of Cape Town. The site falls within the existing Urban Edge.

The site slopes gradually from west to east, towards the valley floor of a tributary of the Mosselbank River that flows in a northward direction immediately to the east of the site. According to the most recent version of the national vegetation map for South Africa<sup>4</sup>, the site is located in the transitional area between Swartland Shale Renosterveld and Cape Flats Sand Fynbos. Both of

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<sup>1</sup> Obtained from SANBI's Biodiversity GIS website - <http://bgis.sanbi.org/>

<sup>2</sup> Obtained from the City's Open Data Portal - <https://web1.capetown.gov.za/web1/opendataportal/Default>

<sup>3</sup> Department of Water Affairs and Forestry [DWAF] (2005). A Practical Field Procedure for Identification and Delineation of Wetlands and Riparian Areas. Department of Water Affairs and Forestry, Pretoria.

<sup>4</sup> Mucina & Rutherford (2006, with 2012 updates). The Vegetation of South Africa, Lesotho and Swaziland. *Strelitzia* 19. South African National Biodiversity Institute, Pretoria.

these vegetation types have been categorised as Critically Endangered terrestrial ecosystems. Very little of the natural vegetation remains on the proposed development site, however, with most of the site currently occupied by existing houses and residential gardens. The undeveloped portions of land have been heavily disturbed and the vegetation is dominated by garden escapees and invasive alien vegetation.

The north-eastern corner of the proposed development site, on Erf 56(RE), has, however, been identified as part of a terrestrial Critical Biodiversity Area (CBA) on the City of Cape Town's Biodiversity Network and as part of a degraded Aquatic CBA in the 2017 version of the Western Cape Biodiversity Spatial Plan (WCBSP).

### ***Delineation of wetlands on and adjacent to the site***

In terms of the desktop-based mapping that was completed for the study area, no wetlands were mapped within 1 km of the site by the NFEPA project. The City of Cape Town's Wetlands Map, however, mapped a wetland along the eastern edge of the site, extending into the valley floor adjacent to the site and ultimately flowing into the Uitkamp Wetland System downstream of the site. This wetland was classified as a channelled valley-bottom wetland system in terms of the type of aquatic ecosystem<sup>5</sup> and it was categorised as an Aquatic CBA through the wetland prioritisation process that was completed by the Freshwater Consulting cc in 2009 for the City's Wetlands Map<sup>6</sup>.

During the fieldwork undertaken by the Freshwater Consulting cc, it was confirmed that a valley-bottom wetland is present in the Open Space area to the east of the site and that this wetland does extend onto the proposed development site in places along the eastern boundary (as shown on the map of Habitat Units in **Figure 1**). The portion of this wetland located adjacent to the site, which was presumably an unchannelled system in its natural reference state, was observed to be highly degraded in terms of its present ecological condition. Impacts include, *inter alia*, hydrological alterations in the catchment and within the wetland (affecting the within-wetland distribution and retention of water), topographical alteration, water quality impacts and transformation of the naturally-occurring vegetation within the wetland through disturbance and the encroachment of invasive alien plant species. Non-indigenous plant species that were observed in the valley-bottom wetland included *Pennisetum clandestinum* (Kikuyu lawn grass), *Acacia saligna* (Port Jackson willow), *Arundo donax* (Spanish reed), *Cyperus papyrus* (Papyrus reed), *Echium plantagineum* (Paterson's curse), *Verbena bonariensis* (purpletop vervain), *Salix babylonica* (English willow tree), *Populus* sp. (poplar tree) and *Eucalyptus* sp. (gum tree).

A relatively large portion of Erf 56 (RE) is highly disturbed, with evidence of excavation and dumping. Based on the present-day situation, it is very difficult to determine with a high degree of confidence whether this disturbed portion of the site was naturally a wetland area, with presence of current-day wetland indicators on this portion of the site being very patchy (as shown on the map of sampling/observation points in the **Appendix** included with the current letter-report). If this portion of the site was historically a wetland area, it would have been a seep wetland<sup>5</sup>. An ecologically functional but degraded seep wetland was identified in the northern corner of Erf 56 (RE) by the Freshwater Consulting cc (see map in **Figure 1**). This wetland, which feeds into the valley-bottom wetland located down-slope to the east, has a stormwater drainage ditch flowing through it and is dominated by a thick growth of Kikuyu lawn grass (*Pennisetum clandestinum*).

The western corner of Erf 56 (RE) and the four properties making up the southern portion of the proposed development site (i.e. Erven 4145, 4144, 15736 and RE/10853) consist of residential houses and urban gardens, with evidence of the historical creation of an infill platform on some of these properties (e.g. Erf 15736). Due to the intensely developed nature of these portions of the site, any remaining patches of wetland in the gardens of the existing houses are very small and isolated, with negligible functional value.

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<sup>5</sup> After: Ollis DJ, Snaddon CD, Job NM and Mbona N (2013). Classification System for Wetlands and other Aquatic Ecosystems in South Africa. User Manual: Inland Systems. *SANBI Biodiversity Series 22*. South African National Biodiversity Institute, Pretoria.

<sup>6</sup> Snaddon K and Day L (2009). Prioritisation of City Wetlands. Report prepared by the Freshwater Consulting Group for the Department of Environmental Resource Management, City of Cape Town.



**Figure 1:** Map of the wetlands and other habitat units that were delineated on the proposed development site by the Freshwater Consulting cc

The main finding of the site scan by the Freshwater Consulting cc was that there is a small area of ecologically degraded wetland on the proposed development site, mostly located on a hill slope on site, mostly located on a hill slope on Erf 56 (RE). The majority of the on-site wetland consists of a seep, which feeds into a more extensive (but also degraded) valley-bottom wetland system located immediately to the east of the site, although there are small patches of valley-bottom wetland extending onto the site where there are portions of the site situated on the valley floor. The present-day situation, in terms of the location and approximate extent of wetlands on the proposed development site, as delineated by the Freshwater Consulting cc, is visually summarised on the map of habitat units in **Figure 1**.

### **Conclusions and recommendations**

The overall conclusions of the site scan completed by the Freshwater Consulting cc were as follows:

- Most of the proposed development site is made up of residential properties with existing, relatively large houses and well-established gardens, situated mostly on a footslope adjacent to the valley floor associated with a tributary of the Mosselbank River;
- It is very difficult to determine what proportion of the built-up properties would have contained wetland in their undeveloped natural reference state;
- There is a small extent of ecologically degraded wetland still present on the proposed development site, consisting of a seep wetland and small patches of valley-bottom wetland, mostly on the only vacant property making up the proposed site, namely Erf 56 (RE);
- The proposed development would encroach mainly into the seep wetland area identified in the northern corner of the site, where a stormwater detention pond is currently proposed;
- The small patches of valley-bottom wetland on the proposed development site form part of a much bigger wetland situated along the valley floor immediately to the east of the site;
- The valley-bottom wetland alongside the eastern edge of the site is ecologically degraded in terms of its present ecological condition but this wetland is considered to be of high

conservation importance because it feeds into and ultimately forms an upstream component of the partially protected Uitkamp Wetland System.

- While the proposed development would lead to the loss of some wetland, the total amount of wetland that would be lost is very small, especially in relation to the total size of the valley-bottom wetland situated in the valley floor to the east of the site, and the wetland area that would be lost is highly degraded in terms of its present ecological condition; and
- The relatively extensive valley-bottom wetland in the Open Space area to the east of the site is of high conservation importance but is also highly degraded in terms of its present ecological condition and should thus be prioritised for wetland rehabilitation as well as ongoing post-rehabilitation maintenance and management.

Based on the above-mentioned conclusions, I am of the professional opinion that the proposed development would be acceptable from an ecological perspective, even if it results in the loss of a small area of wetland, provided there is adequate rehabilitation of wetlands to compensate for the small loss of wetland that would occur. In this regard, it is recommended that the wetland area in the northern portion of the site should be rehabilitated as part of the proposed development, with the formal input of a freshwater ecologist. This rehabilitated wetland could be integrated into the stormwater management measures for the proposed development. In addition, it is strongly recommended that the developers should contribute towards the rehabilitation of the valley-bottom wetland in the Open Space area to the east of the site, in consultation with the City of Cape Town (who are responsible for the management of the Open Space area). This would not only enhance the ecological condition of the wetland area, it would also presumably elevate the value of the proposed development. A botanist and a freshwater ecologist, both with suitable previous experience in wetland rehabilitation projects, should be formally involved in the development of an appropriate wetland rehabilitation strategy.

The main rehabilitation interventions that are required for the valley-bottom wetland area situated to the east of the proposed development site are some reshaping of the contours to facilitate better connectivity between the small channel and adjacent valley floor, and the removal of non-indigenous vegetation. Some re-planting of naturally-occurring wetland vegetation is also likely to be required. It would be important to ensure that the rehabilitation strategy that is developed ultimately enhances the ecological value and functionality of the Uitkamp Wetland System, and does not have any negative impacts on this downstream wetland area of high conservation importance. If the above-mentioned recommendations were to be effectively implemented as part of the proposed development, resulting in improved ecosystem functionality and habitat integrity of the valley-bottom wetland area to the east of the proposed development site, it is anticipated that the development could have a net positive impact with regard to freshwater ecosystems.

I hope this letter-report provides the input you require from the Freshwater Consulting cc at this stage. Please do not hesitate to contact me if you have any further queries relating to the minimisation of impacts on the wetlands that have been delineated on and adjacent to the proposed site for the "Durbanville Gardens" assisted living residential development.

Yours sincerely



Dean Justin Ollis *Pr.Sci.Nat.*

**Appendix:** Map and descriptions of observation points for wetland delineation