Appendix G4 – Freshwater Assessment Initial Findings

EnviroSwift

Where nature meets development

Freshwater Assessment, Initial Findings:

Farm 29, Stellenbosch, Western Cape

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1 Introduction

Farm 29 Stellenbosch is owned by the Stellenbosch Municipality who wish to develop a memorial park in accordance with the layout included as Figure 1 below.

The proposed memorial park includes the construction of the following:

- Construction of hardened infrastructure including a chapel, office, columbarium, public toilets, an access road and hardened pathways;
- Installation of graves;
- Landscaping of the cemetery and of a parkland including a small forest and informal parkland of mixed fynbos vegetation and indigenous trees for shade and screening where appropriate with cleared, unmade pathways in between.

The Western Cape Biodiversity Spatial Plan indicates the presence of degraded wetlands across approximately the eastern half of the property, and the National Geospatial Information Service (NGI) indicates the presence of a drainage line in the western half. Several other watercourses are indicated within the NWA 500m regulated zone (refer to Figure 2). EnviroSwift Western Cape was therefore contracted to undertake a freshwater assessment. A full freshwater assessment is underway, but this preliminary indication of findings was requested due to time constraints.

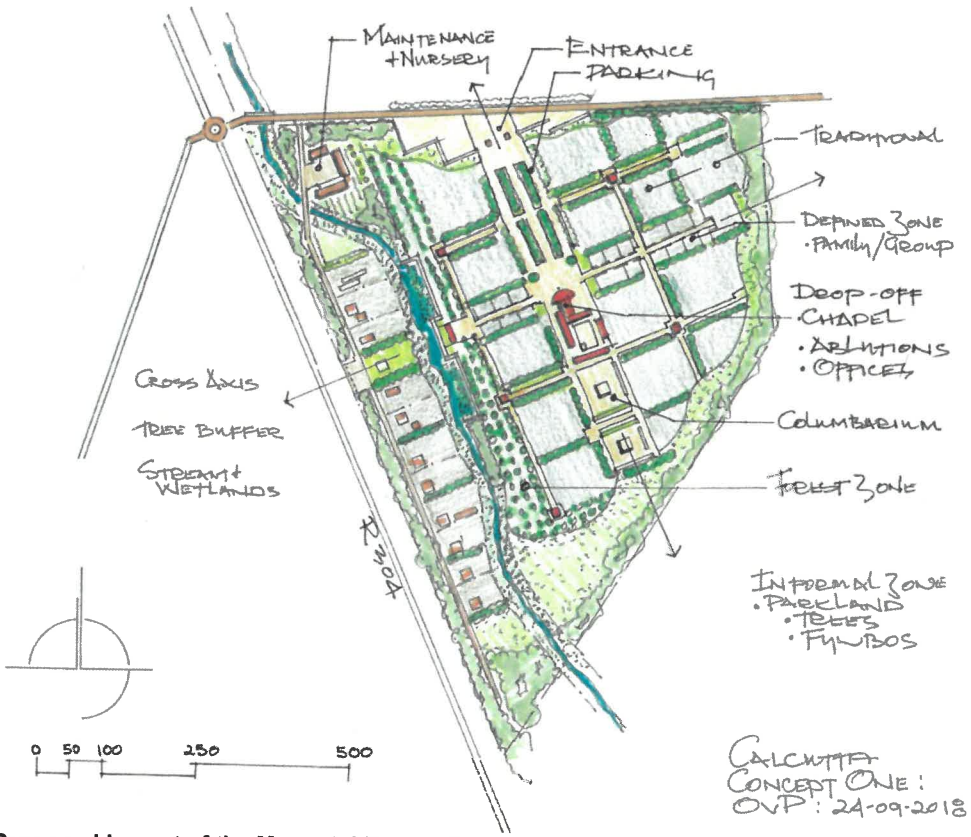


Figure 1: Proposed Layout of the Memorial Park at Calcutta Farm 29 Stellenbosch.

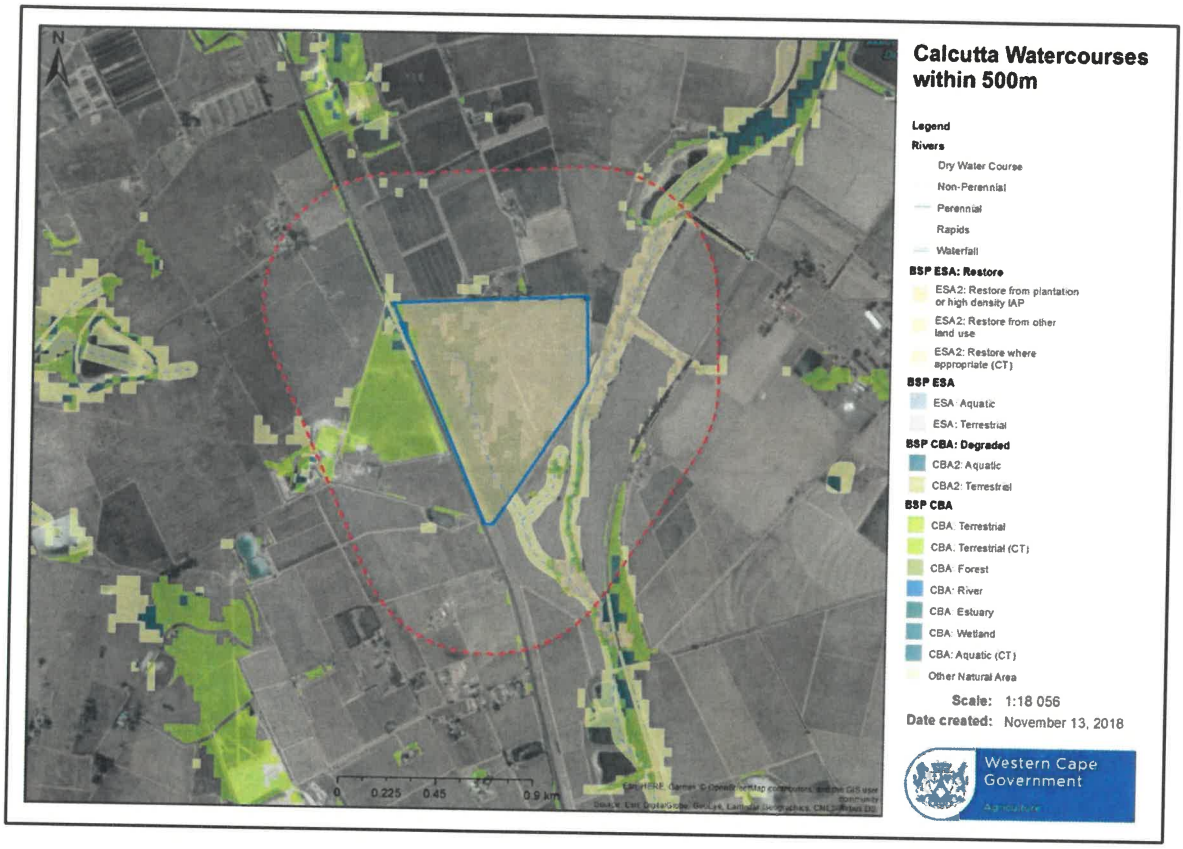


Figure 2: Watercourses within Farm 29 Stellenbosch and within the 500m regulatory zone according to the WCBSP (2017) and the NGI river and drainage line data.

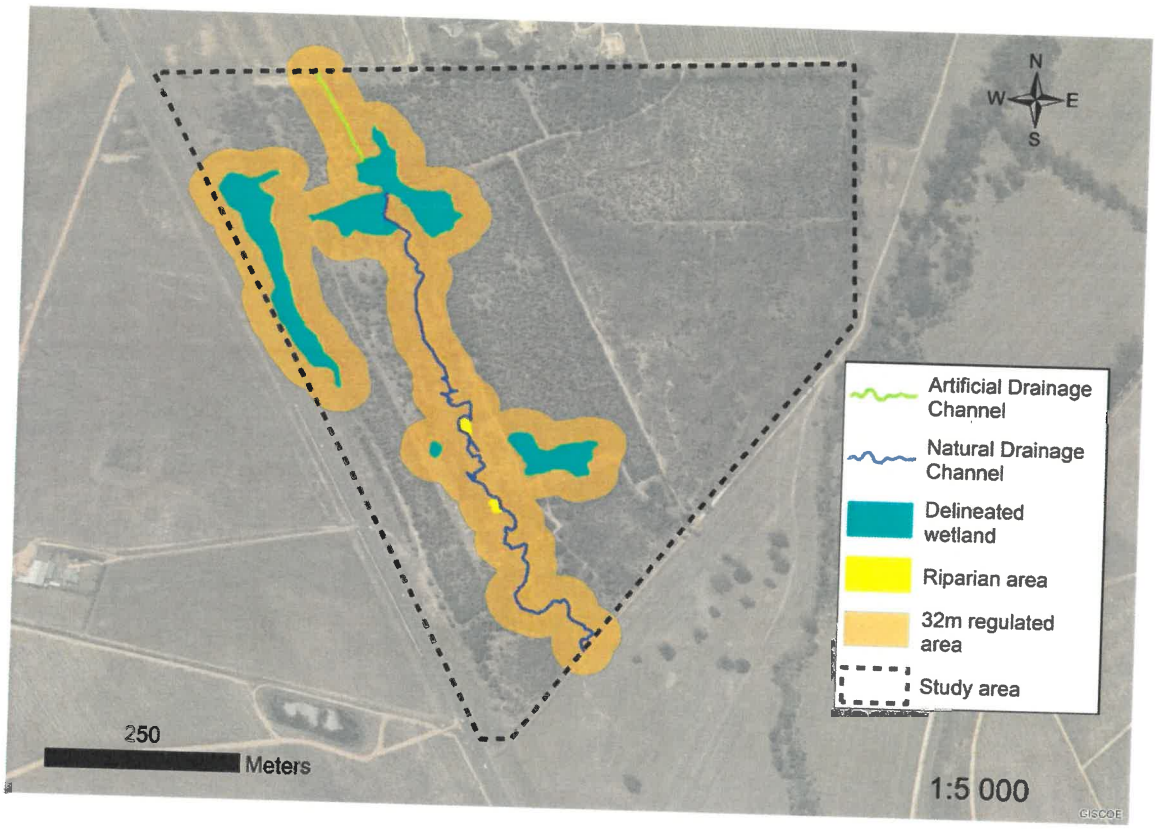
2 Initial Findings

A site assessment was conducted on the 9th of November 2018. Watercourses within the property were delineated in accordance with best practice guidelines. It was found that all watercourses within the property were severely degraded due primarily to the presence dense forests of *Acacia saligna* and *Eucalyptus spp.* along with dense stands of alien grasses, particularly *Lolium perenne*. Wetlands were found to be cryptic, exhibiting sparse wetland vegetation and wetland soil features that were difficult to discern given the level of disturbance and diverse colouration of the terrestrial baseline soils within the property, particularly where wildfires fires had taken place. The only clear distinguishing soil feature present in every wetland was the surface organic layer discussed at length in the DWAF (2005, updated 2008) delineation manual and in the Job (2009) application thereof. Limited areas were found where substantial seasonal wetland hydrology was present.

It is the opinion of the specialist that the wetlands were likely much more extensive before the presence of the alien invasive forests that dominate the site. It is also likely that the original wetland hydrology will return once the alien trees have been removed. This area will be estimated in the final assessment report by analysis of historical aerial photographs, but the site should also be revisited in wet season after initial site clearing to verify the delineation undertaken in this assessment.

The drainage line indicated by the NGI was found to be largely present and although wetlands were found within the northern parts thereof, it was found largely to be a true ephemeral drainage line dominated by alluvial soils without hydromorphic soil features present. The drainage line was found to have been subjected to substantial erosion related to the presence of invasive species and may in the past have had more substantial riparian zones and may have provided water wetlands on its banks.

The preliminary delineation map is included as Figure 3 below, along with the NEMA 32m regulated zone.



3 Conclusion and Implications

The proposed development will likely result in a net positive change from the current land-use (or lack thereof) in terms of freshwater impact, so long as the wetlands and drainage lines, with buffers (to be determined, but likely 20m), are incorporated within the parkland and rehabilitated. An environmental impact assessment is required for the site in any case, but construction of $100m^2$ or more or movement of $10m^3$ or more of soil within the 32m regulatory zone or within a wetland would be an additional NEMA listed activity.

The implications of the development in terms of the NWA are slightly more complex. The entire development takes place within the NWA 500m regulated zone, so a risk assessment must be undertaken. If the risk-rating is high or medium, then a Water Use Licence (WUL) will be required. If however the risk rating is low, then registration under the General Authorisation will be required.

The Department of Water and Sanitation who administer the NWA apply a policy of 'no net loss' to wetlands. Therefore, should the development result in construction or infilling within any portion of wetland, resulting in wetland loss, then a wetland offset would be required for the development to stand a viable chance of being granted a WUL. An offset may take the form of rehabilitation and management (in perpetuity) of a wetland within the site (in the case of minor wetland loss) or procurement, rehabilitation and management (in perpetuity) of a wetland elsewhere. This is costly and complex process and should be avoided if at all possible.

Given the difficult wetland delineation conditions within the farm, it is possible that additional wetlands may exist and that some historical wetlands may resurface after the alien invasive forests have been removed. It is therefore proposed that:

1) The historical extent of wetlands be mapped to inform planning (currently underway to be included in the full assessment report).
2) It should be made a condition of Environmental and Water Use Authorisations that the site be revisited for verification of the wetland delineation during the wet season (June/July/August) after initial site clearing is completed. If any substantive changes to the wetland delineation that would in the opinion of the specialist result in a change in the impact or risk ratings, then DWS and DEADP case officers should be notified immediately.