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To whom it may concern

**SUBJECT: HYDROPEDOLOGY STATEMENT FOR THE PROPOSED MULILO STRUISBULT SOLAR PV 2 FACILITY AND ASSOCIATED GRID POWERLINE PROJECT.**

Dear Sir / Madam,

The Biodiversity Company has been commissioned to provide a hydrogeology statement in support of the Water Use License (WUL) process for the proposed Mulilo Struisbult Solar PV 2 facility and associated Grid powerline and infrastructure project. The proposed project involves the development of a solar facility, located in Copperton town within the Siyathemba Local Municipality in the Northern Cape of South Africa. The upgrade refers to a 1 km loop in loop out line, access road and additional grid powerline. This statement pertains to the relevance of hydrogeology, and any associated risks towards the adjacent watercourses.

Several model exercises were undertaken to determine the catchment extent of the sub-basin for the watercourses associated with the project area (Figure 1) and quaternary catchment D54D (Figure 2). These models indicate minimal to no impacts are expected. The site is in a land type commonly associated with shallow recharge hydrogeological soils groups (i.e., Glenrosa and Mispah soil forms) see Figure 2. It is worth considering the source of water associated with the moisture content within the watercourse.

Watercourses were identified proximal to the Solar PV area and associated grid powerline. The catchment of the Orange River north-east to the project area derives the majority of water flows from the catchment sub-basin north-west and north-east, which is characterised with shallow recharge soil hydrogeological groups. This indicates that surface and also sub-surface recharge flows are predominantly responsible for the level of moisture in the watercourses. Construction of the proposed Solar PV facility and associated grid powerline will have a limited impact on the recharge soils in proximity to the site's catchment as dominant vertical and sub-dominant lateral flows towards the water table recharge stores (shallow and deep recharge) will be minimally impeded see Figure 2). It is however worth-noting that, even though the impact is minimal, lateral flows in the shallow recharge soils associated with the project area should also be properly managed. This can minimise surface return flows or drainage problems which commonly promote loss of water as surface run-off or evaporation demands increasing the total catchment deductible water losses. Panels can also aid to intercept precipitation and also reduce the evaporation demands. The areas with responsive saturated soils (e.g., Katspruit soil forms) should be preserved and not used for any developmental activities as such soils acts a water receptor responsible for groundwater stores and recharges. In the project area, these wetlands were identified as depressions.



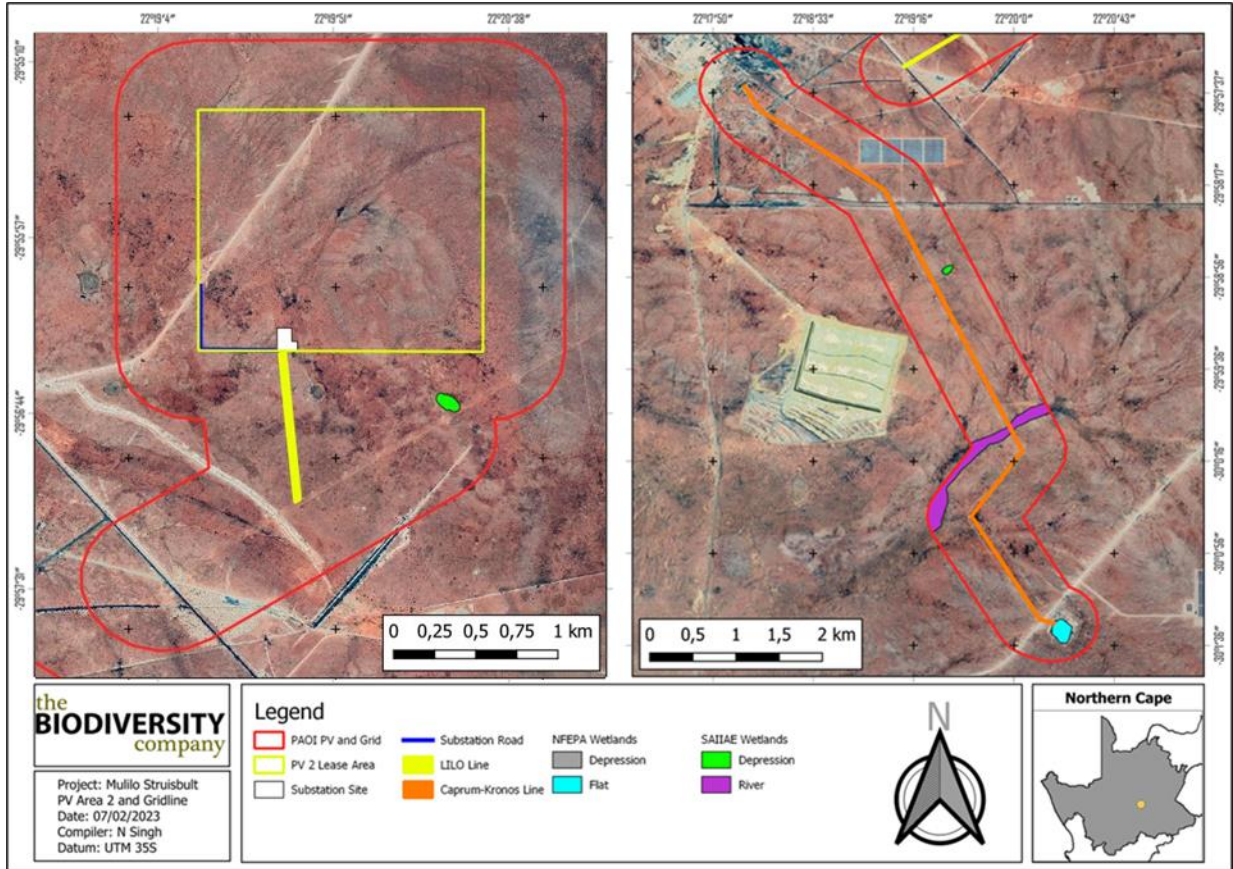


Figure 1) The identified wetlands and river systems within the catchment hydrogeological water regime basin

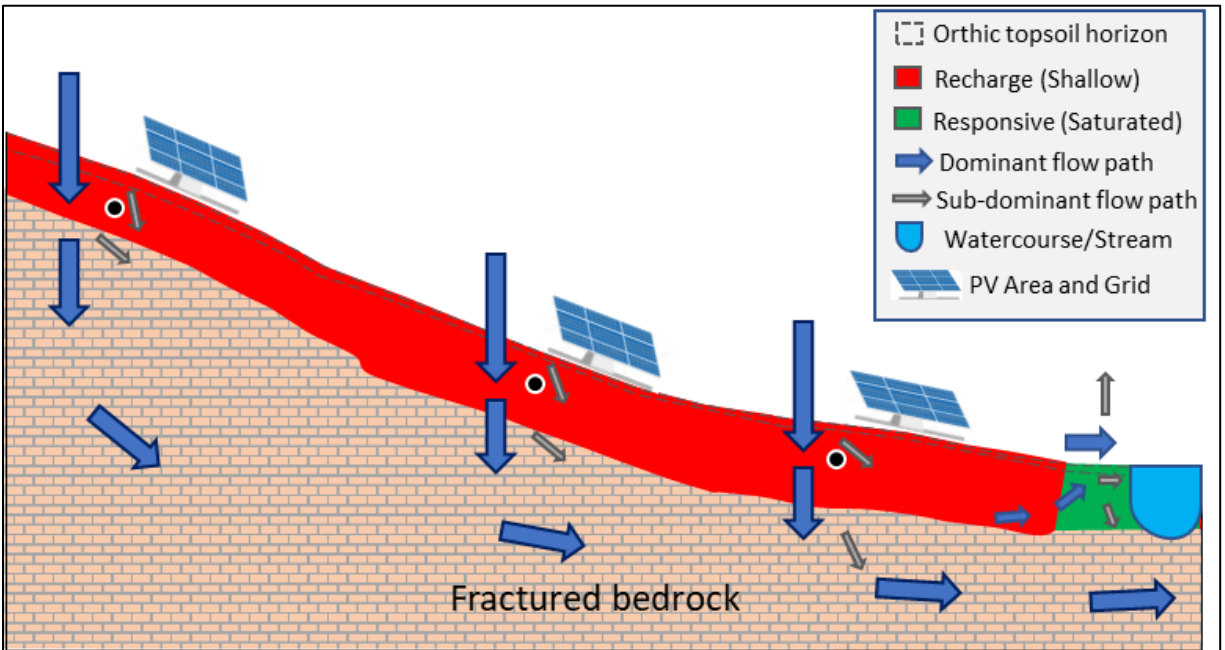


Figure 2) Conceptual hydrogeological flows after the Solar PV and associated infrastructure



When comparing the size of the project area with that of the combined sub-basins responsible for providing moisture content to the local watercourses, the Orange River and other associated tributaries in the catchment, it is clear that the potential worst-case scenario loss of moisture to the watercourses is approximately  $\leq 1\%$  of the total water regime on a catchment scale. Therefore, when considering a percentage loss of total streamflow and groundwater recharges, negligible losses are expected, predominantly due to the fact that the bulk of the moisture and waterflows already originates well upstream of the project area and around the catchment.

Therefore, it is the specialist's opinion that the proposed Mulilo Struisbult Solar PV 2 facility and associated grid powerline infrastructure project will not result in a significant loss of total streamflow and groundwater recharge water regime stores. It is therefore recommended that the proposed activities proceed as have been planned and no further hydrogeology investigations are deemed necessary.

Regards,



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