

20 July 2022

TO WHOM IT MAY CONCERN,

Dear Sir/Madam

**MULILO DE AAR PV EA AMENDMENT APPLICATION FOR EXTENSION OF VALIDITY OF ENVIRONMENTAL AUTHORISATION: AQUATIC BIODIVERSITY IMPACT ASSESSMENT COMMENT**

**Background**

The Mulilo Total Hydra Storage (MTHS) project is Preferred Bidder in the Risk Mitigation Independent Power Producer Procurement Programme (RMIPPPP). The MTHS project consists of the following three solar facilities, which will be developed as one project, and it is envisaged that the development thereof will take place simultaneously:

- 75MW Badenhorst Solar PV2
- 75MW Badenhorst Dam Solar PV3
- 100MW Mulilo De Aar PV

The final layout of this combined PV facility was approved on 8 June 2021. The layout approved was guided by the Environmental Sensitivity Map, which resulted from the specialist input obtained over the years through numerous EA Amendment Applications and which was again confirmed in 2021. As the aquatic ecologist on the project, I have had input into that process in terms of the associated aquatic ecosystem constraints and potential impacts since 2011, visiting the site on numerous occasions. The most recent visit was in March 2022 to assess overhead grid connection routes within and adjacent to the site.

This aquatic biodiversity impact assessment comment is intended to respond to the following aspects:

- Determine if the baseline environment has changed significantly since the original assessments, which were conducted approximately ten years ago;
- Determine if the initial impact assessments are still valid;
- Assess whether the mitigation measures recommended in the initial assessment still apply and whether there are any additional mitigation measures necessary;
- Provide a summary, description and assessment of any changes to the environment (if any) since the initial environmental authorisation was issued;

- Provide an aquatic sensitivity map for the site and confirm that the approved layout avoids any aquatic constraints of high importance or sensitivity;
- Provide a final recommendation on whether there has been any significant change in the aquatic ecosystem assessment that may influence my initial support/no objection finding for the approved Mulilo De Aar PV project.

### **Summary of findings of Freshwater Assessment for the project, dated May 2013**

*The freshwater features on the farm Badenhorst Dam consist largely of ephemeral tributaries of the Brak River. These tributaries are considered to be in a moderately modified ecological state, with a low ecological importance and sensitivity. The expected impacts of the proposed activities are likely to be as follows:*

- *Solar energy facility: The proposed site is outside of all identified freshwater features/drainage lines on the site; therefore potential impact on freshwater features is very low for this component.*
- *Laydown areas: The proposed areas are outside of any identified freshwater features/drainage lines; therefore, the potential impact on freshwater features is very low for this component. Of the three areas proposed as laydown areas, Laydown Area 1 is preferred from a freshwater perspective.*
- *Overhead transmission lines/corridors: The preferred transmission lines/corridors do not appear to cross any freshwater features/drainage lines; therefore, the potential impact on freshwater features is very low for this component.*
- *Substations: None of the substations is placed in or near any freshwater features/drainage lines; therefore, the potential impact on freshwater features is very low for this component.*
- *Access routes and water pipeline: The proposed access route and water pipeline cross the lower reach of the Sandsloot Tributary; however, it is below the larger instream dam and just upstream of the Nonzwakazi township, where there is no discernible river/drainage channel. The potential impact on freshwater features for this component is expected to be low to very low.*

*Provided that the following recommended mitigation measures are implemented, the overall significance of the potential impact of the preferred option is expected to be very low:*

- *A buffer of 30m should be maintained adjacent to the identified streams for the proposed PV footprint area as well as the substations. This is currently the case for the preferred development layout.*
- *Construction activities for the proposed infrastructure that will need to take place within the river channels and riparian zone (i.e. linear development components – roads, transmission lines and water pipeline) should transect the streams at right angles and be limited as far as possible to ensure minimum disturbance of this area. Disturbed areas within the riparian zones and stream beds should be rehabilitated as soon as possible after construction has been completed and revegetated with suitable indigenous vegetation. Where possible, previously disturbed areas such as existing roads or transmission line routes should be utilised.*
- *Construction should preferably take place during the low flow months (May to October) to minimise the risk of erosion and contaminated runoff from construction sites into adjacent freshwater features.*

- *All rubble, sand and waste material resulting from the construction activities should be removed from any stream and drainage channels to ensure that flow in these channels is not impeded.*
- *Invasive alien plants should be removed from the disturbed areas within the drainage channels.*
- *Contaminated runoff from the construction sites should be prevented from entering the streams.*
- *All materials on the construction sites should be properly stored and contained.*
- *Disposal of waste from the sites should also be properly managed.*
- *Construction workers should be given ablution facilities at the construction sites that are located at least 100m away from the river systems/freshwater features and regularly serviced.*
- *The laydown area(s) should be cleaned and rehabilitated after construction is complete according to the approved rehabilitation plan.*
- *There should be an approved stormwater management plan in place for the operation phase of the project. Stormwater runoff from the constructed areas should also be visually monitored after large rainfall events to ensure that eroded areas do not develop, particularly within the drainage channels.*
- *A decommissioning plan should be drawn up and approved for the site that addresses the removal of the PV facilities and infrastructure post-operation phase. The decommissioning plan should address aspects such as monitoring and management of invasive alien plants and erosion of the site after the activities on the site are complete.*

Following the initial assessment of the site in 2012 and 2013, the additions listed below were added to the project layout:

- In 2020, a Battery Energy Storage System (BESS) was proposed to be located at the southern extent of the original study area for the PV facilities that were assessed; and
- In 2021, a 9.99 MW Auxiliary Generator (Genset) was proposed to be housed in above-ground shipping containers in either the previously authorised laydown area (Badenhorst Dam Solar PV3) or the authorised Mulilo PV site.

Both these areas were ground-truthed and confirmed that no visible aquatic features occurred within or adjacent to these areas such that they would alter the initial aquatic ecosystem assessment findings or require additional mitigation measures. The closest aquatic feature is a minor ephemeral drainage feature more than 200 m to the south of the site. Drainage from the site is northwards and away from this ephemeral watercourse. Recommended mitigation measures highlighted measures already recommended for the PV site:

- Construction should preferably take place during the low rainfall period to minimise the risk of contaminated runoff from the site.
- Invasive alien plants should be removed from the disturbed areas adjacent to the site.
- All materials on the construction site should be safely stored and contained.
- Disposal of waste from the site should also be effectively managed.
- Construction workers should be given ablution facilities at the construction sites that are located at least 100m away from the aquatic feature and regularly serviced.

- During operation, adequate stormwater management measures should be in place at the BESS sites to prevent any stormwater runoff intensity or water quality impacts on the adjacent drainage feature.

The Department of Water and Sanitation (DWS) has provided acknowledgement that the project falls within the ambit of the General Authorisations for Section 21 (a) water use (Government Notice 538 of 2016); for Section 21 (c) and (i) water use activities (Government Notice 509 of 2016) as well as for Section 21(g) water use activities (Government Notice 665 of 2013). The various water use activities associated with the project have been registered with the DWS.

Figure 1 shows the approved layout together with the mapped aquatic features.

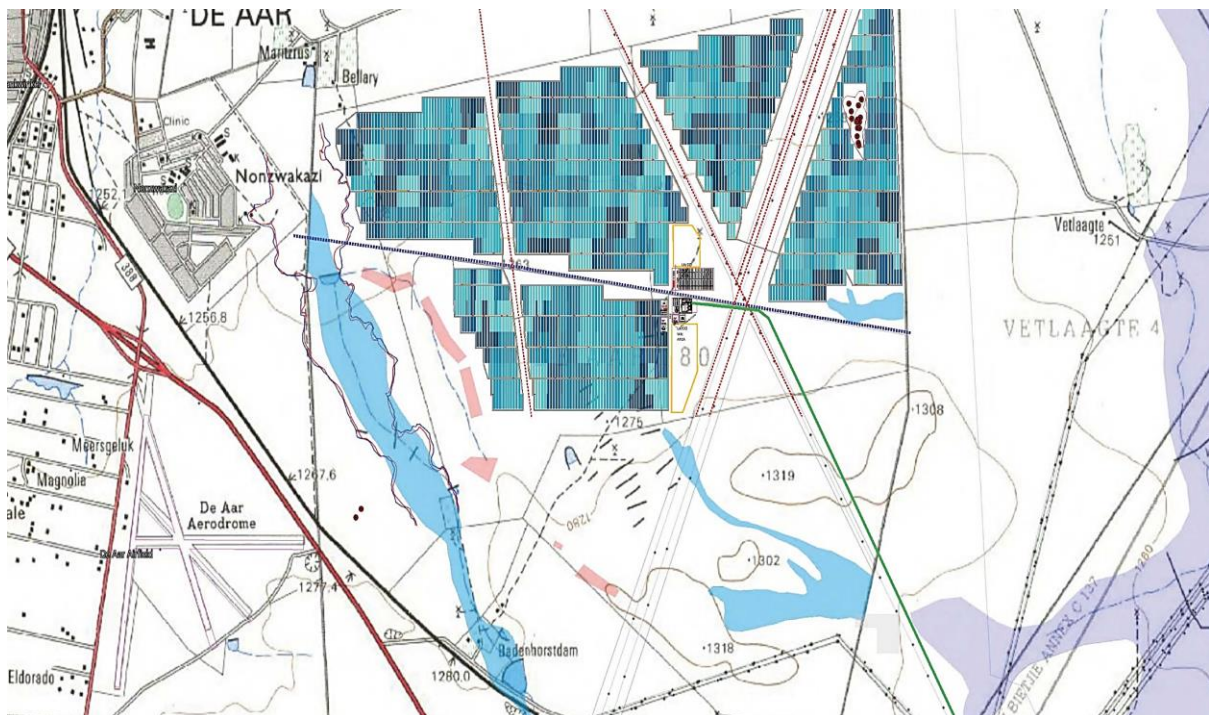


Figure 1: Topographic map showing the location of the project and the associated aquatic features

**Comment on any changes to the aquatic ecosystems within the site**

A field visit to the site was undertaken in March 2022 to determine whether there was any significant change to the aquatic features within the site.

The site was visited in January 2012 during the first EIA process and again in May 2013. The following findings were recorded: *The main aquatic feature within the study area is the Brak River, a seasonal tributary within the Orange River System. The river flows along the northern boundary of the study area, with a number of its tributaries crossing the site as they flow in a northerly direction. The most notable of the tributaries is the Sandsloot River which originates near the Badenhorst Dam Farm, and flows through the town of De Aar. Most of the other, smaller tributaries within the study area are ephemeral and are discernible only as slightly shallow depressions with no clear associated vegetation and slightly clayey soils. Small, shallow instream dams have been constructed within the drainage channel, which flows through the site. The ephemeral streams within the site were deemed to be moderately modified and of a low Ecological Importance and Sensitivity/*

In terms of the more recent DFFE Aquatic Biodiversity Combined Sensitivity mapping for the area, the wider area in which the site is located is considered of very high Aquatic Biodiversity Combined Sensitivity (Figure 2). This is due to the fact that the area is considered a Strategic Water Source Area for groundwater (De Aar Region).

### MAP OF RELATIVE AQUATIC BIODIVERSITY THEME SENSITIVITY



Figure 2. DFFE map of relative aquatic biodiversity and combined sensitivity

The sub-catchment of the tributaries of the Brak River in which the project is located is mapped as an Upstream Management Area (Figure 3). Upstream Management Areas are sub-catchments in which human activities need to be managed to prevent the degradation downstream. There are two FEPA Wetlands mapped to the south of the project footprint (Figure 4). These features were determined during the field assessment as off-channel farm dams that are not considered of any aquatic biodiversity conservation significance. Some natural valley bottom and riverine wetland habitats have been mapped further to the north and east of the proposed project that is associated with the Brak River Tributary. The wetlands are located some distance from the proposed activities and are unlikely to be impacted by the project activities.

In the 2016 Northern Cape Critical Biodiversity Areas mapping (Figure 4), the eastern portion of the site is mapped as Other Natural Area, while to the west is a Critical Biodiversity Area that is largely outside of the site and covers an area within and surrounding De Aar.

The project footprint has specifically been moved back from the flood lines of the adjacent watercourse that drains to the west of the site to the Sandsloot River, which is a tributary of the Brak River.

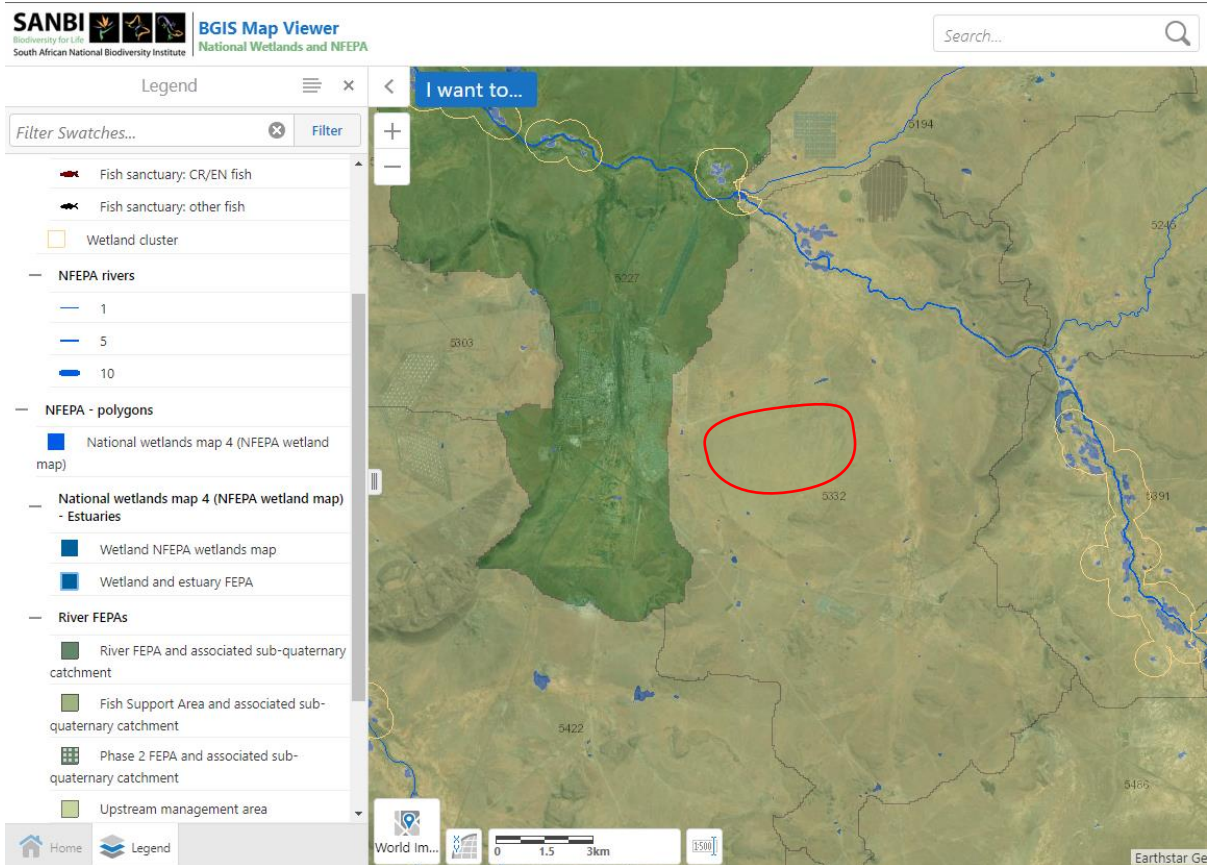


Figure 3. Freshwater Ecosystem Priority Areas for the site (red oval) and the wider surrounding area (2011 CSIR National Freshwater Ecosystem Priority Areas, obtained from SANBI Biodiversity GIS, July 2022)

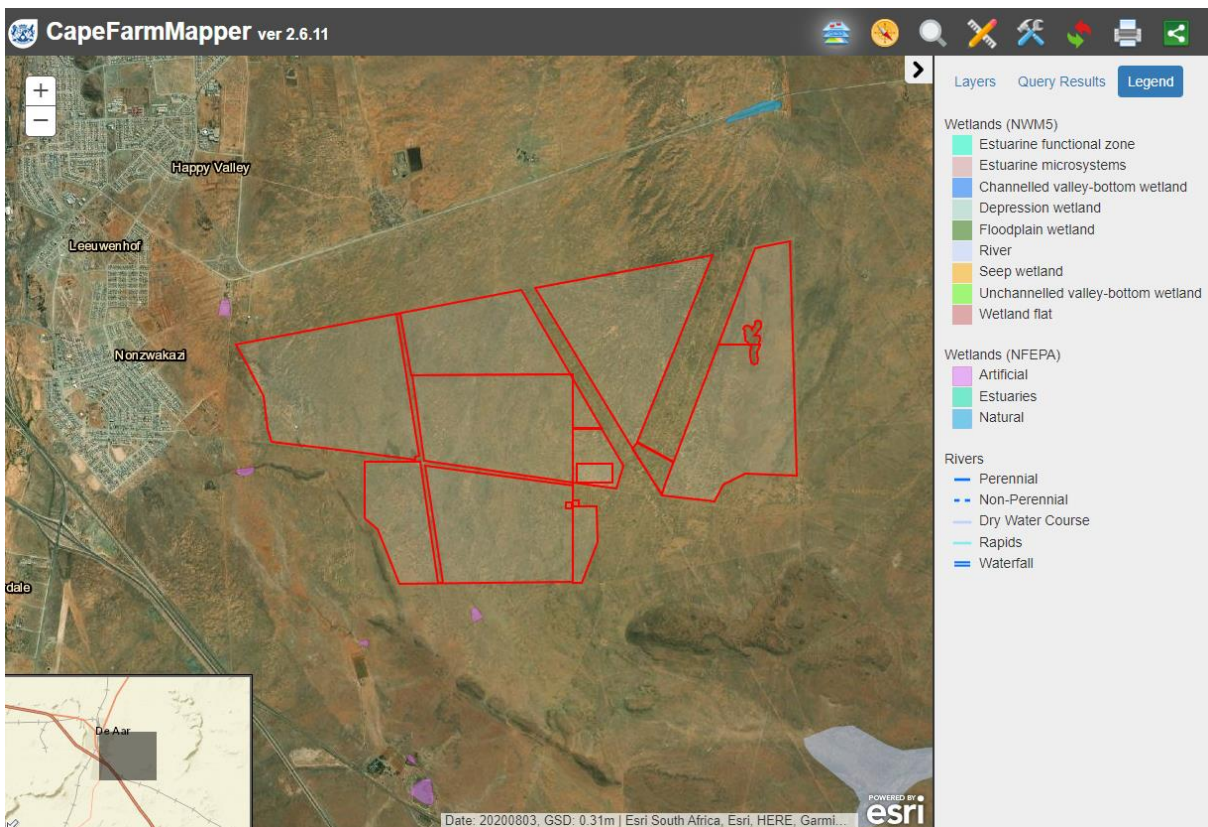


Figure 4. NFEPA Wetland and National Wetland Map 5 mapping for the project area (red polygons) (Cape Farm Mapper, July 2022)

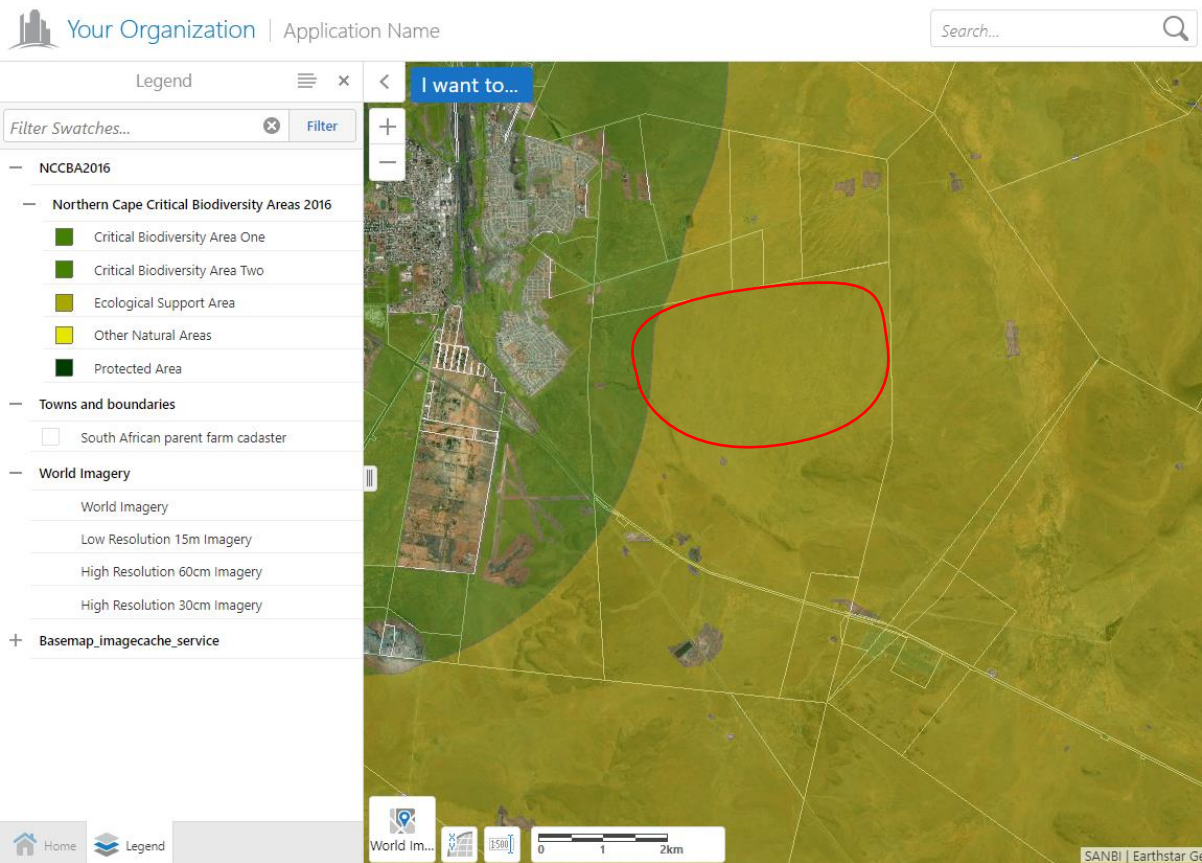


Figure 5. 2016 Northern Cape Critical Biodiversity Areas map for the study area (red oval) (obtained from SANBI Biodiversity GIS in July 2022)

The land use at the site has not changed significantly since the 2012 assessment and is only utilised for some livestock grazing. **The ecological integrity of the rivers and wetland habitats adjacent to the site appears to be essentially unchanged from the 2012/3 assessment.**

#### **General comment on the change to impact significance**

Given the fact that the approved Mulilo De Aar PV site is located outside of the mapped aquatic features and no changes are proposed, **the assessed impact ratings (Low to very low with mitigation) are not likely to alter.**

#### **General comment on additional mitigation measures**

The mitigation measures stated in the freshwater impact study dated May 2013, as summarised on pages 2 and 3 of this letter, remain the same, with **no additional mitigation measures being required.**

#### **Summary, description and assessment of any changes to the aquatic ecosystems at the site**

I am not aware of any changes to the extent, condition or ecological importance and sensitivity of the aquatic ecosystems at the site. According to more recent visits to the site, **the status quo of the aquatic features remains as was assessed in the 2012/2013 assessments that informed the approval of the Mulilo De Aar PV project.**

#### **Specialist review of the aquatic ecosystem sensitivity in relation to the project layout**

Figure 6 is a Google Earth image of the site, showing the project footprint in relation to the watercourse corridors and the 1 in 100 flood lines of the larger water course near the site. These

watercourses were determined to be in a moderately modified ecological state, with a low ecological importance and sensitivity. **The project has been placed outside of the watercourse corridors mapped at the site.**

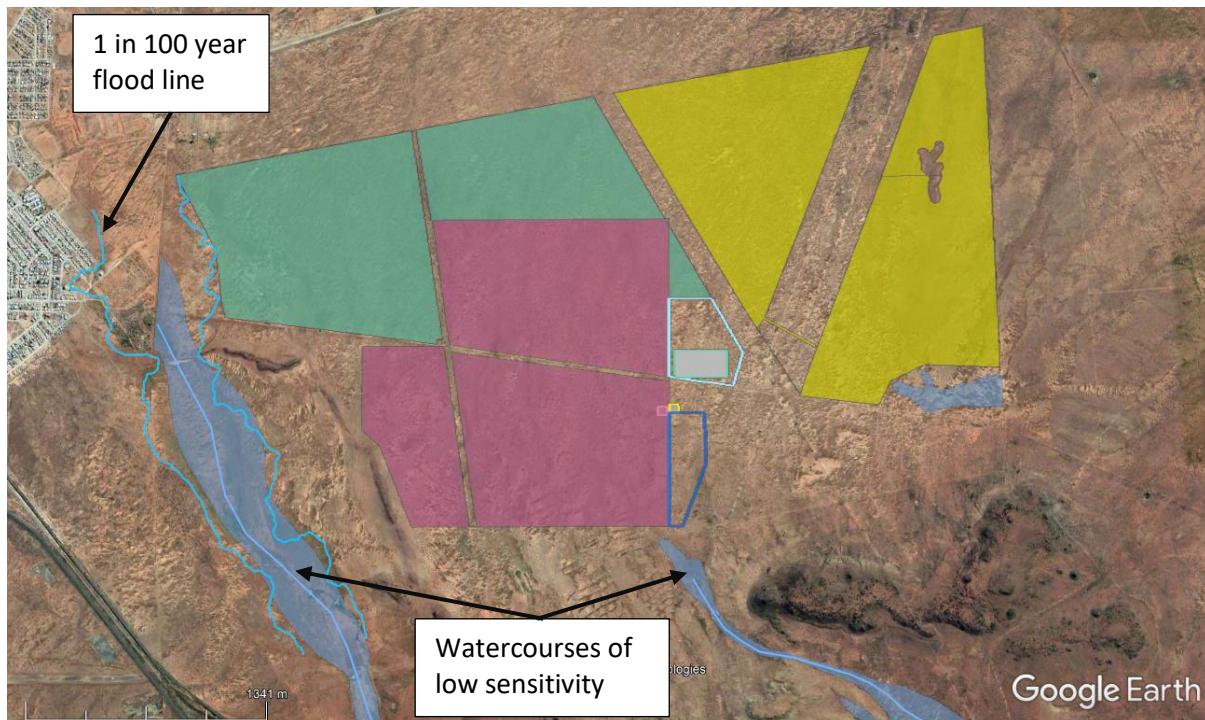


Figure 6. Mapped watercourse and the 1 in 100-year flood lines for the watercourse to the west of the site, shown in Google Earth, together with the project footprint

#### **Specialist comment on the cumulative impact on the aquatic ecosystems**

The cumulative impact of the project activities, together with other renewable energy projects and the existing activities in the area, could have the potential to reduce the integrity of the watercourses if not properly mitigated and managed. By implementing suitable buffers (30m for the smaller watercourses at the site) along the watercourses and minimising the works within the river/stream corridors, the impact of the proposed project activities would be low and unlikely to impact the integrity of the aquatic ecosystems. The mitigation measures provided for the approved project are thus deemed to be sufficient to prevent cumulative impacts resulting from the construction and operation of this project.

#### **Recommendation**

This assessment of the status quo of the aquatic ecosystems within the Mulilo De Aar PV project site thus confirms that there has not been any significant change to any of the impacts or impact ratings identified in the freshwater impact assessment dated January 2012 and updated in May 2013. **There is thus no objection to the extension of the validity of the Environmental Authorisation.**

Please feel free to contact me should you have any questions regarding the above.

Kind regards

Toni Belcher

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