# Open space management plan

**Objectives:**
The purpose of the Open Space Management Plan (OSMP) is to provide a framework for the integrated management of the natural and semi-natural areas within the wind energy facility (WEF). This requires managing and maintaining the ecosystem in a near-natural state and restoring and/or rehabilitating the ecosystems to such a state.

The overall objective of the OSMP is to restore and maintain the ecological infrastructure (i.e. intact ecosystems that deliver valuable services to people) that is found on site.

**Project outline:**
The Longyuan Mulilo De Aar WEF consists of 67 turbines, each with a generation capacity of 1.5 MW. The total wind farm footprint (67 ha) is spread over an area of 11 766 hectares (ha) accounting for 0.6% of the total area. The majority of the property will therefore remain undeveloped. The construction and presence of the WEF will however introduce unique effects to the area that should be managed in order to promote the maintenance of biodiversity within the site, ensure an intact ecosystem and does not have a long term negative impact on the local environment.

**Relation to other plans**
Given that the goal of the OSMP is to ensure biodiversity compatible management of the facility, it cannot be considered independently of the other environmental management plans at the site. In particular, the Stormwater and Erosion Management Plan, Revegetation and Rehabilitation Plan, and Alien Invasive Plant Management Plan should align closely with the OSMP.

The following elements are also considered part of OSMP:

**Protection of surface water resources (streams, rivers and wetlands)**
In terms of the sensitivity of the site, the larger streams and the wetland area are deemed to be the most sensitive and should be treated as ‘no-go’ areas. The remainder of the site tends to consist of small drainage features that are considered to be less ecologically significant. Due to the sensitivity of the plateau area as a whole as a recharge area for the wider Elandsfontein Catchment, it would be essential that water sources for the project should be obtained from, and sewage and solid waste or disposed of, outside of the plateau areas.

Proposed mitigation measures are as follows:

- Construction activities should as far as possible be limited to the identified sites for the proposed wind energy facilities and the identified access routes. No turbine (including its area of disturbance) should be located within 100m of drainage lines within the Elandsfontein River (measured from the centre of the channel). The small wetland area in the centre of the site as well as the larger stream channels should be considered as

'no-go' portions of the site. It is important that any of the cleared areas are rehabilitated after construction is completed.

- Existing road infrastructure should be utilized as far as possible to minimize the overall disturbance created by the proposed project. All crossings over drainage channels or stream beds should be such that the flow within the drainage channel is not impeded.
- Road infrastructure and transmission lines should coincide as much as possible to minimize the road network and impact of these activities. Where new access routes need to be constructed through the drainage channels, disturbance of the channels should be limited and the crossing should preferably be perpendicular to the channel. Transmission lines and roads created parallel to the channels should be located at least 20m away from the stream channel. Any disturbed areas within the stream or drainage channels should be rehabilitated
- Temporary roads created during the construction phase should also comply with the requisite 20m buffer and be rehabilitated once construction activities are complete.
- Monopoles for transmission lines should be placed outside of the recommended buffer for the streams/drainage lines (20m). After construction is complete and the areas monitored for growth of invasive alien plants.
- With regards to the proposed substation, consider either to divert the drainage channel(s) that currently pass through the site around the proposed substation and/or to do some minor adjustment to the location of the facility. Ensure that on-site storm water management is such that erosion within the drainage lines is minimised and that the channels are rehabilitated once construction activities are complete.
- Activities at the construction camps should as far as possible be limited to the identified footprint for construction camp sites. Cleared areas are rehabilitated after construction is completed. Ensure that on-site storm water management at the construction camps should be such that erosion within the drainage lines is minimised and that the channels are rehabilitated once construction activities are complete. Monitoring of these sites post-construction will need to take place to ensure that they have been adequately rehabilitated and do not provide opportunity of growth of invasive alien plants.
- Water for the construction phase of the project should be obtained for sources outside of the plateau areas. 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 drainage lines/ephemeral streams and regularly serviced. These measures should be addressed, implemented and monitored in terms of the Environmental Management Programme for the construction phase.
- Operational activities should as far as possible be limited to the wind turbine sites, the substation/control building and the identified access routes. Invasive alien plant growth should be monitored on an ongoing basis to ensure that these disturbed areas do not become infested with invasive alien plants. Any storm water run-off infrastructure must be maintained to mitigate both the flow and water quality impacts of any storm water leaving the wind energy facilities sites. Should any erosion features develop, they should be stabilised as soon as possible. Water sources for the operational phase of the project should be obtained from, and sewage and solid waste or disposed of, outside of the plateau areas for the operation phase.

**Access control**

- Access to the facility should be strictly controlled.
- All visitors and contractors should be required to sign-in.
- Signage at the entrance should indicate that disturbance to fauna and flora is strictly prohibited.

**Prohibited activities**

The following activities should not be permitted by anyone expect the landowner or his representatives:

- No fires within the site.
- No hunting, collecting or disturbance of fauna and flora, except where required for the safe operation of the facility and only by the Environmental Control Officer on duty with the appropriate permits and landowner permission.
- No domestic pets or livestock are permitted on site.
- No driving off of demarcated roads.
- No interfering with livestock.
- No use (e.g. swimming or washing of clothes or machinery) of any natural water resource.
- No marking / painting or any natural features (e.g. rock formations).

**Ecological process areas**

Ecological process areas, such as water resources and sensitive vegetation, were identified by respective specialists and designated as “no-go” areas and need to be protected adequately. Based on the ecological importance of aquatic environments, all construction activities shall remain outside of aquatic environments, with special efforts implemented to maintain an appropriate buffer, as recommended by the freshwater specialist, between construction related activities and any rivers / water course / wetlands / drainage lines. These no-go areas shall stay in place until construction of the infrastructure within the buffer area must commence. The recommended ecological sensitive areas and buffer areas, as indicated in Figure 1, shall be demarcated as “no-go” areas and construction activities shall remain outside these designated areas.

To ensure the protection of ecological process areas, the following mitigation measures are recommended:

- All works to be undertaken shall be within the boundary of the site.
- A “no-go” area shall extend on either side of the working area (i.e. all areas outside of the defined working area and designated access and construction roads).
- No equipment associated with earthworks shall be allowed outside of the working area and defined access and construction roads or within “no-go” areas, unless expressly permitted by the Environmental Control Officer / Engineer.

**Fire risk management**

Fires are not a regular occurrence at the site. However fires may occasionally occur under the right circumstances. Ignition risk sources in the immediate area include:

- Lightning strikes;

- Personnel within the facility; and
- Infrastructure, such as transmission lines.

In accordance with EMP, the Contractor shall ensure that there is basic fire-fighting equipment available on site at all times. The Contractor shall ensure that the employees are aware of the procedure to follow in the event of a fire.

**Grazing management**
The development of the WEF will not prevent the site from being used for its current land use of extensive grazing land for free range sheep production. As the construction of turbines and associated infrastructure will only influence a small area of the total farm, normal grazing is permitted. Extensive grazing is therefore compatible with biodiversity maintenance provided that it is implemented according to the basic principles of sustainable grazing management.

**Alien Plant Control**
Alien invasive plants should be controlled according to the Alien Invasive Plant Management Plan.

**Erosion Management**
The facility should be inspected every 6 months for erosion problems or more frequently in the event of exceptional rainfall events. All erosion problems should be rectified according to the Stormwater Management Plan.

**Adaptive management:**
Ecosystems are complex and it is not always possible to predict how they will respond to management interventions. The OSMP should be reviewed annually for the first three years post construction to evaluate the effectiveness of management actions so that these can be adapted as appropriate.

The OSMP is intended to be a simple management tool that can be easily understood and used by the implementers and that is cost effective.

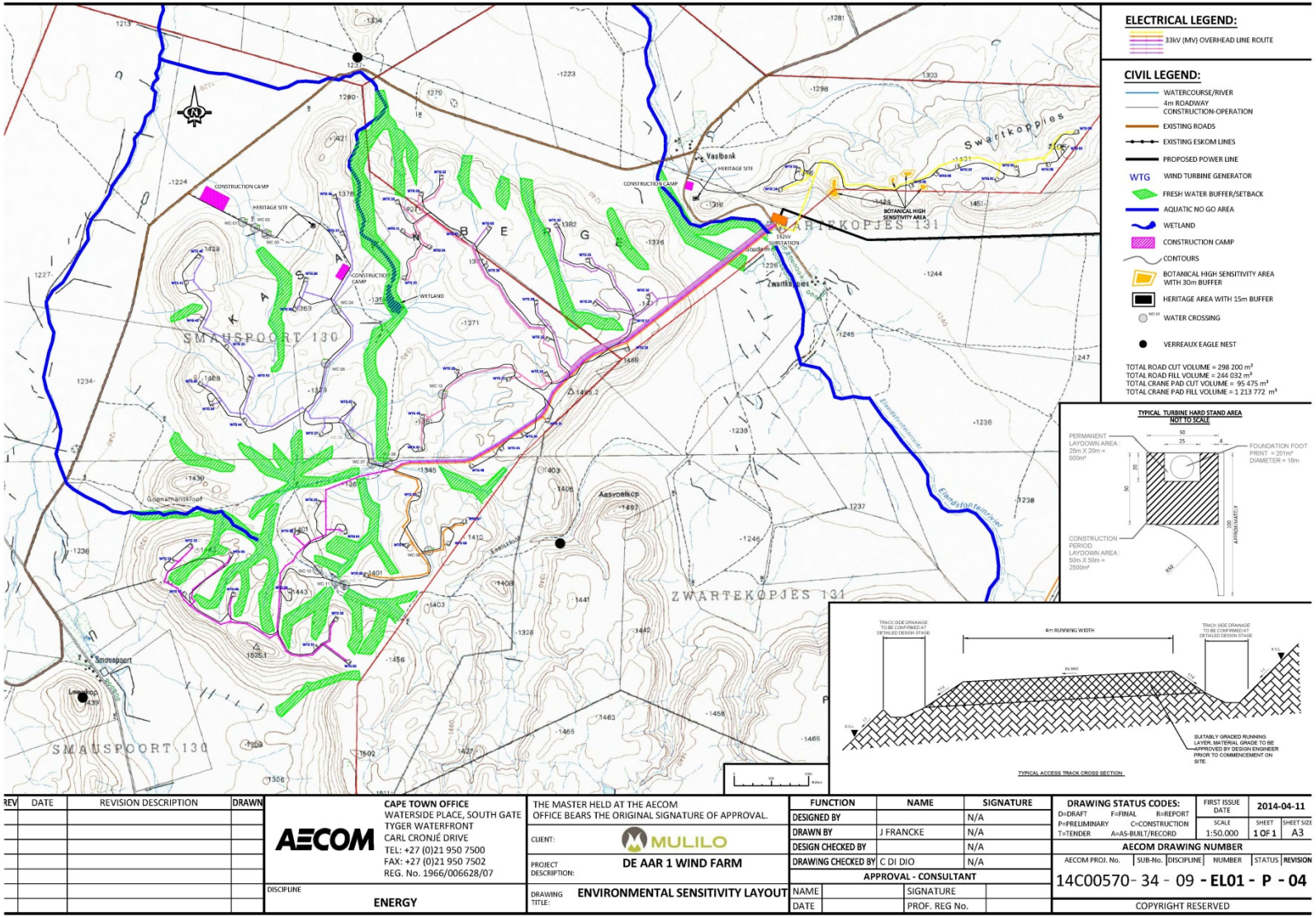


Figure 1: Environmental sensitivity map