

Temporary access roads across environmental sensitive land

Project Specific Context

The goal of the project was to explore the possibility of building a new 110 kV line partially in a moorland with very strict requirements from the environmental authorities :

- No excavation works allowed ;
- Limit the settlements as much as possible ;
- Possibility of removing completely the metaling without affecting ground quality ;
- Preservation of the upper layers of the turf rich in biodiversity material.

Taking into account the technology constraints of the project :

- Transport of concrete poles with max 13 t per truck axle-tree ;
- Access so close possible to the location of erection.

Project specific State-of-the-art

There is no possibility to use existing standard access tracks known by elia for these reasons :

- Steel plates are inappropriate for humid moorland, even in combination with wooden supports
- Stone tracks require excavation works of 30-50 cm which were not allowed.

That's why elia developed together with Geolys a new type of track taking into account field measurements (Panda type) to determine the terrain capacity, modeling the field capacity and expected settlements for the foreseen loadings.

That led to the development of a type of metaling with thickness adapted in function of the field measurements to optimize the total cost. This metaling had to use local stones not to affect the quality of the deep waters from Spa Monopole. It was also requested to be able of removing it completely and make an assessment of the diversity of grains after a few months. This assessment had to be performed by an independent consultant certified by the environmental authorities

Expected settlements

The expected settlements with the new type of metaling were expected to be higher than with other types of access tracks for the following reasons :

- Elia could not remove the upper layer of turf which is responsible for the most settlements ;
- Removing the upper layer would have a positive impact on the stability and settlement level but was not allowed as explained above.

Impact of heavy rainfall

First, we can say that the metaling had a protection role for the ground below, guaranteeing less disturbance due to heavy rainfalls.

Secondly, an increase in the groundwater level gives a higher water pressure in the ground and participates to the stability of the metaling, limiting the settlements.

Finally, the presence of water reduces the possibility for soil dewatering often leading to extra settlements.

In conclusion, the heavy rainfalls have a positive impact and reduce the speed of the primary settlements.

Nevertheless, the exceptional heavy rainfalls from mid July 2021 leading to flows in this region were so exceptional that the metaling came under water. Therefore, it was requested to refill the metaling at some locations leading to limited extra settlements due to the extra stone weight.