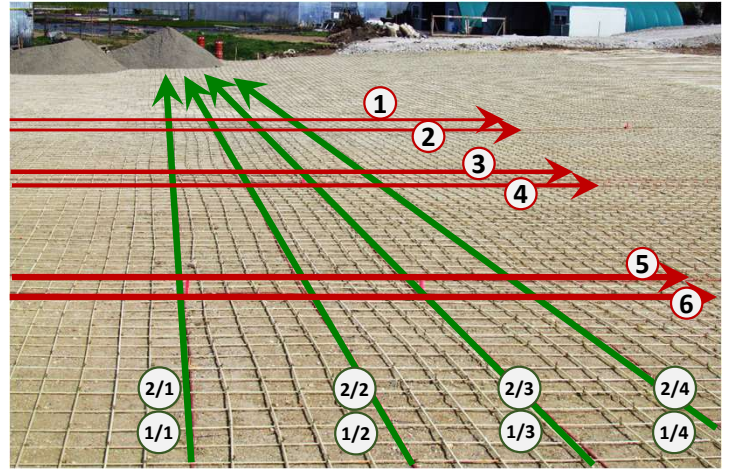


Strains in composite reinforcement at the base of a road embankment

EpsilonRebar: Case Study

In the present case study, the base of the road embankment was reinforced by composite rebars in two directions. This solution is favourable in the context of durability due to the high resistance of composites to corrosion. Some of the bars were replaced with EpsilonRebars, which now have a double function in the structure: both sensing and reinforcing. Two measurement layers also allowed for the calculation of vertical displacement profiles.



Benefits of application

- Measurements of **strains, displacements and temperatures** at the same time
- Full **deformation control at the base** of ground embankment
- Thermal compensation for distinguishing **only mechanical effects**
- Knowledge on the **structural performance** of new reinforcement technology

Example results



The measurement sessions took place during the construction process and the embankment operation. The figure below shows example strain profiles obtained from transverse EpsilonRebar during subsequent load steps (during construction of new embankment layers). Data interpretation was performed taking into account the initial topology of the substrate, as well as temperature distributions obtained thanks to Raman measurements. Vertical displacements at the base of this structure were calculated based on measured strains and known spacing between two measurement layers.

 **61 800** measurement points

 **618 m** of sensing path

 **14 x** EpsilonRebar

 **during construction**

 project partner:

