



Soil monitoring dike reinforcement Gorinchem – Waardenburg

During the period from 2021 to 2025, the dike between Gorinchem and Waardenburg will be raised, widened and reinforced over a total length of 23 kilometers. To maintain control over the embankments during construction, the dike is normally measured by a surveyor. Due to the greasy clay soil, this is heavy work and not entirely without danger, such as collision and tripping hazards. With the objective of increasing safety on the construction site together with a desire for innovation, Locator One proved to be the ideal application for the project.

In control about the dike quality

At the project more than 300 settlement rods with Locator One devices have been placed. But how does the system work? Steel tubes with an exact length of two meters, with a flat steel plate (the base plate) of about 70 by 70 centimeters at the bottom, are placed on the original ground level. On the underside of this plate is also a piece of tube that is pushed into the ground, so that the whole thing is stable. This structure is called a settlement rod and its purpose is to measure the expected slumping and settlement caused by the raising of the dike. Before the work started, various tests and soundings were carried out on the dike, providing insight into the subsurface strata. Based on these, the geotechnical engineer was able to perform strength calculations, which calculated the



What benefits applying the Locator One would bring we didn't know exactly a year ago when the project started, but we were looking for innovative and more secure measurement methods. We invested in this concept together because we believed in it. Now in the realization phase we see what it delivers

**- Pieter van Dueren den Hollander
(discipline leader Geodesy, Heijmans)**

expected settlements and deformations. The more reliable the measurements can be, the better the prediction can be tested and the more certain the client will be about the quality of the dike.





Millimeter accuracy

A Locator One is mounted on top of the settlement rod to automatically determine the height of the ground plate, and thus the original ground level. After the system is installed and initial measurements are taken, the contractor can begin applying additional soil and sand. The Locator One measures daily the vertical movement of the original ground level, as well as the level and thickness of the added soil layers. The latter is done by a calibrated radar sensor

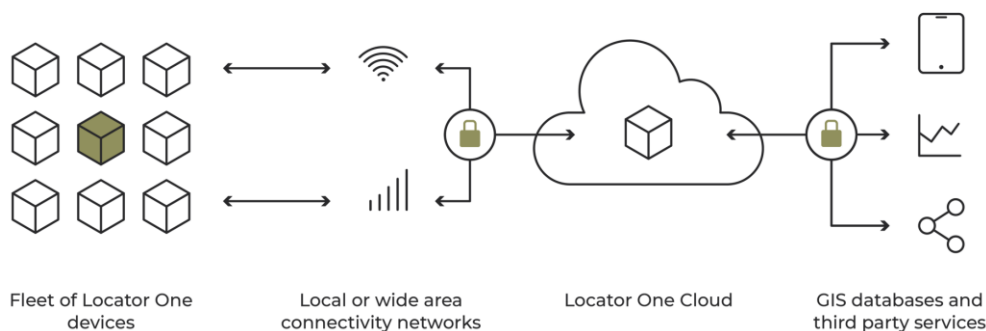
that measures the distance from the Locator One to the top of the applied sand/soil layers. The automated sensor measures the exact position of the settlement rod with an accuracy of up to 5 millimeters in the Z direction and 3 millimeters in the X-Y direction. The Locator One guarantees high precision and 95 percent results, resulting in at least 95 percent of planned measurements resulting in reliable data.

Reliable prediction

The raw measurement data are received in the cloud environment. These are then processed in the Basetime computing environment to produce reliable coordinates and other information needed by the geotechnical department. Finally, an API links the data to the geotechnical department's management system, allowing the geotechnical engineers to

analyze all the information directly from behind their desks. Optionally, the data can also be presented through a dashboard. By combining accurate data at a predefined point in time, the geotechnical engineer is able to provide a more reliable prediction of expected settlement and the remaining period until stabilization. This allows profit to be made on the overall project planning and logistics.

Locator One





Safe and sustainable

Besides accuracy and predictability, safety is a third important advantage of this innovative way of measuring. Where normally surveyors take measurements, this is now done by the Locator One in the field. This reduces the presence of people on construction sites. This reduction in human presence increases safety on a construction site. It has even been shown that with the deployment of the Locator One, there are 25 times fewer movements of people on a construction site.'

An additional and therefore fourth benefit is that by reducing the number of traffic movements, you also have fewer CO2 emissions. After all, the surveyor no longer has to drive a car to and from the various measuring locations, except when the settlement rods have to be extended to allow them to rise above the extra soil layers applied. In addition, the Locator One is equipped with a solar cell and supercapacitor, eliminating the need for polluting batteries and helping to reduce CO2 over the life of the project.

Project: Zakbakens Gorinchem-Waardenburg

Overzichtskaart



- ← Vorige Locator One
- Selecteer een Locator One
- Volgende Locator One
- Download csv data van alle Locator One's

Geselecteerd is ZB1030
 Nulmeting: 2021-11-06 01:00
 Laatste meting: 2023-01-13 01:00
 Actuele zakbaklengte: 8.000 m

Voetplaat Zakbak:
 Hoogte laatste meting: 0.529 m
 Verschil sinds vorige meting: 0.002 m
 Verschil sinds nulmeting: -2.681 m

Hoogte Zandpakket:
 Hoogte laatste meting: 5.605 m
 Verschil sinds vorige meting: -0.006 m
 Verschil sinds nulmeting: -1.098 m

Metingen van: ZB1030

