



Venjar, Eidsvoll, Akershus, Norway



PROJECT SUMMARY

PROJECT NAME: Gardemobanen Venjar – Eidsvoll

PROJECT DATE: Autumn 2018 – Summer 2023

CLIENT: Bane NOR

CONTRACTOR : NCC Norge AS

CONSULTANT: NGI

INSTRUMENTATION SPECIALIST: Cautus Geo AS



OVERVIEW

In 2018, NCC won a contract with Bane NOR to build a stretch of double track on the rail line from Venjar to north of Eidsvoll station in Akershus, Norway. The new double track is due to be operational by autumn 2022 and the contract work fully completed by summer 2023.

Around four kilometers of new double track will also be built north of Eidsvoll. In addition, there will be a 380m soft-ground tunnel, several rail bridges and culverts and rail engineering upgrades at Eidsvoll station. In total, over a million cubic meters of earth will have to be excavated from the site.

The project involved the following challenges:

- Extensive soft ground & clay deposits.
- Existing track operated as normal a few meters from the construction area.
- Important historic buildings (Eidsvoll church and rectory) close to the site.
- Important environmental and nature (wildlife and agricultural) area close by.

MONITORING

The project involved a substantial amount of geotechnical instrumentation. Cautus Geo started the installation in February 2019 and continued through 2019 and into 2020.

The installation of load cells was carried out from September 2019 to February 2020.

Both the contractor and client will get early warnings if unforeseen events occur.

In a press release, assistant project manager Marcus Olsson of NCC, said: "The job Cautus Geo performs is absolutely crucial. We have to have control over everything that can move in the ground. The job is too extensive to be done manually."

Cautus Geo added: The functionality and operation of the unusually high capacity loadcells has been confirmed as a robust and reliable system with measurements every 10 minutes the past 6 months.

PRODUCTS USED

14 VWLC 5050 Load Cells

Used for monitoring force on horizontal struts in a sheet pile construction area, first under excavation and later when removing neighbour struts after the concrete tunnel is finished.

Sensors:

(2 pcs) VWLC-5050 1750 kN
Diameter 115.6 mm

(2 pcs) VWLC-5050 3000 kN
Diameter 150,7 mm

(4 pcs) VWLC-5050 6500 kN
Diameter 221,2 mm

(2 pcs) VWLC-5050 8000 kN
Diameter 245,3 mm

(2 pcs) VWLC-5050 8500 kN
Diameter 252,8 mm

(2 pcs) VWLC-5050 10 500 kN
Diameter 280,9 mm