



Monitoring as a tool for the “Observational Method”

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Summary

The municipality of Amsterdam is currently constructing the new metro line, the NorthSouth_Line. The metro line passes through Amsterdam's Central Station. The contractor must construct an immersed tunnel under the station platforms, the 15 tracks and the historical station building whereby it must be avoided that the historical building consisting of brickwork from 1890 is damaged. Rail traffic and rail passengers can not be inconvenienced during construction and safety must be guaranteed. Monitoring is an effective tool for process control for both the Client and the Main contractor within this context.

Keywords: Monitoring, Jetgrouting, Observational Method, Sandwich Wall, Hydrophone, Tubex

1. Introduction

The NS Line, the Amsterdam metro tunnel that is under construction, will provide access to Amsterdam North and for travellers who arrive at the Central Station and wish to travel to Amsterdam South WTC. The tunnel from the north is an immersed tunnel that will be immersed in the “IJ” and in an artificial trench under the Central Station. The last element of the tunnel is connected to the new underground station south of the existing Central Station.



The station manager, Prorail, has awarded the design contract to VOF SE, a partnership between Movares Nederland B.V. and Arcadis Infra B.V. The municipality of Amsterdam has awarded the contract to the JV between Strukton Betonbouw and Van Oord ACZ (CSO). The jetgrouting work will be carried out as a subcontract by a JV between Smet and Keller. The Adviesbureau NoordZuidlijn, a partnership between Witteveen + Bos, Royal Haskoning and Ingenieursbureau Amsterdam (IBA), is the site representative of the municipality of Amsterdam. The retaining walls underneath the station building are constructed as so called sandwich walls. These walls consist of two rows of Tubex piles with a jetgrout body in-between.

2. Geology

Amsterdam Central Station was built in 1890 on an artificial island built shortly before in