Risk management during renovation of the new Rijksmuseum Amsterdam

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The Rijksmuseum in Amsterdam is one of the most important 19th Century monuments in the Netherlands. The masterpiece of the collection is the world famous *Nachtwacht* painted by Rembrandt van Rijn. To live up to the criteria for a 21st century museum, the Rijksmuseum is now undergoing a large scale renovation/restoration. This restoration is performed after a design of the Spanish Architects *Cruz y Ortiz* from Seville, Spain. The constructive design is performed by ARCADIS supported in the field of geotechnical engineering and groundwater management by CRUX and WARECO respectively.
The 'piece the resistance' of the renovation plan is the realisation of a large underground square of about 3000 m2. The square will function as a central access for the museum and has to be realised where now the existing courts are located.
To facilitate the construction of this square and the services locations, concrete basements with a depth up to 6 meter have to be constructed closely to the existing wooden pile foundations of the monumental building. The masonry building is especially vulnerable because it contains an enormous amount of wall paintings, ornaments and arches. The construction method for the excavation is hereby a crucial factor concerning the settlements and vibration influences on the building. State of the art calculation methods and monitoring strategies have been used to respectively access the influence of the new constructions on the old building during the design stage and to carefully monitoring the construction works.
This paper contains a more general description of the architectonic design and then focuses on how this design introduced specific challenges for constructive and geotechnical design and construction. A proactive strategy was employed during design to guard and control the geotechnical risks and this way safeguard minimum risk of damage on the monumental museum during construction.

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