



**The Directorate-General
for Public Works and
Water Management, Big
Projects and Maintenance**

Griffioenlaan 2
3526 LA Utrecht
P.O. Box 2232
3500 GE Utrecht
T 088-797 2111
www.rijkswaterstaat.nl

Contact person

Ivo Huiskes

Technical adviser

T 06 - 214 63 012
ivo.huiskes@rws.nl

Our reference

HB 3891361

Appendixes

Participants list

REPORT

A27 Utrecht Ring Road project - market consultation on
the construction method to be used for the open cut

Date of meeting

26 March and 20 and 30 April 2020

Participants

See Appendix I

Layout

Rijkswaterstaat recently consulted the market on the construction method to be used for the open cut motorway that forms part of the A27/A12 Utrecht Ring Road project (hereinafter: the Utrecht Ring Road).

This report summarises the market consultation and will be shared with all participating parties. It starts by describing the procedure followed and then sets out the input contributed to the market consultation on the various substantive themes, as understood by the Rijkswaterstaat.

Procedure for the market consultation

Rijkswaterstaat had two reasons for organising the market consultation:

1. to assess the feasibility of the construction method envisaged for the open cut motorway in the Utrecht ring Road; and
2. to discuss the technical and environmental risks that the market sees and also to identify critical points for attention for the Directorate-General for Public Works and Water Management.

Further information was published in the market consultation document on 10 March 2020 (via www.tenderned.nl). Given the COVID-19 crisis, the meeting scheduled for 26 March 2020 took place in the form of an online webinar. During this meeting, Rijkswaterstaat explained the technical reasons it had for choosing the construction method proposed for the open cut motorway in detail. A questionnaire was then made available, to which Rijkswaterstaat received 15 responses. Information from them was then selected as the basis for a further discussion of the construction method to be used for the open cut motorway. Six of the 15 parties were invited to participate in these four online in-depth meetings, which took place on 20 and 30 April 2020. Appendix I lists the parties that took part in the various parts of this market consultation.

Points noted

The overview below summarises the most important interpretations that Rijkswaterstaat arrived at as a result of the plenary session, the questionnaire responses and the in-depth sessions.

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Date
25 June 2020

Theme: construction

- By and large, the market understands why Rijkswaterstaat has chosen to consider the construction methods in question. As such, the proposed solutions that it presented were widely supported by both national and international participants.
- A significant number of the market parties stated that they had previously used hydromills to construct diaphragm walls. All of the reference projects specified were located outside the Netherlands.
- Hydromills are widely used. However, it might be possible to optimise the excavation process by using other equipment too. It was indicated that the use of a hydromill could be combined with the use of a grab; the uppermost panel soil fraction could be excavated with a grab.
- The market does not consider a wall thickness of 0.80 metres to be a realistic starting point for the cement-bentonite slurry wall. Advice on realistic wall thicknesses varies between 1.0 and 1.20 metres for the cement-bentonite slurry walls.
- Besides using a solid 3D analysis to determine soil deformations, smaller panel widths could be used in the vicinity of adjacent structures. This would make it possible to utilise the arching effect of the soil in computations.
- It is not considered realistic to extend foil down to the bottom of the cut-off wall to ensure the impermeability of the cut-off wall. Hanging foils of this nature have only been used successfully down to a depth of approximately 40 metres: shorter than the cut-off wall in the open cut motorway section of the Utrecht Ring Road.
- Given its higher density, the use of plastic concrete could improve the displacement of the bentonite suspension and the reliability of joint impermeability.
- The market parties are divided about the feasibility of a 10-day No Train Period (NTP). Some believe that it would be possible to construct the cut-off wall in the vicinity of the level crossings on the basis of a quick-scan. However, the majority believe that a 10-day NTP would be tight or even unrealistic.

Theme: the environment

- Noise production is an important environmental risk. The market describes possibilities to fit at-source measures to mitigate noise to the hydromills. It may also be possible to use mobile noise barriers, depending on spatial constraints.
- Minimal subsidence has been experienced near adjacent structures, which is positive. Very minor subsidence was observed in projects taking place at a very limited distance from other structures too. Ongoing, adequate monitoring is recommended in the vicinity of critical subsidence locations.

Theme: logistics and sustainability

- There is a risk of nuisance and inconvenience for the surroundings as a result of significant construction traffic movements. Advice provided in this respect includes the hydraulic transport of construction materials.
- A limited working space of approximately 16 metres is available between the Amelisweerd open tunnel structure and the diaphragm wall to be constructed and one metre behind the diaphragm wall. However, it might be possible to use smaller milling equipment to construct the diaphragm wall or position equipment at a non-right angle to the wall.
- The tight work locations will require a special approach to logistics. Rijkswaterstaat will need to set safety requirements.
- The use of prefab guiding walls is not commonplace when constructing a railway route. The market states that they are not usually necessary and that there are no advantages to their use, except in exceptional circumstances.

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Theme: surveys

- Rijkswaterstaat explained that approximately 40-50 cone penetration tests were carried out to end depth in the vicinity of the open cut motorway and approximately 12 deep drilling surveys. Groundwater level measurements are available too and soil parameters have been determined in the laboratory. The market has indicated that the soil surveys conducted by the Rijkswaterstaat are currently sufficient to make a well-considered tender possible.
- The market proposes that the future construction contractor should be required to carry out material surveys on the construction materials to be used in the cut-off wall, making it possible to manage part of the construction risk. There is also wide support for the construction of a test pit and/or preliminary panels.

Next steps

A market consultation usually ends by sharing the ensuing general report with all of the participants. However, the market consultation process revealed that market parties are divided about the length of the No Train Period during construction of the cut-off wall. The in-depth sessions showed that this subject is too complex to discuss in just one session. This has prompted Rijkswaterstaat to give some further consideration to the phasing of construction of the cut-off wall in the proposed No Train Period. With this in mind, Rijkswaterstaat will organise a small workshop, in consultation with the rail manager ProRail, as might be expected. Two market parties that attended one of the in-depth sessions will participate in this workshop.

Rijkswaterstaat will study the outcomes of this workshop and then prepare a final reference phasing. Rijkswaterstaat will share this phasing with all participants via www.tenderned.nl after the summer.

Appendix I – Participants in the market consultation on the construction method to be used for the open cut motorway

The overview below shows which market parties participated in which part of the market consultation.

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25 June 2020

Market party	Plenary online webinar	Online in-depth session
Arcadis	✓	
Ballast-Nedam	✓	
Besix	✓	✓
BAM	✓	
Bauer	✓	✓
Boskalis	✓	✓
Dura Vermeer	✓	
Fluor	✓	
Franki	✓	✓
Heijmans	✓	
Hochtief	✓	
Implenia	✓	
Keller	✓	
Max-Boegl	✓	
Mobilis	✓	
Movares	✓	
Nobleo	✓	
Royal Haskoning DHV	✓	
Sefi-Intrafor Fayat	✓	✓
Terratest	✓	✓
Van Gelder	✓	
Van Oord	✓	
Van Hattum en Blankevoort	✓	
Volker Wessels Infra	✓	
Züblin	✓	