Business Course

Brussels Airport

Ingenieursbureau Witteveen+Bos is betrokken bij doorontwikkeling van Airport Brussel. Wil jij ervaren hoe het is om bij ons ingenieursbureau te werken? Doe dan mee aan onze Business Course over Airport Brussel op donderdag 23 november.

Wat ga je doen?

- Je transformeert de luchthaven tot een veelzijdig centrum van economische activiteiten, terwijl je emissiereducties realiseert en het gebruik van natuurlijke materialen en hout stimuleert bij bouwprojecten;
- Je brengt de conflicterende eisen van verschillende stakeholders in kaart, waaronder klanten, mobiliteits-/duurzaamheidseisen en de aanbevelingen van kostenadviseurs;
- Je ontdekt de impact van de BREEAM-certificeringsmethodiek op gebouwen en hun omgeving, terwijl je leert hoe duurzaamheidsprestaties worden beoordeeld en verbeterd;
- Je draagt zorg voor een goed onderbouwd advies richting een deskundige jury op verschillende vakgebieden, zoals circulair ontwerp, mobiliteit, projectmanagement, duurzaamheid, constructie, bio based materialen en ruimtelijke inpassing;
- Dit alles terwijl je de omgeving in acht neemt door effectief afvalmanagement, watermanagement en luchtvervuiling aan te pakken en het potentieel van hergebruik van bestaande gebouwen en materialen optimaal benut.

Ontmoet collega's vanuit verschillende technische disciplines bij de afsluitende netwerkborrel!

Business Course

23 november

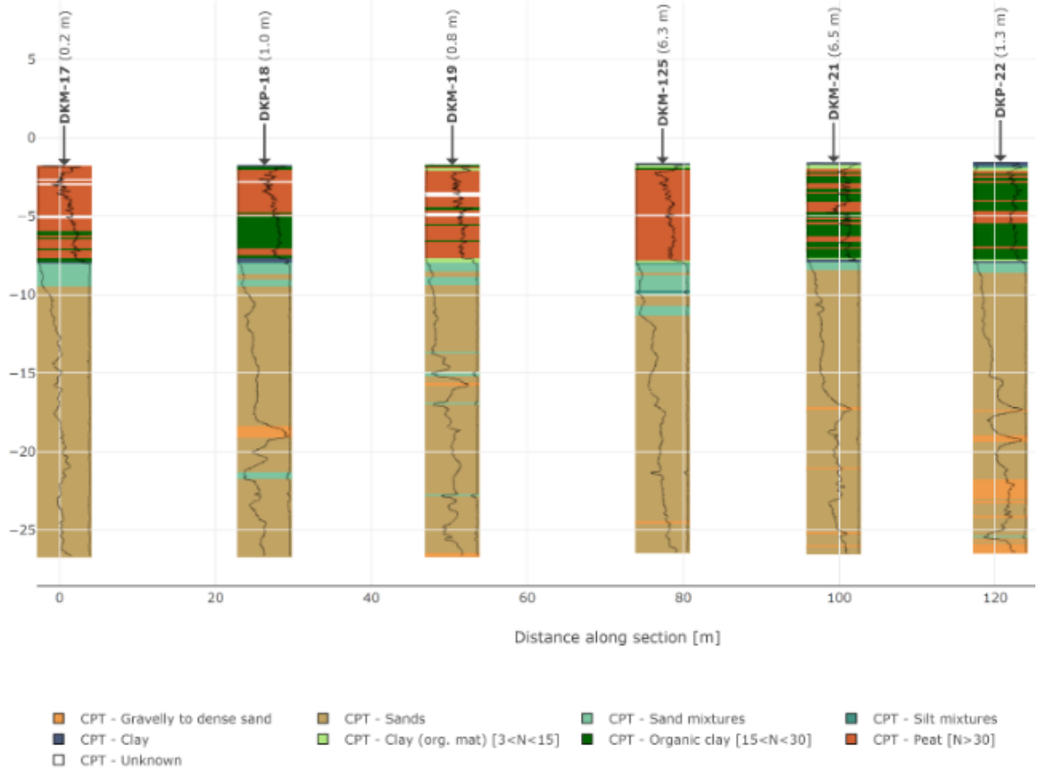
Utrecht

8:30 - 17:00u

MSc-studenten met een studieachtergrond in Civiele techniek, Bouwkunde, CME, Technische Bestuurskunde, Materials Science en Environmental Engineering

Inschrijven?

3D CPT Classification



Mentor Arny Lengkeek
Location One day a week in Deventer or Utrecht + two days a week in an office of choice (Deventer / Utrecht / Rotterdam) + two days a week where you prefer (Deventer / Utrecht / Rotterdam / home)
Period Flexible
Type MSc thesis

Existing CPT classifications are based on two-dimensional (two variable) charts. Research performed by Witteveen+Bos demonstrates that 3D (three variable) classifications provides promising results for organic soils. In this MSc thesis research, we propose to extend this to other soils, based on existing and newly acquired/expanded databases. Your tasks may include:

- Collecting site investigation information and combine data into a database (by using excel and python)
- Validating and improve the developed 3D classification as an extension of the Robertson classification
- Identifying specific units, such as potklei or Gyttja
- Reporting and preparing complex graphic visualisations

This is highly relevant research for many critical projects, such as strengthening of national railway embankments and dykes.

We are looking for an highly-driven student who would like to do a research thesis, has affinity with programming and ambition to publish papers. Our team of programming geotechnical engineers will be able to support you if you have questions regarding the scripting.

During the assignment, you will be part of a team of geotechnical engineers. You will also get the opportunity to:

- Visit different offices of Witteveen+Bos
- Meet Hydraulic Structures & Geotechnical Engineering colleagues plus colleagues of many other disciplines
- Hear about our other projects
- Attend our social events
- Receive an internship allowance
- Check for yourself how it is like to work with us

Witteveen + Bos

PREDICTION OF LOAD TEST QUAY WALL

Mentor Sten Jacobs / Dirk-Jan Jaspers Focks
Location Utrecht, working from another office and/or home also possible
Period Immediate / Flexible
Type Internship (10 weeks)

There is still no verified method for load testing on existing quay walls. Such load tests can be performed to determine more accurately which loads are permissible on existing quay walls. The results of these tests will in terms lead to more accurate and sustainable designs for quay walls in the future.

With this project you will in-depth study quay wall structures, learn to set up a PLAXIS model, determine allowable deformation of the construction when subjected to different loads and ultimately make a prediction for an upcoming load test on an existing quay wall.

During your internship, you will be part of a team of geotechnical engineers, responsible for the prediction of the load test on an existing quay wall. Your tasks may include:

- Studying methods for load testing
- Using Finite element modelling (PLAXIS)
- Deriving ground parameters
- Reporting a prediction for an upcoming load test

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Witteveen + Bos

Full-Scale Load Test Open-ended Pipe Piles

Mentor Arny Lengkeek
Location One day a week in Deventer or Utrecht + two days a week in an office of choice (Deventer / Utrecht / Rotterdam) + two days a week where you prefer (Deventer / Utrecht / Rotterdam / home)
Period Flexible
Type MSc thesis

In 2020, the Port of Rotterdam performed full-scale tests on four open-ended pipe piles, to optimise the design of combi-walls as part of the quay structures. This set included static compression, static tension and dynamic tension load tests. The analysis of the pile load tests is completed and a new method will be proposed for application at the Port of Rotterdam. There are however some remaining research questions and a possibility for broader application.

Your tasks for this MSc thesis may include:

- Comparing the results of this pile test with international literature;
- Analysing and performing finite element simulations of the plugging process;
- Studying the effect of dredging in front of the quay wall;
- Carrying out sensitivity analyses of the impact of installation through vibration versus pile driving;
- Investigating the applicability of the results in projects elsewhere in the Netherlands;
- Preparing a method statement for future tests, including location.

We are looking for a MSc Geo-Engineering or MSc Hydraulic Engineering student who is interested in foundations. Ambition to develop programming skills is a plus. The result of this research can lead to very significant savings, not only for the Port of Rotterdam, but eventually in many important infrastructure projects.

During the assignment, you will be part of a team of geotechnical engineers. You will also get the opportunity to:

- Visit different offices of Witteveen+Bos;
- Meet Hydraulic Structures & Geotechnical Engineering colleagues plus colleagues of many other disciplines;
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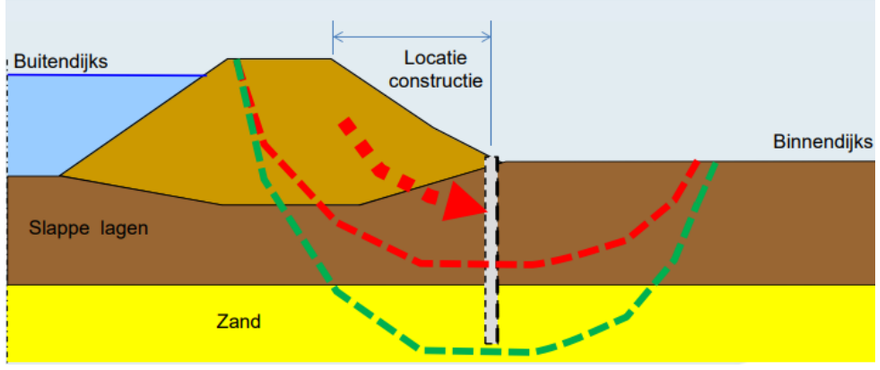
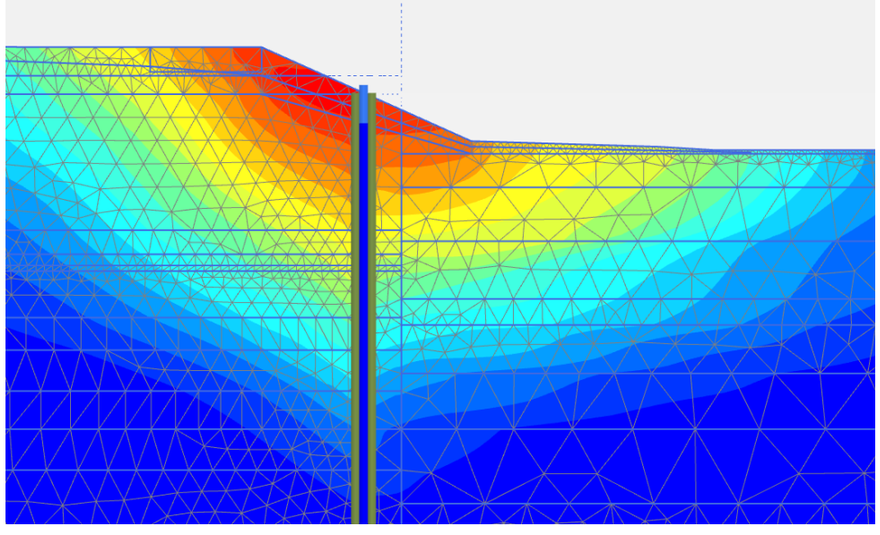
Witteveen + Bos

RETAINING STRUCTURES IN DIKES





Mentor Anne-Martine Dortland
Location Rotterdam at least 1 day a week, working from another office and/or home possible
Period Flexible
Type MSc thesis / Internship

Dike reinforcements may require retaining structures to increase the stability. The design of the retaining structure and its soil-structure interaction is modelled with finite element analyses in PLAXIS. You could work on one of the research topics during an internship or MSc thesis:

- Strength reduction of failing structure
- 3D failure effects
- Probabilistic design
- Geohydrological effects

During you assignment, you will be part of a team of geotechnical engineers and be mentored by a daily supervisor and a specialist. You will also get the opportunity to:

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Witteveen + Bos

THERMAL CONDUCTIVITY OF SOILS

Mentor Marco Spikker
Location Deventer
Period Flexible
Type Internship

Contributing to energy transition is one of Witteveen+Bos' top goals. More power lines needs to be installed to fulfil the demands of consumers the coming years.

An analysis of the thermal conductivity (G-waarde) of the soil is needed for the design the power cables. During your internship, you will be part of a team with Marco Spikker and a geohydrological engineer.

Your tasks may include:

- Gaining a good understanding of concept thermal conductivity
- Developing a process to determine the thermal conductivity of soils (G-waarde)
- Interpreting site investigation data
- Deriving the thermal conductivity for specific cases (G-waarde)

You will also get the opportunity to:

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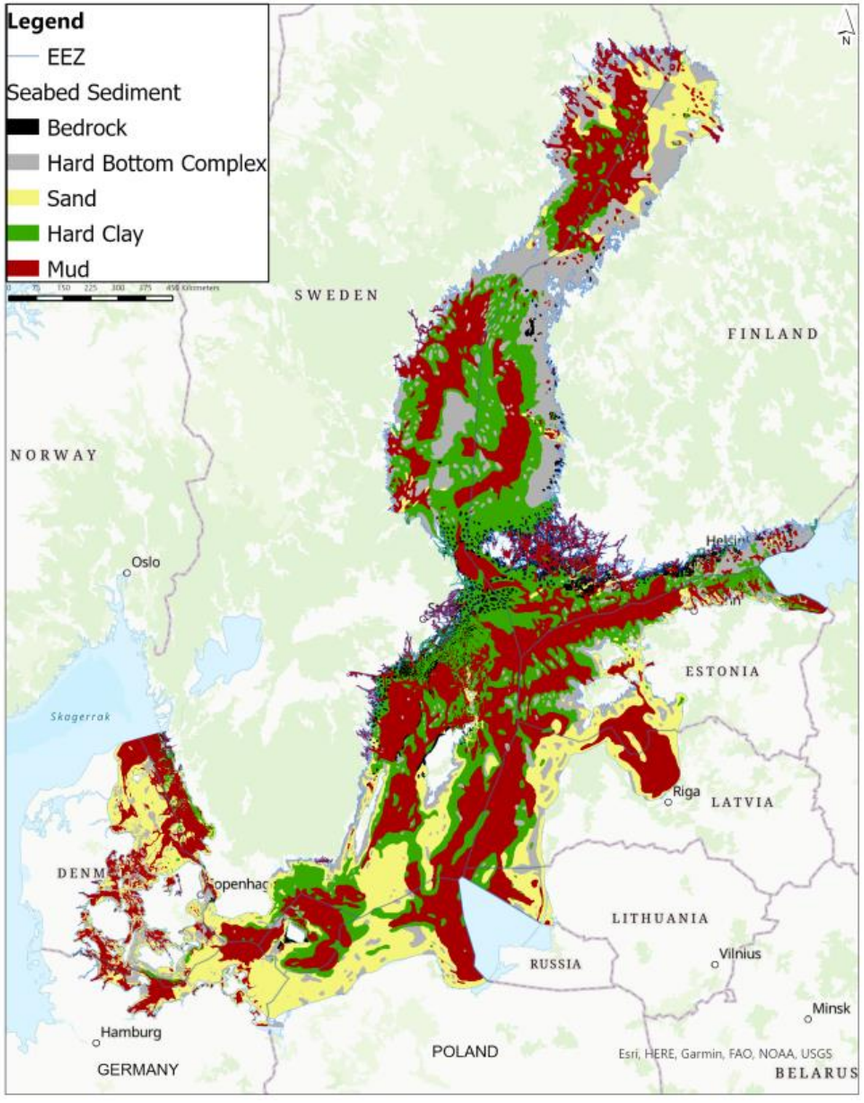
Witteveen + Bos



Geological Desktop Study of the Baltic Sea

Mentor Liesbeth Jorissen
Location Utrecht
Period Flexible
Type MSc Internship

The Baltic countries are implementing a rapid decarbonisation and intensely investing in renewable energies at the moment. The offshore wind market is consequently booming in the Baltic Sea.

The geology of the Bastic Sea is nevertheless rather complex, so standard offshore windfarm designs cannot always be implemented. A better understanding of the geology throughout the region is therefore required to know which type of foundations might be applied where.

Your tasks may include:

- Collecting regional geological and geotechnical data
- Interpreting site investigation data
- Deriving ground parameters
- Developing an integrated geological and geotechnical ground model
- Proposing a constraints map for implementation of offshore windfarms

You will also get the opportunity to:

- Visit different offices of Witteveen+Bos
- Meet Geological & Geotechnical Engineering colleagues, plus colleagues of many other disciplines
- Hear about our other projects
- Attend our social events
- Receive an internship allowance
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Witteveen + Bos

PAWOZ-E Energy Transition Tunnel Concepts

Mentor Arny Lengkeek
Location One day a week in Deventer or Utrecht + two days a week in an office of choice (Deventer / Utrecht / Rotterdam) + two days a week where you prefer (Deventer / Utrecht / Rotterdam / home)
Period Flexible
Type MSc thesis or MSc internship

The Programma Aansluiting Wind Op Zee – Eemshaven (PAWOZ-E) is investigating the possibilities for future cable and pipeline connections between the North Sea and Eemshaven. One of the alternatives is a 26km long tunnel to cross the Waddenzee.

The biggest challenges for this project are difficult geotechnical / geological conditions and the need of deep shafts. Various alternatives will be investigated for the shafts, such as caissons or diaphragm walls. For the tunnel, optimisation of the dimensions is key, given the length of 26km and the logistic demands. Your tasks may include:

- Performing geotechnical and structural calculations for the shafts and tunnel
- Assessing the most suitable TBM type, given the specific geological conditions
- Optimising the logistic process for tunnelling, to minimize the tunnel diameter
- Reporting and preparing functional visualisations

We are looking for a MSc Geo-Engineering student with interest in structural engineering and/or tunnelling, who has the ambition to work in a world-class project. Given the size of this project, we will be able to tailor the topic to match your interests and goal (MSc thesis or internship).

During the assignment, you will be part of a team of geotechnical engineers. You will also get the opportunity to:

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Witteveen + Bos