

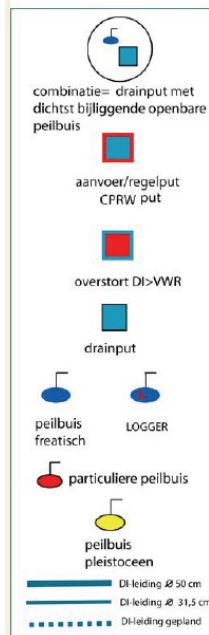


# Pump or Sink: Modelling Managed Groundwater Recharge in Urban Rotterdam

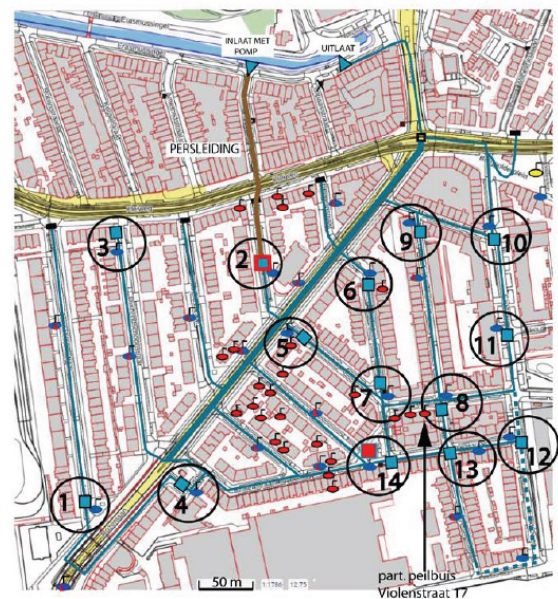
Country: Netherlands

Host institute: Soil Physics and Land Management (WUR)

Online possible: Yes



ALLE OPENBARE EN PARTICULIERE PEILBUIZEN +DRAINPUTTEN



## Project description

This project challenges students to design and implement a numerical hydrogeological model of the Kleiwegkwartier neighbourhood near Rotterdam, where active groundwater management has been applied to combat subsidence and foundation damage.

The model will simulate the infiltration of water used to maintain stable groundwater levels and test the hypothesis that this intervention effectively prevents pile rot and structural issues in houses while sustaining local ecosystem services. Students will integrate site-specific data on soil stratigraphy, hydraulic conductivity, precipitation, and infiltration rates to calibrate and validate the model.

Scenario analysis will explore the long-term impacts of managed infiltration under varying climate and urban development conditions. The project combines technical modelling skills with applied hydrogeology, encouraging students to critically assess the balance between engineering solutions and ecological outcomes. By the end, students will deliver a robust evaluation of whether controlled groundwater recharge can serve as a sustainable strategy for protecting urban infrastructure and enhancing environmental resilience in low-lying Dutch neighbourhoods.

## Project details

**Group:** Soil Physics and Land Management Group

**Project type:** Thesis / Research practice

**Study programme:** MIL / MEE / MIL & MEE

**Begin date:** any time

**End date:**

**Used skills:**

**Requirements:** Groundwater modelling, GIS, hydrogeology

## Contact

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