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**24 february**  
12:30 – 13:30  
**The Mechanism of Groundwater Flow through Porous Soil and Rock**

This webinar provides a review of the fundamentals of the mechanism of groundwater flow through a porous medium. It will present concepts of pore pressure, hydraulic head, coefficient of permeability and hydraulic conductivity, heterogeneity, anisotropy, storage coefficient, specific storage, specific yield, porosity, recharge, Darcy Velocity, Darcy's Law and the principle of continuity.

**03 march**  
12:30 – 13:30  
**Principles of the Design of Groundwater Engineering & Control**

This webinar provides an overview Groundwater Engineering and Control techniques that are essential for the management of groundwater and weak ground during a construction project. Techniques presented include (i) Sump pumping in filtered sumps, (ii) Wellpointing, (iii) Suction Wells, (iv) Passive pressure relief wells, (v) Deep pumping wells with borehole pumps, (vi) Deep pumping wells with borehole pumps and vacuum application, (vii) Ejector systems, (viii) Recharge systems to mitigate impact of settlement.

**10 march**  
12:30 – 13:30  
**Conceptual, Analytical and Numerical Modelling of Groundwater Flow in Porous Media**

This webinar explores the various types of models used to provide first a representative picture of the geology & hydrogeology of the ground, together with identifying the hazard that groundwater has on subterranean construction below water table or piezometric surface. The next stage is to apply traditional simple analytical solution to the conceptual model and boundary conditions, to enable the quantification or likelihood of impact, so identifying risk. Then, if more accurate modelling is required, a third stage is to develop and apply multi-dimensional numerical modelling to the project. These can include Finite Difference, Finite Element or Boundary Element methods. Examples will be provided.

**17 march**  
12:30 – 13:30  
**Case Study Applications of Design & Modelling to Groundwater Engineering & Control in Practice**

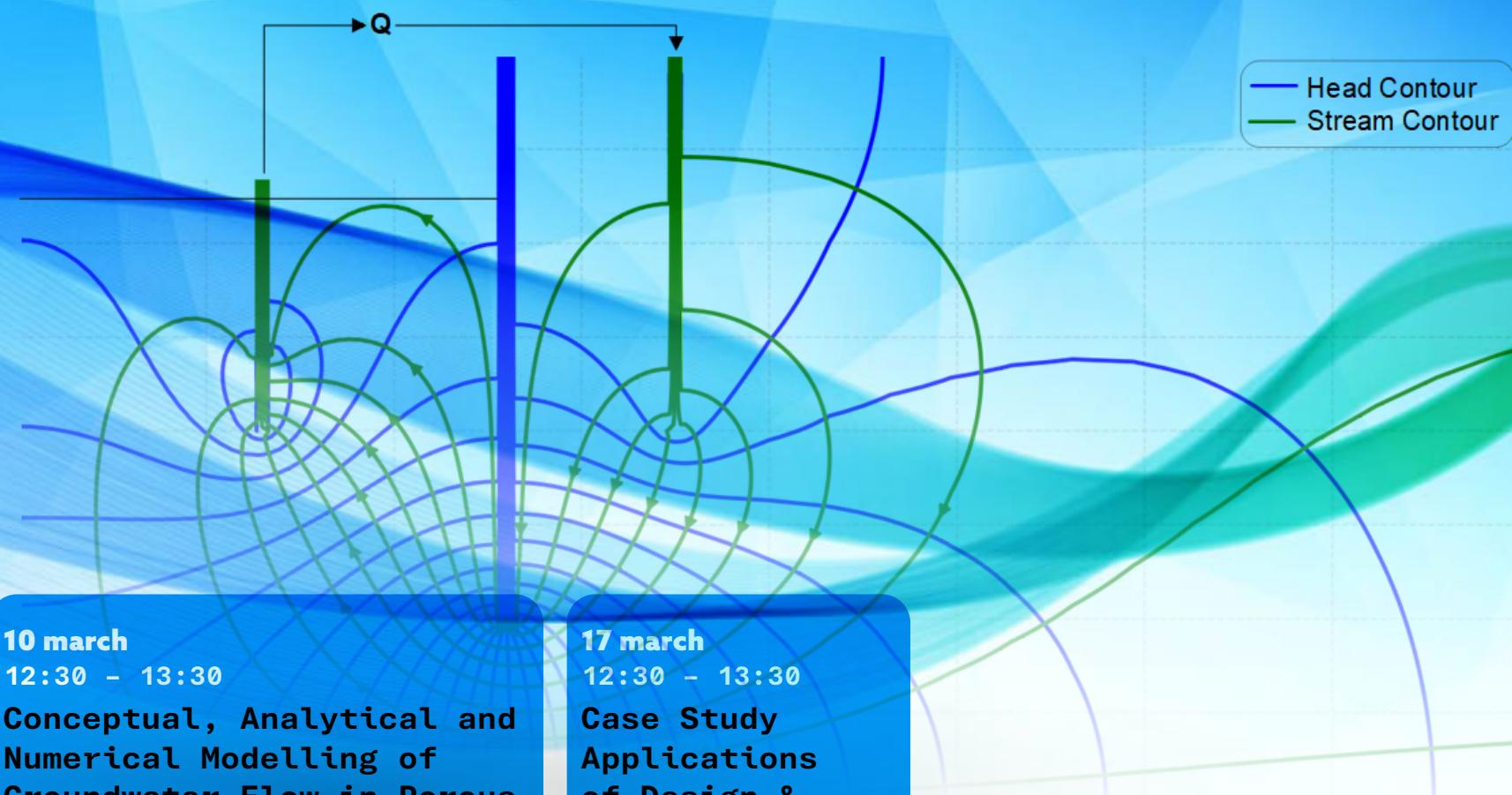
The final webinar will present a number of case studies in which the above techniques have been used in practice. These applications will include tunnelling projects, shaft construction, deep excavations for metro station construction, and deep building basements. Dr Thomas has designed all these projects.

# Groundwater Engineering & Control - Design & Modelling

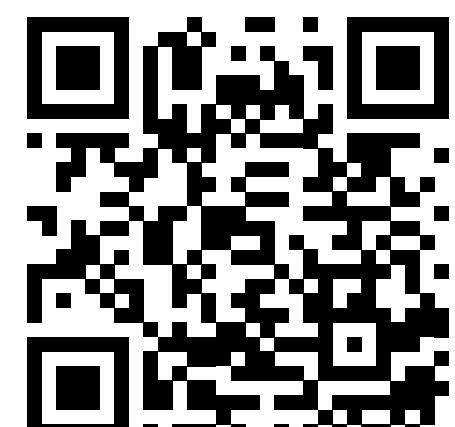
Engenheiro Dr Stephen Thomas

**Tuesday Lunchtime Webinar Series**

(24 Feb, 03 March, 10 March, 17 March)



**ASSOCIADOS:**  
APRH; AIH-GP; SPG **40€**  
**NÃO ASSOCIADOS** **50€**  
**ESTUDANTES** **25€**



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