Project description
Lisbon Drainage Master Plan

The role of procurement in Lisbon’s Sustainable Drainage System

13/03 | 14h Session | Procura+ Lisbon Conference 2024
José Silva Ferreira / Gonçalo Diniz Vieira
Lisbon Drainage Tunnels – brief resume
The problem

In Lisboa

1967 Extreme Rainfall Event
1983 Extreme Rainfall Event
2008 Extreme Rainfall Event
2014 Extreme Rainfall Event

LESLIE HORN (2018)
The causes
LISBON
OROGRAFY & LDMP Works

Alto da Ajuda Basin
Monsanto Basin
BACIA Q
TCB
TMSA

[Map showing Lisbon's orography and LDMP works areas]
The causes

Development
The causes

Climate change
The Solution
Project description

Tunnels TMSA and TCB

5.5 m internal diameter both tunnels

TCB Length - about 1KM

TMSA Length - about 5KM
LDMP
TMSA cross section
How do they work?
Project description

How do they work?

Current Situation

[Map showing current situation with locations such as Amadora Pontinha Benfica, Sete Rios, Caneiro de Alcântara, Fábrica da Água de Alcântara (FA), Lumiar Telheiras Campo Grande, Picheleira, Chelas, Fábrica da Água de Chelas (FA), and Lisboa.]
Project description

How do they work?

Tunnels to be built
Flood charts

“... to mitigate, between 70% to 80% of flood problems in Lisbon...”
PROCUREMENT: INNOVATION & SUSTAINABILITY
Project premises

Recurrence time: 100 years
Life span: 100 years
CONTRACTUAL PRACTICES
Tunnels & Retention Basin

International Public Tender | Design-build
- Unanimity approved by City Council
- Value € 132,900,000
- Time 38 months

Contract
- Started 2nd semester 2021

Works Start date
- Started 2nd semester 2022 (8 months delayed)

End
- 2025 / 1st semester 2026 (depends on arqueology...
HOW TO MITIGATE PROBLEMS DURING CONSTRUCTION?

- Underground Works with Complex Geotechnical Structures
- Urban areas, with existing buildings and superficial infrastructures
  - **Burland Criteria**: Damage category always less than 2!
  - **Exhaustive Infrastructures investigation**, with every companies and suppliers…
ACTIVE WORKING GROUPS

- WORKING GROUP 2
  Research

- WORKING GROUP 3
  Contractual Practices

- WORKING GROUP 11
  Immersed and Floating Tunnels

- WORKING GROUP 12
  Sprayed Concrete Use

- WORKING GROUP 19
  Conventional Tunnelling

- WORKING GROUP 20
  Urban Problems, Underground Solutions

The management of large amounts of complex changing data in subsurface construction projects is a critical part of successful project control and delivery.
WATER + [Close water cycle]
4 – Water+

Water + Network
Water + Network

Water + Reservoirs
Water + Network

4 - Water+
BIM
Project description

Why bring BIM to this project?

- Operation
- Maintenance
Project description

Why bring BIM to this project?

Solutions Optimizations

Planning, monitoring and control
Project description

Lisbon Super Drainage Sewers
BIM and GIS integration
BIM and GIS integration

ArcGIS online / WebScene 3D
WORKS (ongoing)
Thank You

planodrenagem.lisboa.pt