

Case Study – Epworth STW

Scope of Works

Client: NMC Nomenca
 Location: Epworth STW, Lincolnshire
 Structures: 2no Oxidation Tanks & 2no FST Tanks
 Dimensions: Within single 65m x 45m excavation
 Temporary Works: Open Cut
 Excavation Depth: up to 4.7m

Ground Conditions: Top Soil 0.0m to 0.35m BEGL
 Silty Sand 0.35m to 4.7m BEGL
 Firm Clay 4.7m to 8.2m BEGL

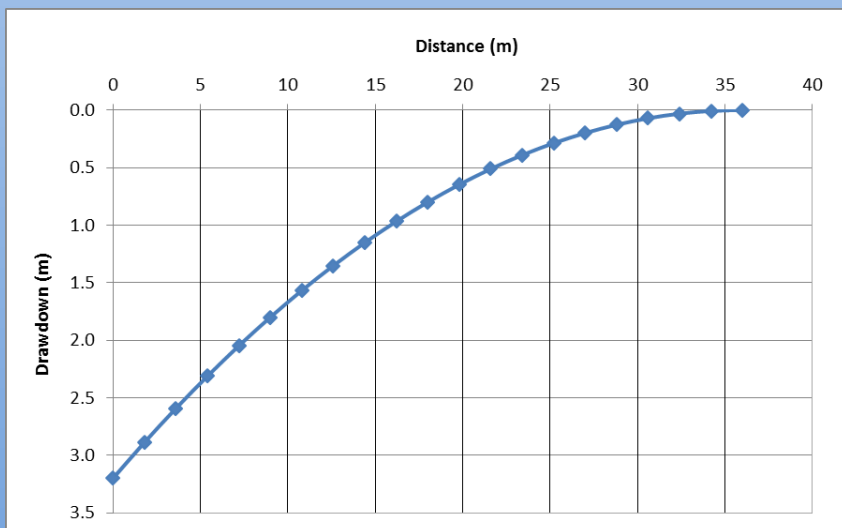
Groundwater Level: 1.3m BEGL

Dewatering Proposals:

Concerns were raised over excessive groundwater level reduction beneath existing structures within the works. An estimated distance/drawdown profile was established based on design bulk permeability of $k = 5.6 \times 10^{-5}$ m/sec

Temporary Vacuum wellpoint system installed at nominal 2.0m centres around the perimeter of the works to top of Clay using conventional water jetting installation method. Provision for 6no access points into the works area. Once bulk dewatering achieved, dewatering changed to conventional sump pumping within perimeter slip trench at toe of batter.

System divided into two parts each pumped by a 150mm Ø 415V piston pump connected to works mains power. Discharge via v-notch settlement tank with calibrated flowmeter into the STW works.



Operation & Performance

- A total of 135no wellpoints were installed and the system commissioned in 7 days
- Start up pumping flow was 6 lts/sec with steady state conditions reached after 5 days and a flow maintained at ~ 2-3 lts/sec.
- Monitoring points were installed externally to record drawdown profile
- Works completed within 6 weeks to programme and budget, with subsequent transfer to sump pump system