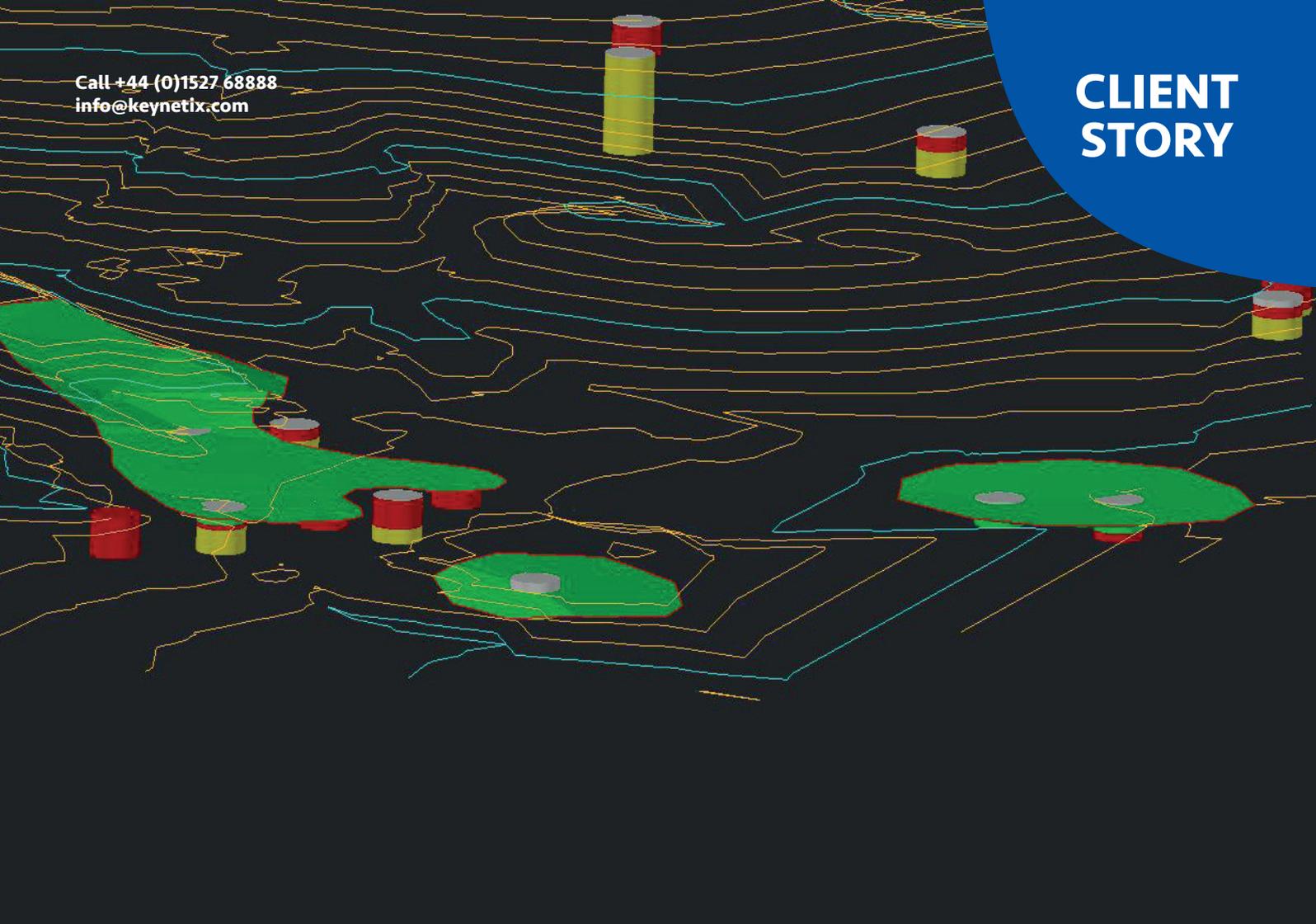


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CLIENT STORY



Wardell Armstrong needed their client to visualize variable ground conditions alongside site data.

Here's how Keynetix helped them do just that.



Geotechnical Data
Software Transformed

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Wardell Armstrong are using these Keynetix products:

- **HoleBASE SI Professional**
- **HoleBASE SI Extension for AutoCAD Civil 3D**
- **HoleBASE SI Extension for Microsoft Excel**
- **HoleBASE SI Data Entry**
- **HoleBASE SI Template Studio**
- **KeyAGS**

Using HoleBASE SI and AutoCAD Civil 3D brought immediate and obvious benefits to this project. Collaboration was improved, as the software enabled team members working in different offices to input in real time and gave them remote access to all the project data.

Chris Smith, WARDELL ARMSTRONG

The landform design had to address these constraints, while delivering a solution that could be built cost-effectively. An added complication was the risk of Roman remains being uncovered during earthworks. This risk was mapped and overlaid in the 3D model, so that they could modify the earthworks design and minimise the impact on the archaeology.

THE SOLUTION

Wardell Armstrong carried out a desk study and site investigation, inputting borehole and laboratory data, along with historical borehole information, to HoleBASE SI for analysis and interpretation.

BUSINESS SITUATION

Integrated 3D landform modelling was at the heart of successful collaboration between Wardell Armstrong and site owner Lands Improvement on a residential development in Staffordshire. When they were brought in to provide geotechnical expertise as part of the team designing the landform for a new development of 250 homes at Apedale Road, Newcastle-under-Lyme, it was confronted with a number of challenges.

THE TECHNICAL REALITY

The site, which includes a former quarry, has a variable topography with steep and unrestored slopes in the quarry area, variable ground conditions, contamination, ground gas risk, areas of potential archaeological interest and Great Crested Newts.

Data was then exported to AutoCAD Civil 3D, using the HoleBASE SI Extension, to create a data-rich ground model.

The model enabled them to mitigate the risk of differential settlement in the variable fill materials and the effects of the steep and high quarry walls, while maximising the area of development land and to predict the volumes of various materials and then to optimise the final landform design to balance the earthworks, so there was no need to import material or dispose of it off-site. Ensuring there was enough topsoil for gardens and landscaping which could have been very expensive to import.

“Using HoleBASE SI Extension for AutoCAD Civil 3D greatly improved our efficiency to analyse data quickly and thoroughly” Smith says “the ability to import third party AGS data was also a big help because it allowed us to build geological models rapidly. These models could then be incorporated with those developed by other members of the design team”.

THE BENEFITS

The landform design was presented to the client using rendered images and fly-throughs of the model. “This was a real bonus, as the client could visualise the design and could have far more input in the design process. We had collaborative workshops using video conferencing, making real-time changes to the model to explore different options. For example, we could change road alignments and see how this would affect the landform design and the construction cost”

Ultimately, the client had a viable landform design that could be demonstrated to comply with the project requirements, including protecting sensitive ecological areas and archaeology, as well as meeting drainage, highways adoption and geotechnical and contaminated land issues. The 3D model also enabled various landforms and development options to be evaluated as part of a cost benefit assessment.