

## PROJECT BRIEF

The installation of an MRI at a veterinary clinic presented an unusual challenge in the form of specific earthing requirements set by the manufacturers of these complex devices. Despite the built-up nature of the location and limited available space, an earthing design had to be created for a discrete earthing system with maximum earth impedance  $1\Omega$ . A third party had tried to achieve  $1\Omega$  by driving rods and measuring them but had been unsuccessful.



## CHALLENGES

A variety of factors made the site challenging from a design perspective. These include:

- Very limited land area available for earth electrode due to the urban location.
- Previous work by another company had identified that earth rods could not be driven deeper than 10m.
- A new path had just been completed, limiting design options. ERM works with customers to provide designs that take into account additional practical factors, unique to their site.
- The MRI earthing system was required to be segregated from the building earthing system. The client was advised regarding the potential safety hazards with this and installation specifications developed to prevent exposure to differences in potential or bridging of the isolation.
- Previous testing by third parties was reverse-engineered to give information on soil resistivity beneath the site. This indicated that the soil beneath the site could be different to that surveyed on nearby open land.

## OUR APPROACH

Rather than a trial by error installation approach (as above), ERM determined the soil conditions in the area and designed an earthing system to achieve the required specifications. ERM's approach applied technical as well as practical expertise in earthing design to create a range of initial designs to appraise the client of the likely outcomes and their relative costs.

## PROJECT OUTCOME / DELIVERABLES

After applying test and design experience as well as optimisation principles to quickly generate numerous innovative/creative solutions for the project, multiple plans were presented to the client along with full installation specifications and a detailed report. The design options provided allowed the customer to select the best earthing design for installation, based on a cost/performance balance.