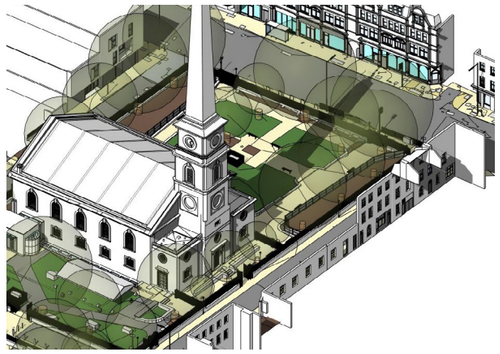
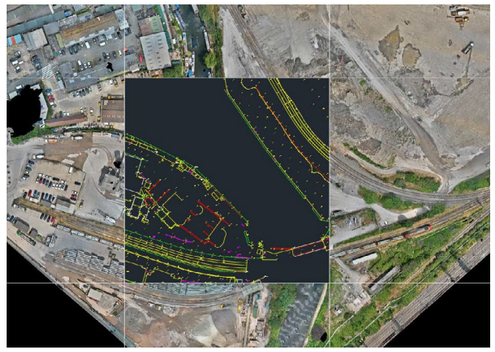
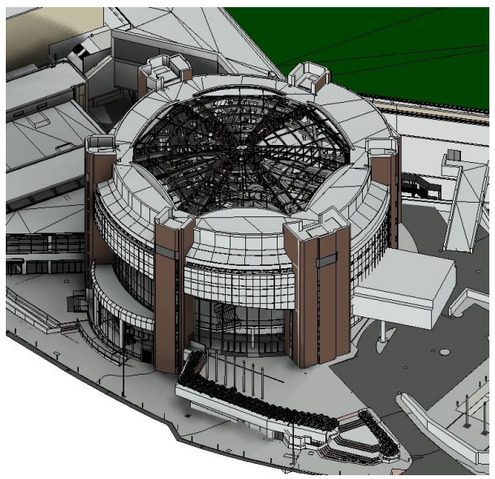
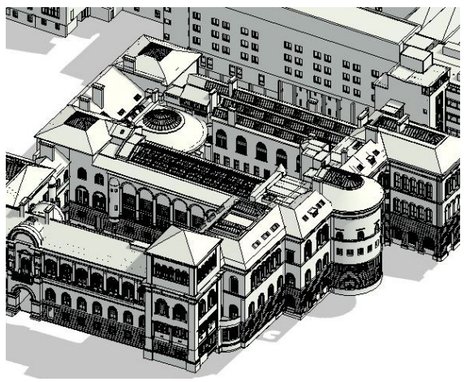
Geomatic Consultancy Skills and Services









The key expertise we offer to our clients

With pinpoint accuracy and meticulous attention to detail, our geomatic consultancy team embrace the latest technology in the field of geomatics and reality capture, providing digital environments and immersive experiences to our clients.

As well as using geomatics to visualise their solutions, with these models and data, our clients can gain a deeper awareness of their buildings and wider surroundings, enabling us to provide intelligent, cost-effective facilities management and inform maintenance strategies.

Scan to BIM and Digital Twins
For the development of existing buildings, we use laser scanners to accurately and quickly capture data to create a 3D point cloud model. A point cloud is a set of millions of spatially correct data points, representing the project geometry. This information forms the dimensional basis for a BIM (Building Information Modelling) model. Although the design industry standard is Revit, 3D models are available in a number of differing formats.

The next evolution of the BIM survey model is the digital twin, a living digital representation of a real-world asset. While scan to BIM gives us the base structural geometry, the digital twin contains the elements any building requires to operational. These include electrical systems, fire systems, heating systems and all the other operational elements the client requires. Through smart building links, it becomes possible to extract live operational data from the building and lever all the benefits that it brings.

Reality Capture
With Reality Capture, we collect accurate, high-quality information of the existing environment. This includes complex geometry, imagery, and building data, or any combination of these. We have both the experience and technological tools to excel at this and can deliver this data in a variety of formats, whether it is geometry captured through the use of mobile laser scanners, terrain models from a drone or the creation of a photographic virtual tour using a 3D camera.

Measured Building Surveys
Measured Building Surveys are an essential tool in the refurbishment, alteration or redevelopment of any property. Should the building be of any historic interest then a quality survey will act as a record to preserve the building for future generations. With survey data collected, it is possible to create an accurate 2D drawing or 3D model of the existing spatial and constructional arrangements. These details may also include sections and elevation information, together with dimensional analysis of fixtures, fittings, services and plant etc.

Topographical Surveys
Before embarking on any construction project, it is essential to have a complete picture of your surroundings – to know quite literally the lay of the land. We offer topographical surveys incorporating all relevant survey details applicable to your project, such as the position of services, building orientations, boundaries, major roads and ecological systems. We can produce a range of deliverables, from a simple 2D drawing to a 3D digital terrain model with the corresponding topographical detail.

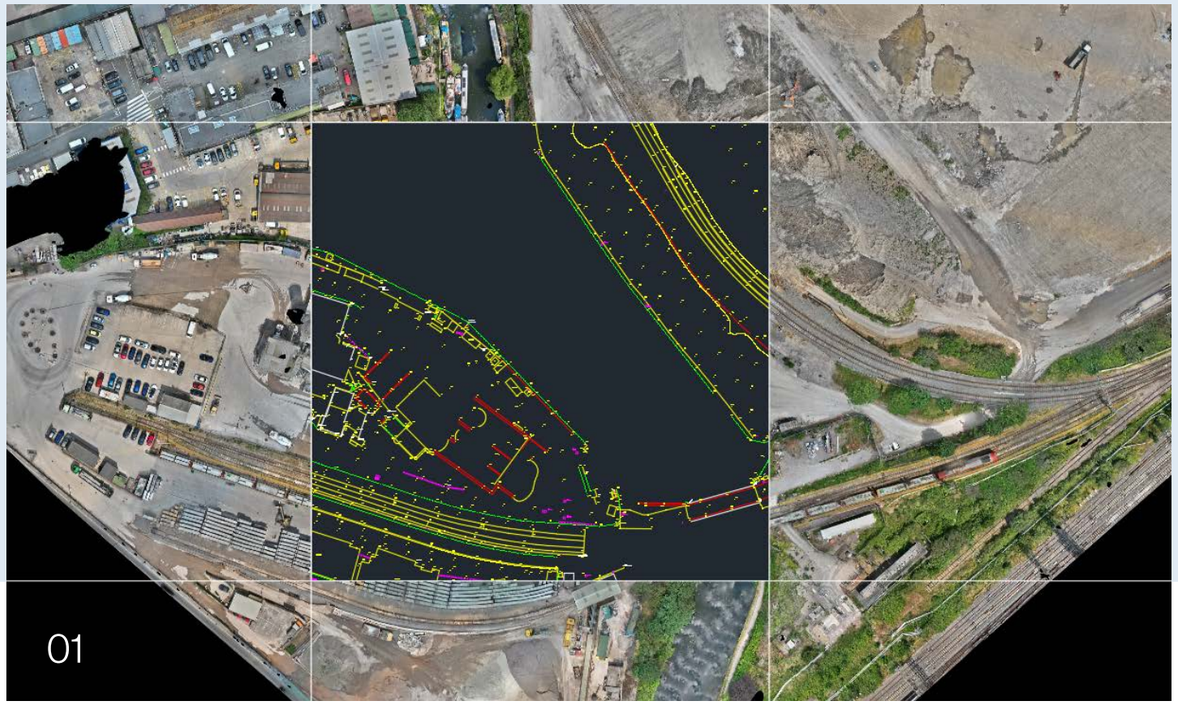
Utility Mapping and CCTV Surveys
What lies beneath the surface can have as big an impact on the project as what sits on the surface. Our investment in the latest Ground Penetrating Radar (GPR) and CCTV technology, alongside the highest levels of training, ensures that the best possible results are achieved. Unseen risks can be greatly reduced when combined with our topographical services to create a fully comprehensive picture.

Drone Surveys
Unmanned Aerial Vehicles (UAVs) bring a unique and indispensable perspective to any project, offering access to dangerous or inaccessible areas. With advancing technology enabling the incorporation of more complex sensors, the data captured is increasingly varied and sophisticated. As well as imagery, drone survey technology can produce point clouds, intricate meshes and 3D models of buildings and the surrounding environment.

Thermal Imaging
As part of our continued focus on sustainability, we are able to provide sophisticated thermal imaging technology to review the energy efficiency of your building stock. This tool enables us to clearly identify any areas of heat loss within your estate and support you in designing practical solutions to improve the efficiency and sustainability of your buildings. As this service is provided using our cutting-edge drone technology, high-rise and hard to reach buildings can also be easily reviewed without risk.

MEP Mapping
Using the latest laser scanning technology, we are able to capture detailed and intricate information regarding mechanical, electrical and plumbing services in order to create accurate MEP models. MEP equipment is often a complex network of pipes, tanks, ducts, cables, heating systems and machinery, which would be difficult and time consuming to capture accurately using traditional surveying methods. Our sophisticated technology enables us to collect data efficiently, saving our clients' time and money, as well as reducing risks.

Topographical Surveys



Before embarking on any construction project, it is essential to have a complete picture of your surroundings – to know quite literally the lay of the land. We offer topographical surveys incorporating all relevant survey details applicable to your project, such as the position of services, building orientations, boundaries, major roads and ecological systems.

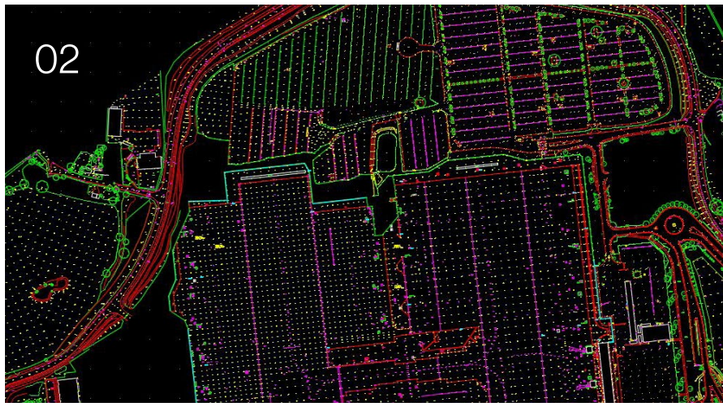
Topographical Survey (Land Survey)
The gathering, storing, processing and delivery of spatially referenced information in the form of scaled plans.

3D Models
The creation of a 3 dimensional surface from existing spatially referenced information supplied in either AutoCAD or Revit formats.

Boundaries
The survey of existing or interpretation of intended points of reference to form legally binding boundaries of ownership.

Site Sections
The creation of cut sections through pre-determined positions on site to illustrate site grade.

Volume Calculations
Comparison of existing and proposed models to establish amount of cut or fill required.



01 Drone based topographical survey
02 Topographical survey
03 3D Revit topographical model

Measured Building Surveys

An essential tool for the refurbishment, alteration or redevelopment of any property. Should the building be of any historic interest then a quality survey will act as a record to preserve the building for future generations. With survey data collected, it is possible to create an accurate 2D drawing or 3D model of the existing spatial and constructional arrangements.

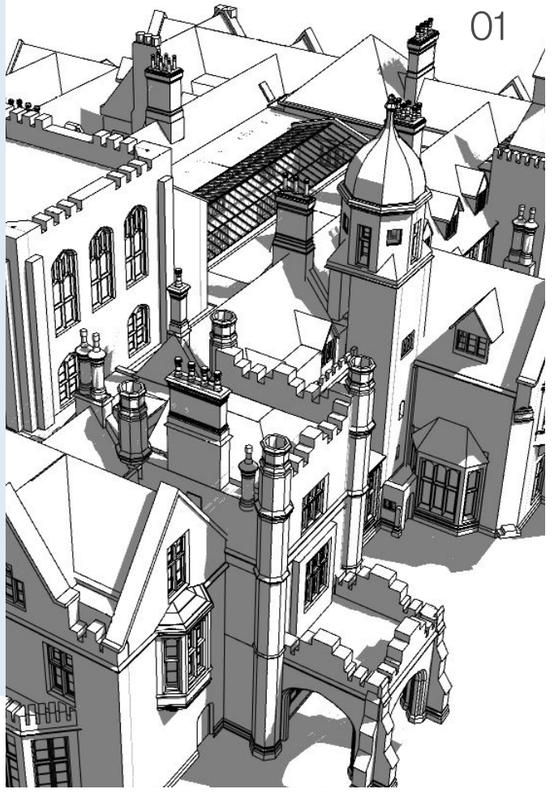
Floor Plans
The creation of an accurate CAD drawing depicting the layout of structural and non-structural walls along with the relevant height and dimensional information.

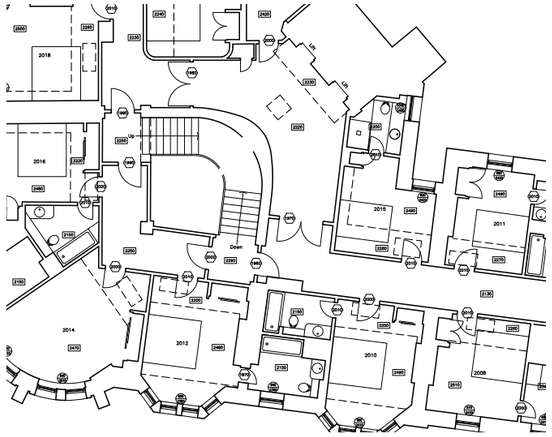
Terrestrial Laser Scanning
Real time capture of a point cloud which shows a true to scale three dimensional representation of the survey area. The data can be exported raw or worked up into a model.

Mobile Laser Scanning
Real time capture of a three dimensional representation of the surrounding environment whilst moving. The data can be exported raw or worked up into models or drawings.

Elevations
An accurate representation of the structures façade including all prominent detailing.

Sections
A scalable illustration of the structural elements that make up the building.





BIM
A fully interactive 3D Building Information Model of the structure compiled from existing or collected survey data and supplied in eitheR AutoCAD or Revit formats.

Virtual Reality
An immersive 3D model of building or land packaged to operate within any of the major VR headsets including Oculus and Google cardboard. These models contain free navigation and interaction with model objects where required.

Details
High accuracy survey used for the replication or replacement of highly detailed elements of interest.

CAD Conversion
The transference of data held in paper format to a CAD format of the clients choice in either 2D or 3D.

Area
The survey and calculation of Nett and Gross internal floor areas to RICS specifications for leaseholders and residents.

Asset Management
The logging of client owned assets presented in the form of a data base or drawing highlighting detail such as size, type and number.

01 3D Revit model
02 Measured survey
03 3D Revit model

Digital Image

We collect accurate building data using the latest cutting-edge technology, allowing us to create high-quality imagery of existing environments. This includes complex imagery in the form of 2D and 3D models, as well as the creation of photographic virtural tours and highly detailed, scaled orthographic images.

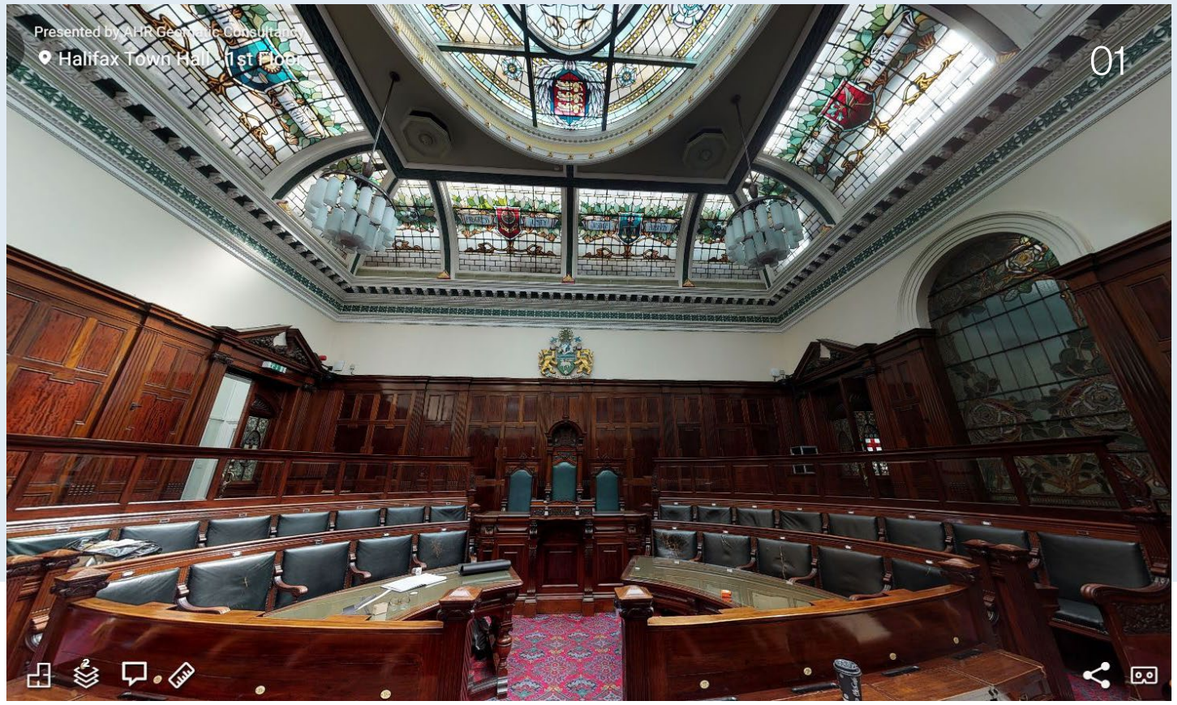
Orthographic Imagery
The production of scaled orthographic aerial imagery.

360° Virtual Tour
The creation of a fully interactive virtual tour of the building including the ability to extract dimensional information and add links to information.

3D Photographic Model
Multiple 360°images combined to create a 3D model mesh.

2D Photographic Model
Multiple 360°images combined to create a 2D schematic floor layout.

Schematic Floor Layout
CAD or PDF schematic floor plans extracted directly from the 3D photographic model.



01 Virtual tour
02 3D photographic model
03 Orthographical imagery

Underground Utility Mapping Surveys

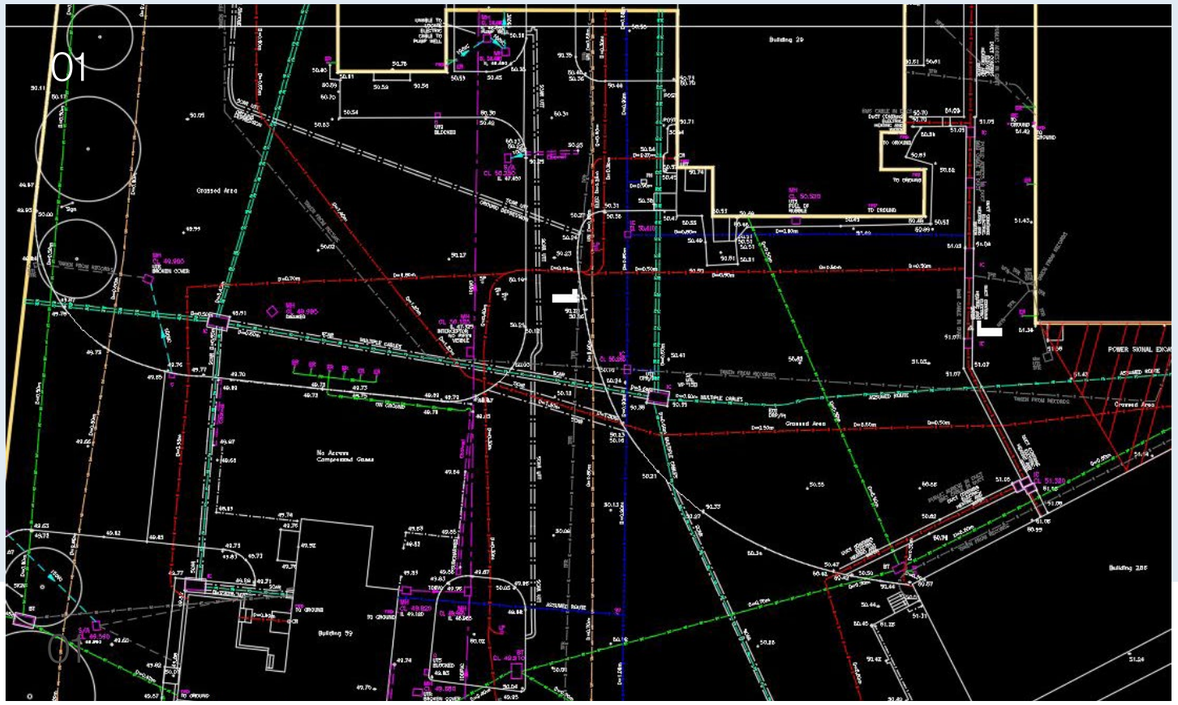
What lies beneath the surface can have as big an impact on the project as what sits on the surface. Our investment in the latest Ground Penetrating Radar (GPR) and CCTV technology, alongside the highest levels of training, ensures that the best possible results are achieved. Unseen risks can be greatly reduced when combined with our topographical services to create a fully comprehensive picture.

Desk Top Study
The creation of a comprehensive report showing utility information derived from statutory authority plans.

Site Mark Up
On site indication as to the location of underground utilities by means of non-permanent spray.

Utility Mapping
With the use of radio / electromagnetic detection and Ground Penetrating Radar, underground utilities are located, identified and positioned. This information Is then used along with statutory authority information to create a scaled plan and report.

3D Utility Mapping
A 3D model created from a combination of the topographical surface model and the utility mapping survey data to show the relationship between the above and below ground information. Models supplied in AutoCAD or Revit formats.



01 Utility mapping survey
02 3D utility mapping survey

Civil Engineering Surveys

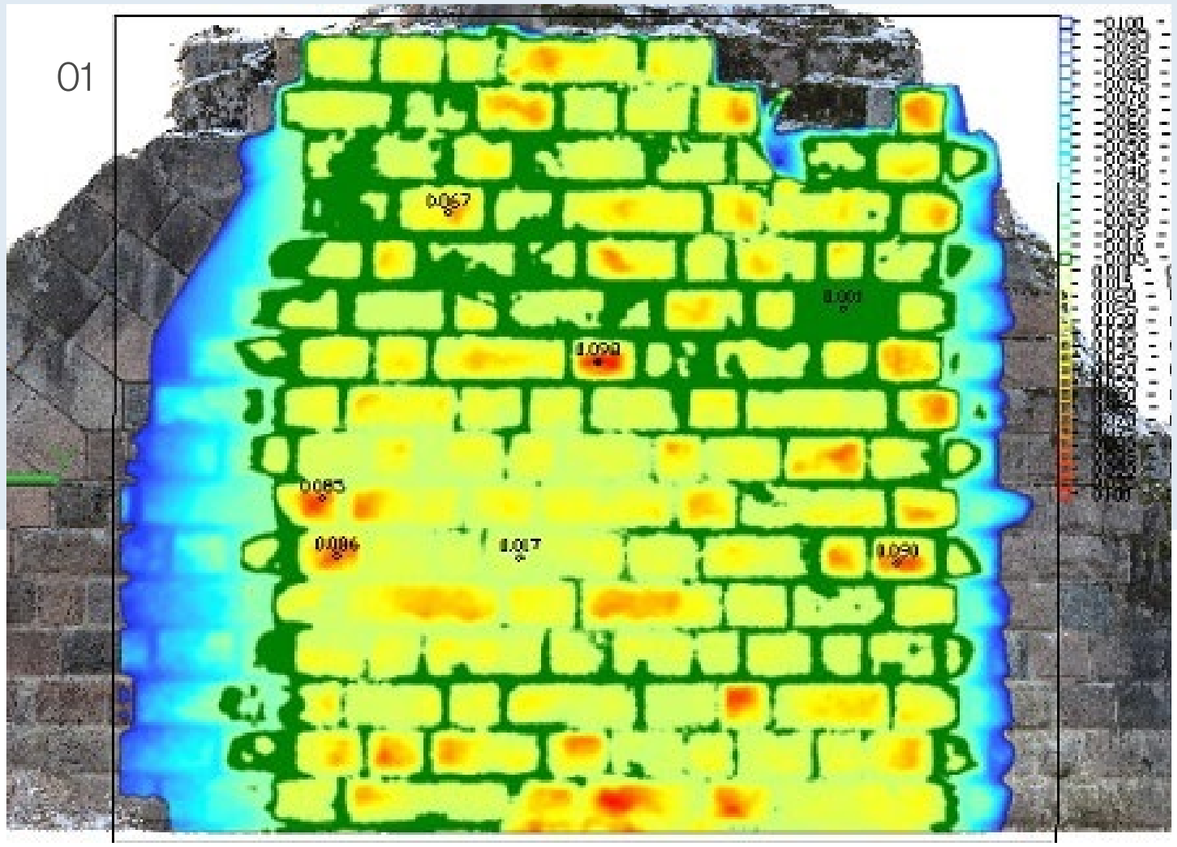
Civil engineer surveying involves assessing and recording details about an area of land. These observations can then be used to help plan construction projects, by determining the three-dimensional relationships between various locations and therefore reducing risks caused by unforeseen issues.

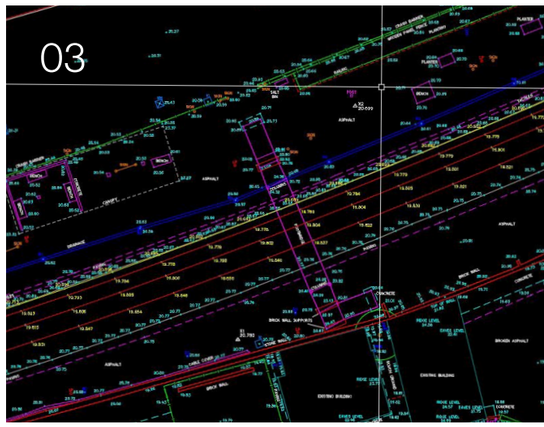
Site Control
The establishment of permanent three dimensional co-ordinated datums and grids on site.

Setting Out
The fixing of pertinent control points for accurate positional control of the planned structure.

Gauging
The survey and analysis of the co-ordinate information relating to the existing rails and platform edges.

Deformation
The monitoring of a structures movement through all planes with the use of targets or non-contact instrumentation such as laser scanners.





01 Deformation Image
02 Gauging survey
03 Gauging survey

Drone Surveys

Unmanned Aerial Vehicles (UAVs) bring a unique and indispensable perspective to any project, offering access to dangerous or inaccessible areas. With advancing technology enabling the incorporation of more complex sensors, the data captured is increasingly varied and sophisticated.

Topographical Survey (Land Survey)
The creation of 2D drawings from digital imagery.

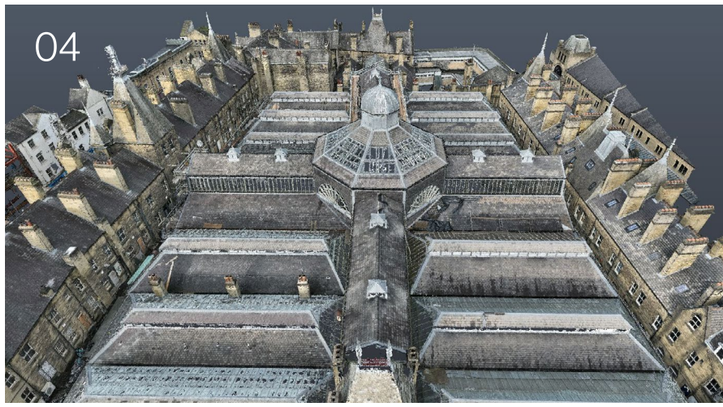
3D Model
The creation of 3D photographic models of land or buildings.

Orthographic Imagery
The production of scaled orthographic aerial imagery.

3D Mesh
The creation of 3D model meshes drom digital imagery.

3D Point Clouds
The creation of 3D point clouds fro digital imagery.

Inspection Survey
The provision on condition, dilapidation or planned maintenance survey reports via the use of UAV imagery.



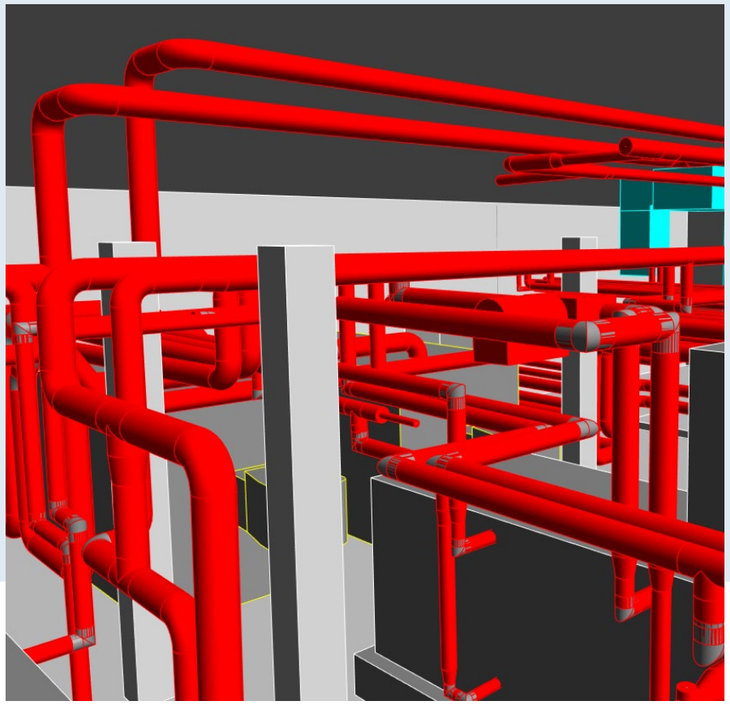
01 Drone survey
02 Orthographic image
03 Drone survey
04 3D Point Cloud model

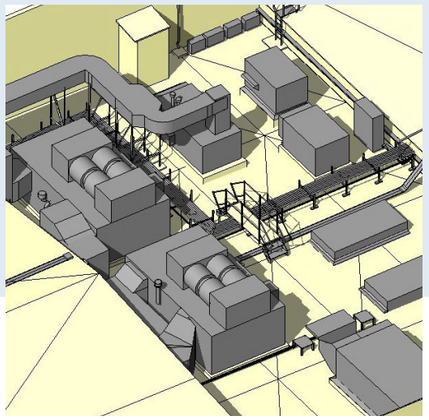
3D MEP Mapping

Using the latest laser scanning technology, we are able to capture detailed and intricate information regarding mechanical, electrical and plumbing services in order to create accurate MEP models. MEP equipment is often a complex network of pipes, tanks, ducts, cables, heating systems and machinery, which would be difficult and time consuming to capture accurately using traditional surveying methods. Our sophisticated technology enables us to collect data efficiently, saving our clients' time and money, as well as reducing risks.

3D MEP Mapping
The creation of a 3D digital model that replicates the true real-world geometry of plant, pipes, ducts etc. Scope dictates whether its a simple model to show as overall mass geometry of major plant or as complex as to contain every valve, switch, and cable. The MEP models are generally combined with a Scan to BIM model of the surrounding structure for context. As the dimensional information is captured through laser scanning the detail level of the model can be uplifted without a site re-visit should it be required. All models supplied in native Revit format to allow for the insertion of meta data as the project progresses.

3D Utility Mapping
A 3D model created from a combination of the topographical surface model and the utility mapping survey data to show the relationship between the above and below ground information. Models supplied in AutoCAD or Revit formats.





All images: 3D MEP models

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