

Using the latest technology, we  
provide comprehensive surveying  
services throughout the UK

Established in 1994





**“You produced the best topographical survey we have ever seen and we wish you were located further south to do all our other projects!!”**

**Rebecca Ballinger**  
Planning Coordinator for CDSL

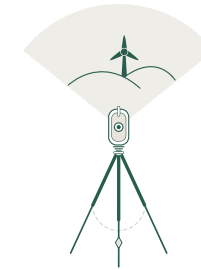
**Based in Newcastle upon Tyne, Landform Surveys has consistently offered a high quality surveying service since 1994. We have continually invested in the most modern survey instrumentation in order to provide the most accurate and cost effective survey possible.**

Our company has over 25 years of industry experience in all disciplines of surveying.

Our dedicated team uses the most modern technology to provide a first class surveying service on a countrywide basis. Through continuous investment, allied to our knowledge and expertise gained over the last 25 years, we provide accurate and cost effective surveying solutions to a wide range of sectors.

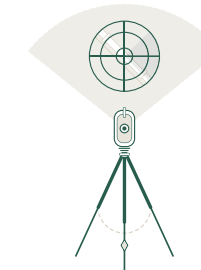
# Our Surveys

Landform Surveys provide a comprehensive range of surveying services throughout the UK. Using the latest technology allied to traditional survey techniques, we can conduct a variety of surveys to suit client requirements.



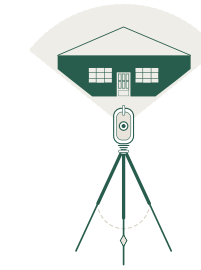
Topographic Surveys

Pages 6-7



Utilities Surveys

Pages 8-9



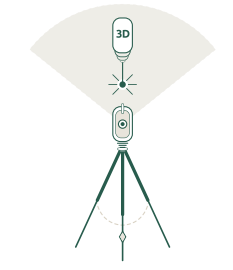
Measured Building Surveys

Pages 10-11



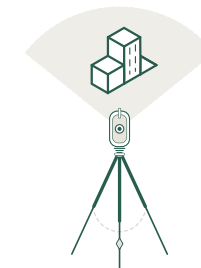
Elevation Surveys

Page 12-13



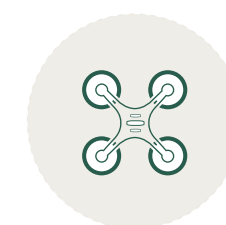
3D laser Scanning

Page 14-15



BIM / Revit Surveys

Page 16-17



Drone surveys

Page 18-19



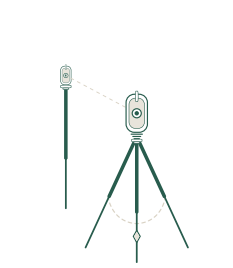
Volumetric Surveys

Pages 20



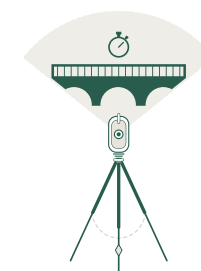
Quarry and Mineral Surveys

Page 21



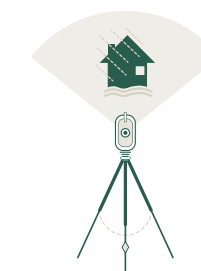
Setting out

Page 22



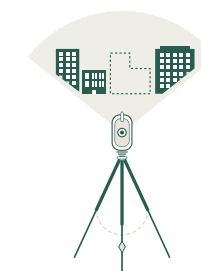
Monitoring Surveys

Page 23



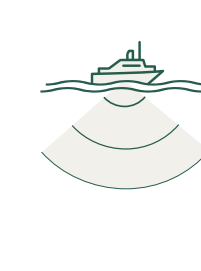
Flood Risk/River Channel Surveys

Page 24



Verified Views Surveys

Pages 25



Bathymetric Surveys

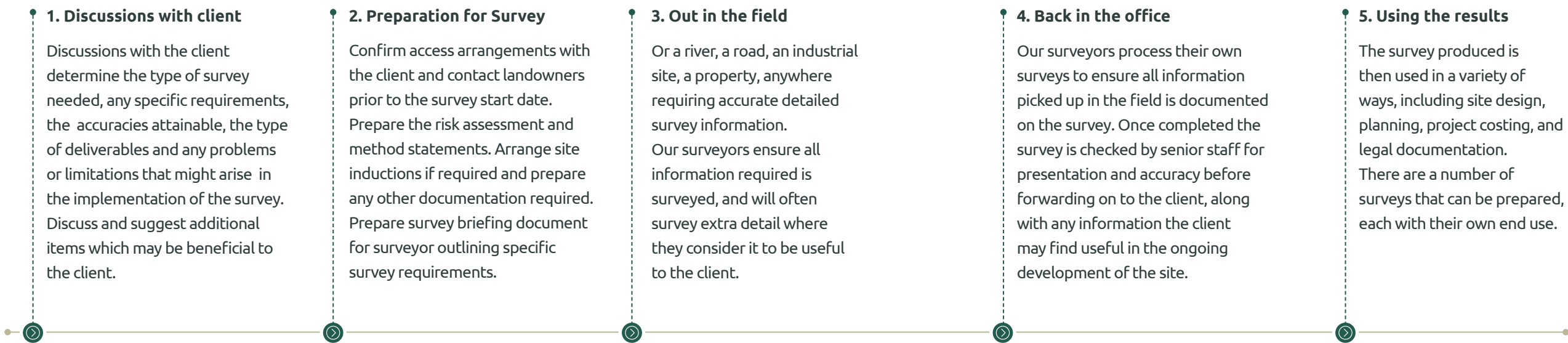
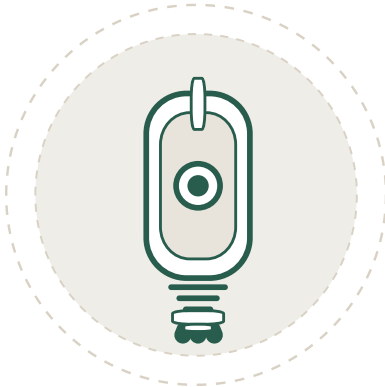
Pages 26-27





# Steps of a Survey

Our surveys are completed in 5 key steps; from first discussions to implementing the results - expertise and attention to detail is at every stage.



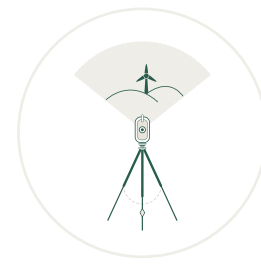
For more information on how we can make your project succeed, contact Eric Hinds at:

**Telephone:**  
0191 276 5636

**Address:**  
Suite 18  
YBN  
7-8 Delta Bank Road  
Gateshead  
NE11 9DJ



# Land and Topographic Surveys



**A topographic survey, also known as a land, or terrain survey, is a vital component in the design process for a site and should be commissioned before any detailed design works take place.**

We have vast experience in carrying out topographic surveys, and it is the core of our business. Our surveyors use Trimble S6 and S5 Robotic Total Stations, and Trimble R10 & R8 GPS receivers to carry out our surveys. Our total stations also being capable of reflectorless measurement, enabling us to survey detail which is inaccessible.

This is particularly useful for surveying heights and positions of buildings, which overlook development sites and to produce streetscapes of adjacent building elevations.

We can also utilise aerial UAV drone technology to produce ground terrain and topographic surveys of large sites, roof plans and information not visible from ground level.



## What is a topographic survey?

A topographic survey maps the boundaries, manmade and natural features, and levels of a site, and is the first step in the process for the site's development. Other constraining factors such as highways and buildings adjacent to the site are also surveyed to aid the design process.

## What are the benefits of a topographic survey?

The main benefit of a topographic survey is helping with planning and decision-making. An accurate survey will prevent costly assumptions being made about the size of the site, or about other constraints such as site levels and heights and positions of surrounding buildings.

## What can you expect from our topographic surveys?

Detail is accurately measured and the deliverables issued to meet our clients' specific requirements or to RICS standards. These can range from simple 2D plans to detailed 3D AutoCAD drawings. To ensure the highest quality control, our surveyors edit their own surveys to ensure that all possible detail is recorded and presented correctly.

## What is a topographic survey used for?

A professionally produced topographic survey can be used as a legal document to define boundaries of a property. Other professionals such as architects, civil engineers and planners use topographic surveys to make decisions on design and project management.

## How long does a topographic survey take?

The duration of a topographical survey depends on the size and complexity of the proposed project. Once we have surveyed your site, it takes another few days for drawings to be produced.

## Related Case Studies



### Film Studios, Watford

Recently we were commissioned to work on a topographic survey of a site in Watford that is a filming location for some of the major media companies, such as Netflix, Amazon & ITV.

The site was over 17 hectares in size and was a mixture of greenfield, woodland, farm buildings, a former school and film set.

A traverse was completed to encompass the whole of the site to ensure accuracy, and the detail survey carried out using the major traverse as a base.

Two surveyors completed the survey in less than two weeks, processing the survey every night as timescales were very tight. The survey was completed ahead of timescales, to the great satisfaction of our client. An interesting survey in that our surveyors would survey the front of a building, move to survey the rear, then find it was a very realistic part of a film set and only consisted of a front face!



### A18 Highway Survey

In recent years, Landform Surveys have been asked to survey many large scale highways projects, such as the M1 in Leeds, & the A19 in Durham. These projects have their own challenges, as they are often carried out at night with the use of traffic management.

We were recently commissioned to survey a 13km length highways survey by Aecom. This stretch of road had a number of fatal accidents, and our survey was part of a full investigation into the causes and how we could reduce accidents in the future. We examined man-made features such as the road markings, the location of antiskid surfacing and positioning of signage.

Another complex survey we carried out was of a 9km stretch of the A19 in Durham, which included slip roads, roundabouts, junctions and adjoining land. We also scanned all structures which crossed the A19, including rail bridges, gantries, road bridges and foot bridges, to establish clearances. As well as the topographic survey of the highway, point cloud data and drawn elevations for the structures were supplied.

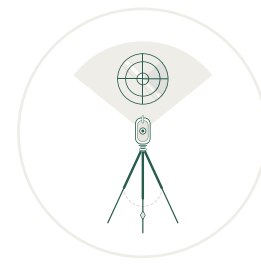
## What Our Clients Say

**"We have appointed Landform for several projects over the last year to prepare topographical surveys for a range of sizes of sites. We have been pleased with the quality of work carried out and have no reservation in recommending Landform, especially Eric Hinds, for similar work."**

**Elisa Berry**  
Howarth Litchfield Partnership



# Utilities Surveys



**The detection and mapping of utilities surveys can be one of the most beneficially proactive surveys done before a building project.**

The failure to identify the locations of buried services before a development takes place can result in increased project costs and delays, as well as serious health and safety implications. Services drawing from utilities companies are not always sufficiently accurate to allow for proper planning.



## What is a utilities survey?

A utilities survey is a series of non-intrusive measurements undertaken prior to site works commencing. They can locate the positions of buried services and help prevent costly delays and reduces risks. They can be used across all locations and projects from industrial and commercial new builds to rural areas and city centre regeneration sites.

## What is a utilities survey used for?

Utilities surveys are used to locate underground pipelines and wires to locate water, power, gas, telecommunications, fibre optics, drainage and sewage so that these services are not interrupted during any building or excavation works. These are largely commissioned prior to a project starting and cross-referenced with existing records to ensure that

## What are the benefits of a utilities survey?

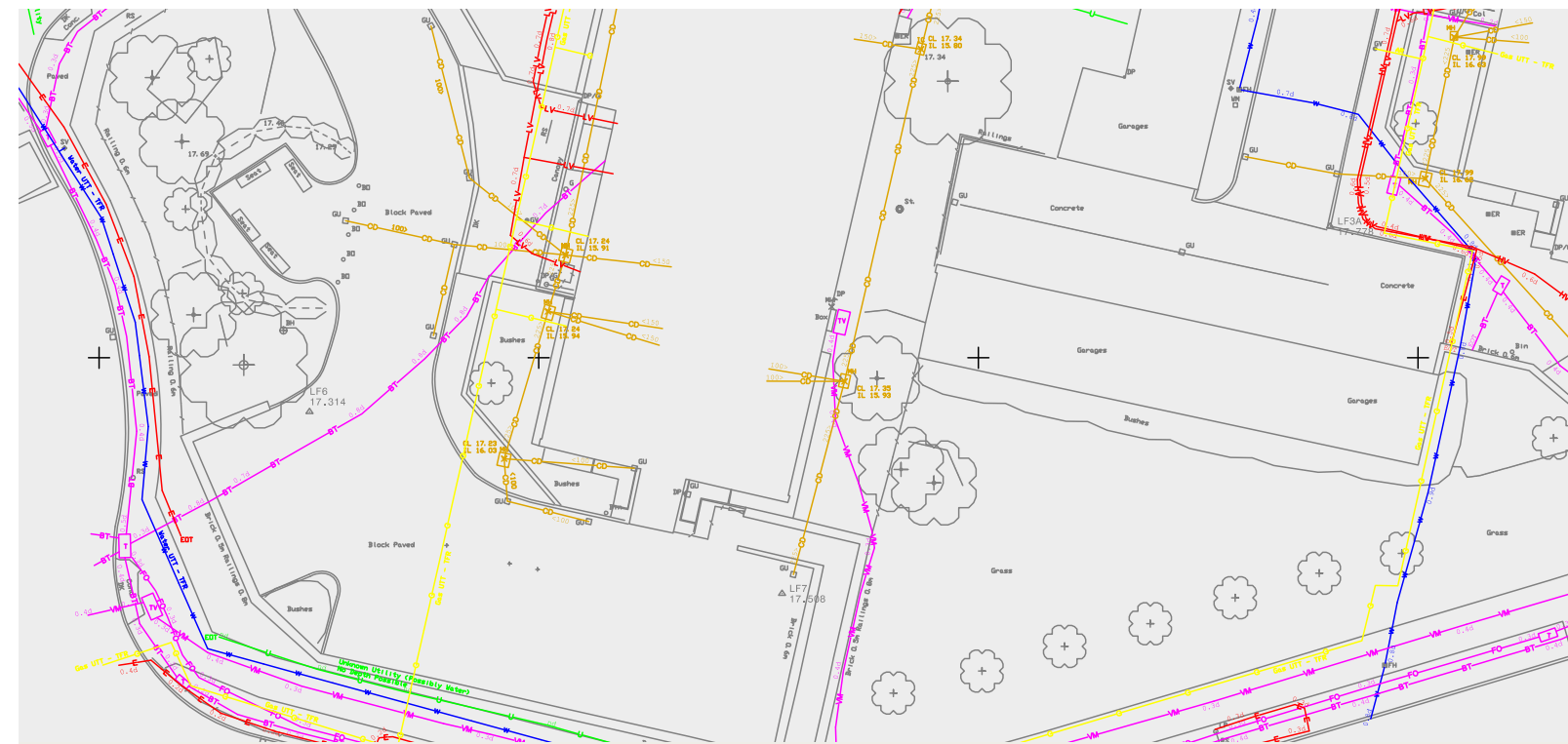
The biggest benefit is the cost and time savings on a project. Minor errors in the location of utilities can cause lengthy errors that can be difficult to fix and make companies liable for any damage that is caused due to their project.

## What can you expect from our surveys?

Landform Surveys uses radio detection and ground penetrating radar techniques to locate underground utilities. The services can be mapped accurately and results supplied in CAD format.

## Our recent surveys

- Utilities survey at Freeman Hospital Newcastle, to locate buried services in the route of a new water main around the hospital.
- Utilities survey Pilgrim Street Newcastle, for development of new hotel
- Utilities surveys of large mental facility in Morpeth, to enable demolition/building works to take place



## Related Case Studies

### Utilities Survey

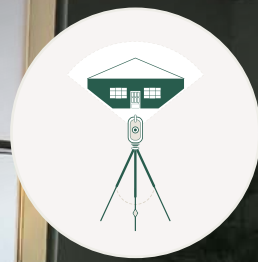
Landform Surveys were recently commissioned to carry out a large utilities survey at a mental health facility in Northumberland. This was a challenging survey as a great deal of development had taken place over the years, so many of the utilities were redundant or the newer ones not recorded. By using a combination of GPR and radio detection we were able to map all the services on site and produce an accurate plan of utilities on the site. The survey took three weeks to complete and was carried out with no disruption to the residents or staff of the facility.

As an intrusive site investigations was also taking place we cleared all borehole and trial pit locations for the geotechnical contractor, to ensure the locations being drilled were clear of any below ground services.





# Measured Building Surveys



**Measured building surveys can be conducted on all built structures, regardless of age. We have surveyed buildings of all ages and conditions, from historical manor homes to industrial units.**

Floor plans are produced using a Trimble TX8 laser scanner. The building is scanned both internally and externally, to produce a complete point cloud model of the building, for use in REVIT & BIM applications. Alternatively, floor plans and elevations can be extracted to produce conventional 2D plans.

## What is a measured building survey?

A measured building survey involves the mapping internally and externally of buildings or structures. It can include a variety of outputs ranging from a basic floor plan to a detailed 3D building model.

## What is a measured building survey used for?

A measured building survey can be used for future reconfiguration or change of use of the building, and can provide a base for other information such as mechanical and electrical data.

## What are the benefits of a measured building survey?

A measured building survey is an important step in the design and planning process, especially in the restoration process or when a building will be changing purposes, such as an industrial building being converted to flats. A survey will save money and time by offering accurate data about the condition and features of the building.

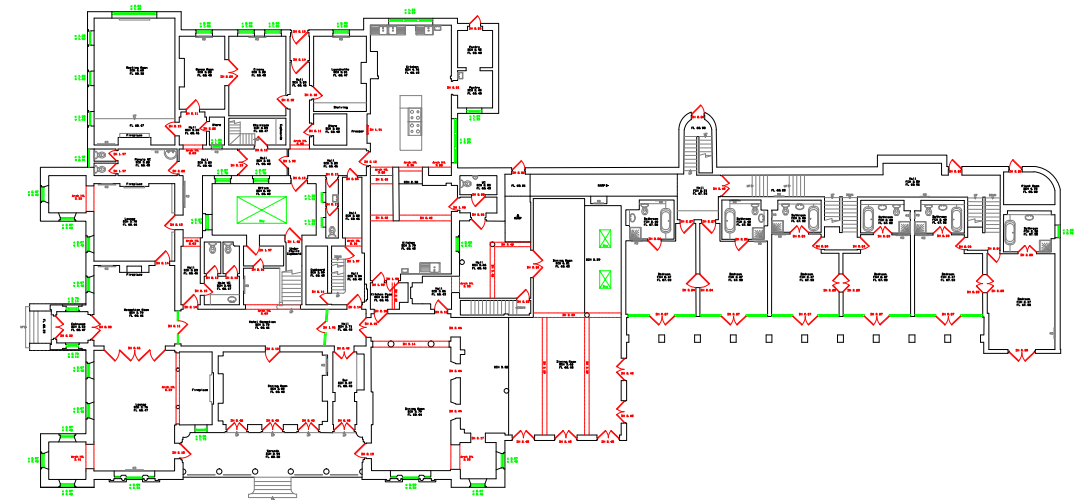
## What you can expect from our surveys?

We work with clients on an individual basis as each client and building is unique. Each survey can be tailored to the clients' requirements, from a basic floor plan, to the recording of service locations, radiators, fixtures and fittings.

## Our recent measured building surveys

- Floor plans of 30+ supermarkets for a major national retailer.
- Point cloud model of a former church, for part conversion into residential units.
- Floor plans of large factories and industrial units at one of the major industrial estates in Gateshead.
- Floor plans of numerous private dwellings to obtain listed building consent.
- Floor plans for conversion of farm buildings to residential dwellings.

## Related Case Study



## Measured Building Survey

Landform Surveys were recently commissioned to survey three luxury hotels in the south of England.

Our brief included full external elevations, floor plans, sections, roof plan and internal elevations, as well as a topographic survey of the grounds.

Two Trimble TX8 laser scanners were utilised, one used externally and one internally. The point clouds were then tied together to produce full 3D model of the hotels, with 2D floor plans, elevations, and sections supplied to the client.

The surveys were carried out in the summer season, when the hotels were at their busiest, but were completed with minimum disruption to staff and residents.



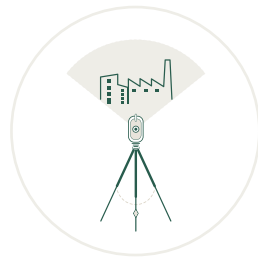
## What Our Clients Say

**“Can’t thank you enough. We don’t have long to turn this one around so the speed in which you and your team have done this is very much appreciated. Thank you.”**

**Howarth Lichfield**



# Elevation Surveys



We have carried out elevation surveys of a wide variety of structures throughout the UK, including bridges, historic buildings and churches, office blocks and hotels. Detailed and accurate elevations of buildings and structures are required for many building schemes.

Landform Surveys use a Trimble TX8 scanner to provide elevation data. This instrument is at the forefront of scanning technology, and can scan up to 1 million points/sec on a typical 3 minute scan time. Accuracy is in the order of 2mm for a range of 100m.

## What is an elevation survey?

An elevation survey is used for planning and development for both the structure and building work. They can also be used for scheduling and planning for on-going and future maintenance work.

We can also produce high quality imagery from the point cloud which can be used to assess the condition of the building.

## What are the benefits of an elevation survey?

The benefits of doing an elevation means having an accurate data set that can be used in planning and decision-making.

This can help make future proofing your structures more efficient, which saves money and time further on.

## What you can expect from our surveys?

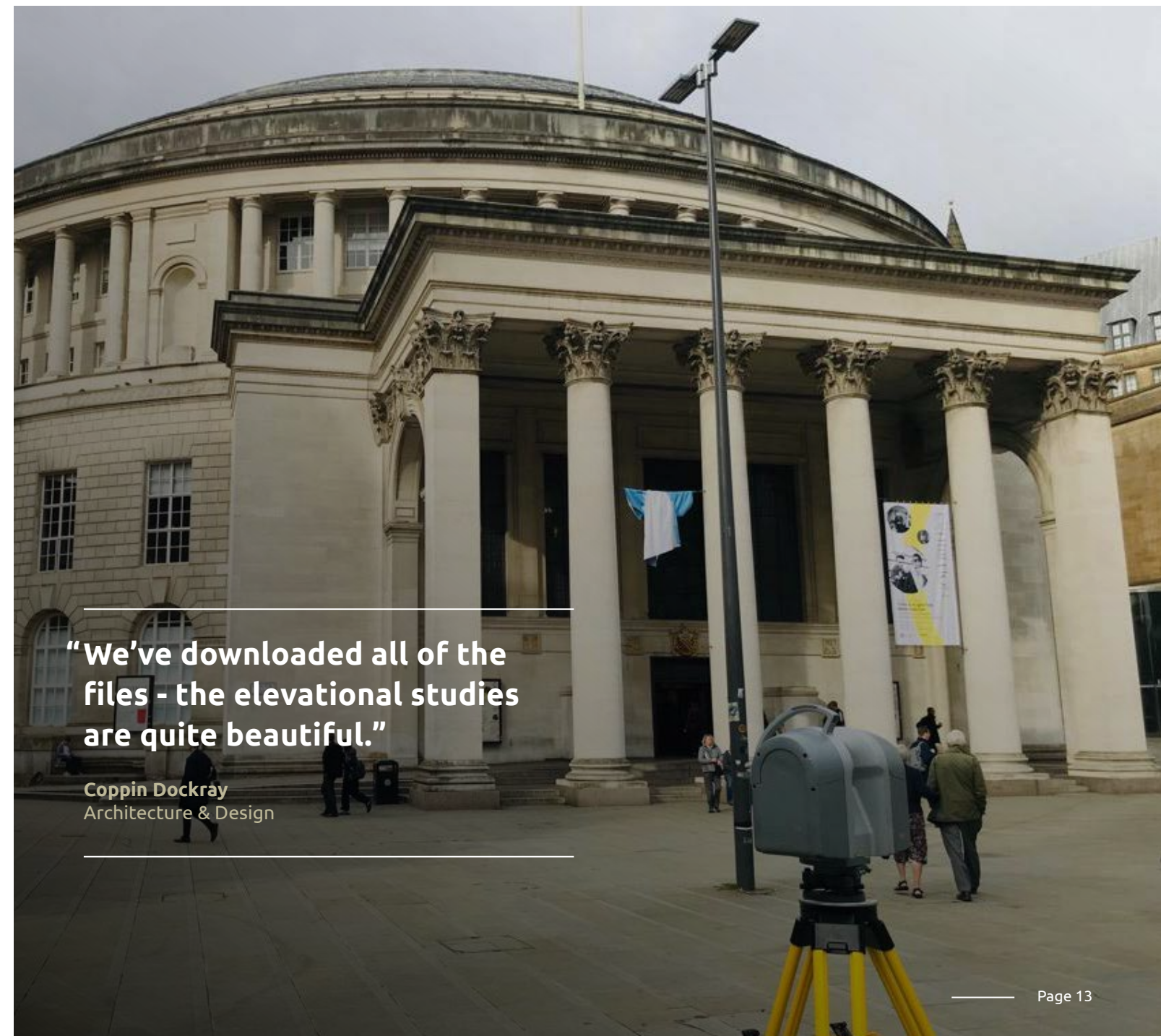
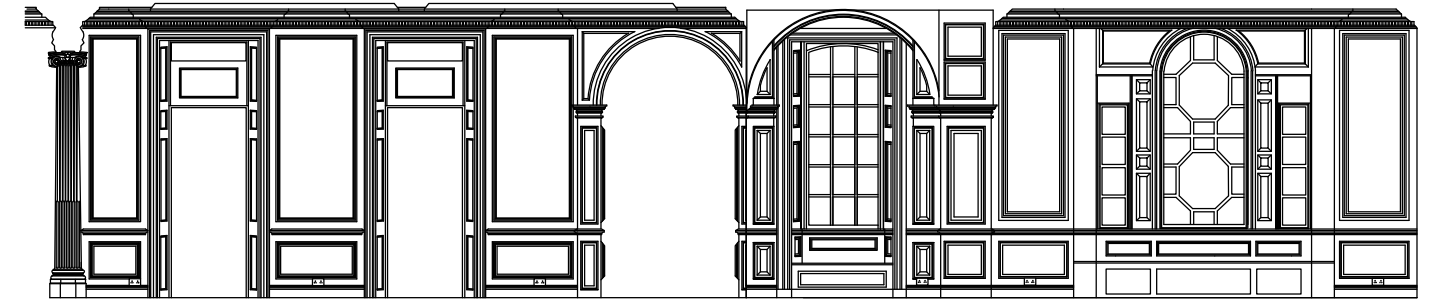
Depending on the project we would usually use laser scanning to capture the data. We work closely with our clients to determine their needs. The resulting survey will only have the level of detail as required by the client.

## Our recent elevation surveys

- Detailed elevations of a number of bridge structures in Northumberland.
- Detailed elevations of a major hotel in Newcastle.



## Internal Elevation Survey



“We’ve downloaded all of the files - the elevational studies are quite beautiful.”

Coppin Dockray  
Architecture & Design



# 3D Laser Scanning



**Landform Surveys uses the latest 3D scanning technology, capturing over 1 million points per second, to produce extremely high levels of detail and functionality.**

## What is a 3D laser scan?

Using a single point laser, data is captured remotely and at a speed and level of detail that conventional survey techniques cannot match. It is a non-invasive technology that captures a set of data points (the point cloud) and maps them on a grid coordinate of x, y and z.

## What is 3D laser scanning used for?

The data captured in a 3D scan can be used to produce floor plans, elevations, cross sections, and as built drawings. With the technology, we can also produce excellent photo realistic representations and visualisations when combining scan data with HDR photography. 3D laser scanning is a crucial component in enabling 3D Modelling and Building Information Modelling (BIM).

## What are the benefits of a 3D laser scan?

One of the key benefits is that complete data collection enables further investigations to be carried out later on without costly return visits to site.

## What can you expect from our surveys?

The final deliverable can also be published in Trimble

Realworks Viewer format. This allows you, via a free plug-in, to view, edit, zoom-in, measure and mark-up point cloud information. It is quick and easy to use, and allows coordinates and measured distances can be extracted from the point cloud data. We can provide scans in a variety of outputs, including 2D/3D Autocad drawings, point clouds, rectified images.

## Our recent surveys

- Barter Books Alnwick
- Rights of Light survey on Newcastle Quayside
- Survey of Aykley Heads Communications Tower (listed structure) to enable proper planning of how mast can be re-sited.
- Survey at Newcastle Central Station to produce point cloud of the internal and external building configuration.
- Survey of Production buildings at Calor Gas, Teesside, to produce plans, elevations and point cloud data to assist in reconfiguration of buildings.

## Related Case Studies



### Woolsington Hall

We had the opportunity to survey Woolsington Hall, a Grade II listed country house, built in the 17th century. Unlike most historic buildings we survey, this one had been damaged in a fire in late 2015.

We were approached by Metnor Construction with an initial enquiry about surveying the remaining part of the building, which was seriously fire damaged. Our client wanted to get a 3D point cloud of the remaining structure to assess the structural condition and stability. As the structure is unstable, it was not an option to enter the structure to survey meaning we had to figure out a way to gather the data at a safe distance.

A 3D laser scan was determined to be the best survey for the job, mitigating health and safety concerns while still being comprehensive enough to provide the level of detail our client needs. After visiting the site and conducting the survey, we delivered the point cloud data through an .RCP file.

The client received a clear scale model of the current structure of the building. They benefited from the point cloud survey as it picked up every detail of the building, which was essential as half of the building is collapsed. With the data, the client will be able to create models and projections so that the hall can be redeveloped to its former status in the future.

Eric Hinds says of the survey, "The only safe way to carry out this survey was laser scanning, and the final product was far superior to that of traditional methods."

We enjoyed surveying Woolsington Hall and look forward to seeing the restoration of the building completed.



### Rights of Light Survey

The term "right of light" refers specifically to a property's right to a certain amount of light, rather than to all the light that it may once have received. The right to light in England and Wales is protected by common law.

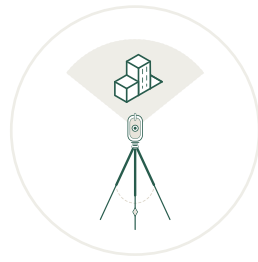
If a new development may affect the rights to light then this can be assessed by modelling the new building mass against the adjacent buildings profiles and window positions.

To assist this, we recently carried out a 3D laser scan along Newcastle Quayside to obtain heights of buildings, their relative position, and the location of all windows looking on to the development site.

Deliverables included a topographic survey of the site, 2D elevations of the buildings, and a 3D point cloud model of the site and surrounding buildings.



# BIM/Revit Surveys



**With the growing adoption of BIM by the construction and property sectors, quality measured survey data is integral for many projects and there has seen a steady increase in demand for the delivery of measured surveys in a 3D Revit format. BIM can be used to inform design decisions.**

## What is a BIM/Revit survey?

BIM stands for Building Information Modelling. It is a type of modelling that includes both the individual data points and the visual representation that is made when they are combined. One of the core components of BIM is the capture and maintenance of data points to be shared across multiple agencies for the lifespan of the building or structure. This helps ensure those who need it can access the details of the structure.

## What is a BIM/Revit survey used for?

A BIM/Revit survey is used when continuity of data needs to be stored for future use. All public sector projects now require stage 2 BIM. They are used to make projects more of a holistic and cooperative venture between agencies. BIM not only stores data about the structure itself but about relational measurements such as geographic, geometric and spatial relationships between other structures and facilities components.

## What are the benefits of a BIM/Revit survey?

Due to the granularity of detail that is captured in a BIM survey, the improved data and its continuity increases efficiency in decision making throughout the lifecycle of a project, from design through to construction and maintenance.

## What you can expect from our surveys?

Using point cloud data captured by our laser scanners, we can provide:

- 3D Revit models for buildings and structures, including plans, elevations and sections.
- 3D topographical surveys showing ground terrain and surface detail, for input into Revit.
- Point cloud data files in a variety of formats
- Realworks Viewer files, allowing access to point cloud data via a free weblink.

## Our recent surveys

- Revit survey of Lidl store in Stockton.
- Revit survey of a childrens hospice in Wetherby to assist in the extension and reconfiguration of the building.



## Related Case Study

### Martin House Revit Survey

We had the opportunity to carry out survey at Martin House children's hospice, Weatherby. We were approached by our client to carry out the survey with the requirement for a full 3D model of the building to be produced in Revit. The survey specification was for all elements of the building to be modelled both internally and externally which included a 3D topographic surface model of the land using the topographic survey we produced at an earlier stage of the project.

Initially we had to carry out a 3D laser scan of the building, which required scanning every room in the building to produce a fully coloured point cloud which we used as a 3D template for the modelling process. The scanning process had to be carried out in the most discrete and respectful manner due to the very sensitive nature of the building.

For the Revit model we first had to model all building elements individually using the point in order to create a full component library of all building elements and a construction template ready to use in the main modelling process. Once the initial work was complete, we then

constructed the main 3D model of the building using the 3D point cloud in conjunction with component library and template we created earlier in the process until the full 3D model was complete. The modelling process proved to be increasingly difficult due to the very complex nature of the building design and structural formation which in some cases tested both the designer and the software.

The client received a fully functional and comprehensive 3D model of Martin House ready to be used in the design and redevelopment process of the next phase of the project. Overall the project was a great success and was well received by the client.

---

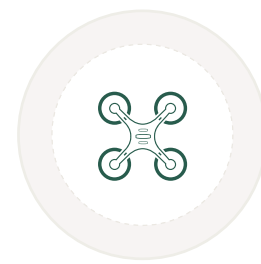
**“ Thanks, Appreciate your hard work, as I realise it's a complicated building.**

**Stuart Franklin, Associate Director**  
JDDK Architects

---



# Drone Surveys



**Landform Surveys offers drone surveys to acquire aerial data and produce surveys for difficult to access areas, such as quarries. This makes surveying accessible to areas that were previously too expensive or out of reach.**

## How does a drone survey work?

A drone survey is a cost-efficient way to map the area below. They are also referred to as a UAV (Unmanned Aerial Vehicle) surveys or UAS (Unmanned Aerial System) surveys. The UAV is outfitted with cameras and propelled into the air by motors and propellers. They can be controlled by a remote ground control system, also known as a ground cockpit.

## Why use a drone survey?

Drones, once a novelty, are now a versatile and invaluable tool for surveying. There are many benefits to using a drone.

### 1. Cost-effective

Previously, an aerial survey meant that a cherry picker or scaffolding would need to be hired, set up, the survey conducted and then taken down. Using a drone means not having to hire supplementary equipment which saves money on equipment hire and set up and take-down time.

### 2. Time-effective

High quality photographic and video records can be taken in a couple of hours.

### 3. Improved health and safety

Using heavy equipment at height increases the risks of falls and other on-site incidents. With a drone survey, no one works at height, eliminating the chance of a fall.

### 4. Minimal disruption to property

When surveying with traditional equipment, often access to the site would have to be closed off and operations suspended for the time of the survey. Using a drone minimises disruption to the surveying area.

### 5. Surveying inaccessible locations

Cumbersome equipment often meant that there were areas they couldn't effectively survey. A drone can go places that a surveyor or a cherry picker can't go, such as pitched roofs, quarry edges and waterlogged areas.

### 6. Improved data acquisition

A cherry picker and scaffolding made gathering high-resolution images and videos difficult. A drone survey can produce these with ease.

## What type of surveys can we carry out with a drone?

- Land and topographic surveys
- Quarry and mineral surveys
- Construction sites
- Infrastructure and property
- Environmental and forestry

Landform Surveys only uses drone pilots that are licensed and certified by the Central Aviation Authority (CAA). This ensures pilots have the proper training and examinations to fly a drone for commercial purposes and accept legal responsibility for their drone.



## Related Case Study



### Roof Survey

Structure Roofs can be one of the more challenging elements of a building to survey, often requiring scaffolding and posing health and safety hazards in order to produce a quality survey.

Recently, Landform Surveys worked with Mosedale Gillatt Architects on a roof survey for a historic hall in North Tyneside. Mosedale Gillatt Architects were commissioning the survey to get data that they can base their designs for a new roof on.

This was a survey that combined topographic survey, laser scanning and drone surveys for the more inaccessible areas. As our clients need the survey in order to produce designs for further work, this combination allowed us to produce the most comprehensive survey possible. The topographic survey was used to help establish the levels and falls of drainage gullies and roof openings. We used the laser scan to produce a 3D model of the current structure and the drone survey helped to produce aerial imagery so that the condition of the roof could be evaluated in areas that were inaccessible to us.

As one of the buildings had an incomplete roof, getting the details of the existing roof was important so that the architects had accurate data to base their designs on.

With it being a historic building, it was important to identify any inconsistencies or structural anomalies which would need to be taken into account in the design process.

To limit further damage to the roof, we were able to employ the use of a drone to get aerial footage. These images will allow the architects to determine the condition of the existing roof. We delivered our laser scan data alongside HD photography and video footage so the architects had a permanent record of the roofs condition.

Eric Hinds, director of Landform Surveys says: "This was an interesting survey, combining laser scanning, conventional topographic survey, and drone surveying, on one of the regions most historic buildings. A pleasure to be involved."

We look forward to seeing the new roof designs once they are complete.





# Volumetric Surveys



**We have provided volumetric surveys to accurately calculate stockpile volumes, extraction quantities, and volumes of earthworks.**

Stockpiles can be measured in a variety of ways, including GPS surveys, laser scanning and drone, particularly when the stockpiles are unsafe to walk on.

Data from the survey is input into LSS modelling software to produce accurate volumes of stockpiles, or to calculate earthworks volumes.

We provide independent professional services to both quarry operators and earthworks contractors, as a means to agree on contractual quantities.

## What is a volumetric survey?

A volumetric survey is a survey that accurately measures the volume of a stockpile or of earthworks.

## What is a volumetric survey used for?

Volumetric surveys are used to provide an independent measure on quantities for quarry operators and sub contractors to allow a bill of quantities to be agreed on.

## What can you expect from our surveys?

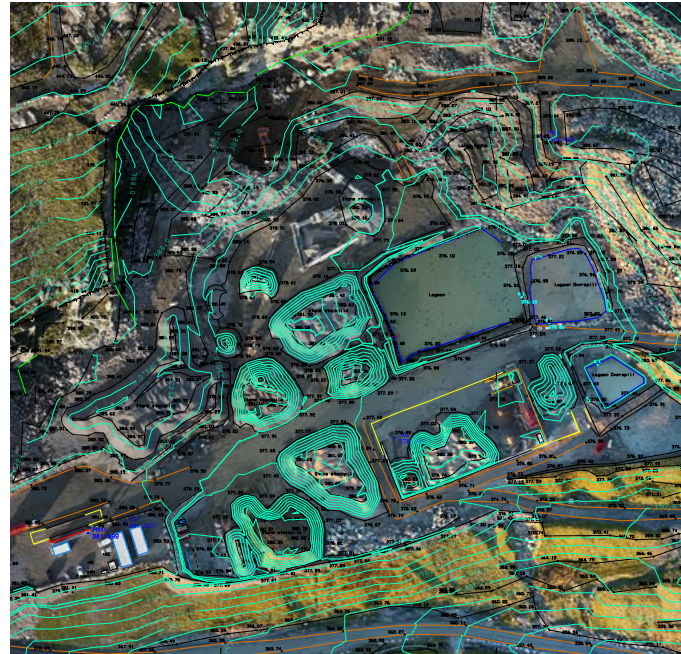
With our volumetric surveys, you will get qualitative and quantitative data supplied in a 3D format, as well as aerial photography and video if specified for the project.

## What can you expect from our surveys?

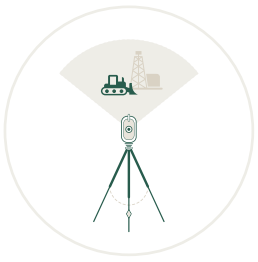
Landform Surveys uses radio detection and ground penetrating radar techniques to locate underground utilities. The services can be mapped accurately and results supplied in CAD format.

## Our recent volumetric surveys

- Stockpile volumes of contract crushed material in one of Co Durham's largest quarries.
- Volumes of imported material for quantity verification at Immingham docks.



# Quarry and Mineral Surveys



**Quarries and minerals are a valuable resource that must be evaluated and managed properly. Our quarry surveys help you to protect this asset by providing accurate data to aid in decision-making.**

With over 20 years experience, we have long-term contracts with major quarry and landfill operators to provide volumetric surveys and update surveys on quarries and landfill sites.

We provide surveys of product stockpiles, face updates using reflectorless instruments, and independent volume verification for earthworks, stockpiles, and mineral royalties.

To improve time and cost effectiveness, we have utilised aerial UAV drone technology to produce ground terrain and topographic surveys of large sites. This method also can produce a rectified photogrammetric image of the site, which can be overlain over the ground terrain model to produce a visually stunning model of the site.



## What are quarry and mineral surveys?

A quarry survey is the mapping of a site that is specifically used for excavation or storage of mineral resources that have been mined.

## What are quarry and mineral surveys used for?

Our surveys can be used for either mapping of an entire quarry, profiling the rock faces or doing blast analysis of the site before and after work has been done. The survey can be used for calculation of mineral extraction quantities for royalties, to provide independent verification of earthworks volumes, and to ensure planning restrictions are being met.

## What are the benefits of a quarry or mineral survey?

Commissioning a quarry survey will help accurate data, which can be used for valuation as well as aid in planning for the future of the quarry.

## What can you expect from our surveys?

We can provide a 3D contoured terrain model of the quarry, production of volume calculations, and, when the survey has been carried out by UAV, a photo mosaic of the quarry upon which contours and features can be superimposed

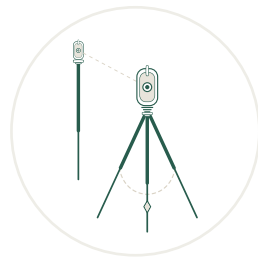
## Our recent quarry surveys

- A granite quarry in Cumbria
- Twice yearly surveys in one of the largest quarries in County Durham to evaluate royalty quantities and stockpile tonnages





# Setting Out



**Landform Surveys can provide experienced setting out engineers to accurately mark out positions on the ground extracted from drawings and plans.**

Accurate points will allow for accurate construction and excavation, which prevents costly errors from being made.

Using Trimble S6 total stations, points can be set out to within a few millimetres.

## What is setting out?

It is the process of taking points from a design and marking them out on the physical space to aid in construction projects.

## What is setting out used for?

It is a process used to ensure that the designs for a project are accurately transferred into the real world. This can be used on excavations as well as small and large-scale construction projects.

## What are the benefits of setting out?

One of the benefits is creating an accurate base for construction projects which saves time and money as mistakes are minimised and less likely to need to re-do work.

## What can you expect from our setting out service?

We work closely with our clients and project managers to ensure that the points that need to be set out are included in the service. This can range from setting out key points only to a full point service. We can also provide an on-going service to monitor the points throughout the project to make sure that they stay accurate.

## Our recent projects

- Housing developments
- Factories and supermarkets
- Site investigation locations
- Batter rails and reduced levels for earthwork projects

# Monitoring Surveys



**Landform Surveys can provide a monitoring regime to identify any movement of buildings, structures, earthworks, slopes etc.**

Movement can happen due to a number of factors, including ground conditions, structural/foundation failure, instability or erosion.

We collect and accurately measure data using precise levels, accurate to 1/10th of a millimetre, movement gauges, reflectorless total stations, laser scanners and micrometers.

## What is a monitoring survey?

A monitoring survey measures the small changes in vertical and horizontal position, either in real-time or as part of a long-term monitoring project.

## What is a monitoring survey used for?

A monitoring survey is used to determine the stability of structures so that architects and engineers can use the data to plan remedial measures.

## What are the benefits of a monitoring survey?

While decisions can be made with anecdotal evidence, a professionally produced survey will give you accurate data to know for sure whether or not a structure is shifting. This can give the information you need to be proactive in planning maintenance and preservation work with your structure.

## What you can expect from our surveys?

We can offer highly accurate data in regards to the movement of structures that meets your needs. Whether that be in real time or long-term, we can work with you to decide what solution will work best for your project.

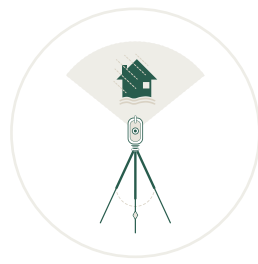
## Our recent volumetric surveys

- Monitoring a residential terrace for movement whilst major sewer replacements works were being carried out in their vicinity
- Monitoring apartments and houses during the construction of a 150m culvert as part of a £4 million scheme to alleviate flooding





# Flood Risk/River Channel Surveys



**With climate change becoming an ever larger social and economic concern, flooding is projected to increase across the UK. We can provide survey information to allow a Flood Risk Assessment Consultant to prepare a report on the likelihood of a site flooding.**

While there is no way to prevent flooding entirely, there are measures that can be taken to minimise risk from flood. A flood risk assessment helps property developers and owners to make informed decisions towards minimising risk. A professional assessment is a requirement for planning and development applications. Current property owners can also benefit from having an up to date flood risk assessment.

## Why do a flood risk assessment?

Requirement for new developments – Conducting a flood risk assessment is a requirement for planning applications for new developments as well as any change of use

Clarity of information – An assessment will give you the information you need to be proactive with taking measures to limit damage

Protect essential infrastructure – Knowing the risk of flood for your current infrastructure means you can take action to protect it during a flood

Having the information to put the proper flood defences into place before a flood will save time, money and limit disruption if a flood should occur.

## What is checked in a flood risk assessment?

In a flood risk assessment, we determine:

- River cross sections so the flood risk can be modelled in specialist software
- Provision of data in ISIS format for flood modelling
- Survey of low points on the site and on surrounding land

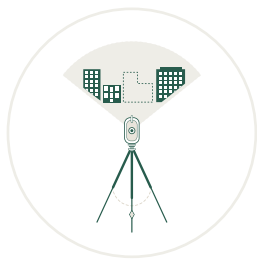
Landform Surveys has worked with consultants such as AECOM, Capita and WYG to provide information for flood risk modelling.

All work produced is to the Environment Agency National Standard Contract & Specification for Surveying Services.

## Flood risk assessments we've done

- Major survey in and around Guisborough to establish connectivity from Guisborough woods to the town, and survey cross sections of watercourses through the town.
- Similar scheme in and around Stokesley, concentrating on the River Leven & Eller Beck.
- Survey of cross sections in the River Tyne to assist in the design of flood defences.
- Surveys carried out at River Pont in Northumberland to assist with design of major housing development on outskirts of Ponteland.

# Verified Views Surveys

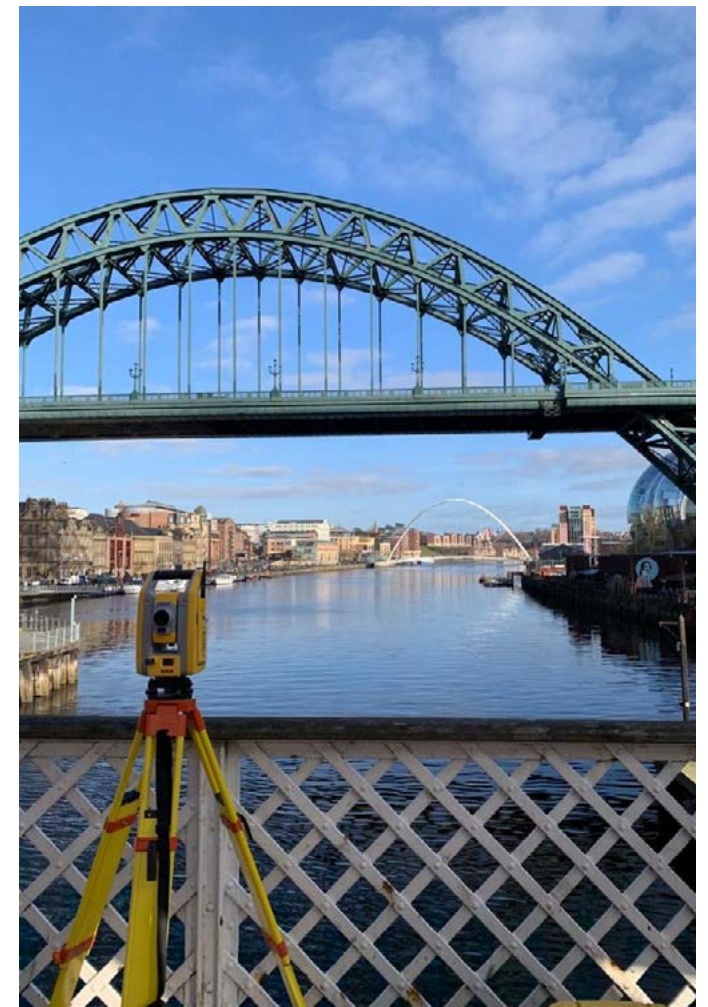


**A verified view is a 3D model representing a proposed development, placed accurately within a photograph of the prospective site, to assess the visual impact of the development.**

Using total stations and GPS, reference points on photographs, such as corners of buildings, lamp posts, road markings, etc can be accurately surveyed to produce a model of reference points from which the 3D models can be constructed.

We have undertaken many such surveys across the country, most notably at Hampton Court Palace in Kingston upon Thames where we had to survey points within the grounds.

**“The images will be photorealistic and camera matched into a high resolution photograph. The visualisation will be a true representation of the completed building by adopting Accurate Visual Representation or (AVR) which uses GPS Survey data and 3D point cloud scans to camera match the view.”**





# Bathymetric Surveys



**Amongst their other expertise, Landform Surveys are Hydrographic Surveyors – providing bathymetric surveys across the North East.**

## **What is a bathymetric survey?**

Bathymetric surveys collect data on water bodies including the depth and land beneath the water.

Our hydrographic surveyors use up-to-date equipment to collect data of water bodies such as rivers, lakes and estuaries. We study the beds of the water and illustrate the land that lies beneath to inform flood assessments or project developments.

## **Why are water body surveys important?**

Monitoring water depth and the beds of water bodies are important for a variety of reasons. They are helpful for land development projects such as bridge building, housing, flood risk assessments, and urban planning. Fully understanding the water depth and the land beneath can enable project managers to ensure the plans run smoothly. Understanding what lies beneath a harbour for example also means that ships and vessels can navigate safely in and out of waterways.

## **What's involved?**

In rivers lakes and lagoons, we have used a remote control survey boat to obtain bed depths. Fitted with an echo sounder, depths are taken and the positions are recorded using GPS or total station. The advantages of this are great accuracy, full coverage, and not least, means that a surveyor does not need to enter the water, with the associated health and safety risks. Data is processed using our conventional survey software, with the echo sounder depths easily obtainable.

We have used this method to obtain cross sections over wide, deep rivers, for depths of lagoons in quarries, and to map depths over large mud flats. Where large areas are exposed at low tide, a drone can also be utilised to obtain point cloud data and level information. We recently used this technique for a survey of the Wansbeck Estuary in Northumberland.

**“ Can’t thank you enough. We don’t have long to turn this one around so the speed in which you and your team have done this is very much appreciated. Thank you.”**

**Howarth Lichfield**





# Who we work with

Whether we're working for big named brands or small, we apply the same level of expertise and skill to give you an effective survey that makes your project a success.

The smart city market was valued at \$900 billion in 2018 and is projected to expand by a further 18% over the next ten years. Surveying is set to play a huge part in getting cities prepared for the adoption of digital technologies. Join our vast range of clients who have used our technology and expertise to strengthen their projects.



“ We look forward to Adam returning to finish his survey. I would also like to let you know how well Adam completes his task demonstrating dignity & respect to our staff and residents whilst he has been on site which can be daunting at times! “

Manager  
Morris Grange Care Home

“ We’ve downloaded all of the files - the elevational studies are quite beautiful.”

Coppin Dockray  
Architecture & Design







# Get in touch

Landform has continually invested in the most modern survey instrumentation to provide accurate and cost-effective surveys.

We support a range of industries with various requirements - find out how we could help your project succeed today.

Telephone:

0191 276 5636

Address:

Suite 18

YBN

7-8 Delta Bank Road

Gateshead

NE11 9DJ

---

[landform-surveys.co.uk](http://landform-surveys.co.uk)