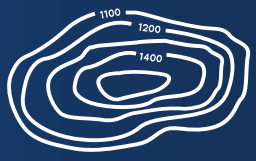
Specialist Survey Contractors

TOPOGRAPHICAL SURVEYS

Precise site mapping for informed project planning

Topographical surveys map ground contours and site features, providing essential data to help assess land for development.



Topographical Surveys

What are Topographical Surveys?

Topographical surveys accurately map an area's ground contours and existing site features. This information plays a crucial role in your design and engineering projects, by helping to ensure that your decisions are based on accurate, reliable terrain data.

Your team can use the data we provide to identify potential challenges to your project, such as uneven terrain or hidden obstacles. This will minimise errors, ensure regulatory compliance, and is the foundation for efficient, cost-effective projects.

When do you need a Topographical Survey?

It can be risky to plan for construction, land development, or environmental management without accurate data about an area of land's physical features. A topographical survey is the first step towards successful design, construction and engineering projects.

Our survey will give you accurate information about the land's shape, size, and any features like hills, slopes, rivers, buildings, and other salient features.

Your team can use this data to:

- Define property boundaries
- Assess land for development
- Understand an area's potential and limitations
- Map terrain for infrastructure projects
- Design and build structures that are safe and cost-effective

Our topographical surveys give you all the information you need to carry out your next project successfully.

How do Topographical Surveys work with SDS?

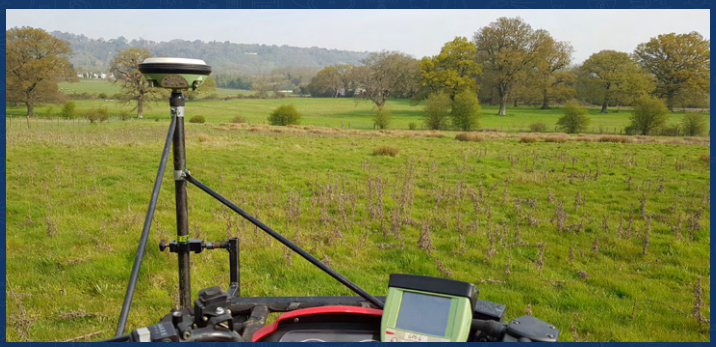
We collect detailed information about your desired site using Leica's robotic total stations and GNSS GPS equipment. For enhanced data capture, we offer you the option to incorporate UAV/Drone surveys and can include additional services like underground utility and drainage surveys to meet your specific needs.

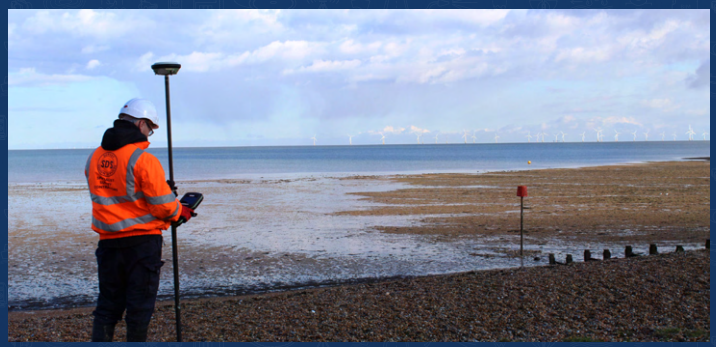
If your desired site is in a difficult-to-reach rural or remote area, we use Land Rovers and quad bikes to complete large scale field surveys with automated data collection.

Once we've collected the data, we create:

- **Topographical Plans**: Detailed 2D representations of the site, showing contours, features, and elevations
- **River Sections**: Cross-sectional views of rivers or water bodies, mapping the terrain and water flow characteristics
- **Volume Massing**: Data that calculates the volume of land or materials on a site, useful for grading or excavation projects
- **3D Contour Models**: Three-dimensional models that visualise the terrain's contours and features for more comprehensive analysis

Integrating these deliverables into GIS and BIM systems is simple, as we can provide them in AutoCAD 2D plans or 3D models to suit your needs and budget. This will allow you to accurately assess land development potential and plan construction.





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BELOW GROUND UTILITY TRACING

Using radar technology to map what's below ground

Ground Penetrating Radar locates underground utilities to ensure the safety and success of subsurface work.

Below Ground Utility Tracing & GPR PAS128

What is Below Ground Utility Tracing?

Below ground utility tracing locates and maps underground utilities, such as water pipes, gas pipes, and electrical cables, using advanced electromagnetic location (EML), and Ground Penetrating Radar (GPR). CCTV can also be used to enhance results on the position of drainage assets.

When looking to identify metallic utilities, such as metallic water pipes, gas pipes, high and low voltage electric cables and telecommunication cables, EML is the best solution.

When looking to identify non-metallic utilities, such as plastic pipes and fibre optics, GPR is the best solution. This method can also identify other subsurface features like voids and tree roots.

We use GPR & EML to provide you with precise, real-time data without digging, which reduces the risk of accidental damage to your site. You can use this data to create site plans, ensure compliance with regulations, for long-term asset management, and to keep an accurate record of underground utilities.

When do you need Below Ground Utility Tracing?

When trenching, foundation digging, or installing infrastructure, you risk accidentally hitting hidden utilities if their location and depth are unknown. This could result in dangerous leaks, fires, or power outages or worse death from a power cable strike.

Without GPR, you're likely to miss non-metallic pipes or cables, which are harder to detect using traditional methods.

We use advanced GPR scanning technology and electromagnetic detection tools to accurately locate and map underground utilities at your chosen site. You can use this data to avoid utility damage, ensuring that your next construction project is done safely and without unexpected disruptions.

How does GPR Utility Tracing work with SDS?

We locate underground utilities using IDS GPR which uses specialised antennas to send radar pulses into the ground, which bounce back from underground objects. This approach provides real-time data on the location and depth of utilities. We then process the data for greater accuracy and integrate it into CAD software to create precise digital maps and clear images of the subsurface.

We can combine GPR, CCTV, and electrolocation equipment to provide a comprehensive, reliable survey of your chosen site. If required, we mark or flag the results directly on site, providing immediate visual guidance to help construction teams avoid underground utilities.

Final utility surveys can be delivered to your team in a range of digital formats, including full 3D BIM/Revit drawings, CAD and PDF.

Your team will be able to efficiently plan construction projects, avoiding the need to redo parts of the project that could be disrupted by unseen underground obstacles. This allows you to meet deadlines, keep your construction team safe, and avoid the potential extra costs associated with unexpected disruptions.

Overall, by reducing these risks, utility tracing streamlines the entire construction process, contributing towards smoother project completion.

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MEASURED BUILDING SURVEYS

Measured Building Surveys can be carried out with full or partially controlled information depending on budget and specification. Floor plans, elevations, sections 3D models are undertaken using the latest HDS Laser scanning and Leica reflectorless instrumentation.

Measured Building Surveys

What is a Measured Building Survey?

Measured building surveys involve taking measurements of buildings to create digitised drawings to scale, assisting architects and designers in the planning, design and development phases. These surveys are to an agreed specification and level of detail with acceptable tolerances for scale, delivery times, accuracy and costs.

Measured building surveys vary in elements and details, depending on the scale of the project and its requirements. Basic surveys can include doors, windows, walls and level changes, whilst a more complex survey can feature sanitary goods to electrical outlets.

Our measured building surveys include:

- External elevations
- Internal elevations
- Floor plans
- Sections
- Roof plans

The scanned survey produces a 3D point cloud with high-definition photographs and millions of measured points captured internally and externally, allowing a visual walkthrough of the building. This point cloud can be used to produce digital twins, 3D models or 2D drawings for structural engineers, architects and designers to use effectively.

When do you need a Measured Building Survey

Measured building surveys assist architects and designers when renovating or extending a building, providing accurate drawings at a reduced scale.

These surveys inform the architects and designers of the exact building layout and what was on site prior to demolition for building volume calculations, enabling accurate planning for new layouts.

Purposes for measured building surveys:

- Interior design layout
- Internal and external renovation, redevelopment or structural changes
- Health and safety checks, e.g. fire plan
- Massing calculations

Measured building surveys are essential for many providers, including architects, interior designers, structural engineers, property developers, private homeowners, construction companies and private estates.

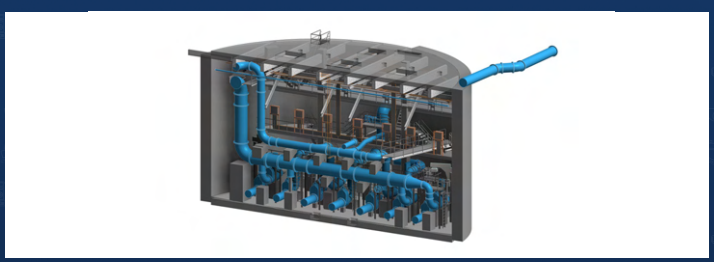
Before architects or property developers begin any work, a measured building survey provides the essential information for accurate planning, reducing wasted time and potential detrimental mistakes on the buildings

How does a Measured Building Survey work with us?

Measured building surveys are essential to undertake a construction project accurately and safely, helping to form the basis of the proposed design and finished product.

We use various equipment to conduct a measured building survey depending on the client's requirements. From the latest scanners, total stations, GPS, UAVs and drones to more traditional methods, such as measuring tapes and wheels, cameras and laser distance meters.

After completing the on-site survey, our team will process the information gathered and electronically draw the plan using a CAD (computer-aided design) software package. We'll use the software to produce a range of drawings, such as sections, elevations, floor plans and roof plans. Once we've confirmed the specifications and level of detail, we'll set a delivery timeframe.



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DRAINAGE INVESTIGATIONS

Uncover hidden issues with accurate drainage mapping

Drainage surveys assess underground systems to identify issues and help plan construction projects.

Drainage Surveys & Investigation

What are Drainage Surveys & Investigations?

Drainage surveys & investigations are comprehensive examinations of underground drainage systems. Our cutting-edge technology provides accurate assessments that help you to plan effectively and avoid hidden issues that could delay or damage your project.

Whether you're planning new construction, managing existing infrastructure, or ensuring compliance with regulations, a drainage survey will reduce risk by ensuring decisions are based on reliable data.

When do you need a Drainage Survey & Investigation?

Before building, renovating, or repairing drains and sewers, you need clarity on the exact location, alignment, and condition of the underground systems. Without accurate data on these systems, you risk encountering hidden blockages, pipe misalignments, or damage that can cause costly delays and repairs.

Our drainage surveys & investigations provide comprehensive connectivity and mapping exercises to assess the condition and alignment of underground drainage systems. We use advanced technology such as CCTV, sonde tracing, jetting and GPS instrumentation to provide you with a drainage plan that shows manhole connections and flow paths.

These surveys are essential when planning new construction, renovating existing properties, or connecting new infrastructure to existing systems. They're also crucial for ensuring compliance with regulatory requirements, or for securing build-over agreements.

Our surveys provide detailed insights into pipe alignment, depth, and location, helping you to create comprehensive maps for efficient project management.

How do Drainage Survey & Investigations work with SDS?

We use advanced technologies to conduct 'Line & Level' surveys, providing you with precise mapping and analysis of underground drainage systems.

First, we pass a sonde through pipes or larger sewers. This can be done using a float, attached to a CCTV tractor unit, or using a built-in sonde signal within the tractor unit itself. The sonde tracks the alignment of the pipe from the 'Top Side' and the CCTV system provides live visual inspection.

Next, we use GPS instrumentation to take accurate depth readings and pinpoint locations. This survey method is crucial for meeting regulatory requirements, including easements for new build developments and build-over agreements.

Our approach works alongside our in-house utility tracing services, providing you with a complete underground utility map to aid efficient project planning and management.

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IMPERMEABLE AREA STUDIES

A vital solution for surface rainwater drainage

Impermeable area studies or contributing areas surveys (CAS) identify where rainwater runoff from hard-standing areas, enters the draining system and how sewer networks perform during periods of rainfall.

Impermeable Area Studies (IAS)

What are Impermeable Area Studies?

As surveyors, we'll investigate the impacts on the foul water and the stormwater system and how these two waters mix, such as surface water entering the foul water system causing the foul system to be overloaded or foul water entering the stormwater system causing pollution. These surveys identify the connections between rainwater pipes and gullies with the foul water system assisting with producing calibrated hydraulic models.

As a vital solution for surface rainwater drainage, impermeable area surveys create an understanding of roof drainage, road surfaces and other impermeable areas to tackle flood management and a sufficient sewer network.

When do you need an Impermeable Area Study?

Rainwater can have detrimental effects on sewage networks if not monitored regularly. As it enters the foul sewer network, the water can cause excessive flows in pumping stations and water treatment works, causing sewage to overflow into streams, the sea or residential properties nearby causing pollution.

Conducting an impermeable area survey creates an understanding of the drainage of road surfaces, concrete, roofs and other impermeable areas.

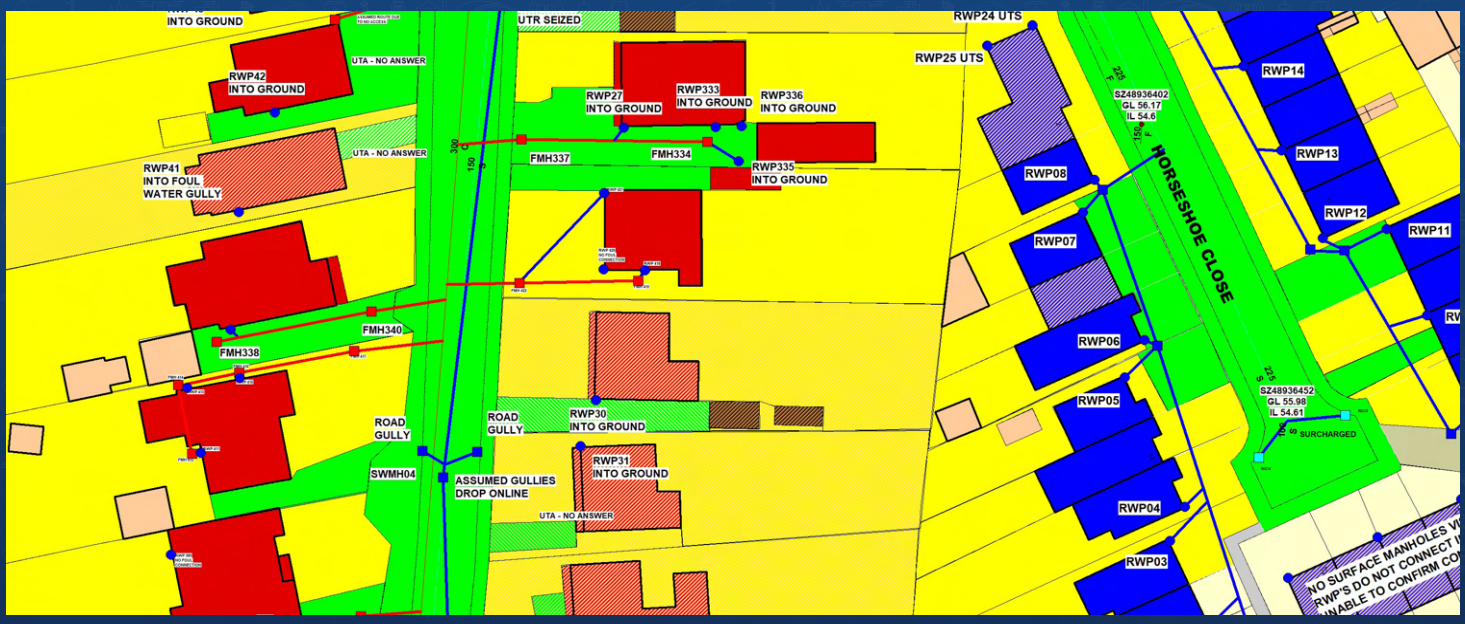
We'll help reduce the stormwater flows by identifying where stormwater sewers are separate from foul and if they combine. We use various techniques to determine where the rainfall drains, such as dye tracing, CCTV surveying and sound testing, and pinpointing stormwater connections in the foul network.

This data can also be utilised for the design and planning of SuDS schemes, to help slow the flow of surface water run off.

How does an Impermeable Area Study work?

We survey the connections of highway storm drains, road gullies, and rain water pipes, verifying that they run to a storm sewer system and not the foul drainage network, using various techniques, such as CCTV surveying or sonde tracing. We share the study results with the client in a digitalised drawing format, which can be presented as a CAD drawing, GIS data such as Mapinfo .tab or Infoworks.

We work with public and private clients who deal with infrastructure and flood management and require a survey to ensure the correct use of drainage, preventing environmental damage.



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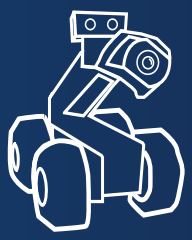
CCTV SURVEYS

Visual inspections that reveal underground drainage issues

CCTV Surveys use advanced camera technology to inspect pipes and drainage systems so that any issues can be found & repaired.



CCTV Surveys

What are CCTV Surveys?

CCTV surveys provide detailed visual inspections of underground pipes and drainage systems, which helps you identify issues like blockages, cracks, and damage for targeted repairs. By pinpointing specific problems, you can plan efficient, targeted solutions that save time, money, and resources.

We can conduct everything from standard sewer surveys, remote rail culvert investigations, and hand-held walk through surveys, ensuring your drainage systems remain functional and compliant with regulations

When do you need a CCTV Survey?

When undertaking construction, renovation, pre adoption or maintenance projects on underground pipes and drainage systems, it's essential to conduct a thorough visual inspection. Without this evaluation, you might overlook damage, leading to project delays, regulatory issues, and inefficient repairs.

Our CCTV surveyors will accurately assess the condition of your pipes, identify blockages or structural issues, and provide real-time data to inform targeted repairs.

This will help your team make informed decisions, prioritise urgent issues, and streamline your construction, renovation, or maintenance projects.

How do CCTV Surveys work with SDS?

We use industry-leading techniques for precise, real-time assessments of underground drainage systems.

Our CCTV survey units, including push rod and tractor-based systems, inspect pipes and culverts ranging from 50mm to over 2 metres in diameter, handling projects of varying sizes and complexities. For standard sewer surveys, we use push rod units to navigate and inspect pipes efficiently.

For standard sewer surveys, we use push rod units to navigate and inspect pipes efficiently. For larger sewers, we use steerable CCTV crawler systems that can navigate bends in pipe works and survey up to 300m from a single entry point.

For more challenging environments, such as trunk sewers or culverts, we can use a CCTV float systems if water levels allow. submerged conditions.

During surveys, we collect data on pipe alignment, depth, and structure. We email you the survey data using WinCan format, a widely recognized digital output that allows for easy sharing and analysis. If required, the data can come directly from the rig itself.

Our surveyors are trained to WRC standard MSCC5, a mandatory industry standard, ensuring that the inspections adhere to the highest levels of professionalism and compliance.

We consistently deliver reliable CCTV surveys that play a crucial role in both routine inspections and complex investigations of underground drainage systems.

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Additional Services

Building Information Modeling

Building information modelling is a process that involves creating and managing digital representations of physical and functional characteristics of a building or infrastructure project.

While BIM is commonly associated with the architecture, engineering, and construction (AEC) industry, it can also be applied to the land survey industry to enhance surveying and mapping\processes, and creating digital twins.

Laser Scanning

Laser scanning is the fastest and most economical way to capture very large amounts of information, capturing structures or environment in the "real world".

Scanners measure billions of points capturing everything that can be seen from the fixed location, these "point clouds" are then "registered" together to form a whole project.

UAV/Drone Surveys

Drone surveys are a versatile method for mapping and visual inspection.

UAV's provide a safe and cost-efficient survey method minimising the amount of time on site for the amount of information acquired. Surveys can be carried out using photogrammetry or LiDar technology.

DDMS Surveys (HADDMS)

SDS provide the full range of National Highways Drainage Surveys to the CS551 & CD535 specifications. We have been providing DDMS surveys since 2010 and are a recognised supplier to National Highways.

All services required are available including CCTV, GIS, jetting, processing & project management.

Hydrographic – Bathymetric Surveys

A hydrographic survey measures and determines the physical features of water bodies and nearby land areas, identifying and calculating the depth of water and the ground below the water.

Their purpose is to plan for the safety of maritime transportation and construction, helping us understand the elevations and contours of the sea floor, river bed or lake. Mapping out water depths, potential obstructions and the shape of the coastline.

Confined Space Surveys

All SDS employees undertaking drainage related surveys are trained as a minimum to NC2 medium risk for standard day working & our specialist NC3 & NC4 teams area available for more complex higher risk working.

This would include traversing larger culverts & tunnels or any other confined space with a known specific hazard.

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Manhole Surveys

Manhole surveys allow the understanding of mainly drainage related access points. This would include the size of the opening, shaft, chamber and the construction material for the asset, as well as its use being foul, surface or combined.

The surveys provide condition of the chamber, signs of infiltration, root ingress and whether the asset is or has been surcharged. All incoming and outgoing pipe sizes, connectivity, position and invert level are recorded. They are an invaluable source of information for understand the drainage network.

Manhole surveys are not limited to drainage and are also referred to as 'Pit Surveys' when carrying out PAS128 Utility Surveys. A Pit Survey would allow the same information to be collected except the survey the would be confirming the service of the pit to be whether it is telecoms, water, electricity, gas etc. The number of ducts on each face of the pit / chamber are recorded an usually the crown level of that group.

This service can be supplied as a stand-alone survey or as part of larger surveys including referenced drawings.

Monitoring Surveys

Monitoring surveys provide essential data for a construction project, identifying movement or deformation in a building or structure.

These surveys can be undertaken at any time before or during construction and post-construction if there is a risk of movement or to monitor known movement.

Jetting, Lining & Robotics

To assist our drainage & CCTV surveys, or for pre-cleansing of your drainage systems, SDS supply both van mounted & jetting with waste extraction in the form of combination units & recyclers where necessary.

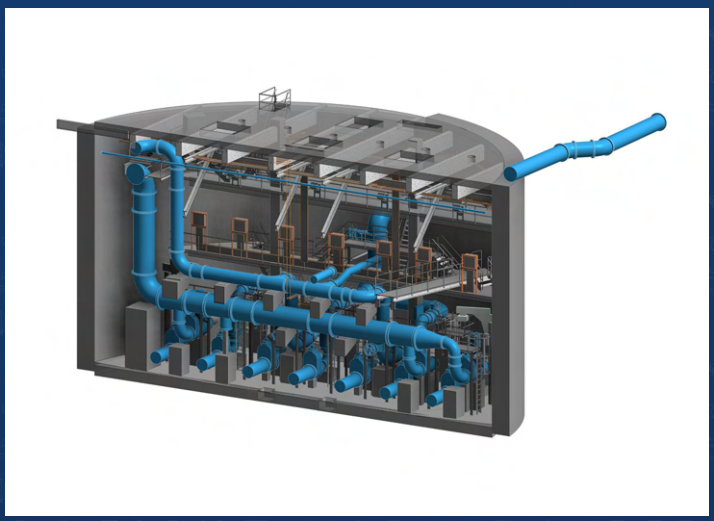
Pre-cleansing of pipes before carrying out CCTV surveys ensures the surveyor can see the pipe wall and therefore any damage. If the pipe has mud, debris or foul waste covering the surfaces, the CCTV surveys may not be able to provide the best recommendation for remedial works or confirm a clean bill of health for your system. Debris left in the system can reduce capacity of the network and a worst-case can cause unwanted blockages.

Working together with our sister company, SDS Lining, we can provide No-Dig repairs for a range of applications including patch liners, full length CIPP liners, lateral lining & robotic cutting for a complete drainage solution.

Pumping Stations Surveys

Pumping station surveys cover chamber dimensions, pump operating details, pump efficiency and hydraulic tests on pipe sizes ensuring a pumping station works effectively and safely.

We'll produce and process the relevant survey results in digital formats, including photographs and CAD drawings of internal layouts and site plans.



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