

# CASE STUDY

## LARGE-SCALE TOPOGRAPHICAL SURVEY



### PROJECT AT A GLANCE

**Project:** Large-Scale Topographical Survey  
**Location:** Howden, East Yorkshire  
**Year:** 2020  
**Duration:** 8 Days



### PROJECT BRIEF

LSTC was approached by a Yorkshire based housing developer to produce a comprehensive topographical survey of a 300 Acre predominantly arable site in East Yorkshire. Sufficient detail was required to inform any-and-all aspects of the site's prospective development.

### CHALLENGES

- To collect large amount of data in sufficient detail to inform works across multiple design and engineering disciplines.
- To deliver information in a timely and cost-sensitive manner.

### OUR APPROACH

To minimise the amount of time needed on site a combination of traditional ground-based survey and drone-based photogrammetry was used.

Over 1500 high definition images were collected in a single day of pre-programmed UAV flight over the site, which were post-processed to produce a large point cloud. From this, a 15m grid of spot levels and contours was produced in the open areas of the site, saving days of prospective traditional survey work.

To provide the required level of detail for field boundaries, buildings, and roads, our survey team used a combination of the Leica MS60 Total Station Theodolite and Leica GS14 GPS antenna to collect millimetre-accurate positions and levels of all hard features, drainage ditches, culverts, vegetation, and buildings present on site.

### PROJECT OUTCOME / DELIVERABLES

By processing the imagery through Leica Infinity software, and combining that with the traditionally measured data, we were able to produce highly detailed site drawings and deliver the project to the client in a timely manner. The data was supplied to the client in the form of traditional PDF plans, as well as a DWG containing the 3D OS Topographical model.

Furthermore, the extent of the point data collected through photogrammetry allows us to provide much of the information needed to produce flood risk analysis, cross sections, volumetric calculations, land division/registry, phased analysis, and more, without the need to revisit the site.