The Drone Company

CASE STUDY:

Solihull Council

In August 2018, The Drone Co carried out a topographical survey of a 4.5km2 area in Meriden, Solihull for the Highways division of Solihull Council. The survey was carried out over 2 days, on the first day over 30 ground control points were plotted evenly across the area. On the second day, we carried out data collection using a fixed wing unmanned aircraft. The data will be used to better understand flood risk to Meriden village.

CHALLENGES AND SOLUTIONS:

SAFETY - Flying a fixed wing aircraft over a built up area brings with it lots of safety concerns with regards to overflight of houses and people. We therefore had to design an in-depth risk assessment procedure and pre-site survey that is completed before the operators arrive on site. Furthermore the flight plan is designed to ensure that the glide envelope of the aircraft is within non-built up safe areas. All residents who would be affected by the flights were informed via a letter delivery.

TIME MANAGEMENT – In order to complete the survey in tight time constraints, we had to plan our ground control in advance which allowed us to go straight to each control point quickly and efficiently.
Furthermore, all flight plans were prepared in advance which enabled the data collection to be carried out soon after arriving at the take-off locations.

DATA MANAGEMENT – During the data collection process we captured over 4,000 images which needs to be managed efficiently. After each flight, we back up the data and go over the images to ensure they are all in focus and the colour is balanced correctly. We also check the geo-tagging of the images after each flight. Once the checks have been carried out we then upload the data to a cloud platform. On the cloud platform, the data is broken down into the specific site and location. This can provide the client with the data anywhere they like and is accessible from any computer if required.

DATA COLLECTION:

Images was gathered using a Sony 24MP camera mounted to a 2m fixed wing UAV giving a image resolution of 2.4cm/pixel.
Image overlap and sidelap was 70%. The images were geotagged using the WGS84 coordinate system and will be supplied electronically.

Using state of the art software and our fully programmable fixed wing drones, we are able to accurately scan and map areas of several square kilometres with ease. Due to the non-contact / remote sensing nature of our process, we are able to map and survey areas which may be impossible to assess with traditional surveying techniques either due to the complexity or the hazardous nature of the topography.

30 Ground control points will be placed using a GeoMax Zenith 25 Pro GNSS\GNLONASS receiver linked to a Getac PS236 controller. These were splaced using the OSGB 1936 coordinate system with the Newlyn datum for elevation.

Solihull Metropolitan Borough Council

CASE STUDY:

Example Data Outputs

BENEFITS USING UAV vs MANNED AIRCRAFT

- Significantly cheaper costs
- Time efficient
- Provides the ability to get into potentially tricky areas unreachable by a manned aircraft
- Reduces Risk of sending a pilot up into a potentially risky environment
- Highly Detailed Imagery and greater sampling distances
- Less noise and air pollution than a full sized aircraft

ABOUT THE DRONE COMPANY

The Drone Co are an Aerial Surveying Company based in the UK but operate across the globe. We are fully licensed with the CAA to operate commercial drones and fully insured.

We operate across the surveying and inspection sector providing a variety of services to the facilities management, construction and surveying sectors.

DATA PROCESSING:

We use state of the art photogrammetric, GIS and 3D CAD software to form centimetre accurate computer models of the topography.

As the geo-referenced three dimensional elevation data we generate is accurate within a few centimetres, we can use it for precision flood mapping.
As with all of the data we generate, it is fully geo-referenced and can be incorporated into virtually any GIS system.

Figure 1. 2D orthomosaic

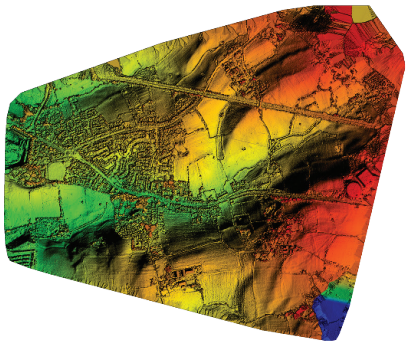

Figure 2. Corresponding sparse Digital Surface Model (DSM) before densification.

Figure 3. 3D Interative Model

For more information on these services and a free quotation tailored to your requirements please get in contact:

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