

SCHOOL INSPECTION CASE STUDY

By Vantage UAV



AT A GLANCE

- Vantage UAV conducted a comprehensive drone survey of a school building during half-term to assess structural condition and support maintenance planning.
- The project aimed to identify emerging issues early and provide data for efficient maintenance planning within the school's fixed annual budget.
- Advanced RTK technology and AI-driven processing delivered a detailed 3D model with $\pm 20\text{mm}$ accuracy, ready for inspection annotations to be made within 12 hours (delivery time can vary).

CHALLENGES



Schools face unique challenges when conducting building inspections due to tight budgets, limited maintenance windows, and stringent safety requirements. Traditional inspection methods requiring scaffolding are particularly problematic - scaffolding cannot remain erected for extended periods in educational environments due to safety concerns with children present.

This creates a costly double-handling scenario where scaffolding must be dismantled after inspection and later re-erected for repair works, significantly impacting already stretched school budgets. For large school buildings, scaffolding the entire structure to assess all facades and roofs is both hugely expensive and impractical.

Additionally, the presence of students and staff requires careful coordination around privacy and safeguarding protocols, even during holiday periods when clubs may still be operating on site.

With solar panels fitted across this school's roof, maintaining both the building structure and ensuring the solar panels are in optimal condition is particularly important due to their significant investment value. Regular inspection ensure that the roof remains in good condition and is watertight to protect the panels.



SOLUTIONS

Vantage UAV developed a comprehensive inspection approach using enterprise-grade drone technology combined with ground-based scanning equipment. The survey was carefully planned around the school's operational requirements, with staff cooperation ensuring privacy measures were maintained throughout.

Even during half-term operations, two holiday clubs were running with children present on site. This required careful coordination to maintain privacy compliance and ensure all safeguarding protocols were maintained throughout.



5 hours using DJI Mavic 3 Enterprise with RTK equipment and Ground Control Points.

Day 1



2 hours with handheld LiDAR scanner and scan targets.

Day 2



Our browser-based virtual inspection platform enables condition assessment, annotation, measurement and reporting. The platform provides a 360° visualisation capability, allowing school maintenance teams to examine and identify defects and areas of interest with ease.

The RTK GNSS Control network achieved cross-site measurement accuracy of $\pm 20\text{mm}$, suitable for costing estimates and preliminary retrofit planning. AI-driven photogrammetry solutions generated a ready-to-inspect 3D model within 12 hours (delivery times can vary project to project).

CLIENT FEEDBACK



The quality of the data and report were very clear, covering the whole building. The process itself was very straightforward, with Vantage UAV being flexible to the needs of our school (particularly around access and GDPR). We learned about the general condition of the roof/more difficult areas of the building to access and will keep the 'water pooling' under review with the caretaker working on gutter clearance. We were very satisfied, it saved time but also reduced risk. We would recommend this service to other schools.

School Business Manager

SURVEY FINDINGS

The comprehensive drone survey revealed the building was in very good condition overall, with only minor issues identified. These included debris, sediment, and vegetation accumulation on the roof and in gutters; minor cracks to the facade; and evidence of water pooling. This detailed assessment provided the school with a clear understanding of maintenance priorities and budget planning requirements for future works.

BENEFITS

1

± 20mm Accuracy

Suitable for costing estimates and retrofit planning with RTK GNSS technology.

2

12 Hour Processing

AI-driven photogrammetry delivering inspection-ready 3D models rapidly.

3

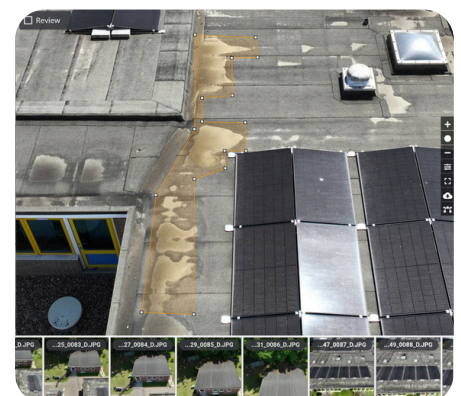
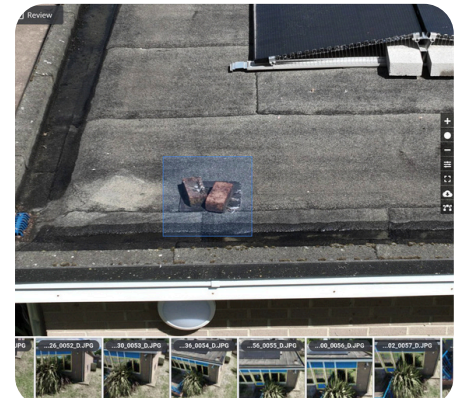
Comprehensive Coverage

Combined aerial and ground scanning for complete building assessment.

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Privacy Compliant

Safeguarding protocols were maintained throughout operations, with flight safety measures in place, pilots all DBS certified and face blurring technology used.



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