



# COMMERCIAL ROOF CONDITION ASSESSMENT

AERIAL SURVEY & RISK ANALYSIS REPORT

**Client:** Sample Client / Demonstration  
**Site Location:** Commercial Outbuilding  
**Survey Date:** March 2026  
**Inspector:** Rob Andrews

# 1. Executive Summary

This condition assessment was conducted using high-resolution drone photogrammetry to evaluate the structural integrity, drainage performance, and overall condition of the commercial roof asset.

**Commercial Application:** This report is suitable for contractor tendering, insurance documentation, and proactive maintenance planning.

## Key Findings:

<b>Overall Condition:</b>	Poor (Immediate Action Required)
<b>Primary Risk:</b>	Water ingress due to total gutter blockage
<b>Measured Area:</b>	44.98 m <sup>2</sup>
<b>Measured Perimeter:</b>	31.73 m

## Why Drone Inspection?

Traditional roof access poses significant health and safety risks, requires costly scaffolding, and often fails to capture the full scope of high-level defects. By utilizing advanced aerial photogrammetry (0.27 cm/pixel GSD), we provide quantifiable, indisputable visual evidence without placing personnel at risk.

## Project Deliverables:

<b>High-Resolution Orthomosaic</b>	A precise 2D map of the entire roof for general condition assessment and contractor tendering.
<b>Digital Surface Model (DSM)</b>	An elevation heat map used to predict drainage failure and identify water pooling zones.
<b>Interactive 3D Model</b>	A navigable 3D mesh enabling facilities managers to plan safe contractor access routes.
<b>Annotated Defect Report</b>	This document, detailing specific risks, locations, and commercial consequences.

## 2. Drainage Flow Analysis

Understanding how water interacts with the roof structure is critical for preventing internal dampness and structural rot. The diagram below illustrates the surface water flow paths from the drainage divide (ridge line) towards the southern eaves.



### Risk Assessment:

All surface water is correctly directed towards the southern edge. However, the identified 'Blockage Zone' at the eaves prevents discharge. During heavy rainfall, this will result in immediate overflow. If unaddressed, this will accelerate material degradation and increase the likelihood of water ingress within 12–24 months, potentially invalidating commercial insurance policies.

## Defect 01 – Blocked Gutter (South Eaves)



<b>Location:</b>	South-facing eaves edge
<b>Severity:</b>	<b>CRITICAL</b>
<b>Description:</b>	Total obstruction of the gutter channel by organic debris, resulting in a 90%+ capacity reduction.
<b>Cause:</b>	Long-term accumulation of moss and leaf matter washing down from the corrugated roof surface.
<b>Consequence:</b>	Immediate risk of overflow during heavy rainfall. If unaddressed, water will track back under the roof sheets via capillary action, leading to internal water penetration and potential stock/asset damage within 12 months.

## Defect 02 – Heavy Vegetative Ingress



<b>Location:</b>	Across the lower third of the southern roof pitch
<b>Severity:</b>	<b>HIGH</b>
<b>Description:</b>	Extensive moss and lichen growth firmly attached to the corrugated sheet surface and gathering at the eaves.
<b>Cause:</b>	Lack of preventative maintenance combined with a shaded, damp microclimate.
<b>Consequence:</b>	Moss acts as a sponge, retaining moisture against the roof surface. If unaddressed, this will accelerate the degradation of the sheet material and significantly reduce the lifespan of the roof covering.

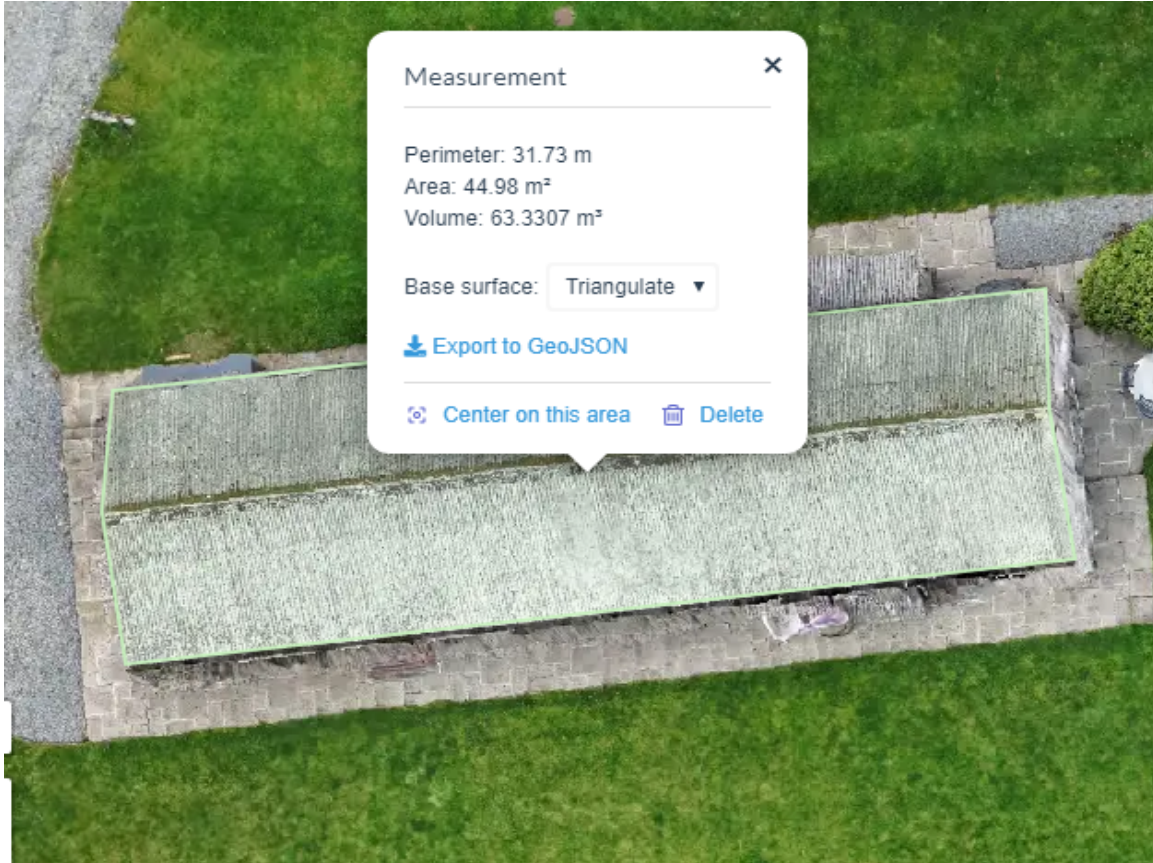
## Defect 03 – Surface Deterioration & Exposed Fixings



<b>Location:</b>	South-western corner of the roof structure
<b>Severity:</b>	MEDIUM
<b>Description:</b>	Failure of the protective surface coating on the corrugated sheets, exposing the underlying substrate and fixing points.
<b>Cause:</b>	Weathering, UV exposure, and prolonged contact with retained moisture from vegetative ingress.
<b>Consequence:</b>	Exposed fixings present a high probability of localized water ingress. If unaddressed, this will lead to fixing corrosion and potential structural loosening in high wind events.

## 4. Site Overview & Measurements

Accurate measurements are essential for tendering repair contracts. By providing precise area and perimeter data, facilities managers can obtain accurate quotes from roofing contractors without requiring them to access the roof for initial scoping, saving both time and preliminary access costs.



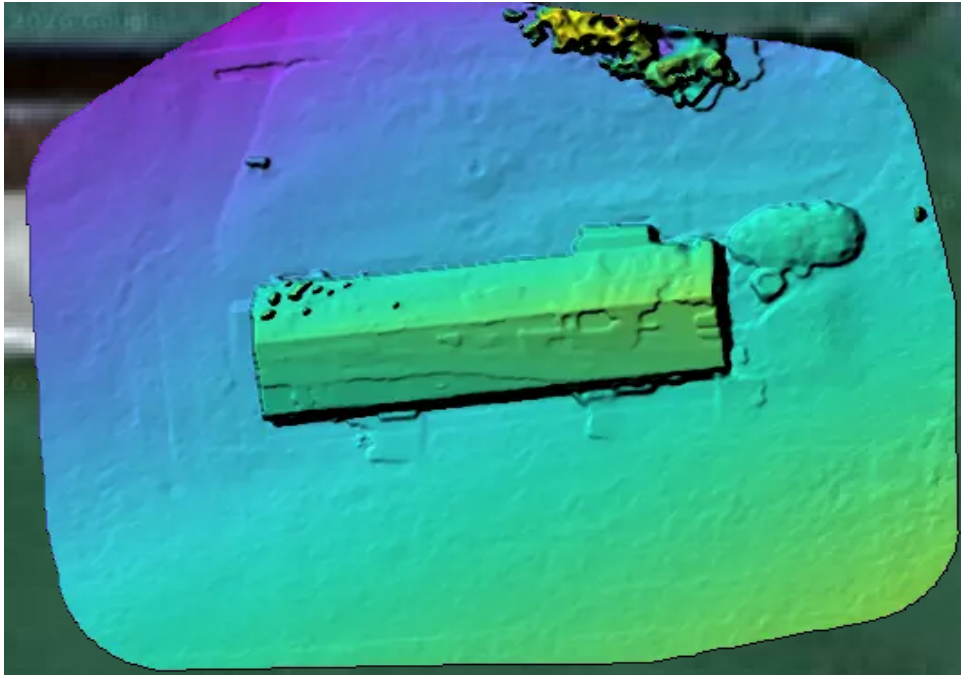
### High-Resolution Orthomosaic (0.27 cm/pixel GSD)

The image above demonstrates our measurement capabilities on the high-resolution 2D orthomosaic map. This level of detail allows for precise identification of features and potential issues across the entire asset.

## 5. Technical Survey Assets

### Digital Surface Model (DSM)

The DSM creates a detailed elevation model of the roof, visualized as a color-coded heat map. This data is invaluable for predicting drainage failures and verifying slope pitch. In this survey, it confirms the structural integrity of the pitch, highlighting that the drainage failure is entirely due to vegetative obstruction, not structural sagging.



### 3D Interactive Mesh

A fully interactive 3D model is provided to the client via a secure web link. This asset allows maintenance teams to virtually inspect the site, plan safe access routes (e.g., scaffolding placement), and assess health and safety risks prior to arriving on site, significantly reducing preliminary survey costs.



## 6. Defect Summary & Commercial Implications

The following table summarizes the identified issues and their commercial implications if left untreated.

Ref	Defect Description	Severity	Commercial Consequence
D-01	Total Gutter Blockage	CRITICAL	Overflow leading to internal water penetration. Risk of stock damage.
D-02	Heavy Vegetative Ingress	HIGH	Accelerated degradation of roof materials. Capillary action risk.
D-03	Surface Deterioration	MEDIUM	Long-term structural weakening and fixing point vulnerability.

### Recommended Actions:

- 1. Drainage Restoration:** Clearance of organic debris from the southern eaves guttering is required to restore full drainage function and mitigate overflow risk.
- 2. Surface Maintenance:** Removal of vegetative ingress from the corrugated sheets is advised to halt accelerated material degradation.
- 3. Re-inspection:** A follow-up aerial survey is recommended in 12 months to verify the condition of the exposed fixings and monitor surface deterioration.

### End of Report

This report provides actionable intelligence to protect your commercial asset. **Failure to address these issues will likely result in avoidable repair costs, potential insurance complications, and operational disruption.**