Resection Survey Report

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Client: Bucks Academy

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Project Location: Aylesbury, UK

Executive Summary

This in-depth Resection Survey Report details the process of determining unknown point positions through angular measurements to known control points at the Bucks Academy site. With over a decade of expertise in site engineering, the survey ensures high precision for construction and mapping purposes. The report encompasses methodologies, fieldwork documentation, quality assurance measures, and final outputs, all validated against site specifications. Attached data files include computed coordinates and analysis.

Introduction

The Resection Survey Project at Bucks Academy in Aylesbury involved using resection techniques to locate survey stations by observing angles to established benchmarks, essential for accurate site setting out. This report provides a complete record of the survey, identifying positions with minimal error to support ongoing development and compliance with surveying standards.

Methodologies

Employing proven resection methods:

- **Equipment:** Leica TS16 Total Station for angle measurements, supported by GPS for initial checks.
- **Process:** Selecting three or more known points, measuring horizontal angles, and computing positions via trigonometric calculations in software like Trimble Business Center.
- **Accuracy:** Achieved through iterative adjustments, targeting ś2 mm positional accuracy.

Fieldwork Notes

Field activities from August 10-15, 2025:

- **Day 1:** Instrument setup and sighting known points, initial angles recorded with clear visibility.
- **Day 2-3:** Multiple observations for redundancy, noting minor atmospheric distortions corrected on-site.
- **Day 4:** Data computation and verification against known coordinates.
- **Day 5:** Final adjustments and site closure.

Quality Assurance Steps

Stringent QA protocols:

- **Pre-Survey:** Calibration of total station and point verification.
- **In-Field:** Repeated angle measurements and error logging.
- **Post-Survey:** Least-squares resection adjustment and independent validation.

Final Survey Outputs

Key deliverables:

- Computed Coordinates (Resection$_{D}ata.xlsx)Angle Measurements(Angles_{R}eport.pdf$)

- Position Maps (Position$_{M}ap.dwg$) All data georeferenced to WGS84, with average accuracy ś1.5 mm.

Conclusion and Recommendations

The resection survey successfully established precise positions for site use. Recommend periodic re-observations and software updates for future surveys. Contact for additional information.