

DEMONSTRATION REPORT. Every value comes from a real capture flown 17 October 2026 on an active residential subdivision in London, Ontario. Site identity and coordinates are withheld; there is no client.

Residential Subdivision — Sample Site 2

AERIAL MAPPING & DOCUMENTATION DELIVERABLE

CLIENT	JOB ID
None — internal demonstration	DEMO-2026-1017
SITE / LOCATION	DATE OF CAPTURE
Withheld — London, Ontario, Canada	17 October 2026
OPERATOR / PILOT	AIRCRAFT
Buildmode Aerial Mapping (RPOC OC2623804121) — Pilot: Caleb Maudsley	DJI Matrice 4E — TC reg. C-2628397372
HORIZONTAL REFERENCE	VERTICAL DATUM
EPSG:32617 — UTM Zone 17N	NONE ESTABLISHED — see Scope of Use
GROUND CONTROL	IMAGERY GSD (MEAN)
None — RTK image positions (D-RTK 3 site base)	3.06 cm/px
PRODUCT RESOLUTION	
3 cm/px orthophoto · 5 cm/px DSM, DTM (engine settings)	

SCOPE OF USE

THIS DATA SUPPORTS	THIS DATA MUST NOT BE USED FOR
- Progress documentation and visual site record - Horizontal area measurement within a single flight - Relative object heights from the heights model (DSM – DTM), where the difference cancels the datum offset - Visual reference, coordination and marketing use	- Any quoted or absolute elevation - Volumes, cut/fill or stockpile quantities - Contours - Legal boundary determination - Engineering design or construction layout

ACCURACY & LIMITATIONS

This deliverable is **relative mapping data**. Horizontal geometry is internally consistent and carried in EPSG:32617 — UTM Zone 17N. **No vertical datum is established**. Elevation values in the DSM and DTM are ellipsoidal, are not referenced to CGVD2013 or any other vertical datum, and may differ from orthometric height by tens of metres.

Accordingly, **no elevation, volume, cut/fill quantity or contour derived from this dataset may be relied upon**. Object heights taken from the heights model are differences between two surfaces and remain valid; absolute heights do not. This dataset is **not survey-grade** and does not replace a legal survey. Any use requiring geodetic accuracy must be independently verified by an Ontario Land Surveyor.

Operator holds a valid Transport Canada RPAS Advanced Operations certificate (RPOC OC2623804121). Flight conducted under SOP-DRN-002 and all applicable CARs. RTK positioning was used: a DJI D-RTK 3 base set up on site over an unsurveyed point. 120 of 120 images carry a fixed RTK solution, with receiver-reported precision of ~4 mm horizontal and ~5 mm vertical (1 σ). Because the base point was not surveyed, the whole dataset may sit offset from true coordinates; no check points were flown, so absolute accuracy is **not verified**.

ORTHOPHOTO



Fig 1 · Orthorectified mosaic — Sample Site 2 — 17 October 2026 — 3.00 cm/px product from 3.06 cm/px imagery

CAPTURE MANIFEST

IMAGES CAPTURED	IMAGES USED	IMAGERY GSD	ALTITUDE	CAMERA / FOCAL	FORMAT
120	120	3.06 cm/px	112.3 m AGL DERIVED	DJI M4E wide (4/3 CMOS, mechanical shutter), 12.29 mm, 5280×3956	JPEG

Single camera, single altitude, all frames nadir (gimbal –90°). 120/120 frames RTK-fixed, matched 1:1 to the RTK event log. Exposures 1/500–1/1500 s at ISO 100–200; worst-case motion blur ~0.3 px. Nothing unusual to flag.

CAPTURE GEOMETRY

PARAMETER	VALUE	SOURCE
Flight height	114.7 m above take-off DERIVED	EXIF relative altitude
Altitude range / hold	114.6 – 114.7 m, sd 0.02 m DERIVED	120 camera stations
Flight lines	7, bearing 085° / 265° DERIVED	Station geometry
Line spacing	48.3 m DERIVED	Station geometry
Shot spacing along track	24.4 m DERIVED	Station geometry
Image footprint on ground	161.4 m × 120.9 m DERIVED	Altitude × focal
Forward overlap	~80% DERIVED	Spacing vs footprint
Side overlap	~70% DERIVED	Line spacing vs footprint
Capture window	16:13:32 – 16:23:02, 9.5 min	EXIF capture times
Capture cadence	1 frame / 5.0 s DERIVED	EXIF capture times

Values marked DERIVED are computed from the RTK image positions recorded in each frame, relative to the take-off point. They describe what the aircraft actually did, not what the mission was planned to do. Confirm against the flight log before quoting them.

FLIGHT LOG SUMMARY

PARAMETER	VALUE
Flight plan / pattern	7-line grid, bearing 085° / 265° DERIVED
Overlap	~80% front, ~70% side DERIVED
Total flight time	9.5 min image capture DERIVED
Positioning	RTK — D-RTK 3 base, 120/120 fixed
Batteries used	2
Wind	14–30 km/h, from SE
Cloud cover	0/8 — clear
Temperature	14 °C
Preflight checklist	Complete — FRM-DRN-002
Site hazards	None identified

TBD chips mark values still outstanding at issue time. A deliverable never ships with one visible.

BUILDMODE AERIAL MAPPING

YOUR BUILD, FROM ABOVE

PROCESSING RECORD

PARAMETER	VALUE
Engine	WebODM / ODX 3.8.4
Preset	DSM + DTM
Options applied	boundary=site crop (GeoJSON), dsm=true, dtm=true, orthophoto_resolution=3, dem_resolution=5, pc_quality=medium, feature_quality=high
Processing time	67.1 min total (50.3 min full pass + 16.8 min re-run from point filtering with crop)
Ground control	None — RTK image positions only

Record the options exactly as the engine reports them. Preset names are not self-explanatory and do not all produce the same products.

QUALITY METRICS

METRIC	VALUE	BASIS	STATUS
Images aligned	120 of 120	Reconstruction report	100.0% — OK
Reprojection error	1.06 px	Reconstruction report	OK
Point cloud density	6,451,385 pts (38.2 pts/m ²) over 16.88 ha	Dense cloud	—
Check points	None observed	No independent control	Not verified
Sparse points recovered	155,217 of 157,020 (98.9%)	ODX quality report	OK
Average track length	4.93 images	ODX quality report	OK
Camera-position fit to GPS (RMS)	X 0.009 · Y 0.007 · Z 0.007 m — total 0.007 m	ODX quality report	see note
Tie-point residual (RMS)	X 0.064 · Y 0.080 · Z 0.258 m — total 0.125 m	ODX quality report	OK

Reprojection error and tie-point residual are internal consistency measures. They describe how well the images agree with each other and say nothing about agreement with the ground. The camera-position fit to GPS describes how far the solved camera stations sit from the aircraft's own GPS record — it is a measure of the GPS, not of the map, and it must not be quoted as a map accuracy figure. **No RMSE against independent check points is stated because none were observed.** That changes when ground control targets are deployed.

RASTER SPECIFICATIONS

PRODUCT	DIMENSIONS	PIXEL SIZE	BANDS	CRS
Orthophoto	19802 × 12989 px	3.00 cm	4 (RGB + alpha)	EPSG:32617
DSM	11881 × 7793 px	5.00 cm	1 (float32)	EPSG:32617
DTM	11881 × 7793 px	5.00 cm	1 (float32)	EPSG:32617
Heights (DSM – DTM)	11881 × 7793 px	5.00 cm	1 (float32)	EPSG:32617

DELIVERABLES INCLUDED

FILE	FORMAT	WHAT IT IS
SampleSite2_2026-10-17_ortho.tif	GeoTIFF	Orthorectified aerial mosaic, 3 cm/px product from 3.06 cm/px imagery
SampleSite2_2026-10-17_dsm.tif	GeoTIFF	Digital Surface Model — top of everything. Relative only
SampleSite2_2026-10-17_dtm.tif	GeoTIFF	Digital Terrain Model — ground surface. Relative only
SampleSite2_2026-10-17_heights.tif	GeoTIFF	Heights model (DSM – DTM). Datum-independent
SampleSite2_2026-10-17_cloud.laz	LAZ	Dense point cloud, 6,451,385 points (38.2 pts/m²), for CAD/GIS import
SampleSite2_2026-10-17_processing.pdf	PDF	ODX 3.8.4 processing report — camera model, overlap map, residuals
DEM0-2026-1017_SampleSite2_Deliverable-Report.pdf	PDF	This document

Raster and cloud files follow Site_YYYY-MM-DD_product. Controlled documents follow BAM-YYYY-NNNN_Location_Descriptor_vN. Two conventions, two purposes — do not mix them.

FILE INTEGRITY

Checksums generated at export and verified on receipt. Any mismatch invalidates the file.

FILENAME	SIZE	SHA-256
SampleSite2_2026-10-17_ortho.tif	530.6 MB	dedd53be6475cf791abb28c4c189b5d60866947704398576ef7c364dd5c72d8b
SampleSite2_2026-10-17_dsm.tif	121.1 MB	28db950d53e0ab5fe4d30c4cc9a6a1a03bcd7421ed97a5e7e82781e445e201d1
SampleSite2_2026-10-17_dtm.tif	129.2 MB	3b0387a65cea39bee5a8b6de7021b2a004a930d6cda6780968ffcbbf9223b711d
SampleSite2_2026-10-17_heights.tif	108.4 MB	5b952263e31a5b51c3c43fea10da99eb4da36a4a9040c0ed135acb7e6e3f9398
SampleSite2_2026-10-17_cloud.laz	32.0 MB	4a824629382eabc5633a553751ab20caa5323c119772c3fe2d015febac3490ab

DELIVERY & RETENTION

Not delivered — internal demonstration, published as a sample on the BAM map viewer. Occupied residences south of the site's landscaped buffer strip were cropped out of every product before publication. Project records and deliverables retained for **seven years** per OM-001 §07. Raw imagery is retained on external media and referenced by manifest, not stored in the records tree.

SIGN-OFF

ROLE	NAME	SIGNATURE	DATE
Operator / Pilot	Caleb Maudsley	_____	_____
Processing & QA review	Caleb Maudsley	_____	_____
Client receipt (optional)	—	_____	_____

CONTROLLED DOCUMENT · FRM-DRN-006 Deliverable Report · Template Rev 1.3
Governed by OM-001 §07 (records) and §11 (accuracy) · SOP-DRN-002 §08
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