Mission Planning Checklist

THE 15-MINUTE MATH THAT PREVENTS THE FULL-DAY REFLY

> **Every parameter traces back to accuracy.** The planning math takes 15 minutes. The refly takes a full day. Run through this before every mission — at the desk, before you load the truck.

ACCURACY & SPECIFICATIONS

#	ITEM	✓
1	Client accuracy requirement identified and documented — horizontal, vertical, GSD all specified in writing	☐
2	Project type matched to accuracy tier — Engineering: ±2–5 cm; Construction: ±5–10 cm; Stockpile: ±5–15 cm; Marketing: visual	☐
3	Required deliverables confirmed — ortho, DSM, contours, point cloud, 3D model	☐
4	Contour interval or volume tolerance specified (if applicable)	☐

GSD & ALTITUDE

#	ITEM	✓
5	GSD calculated — **(Flight Alt × Sensor Width) / (Focal Length × Image Width px)**. Don't guess.	☐
6	Flight altitude set to achieve required GSD — not higher (less point density), not lower (wasted battery)	☐
7	Terrain relief assessed — terrain-following enabled or multi-segment plan created (80 ft relief at 200 ft AGL = 40% GSD variation)	☐

OVERLAP SETTINGS

#	ITEM	✓
8	Terrain type classified — structured, mixed, low-texture, steep, or corridor	☐
9	Frontal & lateral overlap set for terrain type — low-texture (dirt, gravel, snow) needs 85/75 minimum (app default 75/65 fails)	☐
10	Slope adjustment applied — +5–10% overlap for terrain >30% grade (perspective distortion reduces effective overlap)	☐
11	Crosshatch pattern planned if 3D model or dense point cloud is required	☐

BATTERY & COVERAGE

#	ITEM	✓
12	Total acreage calculated, battery count determined — M350 RTK 38–42 min real; Mavic 3E 30–35 min; Mini 4 Pro 22–26 min	☐
13	Landing threshold set at 25% battery remaining — last 15% is where forced landings happen	☐

#	ITEM	✓
14	Wind forecast checked, endurance adjusted — 15 mph headwind reduces endurance 15–25%	☐
15	Battery swap points aligned to end of flight lines, not mid-line	☐
16	One spare battery beyond calculated requirement packed	☐

FLIGHT APP CONFIGURATION

#	ITEM	✓
17	Altitude entered manually and verified against GSD calculation — 50 ft error changes GSD by 25–40%	☐
18	Overlap settings entered manually and verified against terrain type	☐
19	Camera settings configured — shutter ≥1/1000s in low light; ISO ceiling 400–800; white balance fixed (not auto)	☐
20	Waypoint altitude reference confirmed — relative vs. MSL vs. terrain-following (use terrain-following on relief)	☐
21	Flight line direction set perpendicular to longest axis (cross-slope on terrain)	☐
22	Mission plan reviewed on map — full coverage of survey area with adequate buffer	☐

22 items · 5 sections · ~15 minutes at the desk · Save the plan; export to flight controller

PROJECT SPECS

Project: _____

Acreage: _____

H. accuracy: _____

V. accuracy: _____

Required GSD: _____

MISSION PARAMETERS

Platform: _____

Flight AGL (ft): _____

Overlap F/L (%): _____

Battery count: _____

Estimated flight time: _____

PLANNING NOTES