# DUAS13

*Posted on 24.08.2022 by Rupert Dent*

**Category:** Drone

**Report Title**Landing Site Incursion

## Initial Report

I was practicing some drills in the park, the aircraft was a DJI FPV. I was practicing a throttle down with forward momentum dive and climb-out drill with a treeline as the climb-out. When I was getting into position for another run of the manoeuvre my spotter reported the area around the treeline clear of people, so I started the run towards it and descending sharply from about 70m at 8-9m/s vertical speed, peaking at around 120km/h lateral speed. About 2/3 of the way through and with an estimated 50m to the treeline a dog walker was spotted walking out from the treeline by both myself and my spotter at the same time. I immediately aborted the manoeuvre and turned the aircraft right and away from the trees and started climbing. My spotter estimated an approximate closest approach to the dog walker at around 40m so on the 30m distance rule I consider the abortion of the manoeuvre a success with a decent margin from the minimum approach distance.

The dog walker then walked across the area of the park and came within 2m of the landing area, moving at a very slow pace, which was clearly marked with a pad and with myself and my spotter there was clearly the landing area. This was late in the flight, and I was needing to come in to land, as this happened on what was intended to be the last run of the flight.  I'd declared the intention to land to my spotter who declared the landing area was unavailable. I kept the aircraft at altitude and with an eye on the landing area as we watched to see whether the landing area would become available.

When the battery dropped to 20% on the OSD I asked my spotter whether the backup landing area was available – he said it was, so I started turning towards it. At this point my spotter then said the dog walker had sped up and the main landing area was imminently about to become available, so I turned back towards it and landed, this was still with 30m separation including during landing because of the speed she'd gone up to which looked like a jog (maybe she'd heard what we were saying? Can't know). The aircraft was landed with 16% battery on the OSD.

Lessons learned:

1. Improved spotter briefing for broader ground concerns (esp. uninvolved people) prior to drill manoeuvres, including direction of movement towards manoeuvre area.
2. Consideration of a "bingo battery" state of use of the backup landing site. This will vary by

flying site and aircraft due to endurance and distance between landing site concerns.

**Comment**

There is some excellent stuff in this report. Firstly, the pilot and spotter have set themselves up well for the drills they had planned. A spotter has been included from the outset, they had a backup landing area figured out and had completed a comprehensive FPV UK Remote Pilot Risk Assessment Form, as required by Article 16 of FPV UK's Operational Authorisation.

In terms of preparation, the flight was logged with Drone Assist, the risk assessment included mitigations for dealing with the encroachment of uninvolved people and any approaching aircraft, marking out the landing site with a pad and agreeing on a backup landing site.

Finally, they have then reported the occurrence to FPV UK and CHIRP so others can learn from their experience. In addition to this, they have reviewed the recording of the flight and then considered and gone over the sequence of events and the learning points, which they have shared.

So, the two learnings they have concluded for themselves look good to us. We would add some further thoughts as follows:

1. In the flight planning phase, it would be worthwhile aiming to land with a higher % battery level, whilst taking into account a period of loitering and the use of the alternate landing site. This might mean starting to head for home when the battery level is indicated as being 30%, in order to be on the ground by 25% but with something in reserve if you have to loiter for a few minutes.
2. Choosing a location that is a little less crowded, taking into account the fact that more people are going to be outside walking as the weather improves and it is spring or summer.
3. Maybe putting up a sign that indicates to uninvolved people that they are in a "Drone flying / landing area" which will give them a nudge to look around them and perhaps not approach so closely.
4. Whilst the swift reaction time of the pilot enabled him to keep the aircraft within the proximity requirements of the OA, when choosing a manoeuvre that involves flying at high speed, it would be worthwhile including reaction time and stopping distance when choosing how close you can get to something you cannot see through, before turning or climbing away. Whilst a treeline is static, it is difficult to see through and the possibility of someone walking or even running through it to suddenly emerge as an object moving towards you, is always going to be there.
5. This occurrence shows how important the choice of a good landing area can be.
6. Firm decision making is sometimes better than changing one's mind several times. The latter may end up creating additional risks, originally unforeseen, that complicates circumstances further. Sometimes people use the acronym **BRAN** when making a decision: what are the

**B**enefits, what are the **R**isks, what are the **A**lternatives, what if I do **N**othing