ACCIDENT

Aircraft Type and Registration:	DJI Mavic Pro 2
No & Type of Engines:	4 electrical motors
Year of Manufacture:	2018 (Serial no: 163DFAF0019QP1)
Date & Time (UTC):	19 August 2020 at 1033 hrs
Location:	Seal Sands, Middlesborough
Type of Flight:	Commercial Operations (UAS)
Persons on Board:	Crew - N/A Passengers - N/A
Injuries:	Crew - N/A Passengers - N/A
Nature of Damage:	Damage to landing gear, motor arm and propellers
Commander's Licence:	Other
Commander's Age:	56 years
Commander's Flying Experience:	131 hours (of which 131 were on type) Last 90 days - 18 hours Last 28 days - 13 hours
Information Source:	Aircraft Accident Report Form submitted by the pilot

The DJI Mavic Pro 2 unmanned aircraft (UA) was being used to carry out some aerial filming at a construction site. The aircraft was being operated by a remote pilot (RP) who was supported by an observer. At the time of the accident the RP was completing a tracking shot around personnel working on the site. Prior to this sequence of filming he had been recording in Full Point of View (FPOV) mode but to record the personnel working on the site he had changed to a High Quality (HQ) mode. Changing from FPOV to HQ video reduced the angle of view from 77° to 55° and therefore the aircraft needed to fly further away from the subject to capture a similar view. As the tracking shot was being flown the observer communicated to the RP that the UA was being flown close to a tower adjacent to the construction site. Based on the view that the RP had on the controller monitor, he determined that the UA was between the tower and the steel structure he was taking footage of, but had not accounted for the adjustment he had made for taking the HQ video footage. This positioned the aircraft further away from the subject than it appeared. The RP continued to complete the tracking manoeuvre during which the aircraft collided with the tower causing the UA to fall to a gantry platform approximately 20 m below. There were no injuries.

As a result of this accident the operator has introduced measures to help prevent reoccurrences. This includes using propeller guards when operating in areas with possible obstructions and when flying with avoidance sensors switched off. The operator has also

introduced a requirement that all RPs create a virtual fence[1] for each flying site within which the UA can operate safely.

AAIB Comment

This accident exemplifies the need to maintain full situational awareness throughout any flight. In this instance the observer had communicated to the RP that there was a possibility of collision with an object, but the RP disregarded this information because it did not conform to his mental model of the situation.

Footnote

[1] An artificial boundary, using GPS coordinates, defined by the operator or remote pilot within which UA can fly freely. The UAS positioning system will not allow the aircraft to fly outside of this boundary.