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From: **Adrian Clough** <adrian.clough@aerostat.co.uk>

Date: Mon, Oct 20, 2014 at 5:52 PM

Subject: 459 - Pre-planning Aviation Check - Eston

To: Conor McAllister <conor@en-trust.co.uk>

## 1. Reference Data Supplied

Summary data for Eston (site ref.459). Email from C.McAllister (Entrust) to A.Clough (Aerostat) dated 16-Oct-14, 14.59.

Single Turbine – 500 kW

NGR Coordinates: 455567, 517413 (6 km southeast of Middlesbrough)

Site Elevation: 83.0 m AOD

Blade Tip Height: 77.9 m agl

## 2. Derived data

Lat: 54°32'56.18N

Long: 1°08'32.97W

Blade Tip: 160.9 m AOD

## 3. Primary Radar (within 120 km)

Civil:

- Durham Tees Valley S-band – 17.9 km, clear line-of-sight (regardless of height)
- Newcastle SMR – 65.0 km, no line-of-sight
- Newcastle S-band – 65.0 km, no line-of-sight
- Leeds/Bradford S-band – 83.0 km, no line-of-sight
- Great Dun Fell L-band – 85.6 km, clear line-of-sight (regardless of height)

Military:

- RAF Leeming PAR – 38.2 km, no line-of-sight
- RAF Leeming Watchman – 38.4 km, marginal line-of-sight (for blade-tip above 68 m)
- RAF Topcliffe PAR – 41.2 km, no line-of-sight

- RAF Linton-on-Ouse Watchman – 55.3 km, no line-of-sight
- RAF Linton-on-Ouse PAR – 56.0 km, no line-of-sight
- RAF Staxton Wold – 61.0 km, no line-of-sight
- RAF Brizlee Wood – 104.6 km, no line-of-sight
- RAF Spadeadam (Berry Hill Watchman) – 106.2 km, no line-of-sight
- RAF Brunton – 113.3 km, no line-of-sight

Met Office:

- Not inside a Met radar consultation zone.

#### **4. Secondary Radar**

- None.

#### **5. Comms and Nav aids**

- None.

#### **6. Obstacle Limitation Surfaces**

- None

#### **7. Airspace**

Civil:

The site is located 17 km east-northeast of Durham Tees Valley Airport (DTVA), on the boundary of the airport's control zone (CTR) which extends from the earth's

surface up to 6,000 ft. The site is 6 km due south of Restricted Area R446 (associated with Hartlepool power station).

In terms of unlicensed airfields nearby there is a private airstrip at Yearby (Turners Farm) 6.0 km northeast of the turbine, and a helicopter landing site at Stainsby Hall. The proposed turbine is unlikely to have any impact on aircraft using these sites.

The site is inside the DTVA statutory consultation zone.

Military:

The nearest MOD airfield is RAF Leeming, some 38 km southwest of the turbine.

The MOD has classified the surrounding airspace as "Green – area with no military low flying concerns". This is due to the site being inside the DTVA CTR.

## **8. Summary**

The clear line-of-sight to the DTVA S-band approach radar is a major issue here. Whilst it is understood that DTVA uses ThruPut for mitigation of single turbines in non-critical areas, the location of the turbine (right on the CTR zone boundary) is likely to preclude the use of ThruPut in this instance.

The line-of-sight to the Great Dun PSR (NATS) is likely to be an additional issue, which may necessitate a blanking solution. The only way to find out the NATS position would be to commission a NERL Technical and Operational Assessment (TOPA) at a cost of £1,250+VAT.

There is also the potential for MOD to raise an objection in relation to their Watcham radar at RAF Leeming, due to marginal line-of-sight for a blade-tip height above 68 m.

Finally, it is noted that MOD correspondence mentions the line-of-sight to Great Dun Fell as possible justification for an objection in respect of Warton. This is unlikely to be an issue given that Warton do not control aircraft in the vicinity of DTVA.

## **9. Risk Category**

**Red** – Significant aviation issues anticipated/no viable mitigation solution

## **10. Initial Recommendations**

[1] Due to the severity of aviation issues, do not pursue this site.

**Adrian Clough**

Director

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