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27th September 2024
Isopleth Ref: 01.0182.001

Dear Ian,

Response to NE Query: Fenn Lane Farm

On 17th September 2024 Natural England (NE) has responded¹ to Hinkley & Bosworth Borough Council Application ref (24/00809/FUL):

‘Change of use of agricultural building to aircraft maintenance and associated intensification of use of adjacent private airstrip (Sui Generis). Fenn Lane Farm Fenn Lanes Upton Nuneaton Leicestershire CV13 6BL’

Specifically, NE has queried whether oxides of nitrogen emitted from light aircraft using the proposed development is likely to have any significant effect on the Kendall’s Meadow Site of Special Scientific Interest (SSSI), a traditionally managed hay meadow of 2.6992ha. The designated interest feature at this SSSI is *Alopecurus pratensis* - *Sanguisorba officinalis* grassland. The NOx critical level is 30 µg/m³ and APIS data shows that the existing baseline is 9.3 µg/m³. The Kendall’s Meadow SSSI is within 1k of the proposed aircraft maintenance unit, and within 300m of the existing Stoke Golding Airfield.

The DAS for the planning application described the proposed scheme as follows:

‘The aircraft maintenance company, AeroTech, have informed us they look after 80 light aircraft per year. 75% of these are serviced once a year; the other 25% are flying school aircraft, which are serviced once a month. The aircraft maintenance activities are akin to those of a typical car garage, using standard workshop equipment such as compressors and small power tools.’

‘Light aircraft will be delivered to the site for service and maintenance utilising the existing private airstrip and on average there will be 4-5 Aerotech related take-offs / landings per week from the airstrip.’

¹ NE ref: 486616

The road access to the site is via Fenn Lanes, which at 330m north of the Kendall's Meadow SSSI is over the 200m screening distance for road traffic impacts quoted in Guidance such as Natural England *The ecological effects of diffuse air pollution from road transport* (ENRR580). For this reason, any additional road trips will be insignificant.

Air transport results in emissions of combustion pollutants, with the climate and pollution impacts associated with commercial jet flights well known. DEFRA LAQM TG(22) provides screening guidance for Non-Road Transport Sources including airports:

'7.17 Aircraft are potentially significant sources of NO_x emissions, especially during take-off, and therefore the main risk is related to potential exceedances of the NO₂ air quality objectives. It is likely that all airports have been subject to a screening assessment in previous rounds of Review and Assessment; however, in case of significant changes (such as increase in airport capacity, or new population exposure near the airport), the local authority should be able to screen aircraft emissions from airports based on the following:

- *Determine relevant exposure within 1km of the airport boundary;*
- *If exposure has been identified, determine whether the airport total equivalent passenger throughput is more than 10 million passengers per annum (mppa). Freight should also be considered, and converted to equivalent mppa using 100,000 tonnes = 1 mppa; and*
- *Identify whether the background annual mean NO_x concentration is above 25µg/m³ in these areas.'*

These criteria are intended to determine whether there is a risk of exceedance of the NO₂ annual mean objective, however the scale of air traffic movements before there is a material change in air quality can be seen².

The Fenn Lane Farm aircraft maintenance unit proposed would not only service light aircraft (an aircraft that has a maximum gross takeoff weight of 5,670 kg or less) but a maximum of 250 take-offs / landings per year from the airstrip.

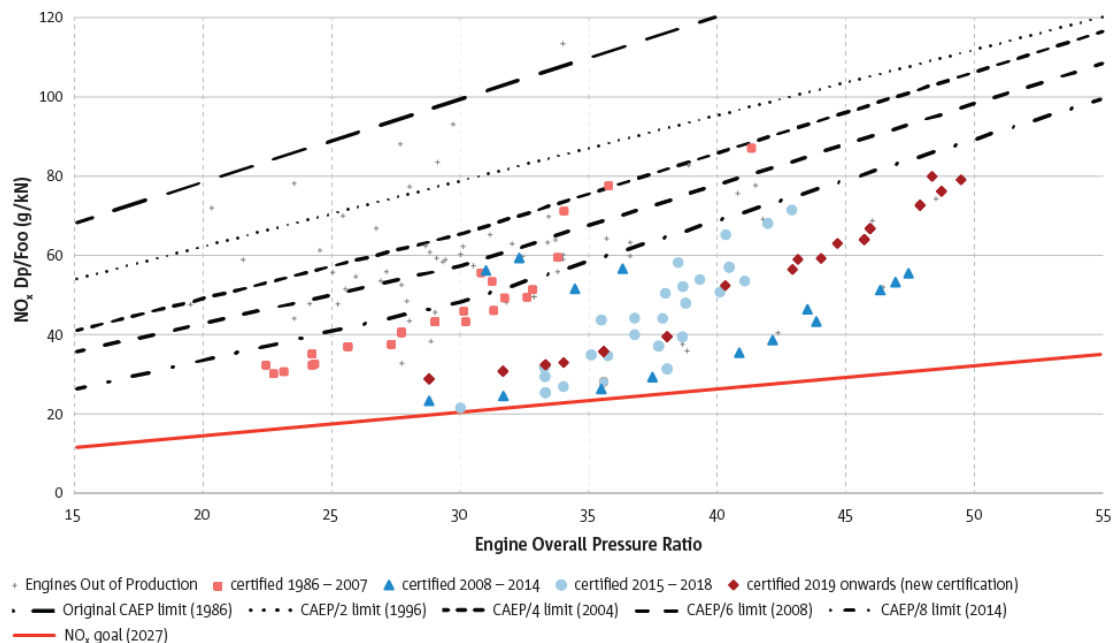
As with road transport, the engine efficiency and pollutant emissions associated with light aircraft has improved significantly in recent years. The regulatory limits for NO_x emissions from aircraft turbojet and turbofan engines have gradually been made more stringent between 1996 and 2014, and are typically referred to by the CAEP meeting in which they were agreed (CAEP/2, CAEP/4, CAEP/6 and CAEP/8). The improvement can be seen in the graph overleaf. In 2021, more than 95% of aircraft engines delivered were CAEP/8 compliant.

The International Civil Aviation Organization (ICAO) Aircraft Engine Emissions Databank contains information on exhaust emissions of production aircraft engines, measured according to the procedures in ICAO Annex 16, Volume II, and where noted, certified by the States of Design of the engines according to their national regulations. This includes the total mass of oxides of nitrogen

² Only the following airports fall within this group: London Heathrow, London Gatwick, Manchester, London Stansted, London Luton, Edinburgh and Birmingham. Birmingham, for example (11.4m passengers in 2023) had a total of 86584 aircraft movements, including the largest passenger and freight jets.

emitted during the LTO cycle which covers four modes of engine operation, namely idle, approach, climb out and take-off, each of which is associated with a specific engine thrust setting and a time in mode.

Certified turbojet and turbofan engine NO_x emissions performance



- Source: EASA³

The emissions from a propeller driven light aircraft, being combustion engined, can therefore be compared with any other source when on the ground, such as road vehicles and plant. This is particularly the case when at the maintenance workshop and associated area.

For the above reasons, there is no evidence that the number of movements associated with the proposed plans (i.e. very low) and the type of aircraft serviced (i.e. light) would have the potential to result in any significant affects at the Kendall's Meadow SSSI which is over 200m from the proposed scheme (the screening distance for transport).

Yours Sincerely



Matt Stoling
Director
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³ <https://www.easa.europa.eu/eco/eaer/topics/technology-and-design/aircraft-engine-emissions>