



Royal Air Force Brize Norton

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Dear Local Consultative Working Group,

Royal Air Force Brize Norton (BZN) would like to provide information regarding a proposed new radar tower. Due to the increasing fragility of Air Traffic Control (ATC) Navigation Aids, a Service-wide programme has begun to replace them. As current systems are over 40 years old, they require significant amounts of servicing, and the availability of spare components has decreased as modern systems have been introduced. A site has been selected in the North East corner of the Station, within the Tactical Medical Wing (TMW) compound, which is situated between Burford Road and Carterton Road in Brize Norton village. TMW was selected as it was the only site that complied with the necessary civilian and military regulations for the radar system.

Our contractor, Aquila, have been working with West Oxfordshire District Council and the Defence Infrastructure Organisation to determine how the Town and Country Planning Act 2015 applies to this structure. The Act is open to interpretation and in order to remain transparent, Aquila have taken the decision to apply for full planning permission rather than apply permitted development rights. This measure will allow an open review of the application and provides an opportunity for community members to comment on it. The application will be submitted within the coming weeks; at present we don't have an exact date of submission. The planning application may generate some interest amongst our neighbours in the local community, and as such we have taken some time to consider what information may be sought and have attempted to provide answers below.

1. Why has this location been chosen, which is extremely close to public housing and public amenities, considering that RAF Brize Norton covers an area of 460 hectares (1.8 square miles)? This will be covered within the planning application, but the TMW compound is the only area within RAF Brize Norton that fulfils all regulations.

2. What are the civilian and military regulations that have been fulfilled? The site must comply with Military Aviation Authority Regulatory Articles. These provide detail on new installations and their safe positioning within an airfield so as not to obstruct an aircraft's flight path. The site must also comply with Hazard of Electromagnetic Radiation to Ordnance (explosives) and High Intensity Radio Transmission Area regulations.

3. Are alternative sites available that would not cause such a major impact on the skyline? At contract award in 2014, the proposal was to use the original Secondary

Surveillance Radar (SSR) tower located at the western end of the airfield. When that tower was demolished to build the Air Despatch Hangar, the current SSR tower located to the South of ATC was proposed. The current SSR tower is required for continued use whilst the new tower is installed, to ensure ATC have sufficient radar availability and there is no reduction in coverage. Therefore, an alternate site had to be found. Additionally, any other location external to the Station would not have the adequate power, connectivity or security.

4. What consideration has been given to the 700+ homes that will be constructed with an estate boundary just over 100m away from the proposed location? In all of our discussions with the installation Contractor regarding the siting of the new radar, we have ensured that they are aware of the new housing and business developments planned for land between the site location and Monahan Way, Carterton. The radar site has been located to provide the least impact to the wider community whilst fulfilling military and civilian regulations.

5. What consideration has been given to the new Country Park which runs adjacent to the north side of the TMW perimeter wire, and the proximity of the new allotments which will run down the west side of the TMW perimeter fence? As above, the installation Contractor has been made aware of developments in surrounding areas. The installation should not affect the Country Park or enjoyment of that area.

6. Are drawings available to assess the visual impact of the proposed installation? As part of the Planning Application, Aquila will submit drawings and a 3-D CAD model of the radar. The radar turning gear and rotating antenna will sit on the top of a 25m lattice structure. The total height, including lightning protection, will be 33m above ground level. For Flight Safety reasons the tower will be red and white and the radar antenna itself will be red.

7. Are local housing development agencies aware of the proposed installation? The planning application being submitted by Aquila will be available to all local housing development agencies.

8. With the high awareness of public safety in relation to high frequency electromagnetic fields (EMF), can you confirm that there will be no hazard to health? The Witney Gazette, dated 6 January 2021, noted that Brize Norton residents were extremely concerned about health risks regarding the erection of a 20m high 5G mast. A full assessment of any Radiation Hazard will form part of the planning application. The Star-NG radar is an S-Band radar which will transmit on a frequency between 2.6-2.9 GHz, and this is the same frequency band as our current Watchman radar. Any source of Electromagnetic (EM) radiation (such as UV light from sun on human skin) can cause potential side effects if you get too close. The radar installation company have used the International Commission on Non-Ionising Radiation Protection (ICNIRP) guidelines for limiting exposure to EM Radiation and have identified that the safe distance is 13.3m from the centre of the antenna. The centre of the antenna will be 27.7m above ground level and as such, one would have to be stood directly in front of the antenna (at the same height), and within 13.3m, to be exposed to any risk.

9. What frequency will the radar operate at and will it disrupt/interfere with other civilian services e.g. TV and mobile phones? The radar operates in the S-Band and will use dedicated ATC Radar frequencies between 2.6-2.9 GHz. These frequencies are protected by OFCOM for use throughout the UK by ATC radars to ensure they are not interfered with by other EM emitters. As they are protected, the reverse is also true and there are no other services within the frequency band that they can affect. Television and mobile telephone signals, including wi-fi, will be unaffected.

10. What type of construction will the tower be, and will there be any moving elements on the top that may cause additional noise pollution? The radar tower will operate 24 hours a day and will consist of a red and white open lattice structure 25m high. On top of the tower will be the radar turning gear, the radar antenna itself and the lightning protection finials. The radar turning gear will generate a very small amount of noise. The Contractor has conducted a noise survey, with the full results included within the planning application. However, the Survey concluded¹:

The assessment of the sound level of the radar tower has been undertaken using the principles of BS 4142:2014+A1:2019. Noise emissions of the proposed radar tower have been calculated and compared with day and night-time background sound assessment levels.

Calculated daytime rating levels remain below representative background levels by at least 10 dB. Calculated night-time rating levels are at least 2 dB below night-time background levels at the worse-case receptor location. This is an indication that the proposed PSR [Primary Surveillance Radar] at the TWM is likely to have a low impact, depending on the context.

Assessment of absolute internal noise levels, assuming a partially open window, indicates that the radar system noise levels would be 16 dB LAeq,T at the worse-case receptor location. This is 14 dB below the WHO [World Health Organisation] night-time criterion level of 30 dB LAeq,T indoors indicating that negative effects upon sleep are unlikely.

11. Will this change aircraft flight paths? Flight paths will remain the same. The radar tower will be located far enough away from the runway that it will not impact approaches to BZN from the east or west.

12. Are the upgrades only happening at RAF Brize Norton? The upgrades for ATC radar systems are being introduced across the Royal Air Force. For example, RAF Shawbury, in Shropshire, has already been upgraded and RAF Coningsby, in Lincolnshire, is in the process of being upgraded.

Yours sincerely,

[signed electronically]

J A Lawson
Wing Commander
Officer Commanding Operations Support Wing
RAF Brize Norton

¹ Taken from: Aquila Air Traffic Management Services RAF Brize Norton Proposed Radar Station BS 4142 Operational Sound Assessment March 2021 Draft Report 2396w-SEC-00001-01.