East Anglia Hub Wind Farm

Habitats Regulations Assessment (HRA)
ACP-2023-079

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1 Introduction

1.1 Overview

Under the new updated CAP 1616 v5 [Ref 001], and specifically CAP 1616h [Ref 002], paragraph B12 requires that a Change Sponsor (CS) must complete the Habitats Regulations Assessment (HRA) early screening criteria form. It states that no further HRA will be required if the CS can reasonably demonstrate that their Airspace Change Proposal (ACP) [Ref 003] is unlikely to have a significant effect on a European site. Cap 1616i – Environmental Assessment Requirements and Guidance for Airspace Change Proposals (Pg 33) [Ref 004] details a set of questions that must be answered as part of the Early Screening Criteria. If the CS is able to answer no to Q1 or Q2, or yes to Q3 then the HRA is no longer required.

1.2 Our Approach

The East Anglia Hub Wind Farm ACP contains three distinct wind farm development areas and amalgamates them into one complete ACP. In order to ensure that each development is considered separately against the HRA, the CS has decided to break each of the component parts that make up the ACP into smaller sections, so as to provide as much information as possible for the HRA.

1.3 The Questions

The HRA has 5 questions (including 2 subset questions) that should be answered, and these are detailed below and relate to each of the wind farm developments.

Q1 asks, “Are there any changes to air traffic patterns or number of movements expected below 3,000ft due to the airspace change proposal?”

Q2A asks, “Are there any European sites within a radius of 18km of each runway?”

Q2B asks, “Are any European sites identified in Q2A overflown (i.e. plane passing directly overhead or within 2,655 feet of the boundary of a European site at 3,000 feet or below) by proposed flight routes?”

Q3A asks, “Will the airspace change proposal reduce the number of movements overflying one or more European sites, while not increasing them over another?”

Q3B asks, “Will the airspace change proposal increase the altitude of aircraft overflying one or more European sites, whilst not decreasing altitude over another?”

2 Habitats Regulations Assessment – EA1N

2.1 Overview

The East Anglia ONE North (EA1N) wind farm site is located within the former East Anglia Zone, which is itself located in the southern North Sea. The nearest airport to the EA1N wind farm site is Norwich International Airport, which is approximately 74km at its nearest point. The second nearest UK airport is Southend, which is 140km away, followed by London Stansted, which is 152km away. The EA1N wind farm site is within the London Flight Information Region (FIR) for air traffic control (ATC), the air space regulated by the UK Civil Aviation Authority (CAA). The boundary of the London FIR and Amsterdam FIR is 6.5km to the east of the EA1N wind farm site boundary (at its nearest point). The airspace above the EA1N wind farm site from sea level to Flight Level (FL) 195 (approximately 19,500ft above mean sea level [amsl]) is uncontrolled Class G airspace.

2.1.1 Military and Civil Air Traffic Patterns, and Number of Movements

RAF Marham, Lakenheath and Mildenhall are over 100km from the EA1N wind farm site and RAF Wattisham is approximately 96km from the EA1N wind farm site. The EA1N wind farm site lies beneath the Lakenheath South Aerial Tactics Area (ATA). The Lakenheath South ATA extends from FL60 to FL195. ATAs are areas of intense military activity, including Air Combat Training, and civilian pilots are advised to avoid these areas. The northern two thirds of the EA1N wind farm site lies beneath an Air-to-Air Refuelling Area (AARA Area 9), within which helicopter refuelling activities take place between 2,000ft amsl and FL50 (approximately 5,000ft amsl). Due to the location of the wind farm site, there are no military or civil air traffic patterns that are affected by the development of this site. The proposed site as stated sits within Class G airspace and is highly unlikely to be used by commercial civil aviation, as they will tend to use the controlled airspace structure within the UK. The military aircraft operate with the use of a transponder, and therefore they will continue to operate as they currently do, even with a Transponder Mandatory Zone (TMZ) in place around the development. The establishment of the TMZ and wind farm in itself will not increase or reduce traffic movement numbers in the area, and therefore the CS believes that this will remain similar to the numbers operating in the area today.

2.1.2 Other General Aviation (GA) Air Traffic Patterns, and Number of Movements

Due to the location of EA1N, there is little to no availability of a Lower Airspace Radar Service (LARS) and airspace users can either operate in Class G without speaking to an ATC unit, or alternatively they could make contact with the London Flight Information Service (FIS) who provide a basic and alerting service for GA pilots outside controlled airspace. The service is delivered by Flight Information Service Officers (FISOs) and under a basic service, a FISO's role is to assist pilots in navigating a safe flight. A FISO will not give any executive instructions or tell a pilot what heading or altitude to fly at, they will simply provide the pilot with information to assist their flight. A two-week traffic survey identified minimal GA interaction with the proposed EA Hub TMZ airspace, with all observed aircraft equipped with transponders and likely already subject to existing regulations which affect aircraft

operating across the London/Amsterdam FIR boundary, which all of the aircraft observed during the study period were. There is no provision for GA non-transponding traffic to cross the Amsterdam FIR at this time.

As can be seen from Figure 1, EA1N is located approximately 36km from the nearest point of land, and 6.5km from the UK FIR boundary.

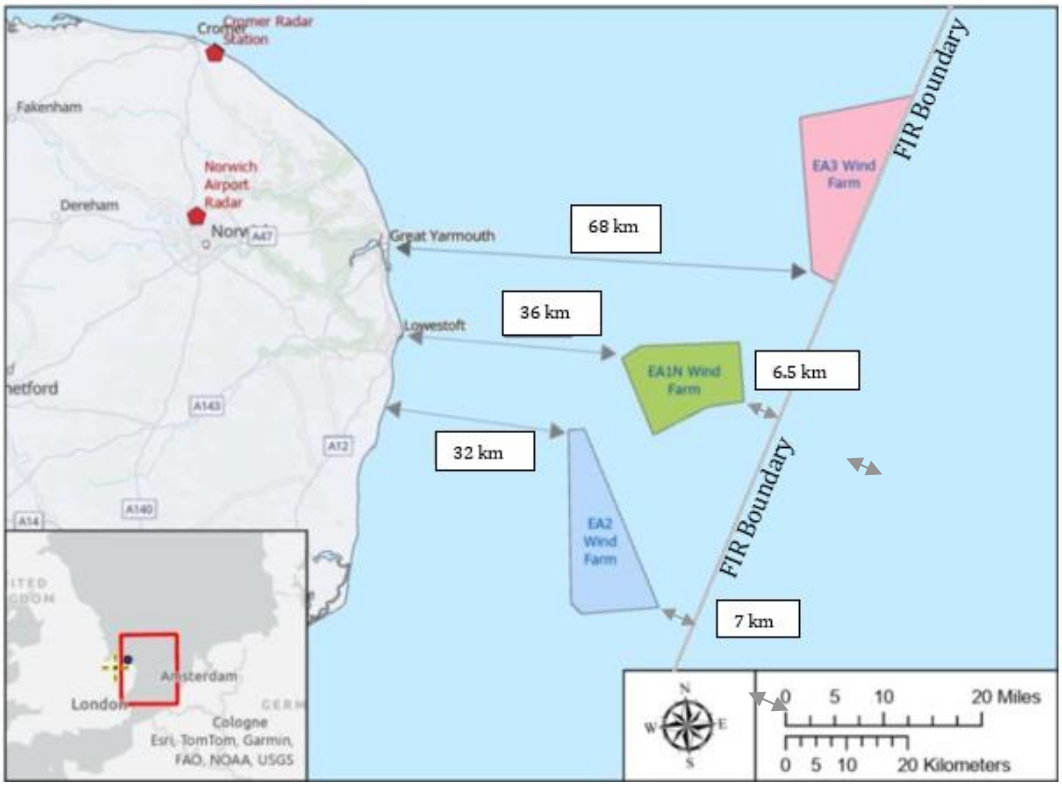

Figure 1 - High Level Overview of the EA1N Wind Farm Location

Figure 2 shows the absence of any VFR transit routes close to the site of the proposed EA1N development. This airspace is Class G and can be transited by any aircraft, however because of its location from the coastline it is unlikely to be used by GA aircraft unless crossing the FIR boundary.

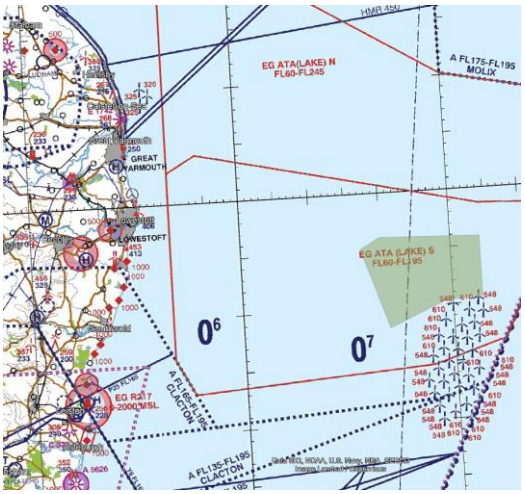

Figure 2 - Airspace Close to EA1N

Aircraft that wish to transit toward the Netherlands and cross the FIR boundary must when they cross be operating a transponder, as they enter the North Sea Area Amsterdam TMZ immediately, which is active from Surface (SFC) to FL55. Therefore, if an aircraft is able to enter this airspace and comply with the rules of the TMZ, then there will be no impact below 3,000ft in the UK for the same aircraft. The CS acknowledges that aircraft may operate in the vicinity of the EA1N development area, however due to the low numbers of transponding traffic in the area, it is expected that the numbers of non-transponding tracks will also be relatively small.

2.2 Conclusion

The CS has evaluated the potential impact on military airspace users, civil airspace users and the GA community, and believes that there will no changes to air traffic patterns or numbers of movement below 3,000ft. The CS has therefore answered no to Q1 and therefore for EA1N the HRA is complete. No further action is required.

3 Habitats Regulations Assessment – EA2

3.1 Overview

The East Anglia 2 (EA2) wind farm site is located within the former East Anglia Zone, which is itself located in the southern North Sea. The nearest airport to the EA2 wind farm site is Norwich International Airport, which is approximately 76km at its nearest point. The second nearest UK airport is Southend, which is 112km away, followed by London Stansted, which is 131km away. The EA2 wind farm site is within the London FIR for ATC, the air space regulated by the CAA. The boundary of the London FIR and Amsterdam FIR is 7km to the east of the EA2 wind farm site boundary (at its nearest point). The southern three quarters of the EA2 wind farm site are located under part of the Clacton Control Area (CTA). Civilian air routes transect this southern section of the EA2 wind farm site; however, the base of these are no lower than FL 85. The airspace immediately above the EA2 wind farm site, and below the Clacton CTA in the southern section, is uncontrolled Class G airspace.

3.1.1 Military and Civil Air Traffic Patterns, and Number of Movements

RAF Marham, Lakenheath and Mildenhall are over 100km from the EA2 wind farm site and RAF Wattisham is approximately 80km from the EA2 wind farm site. The north of the EA2 wind farm site marginally overlaps with the Lakenheath South ATA. The Lakenheath South ATA extends from FL60 to FL195. ATAs are areas of intense military activity, including Air Combat Training, and civilian pilots are advised to avoid these areas. Due to the location of the wind farm site, there are no military or civil air traffic patterns that are affected by the development of this site. The proposed site as stated sits within Class G airspace and is highly unlikely to be used by commercial civil aviation, as they will tend to use the controlled airspace structure within the UK. The TMZ which will be established will meet with the Clacton CTA where required and the airspace with the more restrictive rules will take precedence. The military aircraft operate with the use of a transponder, and therefore they will continue to operate as they currently do, even with a TMZ in place around the development. The establishment of the TMZ and wind farm in itself will not increase or reduce traffic movement numbers in the area, and therefore the CS believes that this will remain similar to the numbers operating in the area today.

3.1.2 Other General Aviation (GA) Air Traffic Patterns, and Number of Movements

Due to the location of EA2, there is little to no availability of a LARS and airspace users can either operate in Class G without speaking to an ATC unit, or alternatively they could make contact with the London FIS who provide a basic and alerting service for GA pilots outside controlled airspace. The service is delivered by FISOs and under a basic service, a FISO's role is to assist pilots in navigating a safe flight. A FISO will not give any executive instructions or tell a pilot what heading or altitude to fly at, they will simply provide them with information to assist their flight. A two-week traffic survey identified minimal GA interaction with the proposed EA Hub TMZ airspace, with all observed aircraft equipped with transponders and likely already subject to existing regulations which affect aircraft operating across the London/Amsterdam FIR boundary, which all of the aircraft observed during the

study period were. There is no provision for GA non-transponding traffic to cross the Amsterdam FIR at this time.

As can be seen from Figure 3, EA2 is located approximately 32km from the nearest point of land, and 7km from the UK FIR boundary.

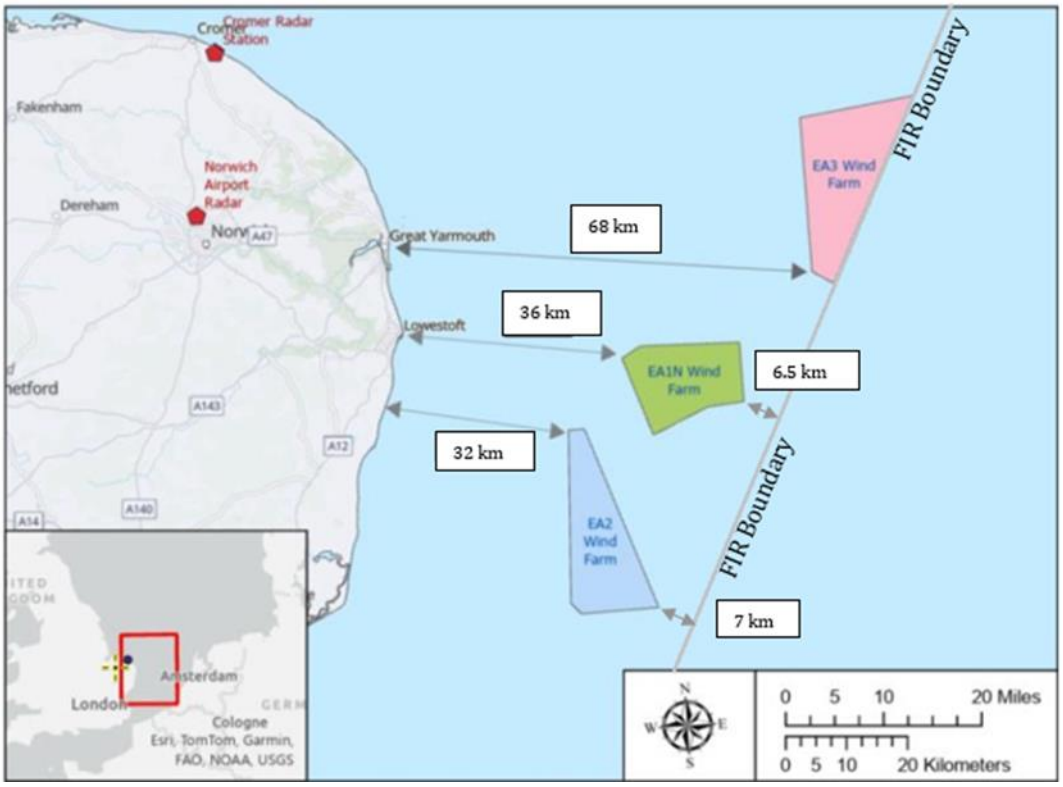

Figure 3 - High Level Overview of the EA2 Wind Farm Location

Figure 4 shows the absence of any VFR transit routes close to the site of the proposed EA2 development. This airspace is Class G (up to FL85 in parts) and can be transited by any aircraft, however because of its location from the coastline it is unlikely to be used by GA aircraft unless crossing the FIR boundary.

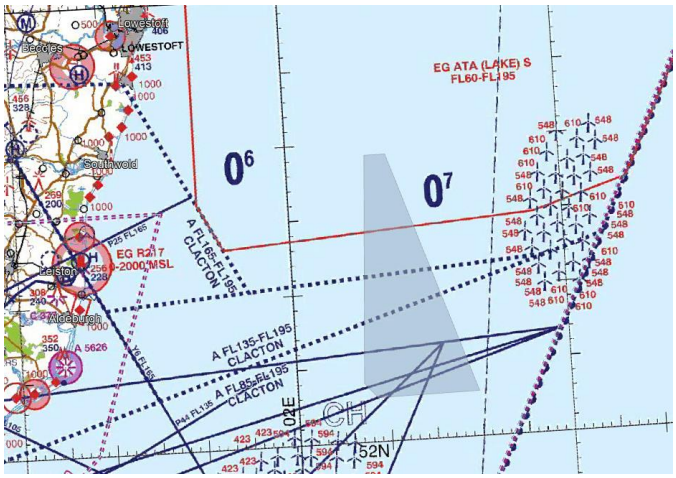

Figure 4 - Airspace Close to EA2

Aircraft that wish to transit toward the Netherlands and cross the FIR boundary must when they cross be operating a transponder, as they enter the North Sea Area Amsterdam TMZ immediately, which is active from Surface (SFC) to FL55. Therefore, if an aircraft is able to enter this airspace and comply with the rules of the TMZ, then there will be no impact below 3,000ft in the UK for the same aircraft. The CS acknowledges that aircraft may operate in the vicinity of the EA2 development area, however due to the low numbers of transponding traffic in the area, it is expected that the numbers of non-transponding tracks will also be relatively small.

3.2 Conclusion

The CS has evaluated the potential impact on military airspace users, civil airspace users and the GA community, and believes that there will no changes to air traffic patterns or numbers of movement below 3,000ft. The CS has therefore answered no to Q1 and therefore for EA2 the HRA is complete. No further action is required.

4 Habitats Regulations Assessment – EA3

4.1 Overview

The East Anglia 3 (EA3) wind farm site is located within the former East Anglia Zone, which is itself located in the southern North Sea. The nearest airport is Norwich International Airport, approximately 100km from the EA3 site. Amsterdam Schiphol Airport is approximately 120km from the eastern boundary of the EA3 site. There are five Royal Air Force (RAF) stations located in the East Anglian region, all of which are located more than 100km from the EA3 site. The EA3 wind farm site is within the London FIR for ATC, the air space regulated by the CAA. The boundary of the London FIR and Amsterdam FIR is on the eastern edge of the EA3 wind farm site boundary. The airspace above the EA3 wind farm site from sea level to FL 175 is uncontrolled Class G airspace, with the North Sea CTA3 (MOLIX) starting at FL175 and covering the northern half of the EA3 development.

4.1.1 Military and Civil Air Traffic Patterns, and Number of Movements

RAF Marham, Lakenheath and Mildenhall are over 150km from the EA3 wind farm site and RAF Wattisham is approximately 130km from the EA3 wind farm site. The southern half of the EA3 wind farm site marginally overlaps with the Lakenheath North ATA. The Lakenheath North ATA extends from approximately FL60 to FL245. ATAs are areas of intense military activity, including Air Combat Training, and civilian pilots are advised to avoid these areas. The southern half of the EA3 wind farm site lies beneath AARA Area 9, within which helicopter refuelling activities take place between 2,000ft amsl and FL50. Due to the location of the wind farm site, there are no military or civil air traffic patterns that are affected by the development of this site. The proposed site as stated sits within Class G airspace and is highly unlikely to be used by commercial civil aviation, as they will tend to use the controlled airspace structure within the UK. The military aircraft operate with the use of a transponder, and therefore they will continue to operate as they currently do, even with a TMZ in place around the development. The establishment of the TMZ and wind farm in itself will not increase or reduce traffic movement numbers in the area, and therefore the CS believes that this will remain similar to the numbers operating in the area today.

4.1.2 Other General Aviation (GA) Air Traffic Patterns, and Number of Movements

Due to the location of EA3, there is little to no availability of a LARS and airspace users can either operate in Class G without speaking to an ATC unit, or alternatively they could make contact with the London FIS who provide a basic and alerting service for GA pilots outside controlled airspace. The service is delivered by FISOs and under a basic service, a FISO's role is to assist pilots in navigating a safe flight. A FISO will not give any executive instructions or tell a pilot what heading or altitude to fly at, they will simply provide them with information to assist their flight. A two-week traffic survey identified minimal GA interaction with the proposed EA Hub TMZ airspace, with all observed aircraft equipped with transponders and likely already subject to existing regulations which affect aircraft operating across the London/Amsterdam FIR boundary, which all of the aircraft observed during the study period were. There is no provision for GA non-transponding traffic to cross the Amsterdam FIR at this time.

As can be seen from Figure 5, the location of EA3 is not on a main transit route within the UK, being located approximately 68km from the nearest point of land and located on the UK FIR boundary.

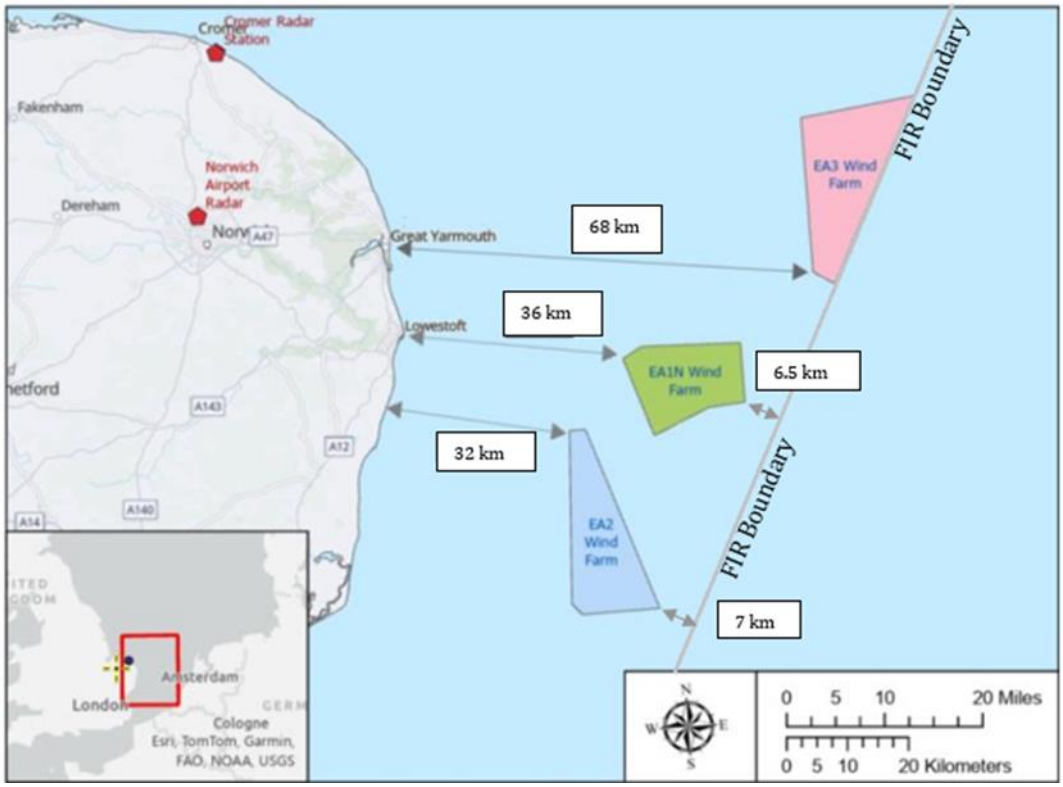

Figure 5 - High Level Overview of the EA3 Wind Farm Location

Figure 6 shows the absence of any VFR transit routes close to the site of the proposed EA3 development. This airspace is Class G and can be transited by any aircraft, however because of its location from the coastline it is unlikely to be used by GA aircraft unless crossing the FIR boundary.

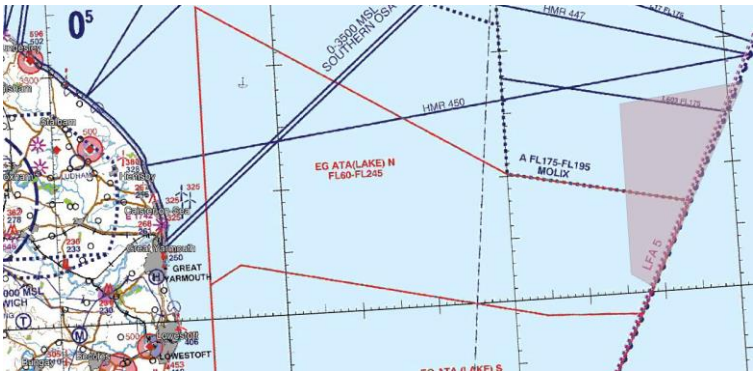

Figure 6 - Airspace Close to EA3

Aircraft that wish to transit toward the Netherlands and cross the FIR boundary must when they cross be operating a transponder, as they enter the North Sea Area Amsterdam TMZ immediately, which is active from SFC to FL55. Therefore, if an aircraft is able to enter this airspace and comply with the rules of the TMZ, then there

will be no impact below 3,000ft in the UK for the same aircraft. The CS acknowledges that aircraft may operate in the vicinity of the EA3 development area, however due to the low numbers of transponding traffic in the area, it is expected that the numbers of non-transponding tracks will also be relatively small.

4.2 Conclusion

The CS has evaluated the potential impact on military airspace users, civil airspace users and the GA community, and believes that there will no changes to air traffic patterns or numbers of movement below 3,000ft. The CS has therefore answered no to Q1 and therefore for EA3 the HRA is complete. No further action is required.

5 Conclusion

This document examines the impact of three proposed wind farm developments (EA1N, EA2, EA3) on air traffic patterns and concludes that the developments are unlikely to have a significant effect on European sites. This conclusion is based on the following:

- The wind farms are all located in Class G airspace, which is rarely used by commercial civil aviation.
- Military aircraft operating in the area use transponders and will not be affected by the wind farms.
- A two-week traffic survey [Ref 005] identified minimal GA interaction with the proposed airspace.
- The wind farms are located away from main transit routes and close to the UK FIR boundary, further reducing potential impact on air traffic.

For each wind farm (EA1N, EA2, EA3), the Change Sponsor has answered "no" to question 1 of the Early Screening Criteria set out in CAP 1616h. As a result, the CS has decided that no further HRA is required for any of the developments.

6 References

Ref	Title (Link)	Origin
[Ref 001]	CAP 1616 - Airspace Change Process	CAA
[Ref 002]	CAP 1616h - Guidance on Airspace Change Process for Level 3 and Pre-Scaled Airspace Change Proposals	CAA
[Ref 003]	ACP-2023-079 ScottishPower Renewables (UK) Ltd East Anglia Hub Windfarms Mitigation	Osprey
[Ref 004]	CAP 1616i - Environmental Assessment Requirements and Guidance for Airspace Change Proposals	CAA
[Ref 005]	East Anglia Hub Aviation Study Data	Osprey

Table 1 - References

A1 List of Acronyms

Acronym	Meaning
ACP	Airspace Change Proposal
ATC	Air Traffic Control
CAA	Civil Aviation Authority – UK Airspace regulator
CAP	Civil Aviation Publication
CAP 1616	Guidance on the regulatory process for changing airspace design including community engagement requirements.
CS	Change Sponsor
CTA	Control Area
FL	Flight Level
ft	feet
GA	General Aviation
HRA	Habitats Regulations Assessment
nm	Nautical Mile
RAF	Royal Air Force
TMZ	Transponder Mandatory Zone

Table 2 - List of Acronyms

A2 Glossary of Terminology

Term	Meaning
Development Area	The proposed geographic location of the East Anglia Hub Wind Farms.
Transponder Mandatory Zone (TMZ)	A Transponder Mandatory Zone is an area of defined dimensions wherein the carriage and operation of aircraft transponder equipment is mandatory. All flights operating in airspace designated by the competent authority as a TMZ shall carry and operate SSR transponders capable of operating on Modes S or, in exceptional circumstances, SSR Modes A and C. However, the advent and increasing affordability of technology such as Automatic Dependent Surveillance – Broadcast (ADS-B) means that the concept of a TMZ may now evolve to utilise alternate types of electronic conspicuity systems. A pilot wishing to operate in a TMZ without serviceable transponder equipment may be granted access subject to specific arrangements agreed with the TMZ Controlling Authority via satisfactory 2-way communication.

Table 3 - Glossary of Terminology