

**Gateway Documentation:
Stage 1 Define**

**Step 1B Design Principles
Stakeholder Engagement Feedback**

Vanguard & Boreas Windfarms



Action	Role	Date
Produced	Airspace Change Specialist NATS Airspace and Future Operations	April 2020
Reviewed Approved	Manager, Airspace Change Compliance and Delivery NATS Airspace and Future Operations	April 2020
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Issue	Month/Year	Changes this issue
Issue 1.0	March 2020	Document written, considering feedback from engagement exercises. Draft distributed to stakeholders for review.
Issue 1.1	April 2020	Submitted to CAA, CAP1616 Stage 1B Gateway

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1. Introduction

1.1 Within the requirements of the CAP1616 airspace change process, an airspace change sponsor needs to identify and communicate the design principles which are to be applied to the airspace change design.

1.2 This document aims to outline draft design principles for feedback from stakeholders for the proposed windfarm developments on the Norfolk Vanguard and Boreas sites, to ensure a good level of understanding by change sponsors as to what design considerations are important to stakeholders.

1.3 This forms part of the document requirements for the CAP1616 Airspace Change Process, Stage 1 Define Gateway: Step 1B Design Principles, as shown in Figure 1. This document may be read in conjunction with Stage 1A documentation and the [Statement of Need](#).

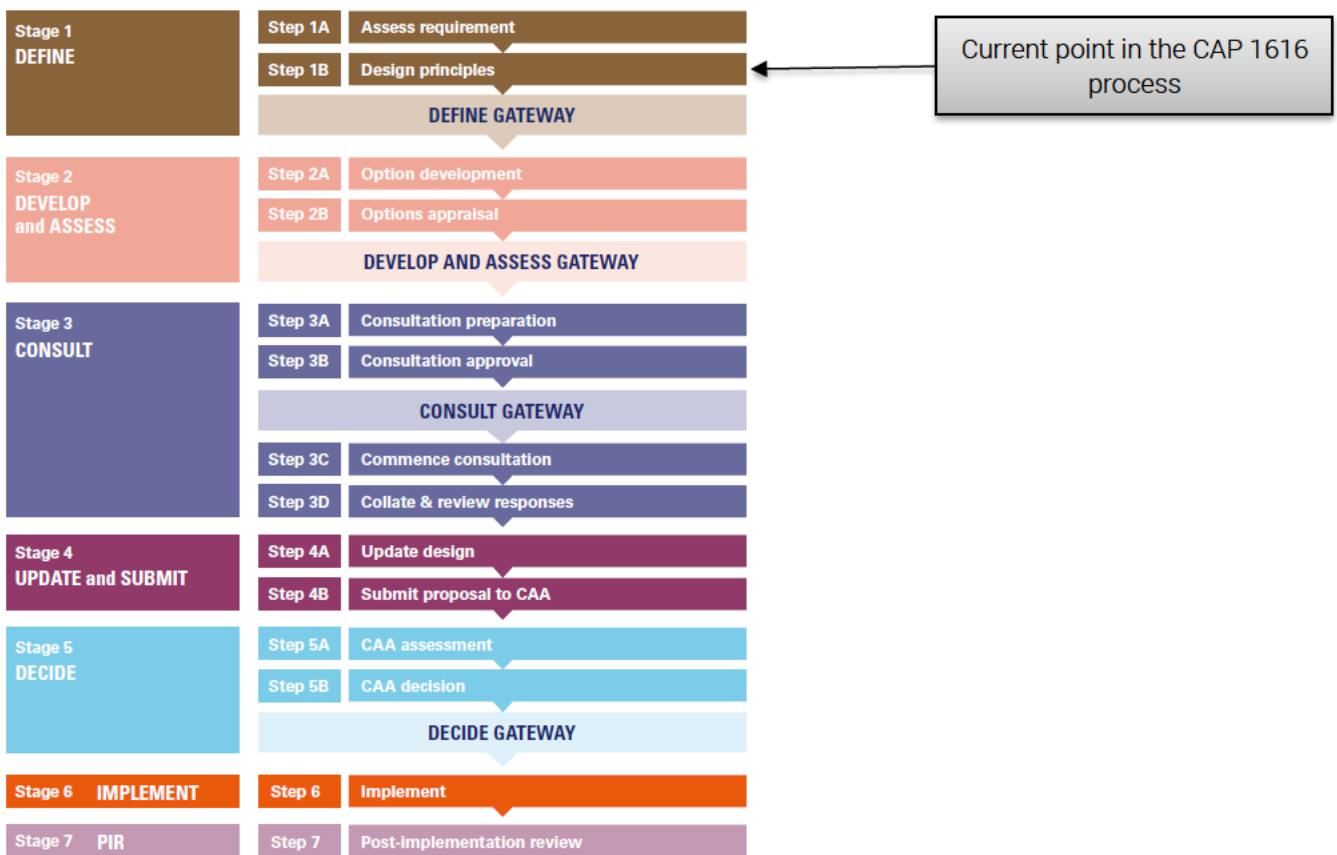


Figure 1: Overview of the Airspace Change Process (CAP1616)

1.4 Vattenfall are proposing two significant offshore windfarm developments in an eastern portion of the UK FIR and partly in UK airspace delegated to the Dutch ANSP LVNL. It has been identified that these have the potential to create radar clutter and impact on Air Traffic Services, and a mitigation solution is required.

1.5 Draft design principles have been proposed and distributed to stakeholders for feedback and comment, along with some context as to the purpose of the design principles. We emailed them to industry stakeholders,

in order to engage with them and enable us to understand the design considerations that are important to them.

1.6 We made it clear that these proposed draft design principles were for discussion, and that we would welcome feedback to inform the final design principles. We received responses and feedback from seven stakeholders.

This document describes how stakeholders' feedback has influenced the design principles for Vanguard & Boreas Windfarm Developments. The amended design principles were sent to all stakeholders for final feedback with a 1-week review period in March 2020.

The relative priorities for each Design Principle (A – highest, C - lowest) are identified and indicated in Section 3 next to each.

Engagement on specific design concepts/options will happen in Stage 2, and formal consultation in Stage 3. The design concepts will be evaluated against the final design principles as presented herein.

2. How this document is laid out

The Executive Summary lists the Design Principles (DPs), amended as a result of feedback, including additional DPs added as a result of suggestions from stakeholders.

The next sections discuss each DP in turn. In accordance with recommended engagement/consultation practice¹ this is structured as follows:

- We asked* The original discussion text of each draft DP (we sent this out, stakeholders provided feedback)
- You said* A summary of how feedback has influenced the DP
- We did* Amended final DP (unless original was agreed upon)

This is repeated for each DP.

Section 5 summarises the engagement activity, numbers of responses and key stakeholders who were included in the engagement.

¹ Recommended by the Consultation Institute

3. Executive Summary – List of Design Principles (DP)

The following list summarises the final Design Principles which have resulted from engagement with our stakeholders. Each of these principles has evolved from the FRA D1 DP engagement feedback. Priorities are indicated in brackets (A being the highest priority). These priorities will be considered when the design principles are used to evaluate/rank design options in the later stages of the airspace change process. How the DPs have evolved is described in detail in the next sections of the document.

DP1 Safety

Maintain or enhance current levels of safety.

DP2 Operational (Resilience)

Minimise negative impact on other airspace users, specifically GA and helicopters in support of UK Oil, Gas and Renewables industries.

DP3 Operational

Airspace change will maintain or enhance operational resilience of the ATC network.

DP4 Operational

ANSP alignment: ensure agreement between stakeholder/impacted ANSPs that the design concept being progressed suits all operations to mitigate the impact on surveillance systems

DP5 Operational

Airspace change will have minimal impact on operations/capacity of AO and ANSPs.

DP6 Environmental

Minimise impact on CO₂ emissions

DP7 Environmental

Minimise environmental impacts to stakeholders on the ground, including the impact of noise below 7,000ft (*note: due to the offshore location of the proposed changes, it is not expected that there will be any significant environmental impacts to stakeholders on the ground due to noise, visual intrusion and local air quality*)

DP8 Economic

Minimise economic impact on aircraft operators.

DP9 Economic

Ensure costs and resources are proportionate to ensure appropriate safety mitigation.

DP10 Technical

Base the airspace change on the latest technology widely available.

- This technology could relate to navigation, surveillance enhancements, radar data processing, etc

DP11 Technical

The volume of airspace affected should be the minimum necessary to deliver requirements, whilst providing optimal safety buffer.

- Seek to create simple, easily definable solution.

DP12 Technical (MOD)

The airspace change should be compatible with the requirements of the MoD (if required).

DP13 Policy

The proposed airspace change will take account of government policy documents (such as the Air Navigation Guidance).

DP14 Technical (Offshore Helicopter Operation)

The airspace change should be compatible with the requirements of the offshore helicopter operation supporting the UK Oil, Gas and Renewables industries.

4. Airspace Design Principles and Evaluation

4.1 DP1 Safety

Original discussion text

Maintain or enhance current levels of safety.

How has feedback influenced this DP?

There were no additional comments received relating to this DP hence it remains as originally proposed. Priority A assigned, since safety is the highest priority.

4.2 DP2 Operational

Original discussion text

Minimise negative impact on other airspace users (ie General Aviation (GA)).

How has feedback influenced this DP?

It is proposed that this also includes the wording: 'also helicopters in support of UK Oil, Gas and Renewables industries'. Operational resilience is a high priority, so this has been assigned Priority B. This DP is in line with the principles provided by the BMAA response document.

Proposed text

Minimise negative impact on other airspace users, specifically General Aviation (GA) and helicopters in support of UK Oil, Gas and Renewables industries.

4.3 DP3 Operational

Original discussion text

Airspace change will maintain or enhance operational resilience of the ATC network.

How has feedback influenced this DP?

There were no additional comments received relating to this DP hence it remains as originally proposed. Network Performance is a high priority, so this has been assigned Priority B.

4.4 DP4 Operational

Original discussion text

ANSP alliance: ensure agreement between stakeholder / impacted ANSPs that the design concept being progressed suits all operations.

How has feedback influenced this DP?

Feedback from NATS (NERL) asked that we consider rewording this to give a more accurate representation of the co-ordination involved in engaging and consulting with ANSPs and ensuring agreement for the potential impact, specifically on their radar systems in order to keep this relevant and measurable.

Proposed text

ANSP alignment: ensure agreement between stakeholder/impacted ANSPs that the design concept being progressed suits all operations to mitigate the impact on surveillance systems.

Alignment between stakeholders is a priority, so this is assigned Priority C.

4.5 DP5 Operational

Original discussion text

Airspace change will have minimal impact on operations/capacity of Aircraft Operators and ANSPs

How has feedback influenced this DP?

The following comment was made by Aberdeen ATC: the development could impact on minimum safe altitudes (MSA) used by helicopters in this area. This Design Principle allows for this and this comment can be considered within the Design Options. This is also covered by DP2. No change to the Design Principle.

Reducing operational impact is a high priority so this is assigned Priority B.

4.6 DP6 Environmental

Original discussion text

Minimise impact on CO₂ emissions

How has feedback influenced this DP?

There were no additional comments received relating to this DP hence it remains as originally proposed. This DP is in line with the principles provided by the BMAA response document.

Reducing CO₂ emissions is high priority; Priority B assigned.

4.7 DP7 Environmental

Original discussion text

Minimise environmental impacts to stakeholders on the ground, including the impact of noise below 7,000ft (*note: due to the offshore location of the proposed changes, it is not expected that there will be any significant environmental impacts to stakeholders on the ground due to noise, visual intrusion and local air quality*)

How has feedback influenced this DP?

The following comment was made by Aberdeen ATC: 'Note – if the proposal affects the routings (lateral or vertical) of low-level helicopter operations, the environmental aspects (increased fuel burn/ greater CO₂ emissions) need to be captured'.

This comment was made in response to DP7; however it is relevant to DP6, which considers minimising the impact of emissions. Given the location of the windfarm, re-routing air traffic is more likely to affect emissions than noise. This doesn't affect the DP so no change is proposed; the environmental aspects

will be considered in Stage 2 Design Options. As minimising environmental impacts is a high priority, Priority B assigned.

4.8 DP8 Economic

Original discussion text

Minimise economic impact on aircraft operators.

How has feedback influenced this DP?

There were no additional comments received relating to this DP hence it remains as originally proposed. Minimising economic impact is assigned Priority C.

4.9 DP9 Economic

Original discussion text

Ensure costs and resources are proportionate to ensure appropriate safety mitigation.

How has feedback influenced this DP?

There were no additional comments received relating to this DP hence it remains as originally proposed. Ensuring economic proportionality is assigned Priority C

4.10 DP10 Technical

Original discussion text

Base the airspace change on the latest technology widely available.

- This technology could relate to navigation, radar enhancements, radar data processing, etc

How has feedback influenced this DP?

Aberdeen ATC suggested that we might want to change the word 'radar' to 'surveillance' as this would give you more options (e.g. WAM and ADS-B mitigations).

Priority C assigned, since using the latest widely available technology is a priority.

Proposed text

Base the airspace change on the latest technology widely available.

- This technology could relate to navigation, surveillance enhancements, radar data processing, etc

4.11 DP11 Technical

Original discussion text

The volume of airspace affected should be the minimum necessary to deliver requirements, whilst providing optimal safety buffer.

- Seek to create simple, easily definable solution

How has feedback influenced this DP?

The response from NHV Helicopters asked for consideration of a minimum distance from the rigs to the windfarm to allow them to carry out ARAs. This is in line with this DP. This DP is in line with the principles provided by the BMAA response document.

Priority B assigned, since protecting airspace is a high priority.

4.12 DP12 Technical (MoD)

Original discussion text

The airspace change will be compatible with the requirements of the MoD (if required).

How has feedback influenced this DP?

There were no additional comments received relating to this DP. This DP has been reviewed and it is considered the use of 'will' may be too constraining; it is proposed to reword this to 'should' to reflect the optimal option will be sought.

Priority B assigned, since meeting MoD requirements is a high priority.

Proposed text

The airspace change should be compatible with the requirements of the MoD (if required).

4.13 DP13 Policy

Original discussion text

The proposed airspace change will take account of government policy documents (such as the Air Navigation Guidance).

How has feedback influenced this DP?

There were no additional comments received relating to this DP hence it remains as originally proposed. Meeting government policy is a high priority, so Priority B assigned.

4.14 DP14 Technical (Offshore Helicopter Operation)

Proposed New Design Principle (by Aberdeen ATC)

The airspace change will be compatible with the requirements of the offshore helicopter operation supporting the UK Oil, Gas and Renewables industries.

Proposed DP has been reviewed and it is considered the use of 'will' may be too constraining; it is proposed to reword this to 'should' to reflect the optimal option will be sought. This is a high priority; Priority B assigned.

Proposed text

The airspace change should be compatible with the requirements of the offshore helicopter operation supporting the UK Oil, Gas and Renewables industries.

5. Engagement Evidence

We have engaged with all stakeholders in the development of these Design Principles. In the initial engagement, feedback was sought on the draft design principles. We received some feedback from stakeholders, with most responses being content with the draft design principles. Table 1 below provides a summary of the engagement activity for this proposal. Evidence is provided as an Annex where relevant.

5.1 We Asked - Emails to relevant aviation industry interested parties

Emails were sent on 4 February 2020 to 38 organisations, based on National Air Traffic Management Advisory Committee (NATMAC) contacts, adjacent ANSPs, airports and ATC providers. A return date of 18 February was set. Table 1 identifies all those contacted.

5.2 You Said – Stakeholder Responses

The response rate was 18% (7 stakeholders). These can be seen in Table 1.

Two provided feedback on several of the Design Principles, which has been used to inform DP2 and DP10, and the addition of DP14; and an amendment to DP4

Four provided comments around the design, but not specific to the design principles and/or indicated that they are satisfied with the draft design principles.

One stakeholder provided a standard response to design principle consultation. On review of this, the current proposed design principles are in line with these proposals where relevant. There is no intention to change Airspace Classification in this Airspace Change and given the offshore location the impact on GA is likely to be minimal.

5.3 We Did

Two stakeholder responses provided comments useable to influence the design principles – included in this document (DP2, 4, 10 and 14) and evidenced in Annex B.

A draft of this document with the revised DPs was sent to all the stakeholders on 31 March 2020. This provided feedback on the two-way engagement and demonstrated the development of the DPs following this engagement. Responses were requested by 7 April; stakeholders were advised no need to respond if they had no additional comments. Table 1 shows the responses received.

5.4 Key stakeholders Engagement Record

(Note: any other organisation or individual were welcome to provide input to the DP development process. Wider consultation with a much larger group will be undertaken at a later stage when a mature set of design options will be presented.)

	Stakeholder	Initial Engagement Email (Annex A)	Response to initial email	Final draft DP Email (Annex A)	Response to final email
NATMAC	Aircraft Owners and Pilots Association (AOPA)	Sent 04/02/2020	No response	Sent 31/03/2020	No response
	Airlines UK	Sent 04/02/2020	No response	Sent 31/03/2020	No response
	Airport Operators Association (AOA)	Sent 04/02/2020	No response	Sent 31/03/2020	No response
	ARPAS - Association of Remotely Piloted Aerial Systems	Sent 04/02/2020	No response	Sent 31/03/2020	No response

Aviation Environment Federation (AEF)	Sent 04/02/2020	No response	Sent 31/03/2020	No response
BAe Systems	Sent 04/02/2020	No response	Sent 31/03/2020	No response
BBAC - British Balloon & Airship Club	Sent 04/02/2020	No response	Sent 31/03/2020	No response
BHPA - British Hang gliding & Paragliding Association	Sent 04/02/2020	No response	Sent 31/03/2020	No response
BMAA - British Microlight Aircraft Association	Sent 04/02/2020	Response, see Annex B	Sent 31/03/2020	No response
BMFA - British Model Flying Association	Sent 04/02/2020	No response	Sent 31/03/2020	No response
BPA - British Parachute Association	Sent 04/02/2020	No response	Sent 31/03/2020	No response
British Airline Pilots Association (BALPA)	Sent 04/02/2020	No response	Sent 31/03/2020	No response
British Business and General Aviation Association (BBGA)	Sent 04/02/2020	No response	Sent 31/03/2020	No response
British Helicopter Association (BHA)	Sent 04/02/2020	No response	Sent 31/03/2020	No response
GAA & BGA	Sent 04/02/2020	No response	Sent 31/03/2020	No response
General Aviation Safety Council (GASCo)	Sent 04/02/2020	No response	Sent 31/03/2020	No response
Guild of Air Traffic Control Officers (GATCO)	Sent 04/02/2020	No response	Sent 31/03/2020	No response
Heavy Airlines	Sent 04/02/2020	No response	Sent 31/03/2020	No response
Helicopter Club of Great Britain (HCGB)	Sent 04/02/2020	No response	Sent 31/03/2020	No response
Light Aircraft Association (LAA)	Sent 04/02/2020	No response	Sent 31/03/2020	No response
Light Airlines	Sent 04/02/2020	No response	Sent 31/03/2020	No response
Low Fare Airlines	Sent 04/02/2020	No response	Sent 31/03/2020	No response
MoD DAATM	Sent 04/02/2020	No response	Sent 31/03/2020	No response
PPL/IR (Europe)	Sent 04/02/2020	No response	Sent 31/03/2020	No response
Babcock Helicopters	Sent 04/02/2020	No response	Sent 31/03/2020	No response
Bristow Helicopters	Sent 04/02/2020	No response	Sent 31/03/2020	No response
British Airways (BA)	Sent 04/02/2020	No response	Sent 31/03/2020	No response

	CHC Scotia	Sent 04/02/2020	No response	Sent 31/03/2020	No response
	Heli Holland	Sent 04/02/2020	No response	Sent 31/03/2020	No response
	NHV Helicopters	Sent 04/02/2020	Response, see Annex B	Sent 31/03/2020	No response
	Maritime and Coastal Agency (MCA)	Sent 04/02/2020	No response	Sent 31/03/2020	No response
Airports	Aberdeen ATC (NATS)	Sent 04/02/2020	Response, see Annex B	Sent 31/03/2020	No response
	Humberside Airport	Sent 04/02/2020	Response, see Annex B	Sent 31/03/2020	Response, see Annex B
	Norwich Airport	Sent 04/02/2020	Response, see Annex B	Sent 31/03/2020	No response
ANSPs	Eurocontrol Maastricht Upper Area Control Centre (MUAC)	Sent 04/02/2020	No response	Sent 31/03/2020	No response
	NATS En Route Limited (NERL)	Sent 04/02/2020	Response, see Annex B	Sent 31/03/2020	Response, see Annex B
	LVNL (Dutch ANSP)	Sent 04/02/2020	Response, see Annex B	Sent 31/03/2020	No response

Table 1: Boreas & Vanguard Windfarms Stage 1B Engagement Record

6. Conclusion

Throughout the design principles engagement, we supplied stakeholders with a set of draft design principles, to provoke discussion and welcomed their feedback.

We received feedback on some of the draft design principles (DP2, DP4 and DP10) which were amended as a result, and we added an additional design principle (DP14). We circulated the revised DPs to all stakeholders for feedback.

This evolution has resulted in the list of design principles as detailed in the Executive Summary.

Annex A: Engagement Activity

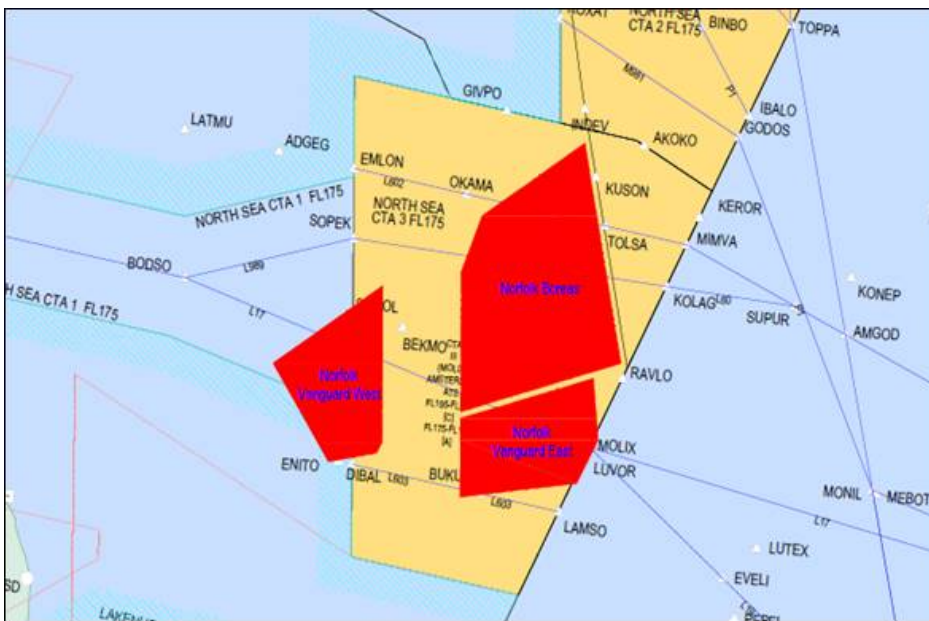
A.1 This initial engagement email was sent to all stakeholders listed in Table 1 on 04 February 2020:

Dear Colleague,

I am writing with regards to an Airspace Change Proposal which may affect you or your organisation, which NATS are delivering on behalf of Vattenfall, following the CAP1616 Airspace Change Process.

We wish to ask you for your feedback on Design Principles (DPs) for a proposed change called 'Norfolk Vanguard & Norfolk Boreas Windfarms' ([link to CAA web page](#)).

Norfolk Vanguard and Norfolk Boreas Windfarms relates to the eastern portion of the UK FIR off the coast of East Anglia and partly in UK airspace delegated to the Dutch ANSP, LVNL, as shown here (yellow area is Dutch delegated airspace)



For a description of its scope, see this presentation slide pack ([link](#)).

Design Principles provide the framework for 'how should we go about designing, what is important to us, & to stakeholders'; they do not stipulate 'what sort of thing should we design'.

We provide some draft DPs below for this proposed change and ask: "is the wording right; how should they be prioritised relative to each other; what is important to you; should there be more, or fewer?"

Please can you review and give us your comments. If you have any suggestions for changes or additional design principles we welcome your input.

DP1 Safety

Maintain or enhance current levels of safety.

DP2 Operational

Minimise negative impact on other airspace users (ie GA).

DP3 Operational

Airspace change will maintain or enhance operational resilience of the ATC network.

DP4 Operational

ANSP alliance: ensure agreement between stakeholder / impacted ANSPs that the design concept being progressed suits all operations.

DP5 Operational

Airspace change will have minimal impact on operations/capacity of AO and ANSPs.

DP6 Environmental

Minimise impact on CO2 emissions

DP7 Environmental

Minimise environmental impacts to stakeholders on the ground, including the impact of noise below 7,000ft (*note: due to the offshore location of the proposed changes, it is not expected that there will be any significant environmental impacts to stakeholders on the ground due to noise, visual intrusion and local air quality*)

DP8 Economic

Minimise economic impact on aircraft operators.

DP9 Economic

Ensure costs and resources are proportionate to ensure appropriate safety mitigation.

DP10 Technical

Base the airspace change on the latest technology widely available.

- This technology could relate to navigation, radar enhancements, radar data processing, etc.

DP11 Technical

The volume of airspace affected should be the minimum necessary to deliver requirements, whilst providing optimal safety buffer.

- Seek to create simple, easily definable solution.

DP12 Technical (MoD):

The airspace change will be compatible with the requirements of the MoD (if required).

DP13 Policy:

The proposed airspace change will take account of government policy documents (such as the Air Navigation Guidance).

Once we have discussed DPs with all stakeholders, we will make updates to the DPs (if feedback requires it) and ask for final comments, completing two rounds of engagement with each stakeholder.

I would be grateful if you could review these draft Design Principles for the Airspace Change required for the Norfolk Vanguard and Boreas Wind Farm Developments and provide feedback by 18 February 2020

Kind regards

■

A.2 This Final Draft DP Email was sent to all stakeholders listed in Table 1 on 31 March 2020:

Dear Colleague

We wrote to you in February with regards to an Airspace Change Proposal which may affect you or your organisation, which NATS are delivering on behalf of Vattenfall, following the CAP1616 Airspace Change Process.

We asked you for your feedback on Design Principles (DPs) for a proposed change called 'Norfolk Vanguard & Norfolk Boreas Windfarms' ([link](#) to CAA web page).

Thank you to those who responded and provided invaluable feedback to this process.

Please find attached the response document, which summarises all responses and proposes an amended set of Design Principles. This is in line with the "you said, we did" approach.

Please review these and if you have any additional comments please respond via email by 7 April 2020. If we do not receive a response by this time we will assume you have no further comments.

Many thanks for your time

Kind regards

■

Annex B: Engagement Activity


B.1 Email received from BMAA in response to draft Design Principles:

RE: Proposed new airspace change for windfarm development: Norfolk Vanguard & Boreas



You replied to this message on 10/02/2020 14:50.

We sent you safe versions of your files
Outlook item

 BMAA Principles during ACP engagement.pdf
268 KB

Mimecast Attachment Protection has deemed this file to be safe, but always exercise caution when opening files.

Thank you for your email.

I attach a document that addresses the BMAA's response to consultations regarding design principles.

Regards



British Microlight Aircraft Association



British Microlight Aircraft Association Policy for Design Principles during ACP engagement

Introduction

The following text describes the underlying principles that the British Microlight Aircraft Association (BMAA) believes must be followed by applicants for airspace change proposals.

Consultation

1. The BMAA welcomes the opportunity to engage in consultation at an early stage within the ACP CAP 1616 process.
2. Sponsors are encouraged to engage with the BMAA and its members as early as possible during the development of the ACP. Previous ACPs have missed the opportunity for early engagement and dialogue resulting in significant and costly delays.

Airspace classification

1. The BMAA considers that the UK airspace's default classification is G and that sponsors must establish a safety case for proposing to change this class or add any further restrictions or requirements by their ACP.
2. All sponsors must demonstrate that alternatives have been considered such as RMZ and TMZ before considering controlled airspace.
3. Where Class E is proposed, without a TMZ or RMZ should be considered as the default option.

Access by GA

1. Sponsors must accept the assumption that GA including sporting and recreational aviation is entitled to continued safe use of airspace and that commercial aviation does not have a right to limit airspace access.
2. Sponsors should ensure that there will be measures to allow flexible use of airspace and prepare for the wider use of electronic conspicuity devices and interoperability with existing e-conspicuity, e.g. FLARM and Pilot Aware etc...



Airspace volume

1. In line with the principles of the Airspace Modernisation (was FAS) principles the ACP must respect the requirement for minimum airspace volumes designed for efficiency and reduced environmental impact. These principles will include:
 - Minimum size of controlled airspace
 - Minimum number of departure/arrival routes
 - Steeper and continuous climbs and descents for cost and environmental benefits as well as minimisation of CAS footprint.

Justification

1. Sponsors must conduct and present proper analysis of overall airspace safety changes i.e. based on modelling and evidence rather than purely subjective opinion.
2. Sponsors must provide proper validation of forecast traffic levels. There is an expectation that data used, particularly forecasts, will be verifiable including details of any and all assumptions.

Airspace integration

1. Sponsors must show how they are integrating their proposal within the overall UK airspace modernisation context, for example proposals which do not connect efficiently between upper and lower airspace (potentially under different airspace "management") would only inhibit overall airspace efficiency and therefore not receive our support)
2. Optimisation of the development work above and below the 7,000ft NATS en-route split.


B.2 Email received from Norwich Airport in response to draft Design Principles:

RE: Proposed new airspace change for windfarm development: Norfolk Vanguard & Boreas

[Redacted]

↩ Reply
↩ Reply All
➔ Forward
⋮

04/02/2020

 You replied to this message on 04/02/2020 16:07.

[Redacted]

Thank you for the email and your request for feedback, please see below:

- Norwich ATC has a contract with NATS that in the event of the Norwich PSR failing, the Cromer PSR feed is piped in; therefore Norwich has the same objections as NATS as the Cromer PSR will experience interference from such a large wind farm. While this wind farm is outside of the Norwich Radar Service Area it may cause interference issues with the radar that could potentially affect the ability of Norwich ATC to provide a safe ATS.
- Norwich ATC utilise SSR data from the Cromer Radar, will the SSR maintain track of an aircraft operating above the wind farm?

Regards

[Redacted]
Air Traffic Services Manager
Norwich Airport

[Redacted]


B.3 Email received from NHV Norwich in response to draft Design Principles:

Re: Proposed new airspace change for windfarm development: Norfolk Vanguard & Boreas

[Redacted]

↩ Reply
↩ Reply All
➔ Forward
⋮

Fri 07/02/2020 10:39

 You replied to this message on 10/02/2020 14:49.

[Redacted]

A few points from our Norwich Chief Pilot although I'm not sure they are all airspace related:

- Fundamentally for us, the 3 proposed wind farms are to the SE of any present operations so will be of little impact, though we are working to blade tips reaching 1150ft AMSL, may have implications regarding icing for transit to Dutch sector. It would be useful to have a corridor running E-W under such circumstances.
- It would be my preference to have the closest point of these farms to any rig at no less than 6nm, to allow for us to carry out ARA's when needed. This is based on the assumption that we can achieve 1500ft at 6nm, clearly not the case for these farms so the distance should be extended proportionally to allow us to descend from the MSA to 1500ft by 6nm.
- Clearly NATS is aware of the radar clutter issues. From our point of view, if GA enters this area without a secondary capability, then neither us or ATS will be able to pick them up.
- Finally, having looked at the assessment meeting NATS doc from 2018, they talk about the use of HMR's, which I believe NATS are in the process of removing if not already done so, as they are not used by us.

Kind regards,

[Redacted]
NHV Helicopters Ltd

B.4 Email received from Humberside Airport in response to draft Design Principles:

[REDACTED]

Unless the Cromer radar has a 'special' configuration or the height to tip of the rotors within Norfolk Vanguard West are much lower, Norfolk Vanguard West will equally effect the Cromer.

Good luck for the rest of the consultation – suspect the helicopter operators will be the only objectors where they have concerns re icing levels such that they will need to route lower than the turbine blades....

Regards

[REDACTED] | Humberside Airport

HUMBERSIDE AIRPORT | KIRMINGTON | NORTH
 LINCOLNSHIRE | DN396YH | [REDACTED] | www.humbersideairport.com



All visitors to Humberside International Airport should proceed to the airport Information Desk on arrival, to book in and receive a visitors pass. If your visit requires you to visit airside areas, please consult your visit sponsor regarding ID requirements.

From: Airspace Consultation [REDACTED]
 Sent: 10 February 2020 15:04
 To: [REDACTED]
 Subject: RE: EXTERNAL - Proposed new airspace change for windfarm development: Norfolk Vanguard & Boreas

Dear [REDACTED]
 Thank you for your email.

1. Yes it has taken this long! I've only recently started work on this project but I understand this largely to be related to funding/planning issues linked to the windfarm.
2. I am not entirely sure what the red blocks in slide 7 are depicting. The red curved line is illustrating the 57nm range from the Cromer radar, and therefore the sections of the windfarms to the West of this could impact on this coverage.
3. Many thanks for your confirmation regards the design principles, I appreciate your response and will document this in the Stage 1B documentation.

Kind regards

[REDACTED]

From: [REDACTED]
 Sent: 04 February 2020 16:37
 To: Airspace Consultation [REDACTED] >
 Subject: RE: EXTERNAL - Proposed new airspace change for windfarm development: Norfolk Vanguard & Boreas


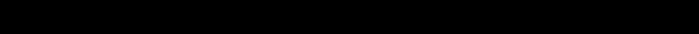

Dear [REDACTED]
 Thank you for your email.

Comments/questions from the 'presentation slide pack':

1. **Slide 1.** Can you confirm that it has taken since 4th October 2018 (believed to be the date of the 'Stage 1 Assessment Meeting' from Slide 1 of the presentation slide pack) to get to this stage for what is a relatively simple request? If so, help!!
2. **Slide 7.** I note the red curved line showing further to the east. Why is there no red showing within the Norfolk Vanguard West as this is closer to the Cromer Radar?

Lastly, I am content with the design principals as described in the email.


Regards

 | Humberside Airport
Direct Line 
HUMBERSIDE AIRPORT | KIRMINGTON | NORTH
LINCOLNSHIRE | DN396YH |  | www.humbersideairport.com



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B.5 Email received from Aberdeen ATC in response to draft Design Principles:

 – comments from Aberdeen (who carry out the offshore helicopter operation in this area – 'Anglia Radar') in red below.

Slight correction to the airspace description below, you mention that some of the airspace in this area is delegated to LVNL (yellow shaded area), this is not entirely correct. The LVNL delegated area does not go all the way to sea level. Anglia Radar provides UKFIS in the yellow shaded area from sea level to FL65 managing the offshore helicopter operation.

Kind Regards



NATS





Control Tower Building
Aberdeen, AB21 7DU
www.nats.co.uk

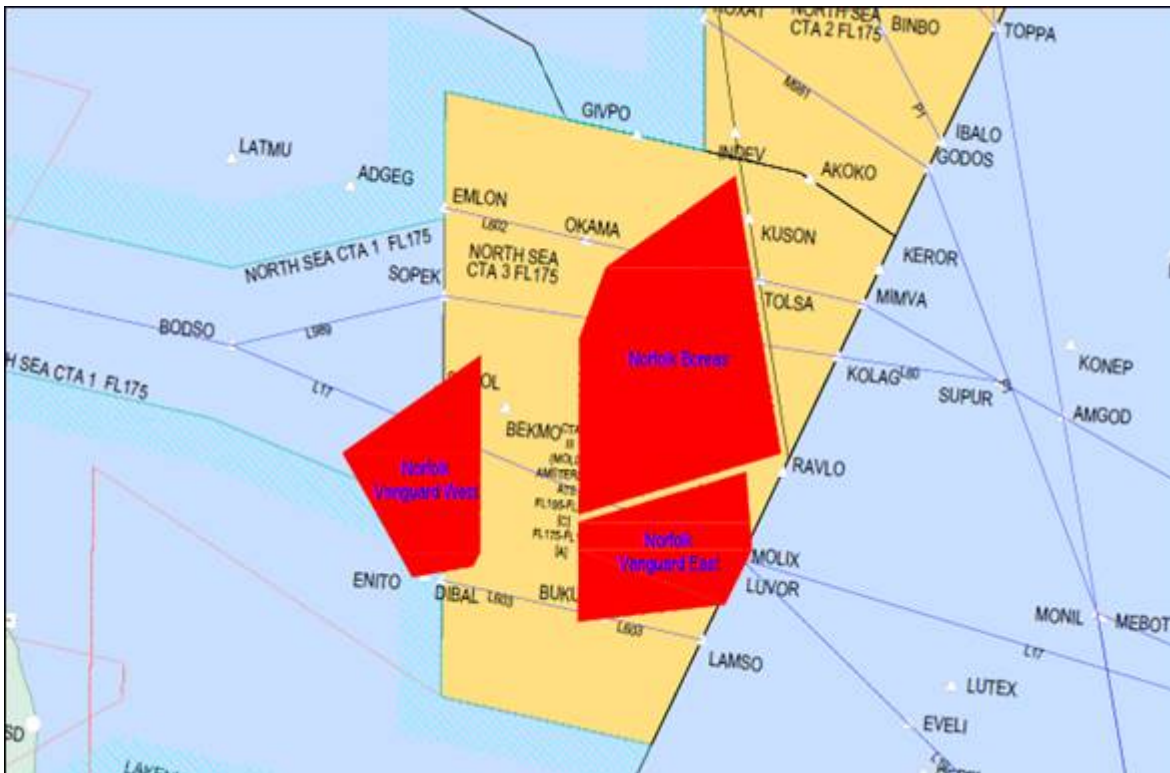


From: Airspace Consultation
Sent: 04 February 2020 13:37
To: Airspace Consultation <[REDACTED]>
Subject: Proposed new airspace change for windfarm development: Norfolk Vanguard & Boreas

Dear Colleague,

I am writing with regards to an Airspace Change Proposal which may affect you or your organisation, which NATS are delivering on behalf of Vattenfall, following the CAP1616 Airspace Change Process. We wish to ask you for your feedback on Design Principles (DPs) for a proposed change called 'Norfolk Vanguard & Norfolk Boreas Windfarms' ([link to CAA web page](#)).

Norfolk Vanguard and Norfolk Boreas Windfarms relates to the eastern portion of the UK FIR off the coast of East Anglia and partly in UK airspace delegated to the Dutch ANSP, LVNL, as shown here (yellow area is Dutch delegated airspace)



For a description of its scope, see this presentation slide pack ([link](#)).

Design Principles provide the framework for 'how should we go about designing, what is important to us, & to stakeholders'; they do not stipulate 'what sort of thing should we design'.

We provide some draft DPs below for this proposed change and ask: “is the wording right; how should they be prioritised relative to each other; what is important to you; should there be more, or fewer?”
Please can you review and give us your comments. If you have any suggestions for changes or additional design principles we welcome your input.

DP1 Safety

Maintain or enhance current levels of safety.

DP2 Operational

Minimise negative impact on other airspace users (ie GA). **Also helicopters in support of UK Oil, Gas and Renewables industries.**

DP3 Operational

Airspace change will maintain or enhance operational resilience of the ATC network.

DP4 Operational

ANSP alliance: ensure agreement between stakeholder / impacted ANSPs that the design concept being progressed suits all operations.

DP5 Operational

Airspace change will have minimal impact on operations/capacity of AO and ANSPs. **Note – the development could impact on minimum safe altitudes (MSA) used by helicopters in this area.**

DP6 Environmental

Minimise impact on CO2 emissions

DP7 Environmental

Minimise environmental impacts to stakeholders on the ground, including the impact of noise below 7,000ft (*note: due to the offshore location of the proposed changes, it is not expected that there will be any significant environmental impacts to stakeholders on the ground due to noise, visual intrusion and local air quality*) **Note – if the proposal affects the routings (lateral or vertical) of low level helicopter operations, the environmental aspects (increased fuel burn/ greater CO2 emissions) need to be captured**

DP8 Economic

Minimise economic impact on aircraft operators.

DP9 Economic

Ensure costs and resources are proportionate to ensure appropriate safety mitigation.

DP10 Technical

Base the airspace change on the latest technology widely available.

- This technology could relate to navigation, radar enhancements, radar data processing, etc. **might want to change the word ‘radar’ to ‘surveillance’ as this would give you more options (e.g. WAM and ADS-B mitigations)**

DP11 Technical

The volume of airspace affected should be the minimum necessary to deliver requirements, whilst providing optimal safety buffer.

- Seek to create simple, easily definable solution.

DP12 Technical (MoD):

The airspace change will be compatible with the requirements of the MoD (if required).

Can we have another technical?

DP12½ Offshore Helicopter Operation

The airspace change will be compatible with the requirements of the offshore helicopter operation supporting the UK Oil, Gas and Renewables industries.

B.7 Response received from LVNL

Dear Sir/Madame,

Thank you for informing us about windfarm Norfolk Vanguard East. Our observations:

A small part of this windfarm is situated in the Amsterdam FIR. For this part

- our AIS department will need input from NATS for publication in our AIP.
- we have to decide if the lower limit of the HMR concerned (KY650) has to be raised to e.g. 2000 ft or that we will resolve this in another way.

The part that is situated in UK Airspace will have to be published in the UK AIP

Together with the operators it has to be decided if the conflicting HMR's (445/446/447/450) have to be redirected or if the lower limit has to be raised.

What is the planning. When will this windfarm be build?

Best regards,

[Redacted]



Enabling aviation together

[Redacted]

| Business Support | Procedures Department

B.8 Final Response received from Humberside Airport

[Redacted]

We have no further response other than to request updated radar impact diagrams based on the whole area (no hurry for these as slow time I'm looking to assess the likely impact of these larger turbines).

Regards

[Redacted] | Humberside Airport

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LINCOLNSHIRE | DN396YH | [Redacted]

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B.9 Response received from NATS (NERL)

Dear 

NATS (NERL) have no further comments.

Best regards



NATS









Annex C: Glossary of Terms

ACP: Airspace Change Proposal

ANSP: Airspace Navigation Service Provider

ARA: Airborne Radar Approach

ATC: Air Traffic Control

ATS: Air Traffic Services

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.

DP: Design Principles: these encompass the safety, environmental and operational criteria and the strategic policy objectives that the change sponsor seeks to achieve in developing the airspace change proposal.

Eurocontrol: European Organisation for the Safety of Air Navigation; with 41 members it seeks to achieve safe and seamless air traffic management across Europe. (note Eurocontrol is independent of the European Community)

ICAO: International Civil Aviation Organisation – an agency of the United Nations.

NATMAC: National Air Traffic Management Advisory Committee - NATMAC is a non-statutory advisory body sponsored by the Directorate of Airspace Policy. The Committee is consulted for advice and views on any major matter concerned with airspace management.

NATS: National Air Traffic Services – UK Air Navigation Service Provider

Statement of Need: sets out what airspace issue or opportunity this proposed change seeks to address