



4 Oct 18

AIRSPACE CHANGE PROPOSAL - HOLBEACH AIR WEAPONS RANGE

CAP1616 STAGE 2a Design Principle Evaluation

This document forms part of the Airspace Change Proposal (ACP) process as defined in CAP 1616. For ease of reading, the *Statement of Need* and *Design Principles* are restated below before the document outlines the various options considered to meet the Statement of Need.

1. Statement of Need

The UK Academic Air Weapons Ranges (AAWRs) have needed to evolve since the infancy of military flying and the requirement to practice weaponry tactics. DIO Holbeach (EG D207) has barely altered since the cold-war; when training focused on high speed, low-level hit-and-run style attack profiles using dumb bombs. Modern air weaponry profiles using smart weapons and associated tactics are conducted in a significantly different fashion and often assume air-superiority; enabling modern Air Systems to loiter on station overhead the range for an extended period whilst working ground-based Joint Terminal Attack Controllers (JTACs) for talk-ons to varied targets in Close Air Support (CAS) scenarios. To cater for these modern flight profiles, training and new weapons, the airspace needs to be enhanced. The principals of FUA will be considered throughout the ACP to ensure that, wherever possible, the minimum volume of airspace required to achieve the military mission is requested.

2. Design Principles

- a. The design will provide a suitable safe training area.
- b. Management of airspace to utilise FUA principles (Efficiency + Airspace Sharing).
- c. Consider Environmental & Ecological impact.
- d. Safety – ensure airspace design safely caters for all profile types.
- e. Minimise impact upon the network where possible (Efficiency + Airspace Sharing).
- f. The training area will be within reach of UK/USAFE Main Operating Bases.
- g. Minimise impact upon any other airspace users.
- h. Simplicity - utilise existing structures where possible (Efficiency, Simplicity + Safety).

3. Options Evaluation

The 7 initial options were sent to the Key stakeholders on 30 Aug 18. The feedback received helped review the options against the Design Principles below. This is a rudimentary evaluation - *not* an evaluation of a detailed design - therefore if a design principle is potentially achievable it will

be marked as met and annotated 'potentially'. Any viable options will be further appraised at stage 2b.

Option 1 – No Change

No Change	REJECT		
Description of Option			
No change to the current airspace at Holbeach.			
Design Principle 1: The design will provide a suitable safe training area. (Key)	NOT MET	PARTIAL	MET
The airspace is currently only big enough to cater for some older style profiles/training. Current profiles result in the aircraft 'spilling out' of the segregated airspace (ie not safely protected).			
Design Principle 2: Management of airspace to utilise FUA principles (Efficiency + Airspace Sharing). (Key)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 3: Consider Environmental & Ecological impact. (High)	NOT MET	PARTIAL	MET
Design Principle 4: Safety – ensure airspace design safely caters for all profile types. (High)	NOT MET	PARTIAL	MET
The airspace needs to be enhanced to cater for modern & future profiles (see principle 1 above).			
Design Principle 5: Minimise impact upon the network where possible (Efficiency + Airspace Sharing). (High)	NOT MET	PARTIAL	MET
Design Principle 6: The training area will be within reach of UK/USAFE Main Operating Bases. (High)	NOT MET	PARTIAL	MET
Holbeach is within range of RAF Marham & RAF Lakenheath.			
Design Principle 7: Minimise impact upon any other airspace users. (High)	NOT MET	PARTIAL	MET
The current (smaller) airspace does not impact adjacent units/airways.			
Design Principle 8: Simplicity - utilise existing structures where possible (Efficiency, Simplicity + Safety). (Medium)	NOT MET	PARTIAL	MET

Option 2 – Complex Enhancement at Holbeach

Complex enhancement at Holbeach	REJECT		
Description of Option			
An unusual and potentially confusing design to cater for modern & future profiles.			
Design Principle 1: The design will provide a suitable safe training area. (Key)	NOT MET	PARTIAL	MET
Although the design satisfies modern profiles, the increased complexity may confuse air & ground staff.			
Design Principle 2: Management of airspace to utilise FUA principles (Efficiency + Airspace Sharing). (Key)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 3: Consider Environmental & Ecological impact. (High)	NOT MET	PARTIAL	MET
Potentially.			

Design Principle 4: Safety – ensure airspace design safely caters for all profile types. (High)	NOT MET	PARTIAL	MET
Tied-in with principle 1 above. Although the design would cater for all modern & future profiles, the increased complexity may result in aircrew or ground staff confusion; possibly resulting in the aircraft being outside of the new design.			
Design Principle 5: Minimise impact upon the network where possible (Efficiency + Airspace Sharing). (High)	NOT MET	PARTIAL	MET
Option development must consider the development of the MOD Combat Air ACP and factor in the impact on surrounding aerodromes; specifically, Norwich.			
Design Principle 6: The training area will be within reach of UK/USAFE Main Operating Bases. (High)	NOT MET	PARTIAL	MET
Holbeach is within range of RAF Marham & RAF Lakenheath.			
Design Principle 7: Minimise impact upon any other airspace users. (High)	NOT MET	PARTIAL	MET
As per principle 5 above. Other airspace users (both Mil <i>and</i> Civ) have been included as stakeholders and their say will help with the design throughout this process.			
Design Principle 8: Simplicity - utilise existing structures where possible (Efficiency, Simplicity + Safety). (Medium)	NOT MET	PARTIAL	MET
No change to Holbeach infrastructure.			

Option 3 – 8nm radius around Holbeach

8nm radius around Holbeach	ACCEPT		
Description of Option			
A relatively simple 8nm radius circular design to capture all current & future profiles (with option of being above 7000ft for the overland portion).			
Design Principle 1: The design will provide a suitable safe training area. (Key)	NOT MET	PARTIAL	MET
Design Principle 2: Management of airspace to utilise FUA principles (Efficiency + Airspace Sharing). (Key)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 3: Consider Environmental & Ecological impact. (High)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 4: Safety – ensure airspace design safely caters for all profile types. (High)	NOT MET	PARTIAL	MET
Design Principle 5: Minimise impact upon the network where possible (Efficiency + Airspace Sharing). (High)	NOT MET	PARTIAL	MET
Option development must consider the development of the MOD Combat Air ACP and factor in the impact on surrounding aerodromes; specifically, Norwich.			
Design Principle 6: The training area will be within reach of UK/USAFE Main Operating Bases. (High)	NOT MET	PARTIAL	MET
Holbeach is within range of RAF Marham & RAF Lakenheath.			
Design Principle 7: Minimise impact upon any other airspace users. (High)	NOT MET	PARTIAL	MET
As per principle 5 above. Other airspace users (both Mil <i>and</i> Civ) have been included as			

stakeholders and their say will help with the design throughout this process.			
Design Principle 8: Simplicity - utilise existing structures where possible (Efficiency, Simplicity + Safety). (Medium)	NOT MET	PARTIAL	MET
No change to Holbeach infrastructure.			

Option 4 – 7nm radius around Holbeach

7nm radius around Holbeach	ACCEPT		
Description of Option			
A relatively simple 7nm radius circular design to capture all current & future profiles (with option of being above 7000ft for the overland portion). <i>The only difference between this option and the previous option is that the radius is reduced to 7nm – to still capture the modern profiles, but has reduced the buffer and enhanced FUA for other users.</i>			
Design Principle 1: The design will provide a suitable safe training area. (Key)	NOT MET	PARTIAL	MET
Design Principle 2: Management of airspace to utilise FUA principles (Efficiency + Airspace Sharing). (Key)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 3: Consider Environmental & Ecological impact. (High)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 4: Safety – ensure airspace design safely caters for all profile types. (High)	NOT MET	PARTIAL	MET
Design Principle 5: Minimise impact upon the network where possible (Efficiency + Airspace Sharing). (High)	NOT MET	PARTIAL	MET
Option development must consider the development of the MOD Combat Air ACP and factor in the impact on surrounding aerodromes; specifically, Norwich.			
Design Principle 6: The training area will be within reach of UK/USAFE Main Operating Bases. (High)	NOT MET	PARTIAL	MET
Holbeach is within range of RAF Marham & RAF Lakenheath.			
Design Principle 7: Minimise impact upon any other airspace users. (High)	NOT MET	PARTIAL	MET
As per principle 5 above. Other airspace users (both Mil <i>and</i> Civ) have been included as stakeholders and their say will help with the design throughout this process.			
Design Principle 8: Simplicity - utilise existing structures where possible (Efficiency, Simplicity + Safety). (Medium)	NOT MET	PARTIAL	MET
No change to Holbeach infrastructure.			

Option 5 – Stub extended over the sea and a 7nm radius over Holbeach

7nm radius to the SW, then an extended stub over the sea to the NE to cater for greater 'range spill out'.	ACCEPT		
Description of Option			
A 7nm radius circular design to the SW, continuing into an extended stub over the sea (with option of being above 7000ft for the overland portion).			
Design Principle 1: The design will provide a	NOT MET	PARTIAL	MET

suitable safe training area. (Key)			
Design Principle 2: Management of airspace to utilise FUA principles (Efficiency + Airspace Sharing). (Key)	NOT MET	PARTIAL	MET
Design Principle 3: Consider Environmental & Ecological impact. (High)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 4: Safety – ensure airspace design safely caters for all profile types. (High)	NOT MET	PARTIAL	MET
Design Principle 5: Minimise impact upon the network where possible (Efficiency + Airspace Sharing). (High)	NOT MET	PARTIAL	MET
Option development must consider the development of the MOD Combat Air ACP and factor in the impact on surrounding aerodromes; specifically, Norwich.			
Design Principle 6: The training area will be within reach of UK/USAFE Main Operating Bases. (High)	NOT MET	PARTIAL	MET
Holbeach is within range of RAF Marham & RAF Lakenheath.			
Design Principle 7: Minimise impact upon any other airspace users. (High)	NOT MET	PARTIAL	MET
As per principle 5 above. Other airspace users (both Mil <i>and</i> Civ) have been included as stakeholders and their say will help with the design throughout this process.			
Design Principle 8: Simplicity - utilise existing structures where possible (Efficiency, Simplicity + Safety). (Medium)	NOT MET	PARTIAL	MET
No change to Holbeach infrastructure.			

Option 6 – Stub extended over the sea and a separate 7nm radius over Holbeach

7nm radius to the SW, then a <u>separate</u> extended stub over the sea to the NE to cater for greater 'range spill out'.	ACCEPT		
Description of Option			
A 7nm radius circular design to the SW, continuing to a <u>separate</u> extended stub over the sea (with option of being above 7000ft for the overland portion). Dividing the design to enhance FUA is the only difference to the previous design (option 5).			
Design Principle 1: The design will provide a suitable safe training area. (Key)	NOT MET	PARTIAL	MET
Design Principle 2: Management of airspace to utilise FUA principles (Efficiency + Airspace Sharing). (Key)	NOT MET	PARTIAL	MET
In the spirit of FUA (and future AFUA as it develops), dividing the airspace and only booking what is required – and in conjunction with other airspace user's bookings – seems a logical and pragmatic approach.			
Design Principle 3: Consider Environmental & Ecological impact. (High)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 4: Safety – ensure airspace design safely caters for all profile types. (High)	NOT MET	PARTIAL	MET

Design Principle 5: Minimise impact upon the network where possible (Efficiency + Airspace Sharing). (High)	NOT MET	PARTIAL	MET
Option development must consider the development of the MOD Combat Air ACP and factor in the impact on surrounding aerodromes; specifically, Norwich.			
Design Principle 6: The training area will be within reach of UK/USAFE Main Operating Bases. (High)	NOT MET	PARTIAL	MET
Holbeach is within range of RAF Marham, RAF Coningsby & RAF Lakenheath.			
Design Principle 7: Minimise impact upon any other airspace users. (High)	NOT MET	PARTIAL	MET
As per principle 5 above. Other airspace users (both Mil and Civ) have been included as stakeholders and their say will help with the design throughout this process.			
Design Principle 8: Simplicity - utilise existing structures where possible (Efficiency, Simplicity + Safety). (Medium)	NOT MET	PARTIAL	MET
No change to Holbeach infrastructure.			

Option 7 – a 7nm or 8nm radius circle around DONNA NOOK

7nm or 8nm radius circle around DONNA NOOK	REJECT		
Description of Option			
In addition to a Holbeach design, pursue a DONNA NOOK option.			
Design Principle 1: The design will provide a suitable safe training area. (Key)	NOT MET	PARTIAL	MET
Design Principle 2: Management of airspace to utilise FUA principles (Efficiency + Airspace Sharing). (Key)	NOT MET	PARTIAL	MET
Airspace management may be complicated due to the congested area (adjacent units and airways).			
Design Principle 3: Consider Environmental & Ecological impact. (High)	NOT MET	PARTIAL	MET
Potentially.			
Design Principle 4: Safety – ensure airspace design safely caters for all profile types. (High)	NOT MET	PARTIAL	MET
Design Principle 5: Minimise impact upon the network where possible (Efficiency + Airspace Sharing). (High)	NOT MET	PARTIAL	MET
Due to the CAA Buffer Policy, any <i>new</i> airspace must comply with the with these regulations. Currently, the established Donna Nook airspace does not comply with the Buffer Policy (due to legacy rights) as it is within 5nm of the adjacent airway. However, if any changes were to be made to the established Donna Nook, it would likely result in <i>losing</i> airspace (ie having to be at least 5nms from Y70), as any new changes must comply with the Buffer rule.			
Design Principle 6: The training area will be within reach of UK/USAFE Main Operating Bases. (High)	NOT MET	PARTIAL	MET
Donna Nook is within range of RAF Marham, RAF Coningsby & RAF Lakenheath.			
Design Principle 7: Minimise impact upon any other airspace users. (High)	NOT MET	PARTIAL	MET
As per principle 5 above. Enlarging Donna Nook’s airspace will further restrict adjacent units and will encroach on the required 5nm buffer against Y70 (unless robust & agreed mitigation is sought			

– which may not be possible).			
Design Principle 8: Simplicity - utilise existing structures where possible (Efficiency, Simplicity + Safety). (Medium)	NOT MET	PARTIAL	MET
No change to Donna Nook's infrastructure.			

4. Options

Where an option does not meet a Key Design Principle, it has been discounted as it clearly will not meet the driving reason for conducting the ACP. This discounts options 1, 2 & 7. Of the remaining 4 options (a circular design of 7nm or 8nm, or a 'part circle, part stub' option), consideration must be given to the development of the MOD Combat Air ACP, as this ACP may result in adjustments to the routes in the area. A combination of the Combat Air ACP and changes to Holbeach could create a choke point between Holbeach and Y70; the MOD must be cognisant of this.

5. Stage 2a Engagement

The MOD has engaged with the original stakeholders that were contacted at Stage 1, and in addition, there has been engagement with numerous Civ airlines and the British Gliding Association. In total, there are over 40 stakeholders.

An analysis of the responses indicates there is concern for Holbeach expansion to the North East as that may affect Norwich tracks to their North. In conjunction with the Combat Air ACP, Holbeach expansion may restrict traffic ivo L602. Clearly, the military stakeholders are fully supportive of expanding the airspace because the current setup simply does not protect all current & future profiles. One response referred to the Tornado 2012 Mid-air Collision Service Inquiry which specifically mentions Holbeach airspace (identified as an issue in several Tornado Assurance Visit reports). The MOD also informed the stakeholders of the recent Airprox that occurred on the outskirts of Holbeach's airspace due to the range aircraft 'spilling out' of Holbeach range – again, highlighting that the current airspace is not large enough to safely cater for current profiles (both safety reports found [here](#) and [here](#)).

Feedback from RAF Wittering highlights the potential issue with Options 3 & 4, as they may push civil and low flying traffic towards the South West of the Fenland ATZ and ultimately into the proximity of the Wittering MATZ. The second order effect may be the increased service request of Wittering ATC and an increased likelihood of conflicts to the runway 25 approach. To mitigate this, the lower level of the proposed design could be suitably high enough to remove the issue, and also satisfy the design principles - specifically, resulting in sufficient safe airspace for the range-user to operate. Again, this and all issues raised at this level will be taken forward and factored in at subsequent stages.

The Joint Forward Air Control Training and Standardisation Unit (JFACTSU) raised the possibility of adding a second stub to the South East, as this would allow JTACs to hold the aircraft in a position suitable to mandatory attack headings to the North West. Again, this idea can be taken forward to the next stage and other stakeholders will have an opportunity to provide feedback.

6. Summary

The options presented in this report have been narrowed down to 4 general designs (options 3, 4, 5 and 6). It has been made clear to all stakeholders that although 'lines have been drawn on the charts', there is still plenty of time and opportunity for the design to be formed; and more importantly, time for stakeholder's input and reasoning. Clearly the current airspace is not large enough, and it must be enhanced to safely protect military aircraft when training for operations. It is concluded that the MOD must continue to factor in other airspace users and the effects on their operations as we move forward to safely enhance the airspace at Holbeach.

[REDACTED]

[REDACTED]

RAF

Danger Area Airspace Manager