GLASGOW AIRSPACE
Proposal for Reclassification of the Glasgow Control Area from Class E to Class D

STAKEHOLDER CONSULTATION - ADDENDUM (REVISED BASE LEVELS)

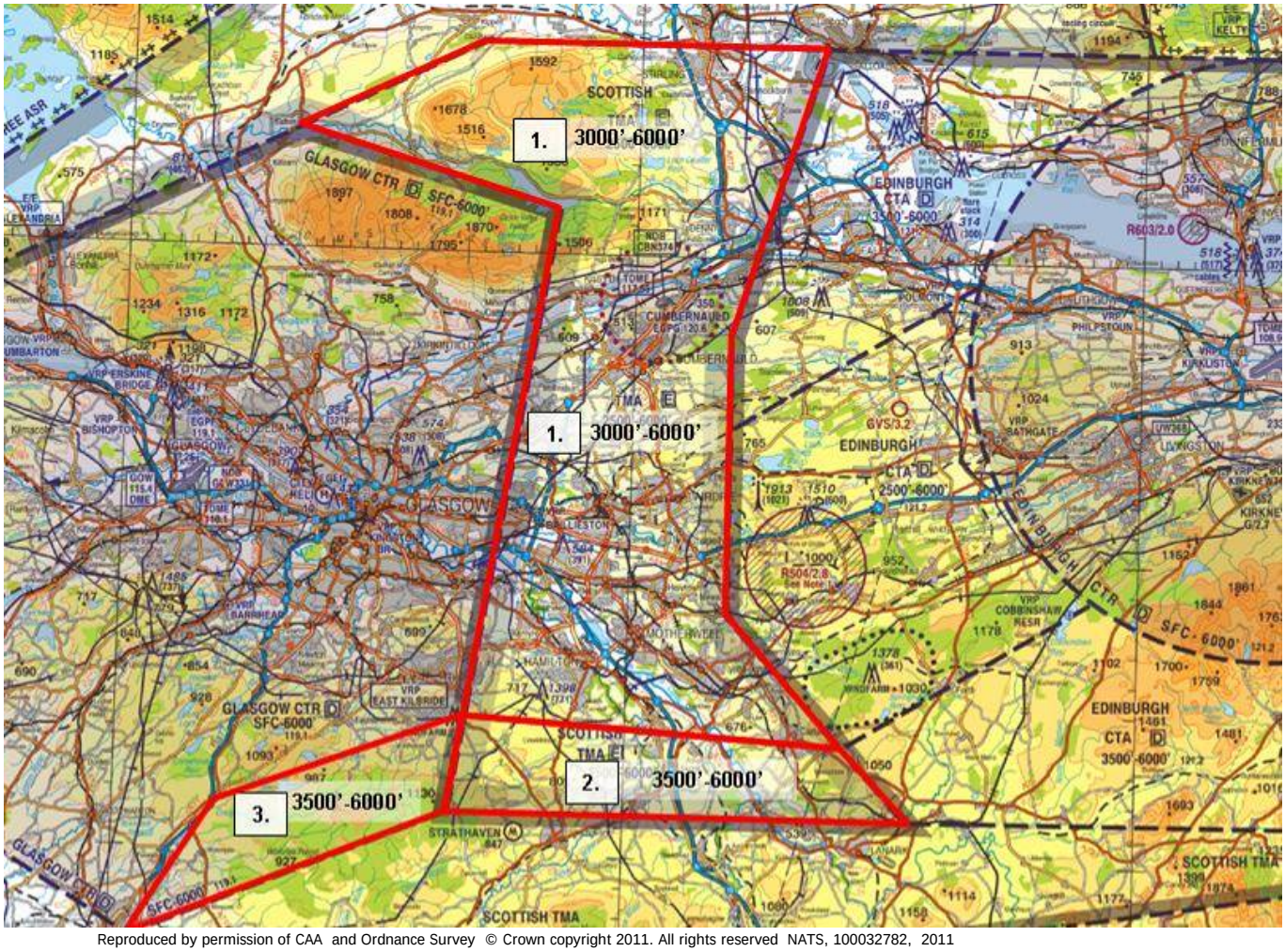

Figure 1 Proposed Airspace

Executive Summary

This document is an addendum to a consultation previously undertaken by NATS between 16th December 2008 and 24th March 2009, which was regarding proposed changes to the airspace between Edinburgh and Glasgow.
http://www.nats.co.uk/environment/airspace-developments/

The overall proposal seeks to change the classification of the controlled airspace between Glasgow and Edinburgh (the current Class E Glasgow CTA) from Class E to Class D, which will enhance safety by establishing the airspace as a "known traffic environment" where all aircraft are required to be in contact with Air Traffic Control (ATC).

In October 2010 the Director of Airspace Policy (DAP) rejected NATS' ACP application for the changes proposed, but invited NATS Glasgow to undertake work to prove that a base of 3000ft may be feasible from an operational perspective.

NATS Glasgow has undertaken trials to evaluate the proposed base of 3000ft and its effect on the operation. These trials were successful and concluded that Class D airspace with a 3000ft base could be operated safely and would represent an improvement over the existing Class E airspace (base 2500ft). Prior to submitting a revised Airspace Change Proposal to the DAP, a limited re-consultation is required to enable stakeholders to respond to this amended proposal.

The period of consultation commences on Monday **28th March 2011** and closes on Tuesday **26th April 2011** (4 weeks). If the proposal is approved by the CAA, implementation of the airspace change will occur at an appropriate opportunity but, in any event, not before July 28th 2011. Please send any comments on the airspace change proposal to:

Consultation Co-ordinator
NATS, Control Tower Building
Glasgow Airport,
Campsie Drive,
Paisley,
Renfrewshire, PA3 2SG

1. Introduction

1.1 This document is an addendum to a consultation previously undertaken by NATS between 16th December 2008 and 24th March 2009, which related to changes proposed to the airspace between Edinburgh and Glasgow.

http://www.nats.co.uk/environment/airspace-developments/

1.2 This relates to a proposal to change the classification of the Glasgow CTA from Class E to Class D. In October 2010 the Civil Aviation Authority (CAA) Director of Airspace Policy (DAP) rejected the initial ACP application for changes proposed to this airspace, but indicated that a base of 3000ft may be acceptable subject to NATS Glasgow undertaking work to prove that this was feasible from an operational perspective. This work has been successfully concluded, and for this second consultation NATS is seeking feedback on the revised proposal (with higher airspace base) before submitting it to DAP, for consideration. It is the CAA DAP who will decide whether or not the proposed airspace change is introduced.

2. Scope of Consultation

2.1 The period of consultation commences on Monday 28th March 2011 and closes on Tuesday 26th April 2011 (4 weeks). Since this is a re-consultation for a modified proposal, the consultation period is shorter than is required for a full-scale consultation. The stakeholders involved in the consultation are listed in Appendix A.

3. Evolution of the proposal

Figure 2 Existing airspace (Class E, base of 2500ft)

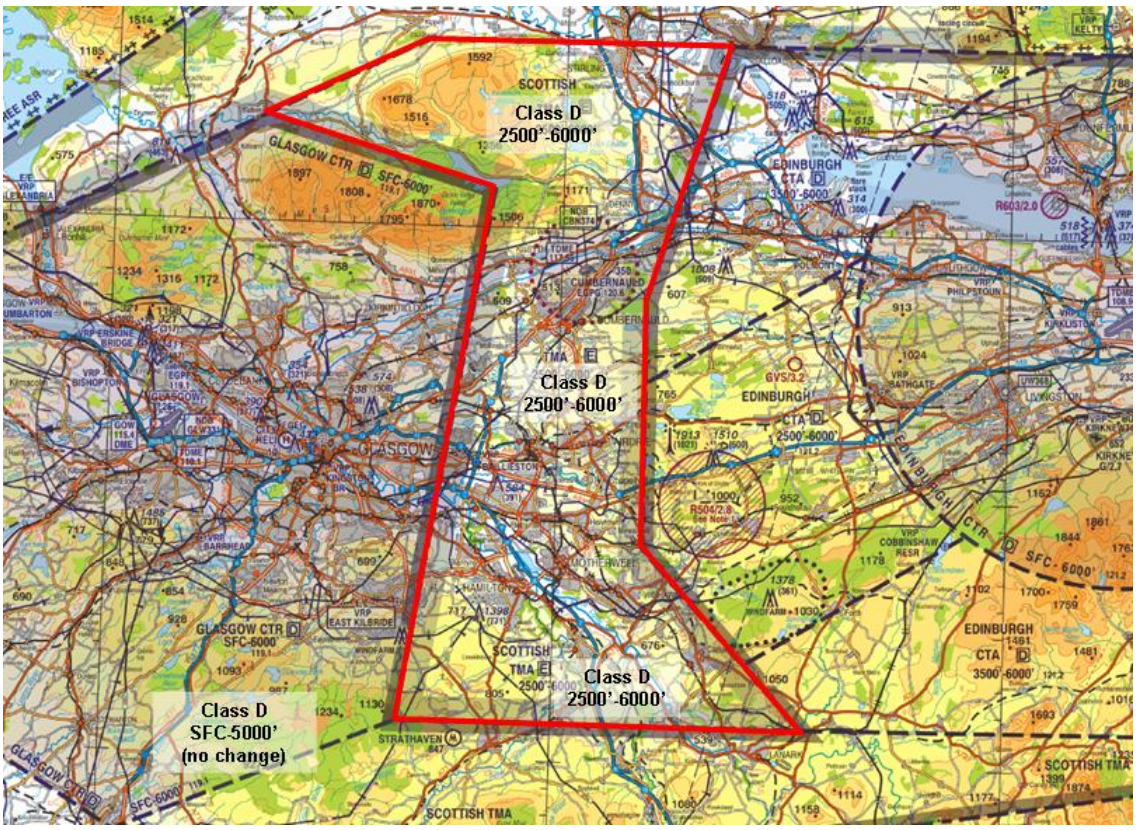

Figure 3 Airspace proposed in original consultation (Dec 2008) (Class D, base 2500ft)

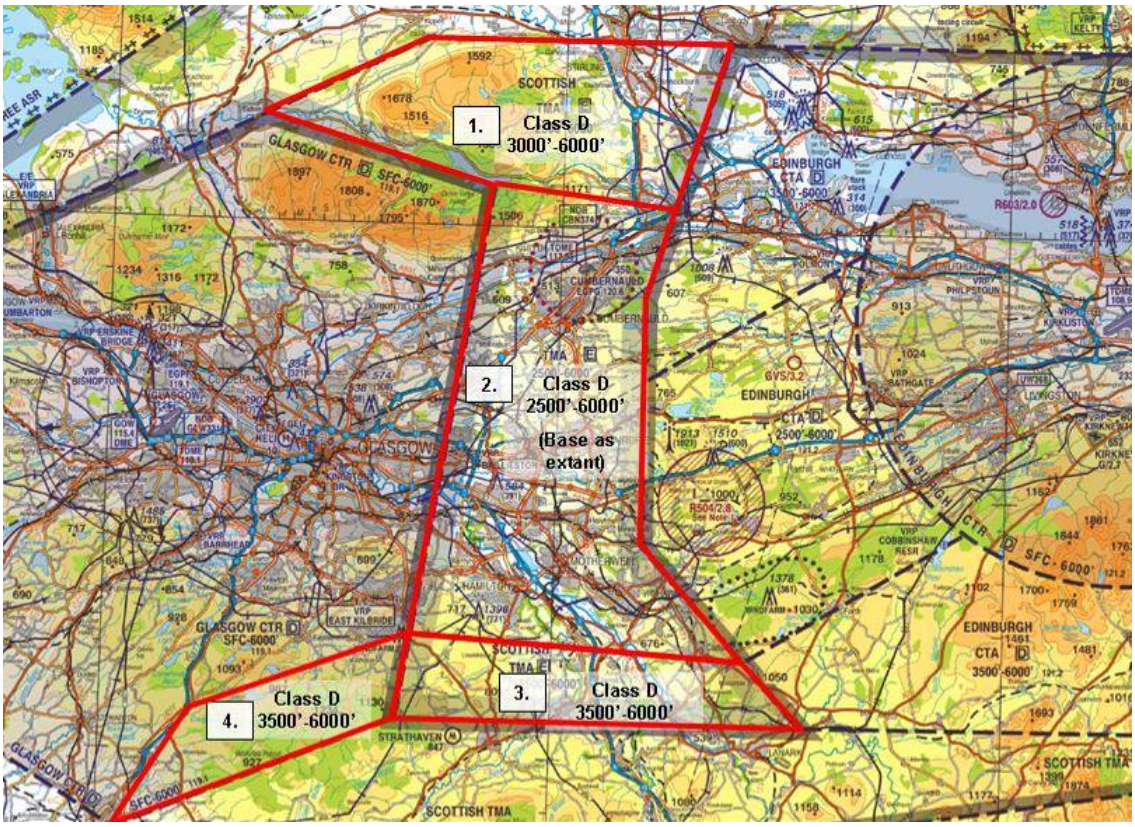

Figure 4 Airspace proposed in Airspace Change Proposal (June 2009) (Class D, base of 2500ft in area 2)

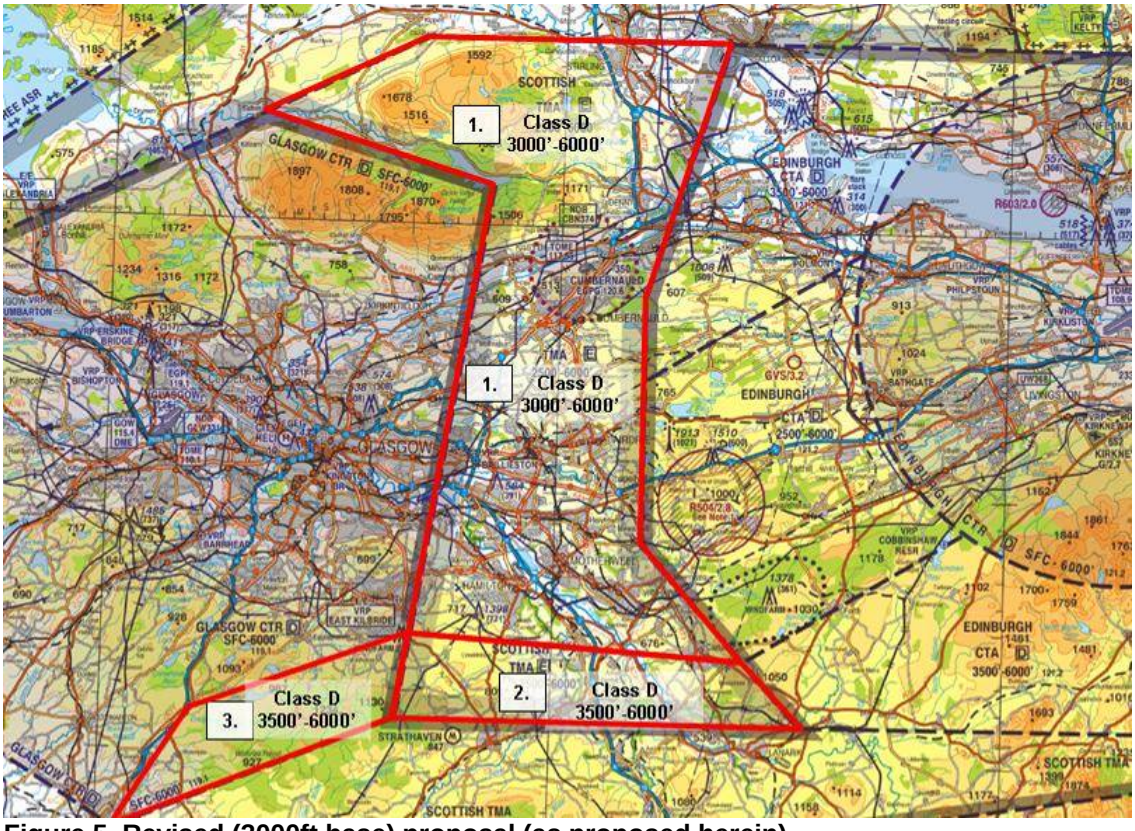

Figure 5 Revised (3000ft base) proposal (as proposed herein).

Figure 2 to Figure 5 show how the proposal has evolved and how the proposed base levels of the controlled airspace have changed.

- The original consultation proposed that the existing base level of 2500ft was maintained, and that the Class E airspace was simply reclassified as Class D (Figure 3). Feedback received during the consultation indicated that the 2500ft base did not suit the needs of general aviation users in the vicinity, and hence the design was modified.
- The bases were revised higher in areas 1, 3 & 4 as shown in Figure 4. This was the airspace design suggested in the consultation feedback report (7th April 2009) and submitted to the DAP in the Airspace Change Proposal (5th June 2009). The Director of Airspace Policy (DAP) subsequently rejected the proposal, but invited NATS Glasgow to undertake work to prove that a base of 3000ft may be feasible from an operational perspective, and to submit a revised proposal based upon their findings. A trial was run (as detailed in section 4) to test the feasibility of Glasgow ATC operating with a 3000ft base.
- Following the successful conclusion of this trial, the proposed base in the central region was raised to 3000ft. The final design (as is being proposed herein) is shown in Figure 5.

4. Details of ATC trial

Over a period of 6 weeks commencing mid November 2010 three Glasgow Radar Controllers of mixed experience were requested to undertake a live trial for approach vectoring as outlined below. The purpose of this trial was to validate the use of a 3000ft base.

Objective

The objective of this trial was to validate that inbound aircraft have sufficient track miles when entering the Glasgow CTR (at 3,500') to enable crews to descend from 3,500ft altitude to successfully fly an instrument approach for R/W 23.

Trial Requirements

Subject to standard procedures, restrictions, terrain clearance and any operational requirements, traffic being vectored inbound to Glasgow and routing within the current Class E airspace to the East of the Glasgow CTR (vertical dimensions 2,500' – 6,000') was not descended below 3,500ft altitude until inside the Glasgow CTR.

Once inside the Glasgow CTR, traffic was descended in accordance with established standard procedures and in accordance with the instrument approach being provided.

In following the above procedures, operations as required by a 3000ft airspace base were emulated.

Participants in the trial provided feedback to GM/MATC Glasgow, including relevant comment and dates/times where the trial was conducted during medium/heavy traffic levels.

Trial Results

The results of the trial were positive and demonstrated that when vectoring aircraft for an approach to runway 23, a base of 3000ft to the east fits within the required operational envelope. Detailed feedback from the controllers involved is given below.

Feedback from Controllers

The controllers were unanimously supportive of the proposed airspace. The proposed change of classification to Class D represents a significant improvement in the safety. Having used the proposed procedures for three weeks with aircraft flying using the 3500ft level, it was demonstrated that approaches flown at 3500ft can be operated safely, and this does not present any safety or operational issues for controllers and pilots alike.

An extra RT transmission was required, but this wasn't too onerous, and there was plenty of time between aircraft crossing the CTA boundary and passing the extra descent instruction. (see Figure 6)

Many aircraft followed their own continuous descent approach (CDA)[1] with the pilots choosing a slow descent and not reaching 3500ft before further descent clearance was issued (hence no level-off required at 3500ft). The two airlines that are the most frequent users of Glasgow do this as standard operating procedure. Some other airlines prefer to descend earlier and level off at 3500ft.

If the descent clearance (from 3500ft) is given late, it was demonstrated during the trial that descent from 3500ft at 10nm from touchdown still gives adequate distance for a stable descent to join the glide-slope. (Normally descent clearance will commence from ~13nm once the aircraft has crossed the CTA boundary)

The use of 3500ft formalises the vectoring practice currently used in busier periods, (which involves vectoring for a 12nm final approach at 3500ft) but with traffic normally being vectored for an 8nm final. (See Figure 6.)

The swathe of vectored traffic would fall between lines 1 & 3 on Figure 6. IFR traffic would be vectored between lines 1 & 2 for sequencing.

Aircraft entering the zone from the southeast and requesting a visual approach to RWY23, are only in the (current) Class E airspace for approx. 6-7nm when routing to 5DME, so have plenty of time to descend from 3500ft. (see Figure 6, line 3). In general, aircraft on a visual approach (from the South) and routeing to 5DME (through the existing Class E airspace) will have a minimum 12/13nm inside the Glasgow CTR.

During busy periods aircraft were kept level-separated and vectored in a rectangular circuit pattern. This requires that aircraft are vectored into the northern portion of the CTA where it is current practice to keep aircraft at 3500ft due to high terrain.

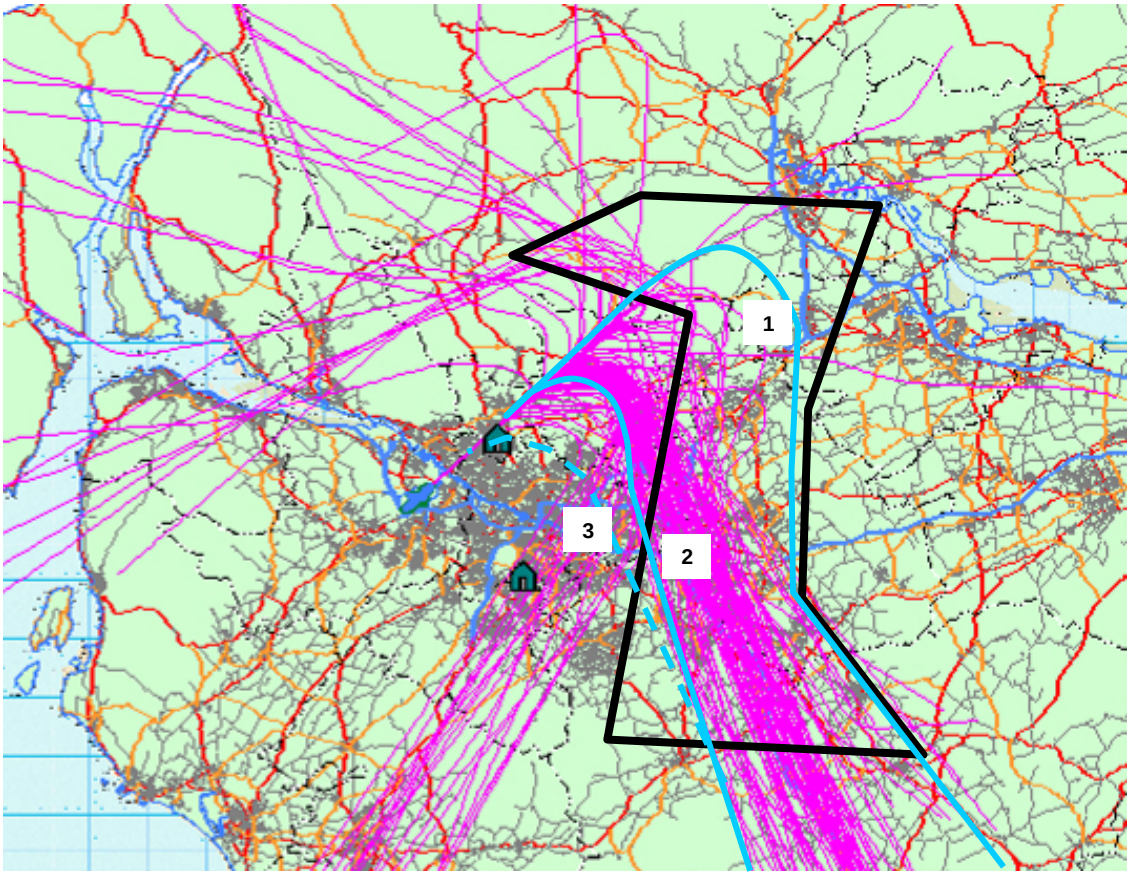

Figure 6 Typical vectoring pattern (Not during the trial) 1 day's traffic, 28 June 2008

Controllers reported that they did not find any problem with descent to 3500ft and no pilot questioned being stopped off at that altitude, or passed comment about it.

[1] This is more fuel efficient, is quieter and emits less CO_2

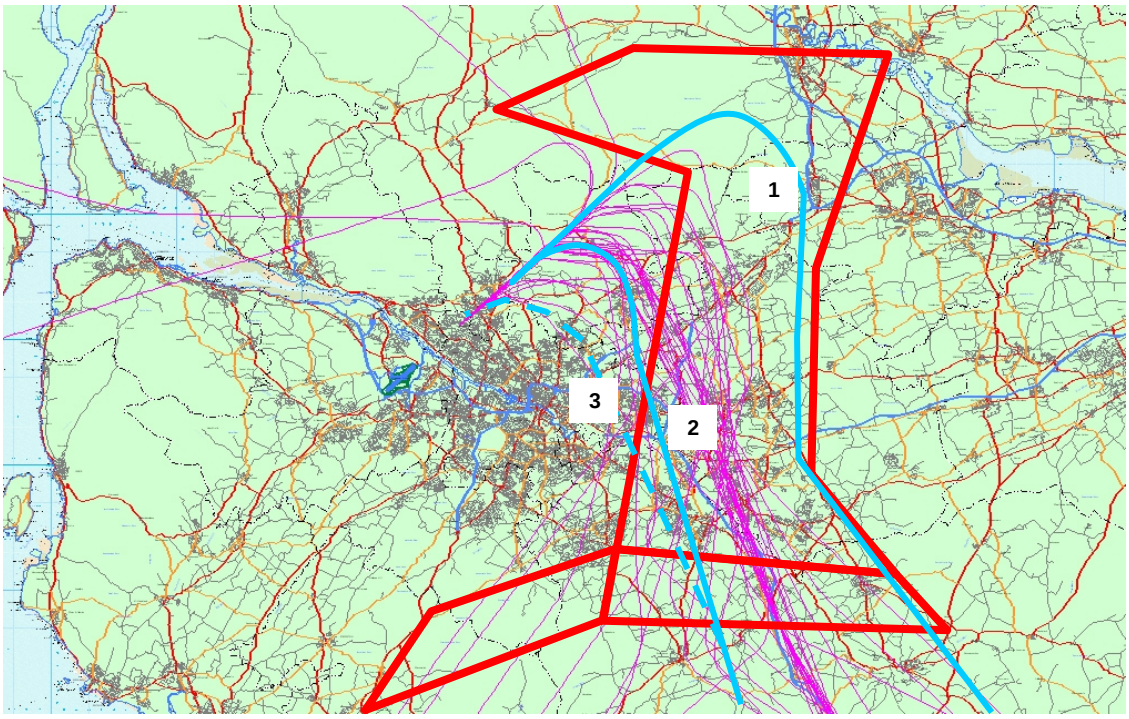

Figure 7 Typical vectoring pattern (during the trial) traffic from 1000-1400, 9 Dec 2010

Figure 7 shows the trajectories of traffic on approach to RWY23 during one of the trial periods (9th December 1000-1400h). When compared with Figure 6 it can be seen that there is no difference in the lateral dispersion of the traffic. Hence to observers on the ground, with the new airspace in place, aircraft will continue to pass overhead at the same places; however they will pass at a slightly higher altitude (up to 500ft higher).

5. Flight Simulator Evaluation

NATS Glasgow, in cooperation with FlyBe undertook an evaluation of the proposed base of 3000 feet using the Flight Safety International Q400 simulator at Farnborough.

The exercise was attended by:

Manager ATC Glasgow (NATS)
Deputy Watch Manager (NATS)
Unit Training Officer and Unit Competency Examiner Glasgow (NATS)
General Manager Turbo Props (FlyBe)

A report of the exercise is given below

Introduction

This report provides evidence in relation to the re-submission of the Glasgow ACP to DAP, with particular reference to the provision of evidence to support the use of a 3000' Class 'D' base (of the airspace – currently Class 'E' – to the East of the Glasgow CTR). To trial the proposed change, the flight simulation of the airspace and the resulting descent profile required by an inbound flight was simulated in a Q400 full motion simulator. This simulation was used to evaluate the flyability of the approach profile that would result from the proposed airspace change.

This report concentrates on the findings from the flight simulation trial.

Findings concluded that the proposal was judged to be an improvement on the current airspace. However, it removes an element of flexibility for radar

controllers which may result in the potential for some aircraft to be positioned high on final approach.

Methodology

The trial involved 15 simulated flights in a Q400 from the LANAK hold inbound to R/W 23. Several flight profiles were flown for the R/W 23 approach, with varying descent profiles and vectors towards base leg/final. Each flight profile was reviewed against the proposed airspace.

Results

The trial "flights" in the simulator were encouraging however there were limitations with the trial. Particularly, "vectoring" was done using the simulator screen which although it shared many aspects of the radar screens used by Glasgow ATCOs, did not accurately show the airspace boundaries which had to be interpolated from known reference points on the chart. Therefore, notes on each approach were taken and, on return to the Glasgow CTB, subsequently compared against the radar screen with associated map and airspace markings.

The trial established that it was possible to safely vector aircraft onto the ILS and complete a successful stabilised approach without stepped descent.

In addition, FlyBe (a major Glasgow operator) were of the opinion that they would prefer Class D to the current Class E, even if this meant extended routings or the possibility of stepped descent.

Conclusion

Replacing the existing CTA Class E airspace (base 2500ft) with Class D airspace with a base of 3000ft would not prevent providing continuous descent approaches (CDAs), nor would it necessarily result in extended routings.

In busy IFR traffic, the FIN (ATC final director) position would normally be open and thus R/T time is less of an issue.

In light traffic there would be sufficient time to make the additional descent call that the new airspace will require.

In medium traffic the extra R/T loading may be an issue that controllers will need to be aware of. Consequently, there may be some extended routings and late descents.[2]

To finalise, the proposal will not result in flight profiles which are outside of the normal operational parameters for the Q400. The pilots and observers involved in the trial judged the proposed airspace to be an improvement on the current airspace.

6. Creation of New VRPs to aid VFR navigation

In order to assist pilots flying Visual Flight Rules (VFR) it is proposed to introduce additional Visual Reference Points (VRP's). Glasgow ATC are currently undertaking a review of the current Visual Reference Points (VRP's) in conjunction with GA operators to determine if the current VRP's are fit for purpose and if a new VRP to the south of the proposed ACP would aid navigation. The results of the review and any subsequent changes will be submitted to the CAA in a separate application.

[2] Note: this was not found to be an issue during the ATC trial.

7. Conclusion of 3000' base evaluation

The work to evaluate the operational effectiveness of a base of 3000 feet has concluded that it meets all operational requirements from both airline operations and Air Traffic Control perspectives.

The trials have demonstrated that all ATC procedures including SID's/STAR's/ SRA's and instrument approach procedures are flyable, and are contained within the proposed airspace with a minimum base of 3000 feet.

8. Next steps

We request that aviation stakeholders consider the proposal and provide a written response to us. A period of 4 weeks has been allowed for this additional stakeholder consultation. The closing date for replies associated with consultation issues is **26th April 2011**.

We request that you reply to this consultation even if you have no objection to the proposal.

Having considered the consultation responses, once NATS is satisfied that the proposal achieves the appropriate balance between all the stakeholder requirements, a formal airspace change proposal will be submitted to the CAA for consideration as per the airspace change process (Ref 1). This will include a full record of all feedback from this consultation.

Responses and feedback should be sent to the address below:

Consultation Co-ordinator
NATS, Control Tower Building
Glasgow Airport,
Campsie Drive,
Paisley,
Renfrewshire, PA3 2SG

Comments regarding NATS' compliance with the consultation process as set out in the CAA's guidelines for airspace change process (Ref 1) should be directed to the CAA at:

Head of Business Management
Directorate of Airspace Policy
CAA House
45-59 Kingsway
London
WC2B 6TE
E-mail: businessmanagement@dap.caa.co.uk

9. References

1. CAP 725, CAA Guidance On The Application Of The Airspace Change Process, March 2007, CAA Directorate of Airspace Policy

   http://www.caa.co.uk/docs/33/CAP725.PDF

2. CAP 724, CAA Airspace Charter which defines the authorities, responsibilities and principles by which the CAA Director of Airspace policy conducts the planning or airspace and related arrangements in the UK.

   http://www.caa.co.uk/docs/33/CAP724.PDF

Appendix A: List of Stakeholders

All those below were involved in the original consultation. Those marked with * have been involved in the 2nd consultation.

Local Aviation Stakeholders

Edinburgh Airport
Glasgow Airport
Cumbernauld Airfield
Thornhill Airfield
Strathaven Airfield
Glasgow City Heliport
Lanarkshire & Lothian Soaring Club
Loch Lomond Seaplane
SECC Heliport
Prestwick Airport
Glasgow University Air Squadron
Ardgowan Airfield
Scotia Helicopters
PDG Helicopters
Lothian Helicopters
Skyway Helicopters Ltd
Portmoak Gliding Association
Prestwick Flying Club
Prestwick Flight Centre
Glasgow Flying club
Glasgow Flight Training
Fife Flying Club
Cumbernauld Flying School
Leading Edge Flying Club
Microlights Scotland
The Scottish Gliding Centre
Edinburgh Air Centre
Edinburgh Flying Club
Air Charter Scotland
Tayflight Ltd
Hebridean Air Services
Scottish Area Control Centre

NATMAC (National Air Traffic Management Advisory Committee)

Airport Operators Association (AOA)
AOPA UK
British Airways
BAe Systems
British Airline Pilots Association (BALPA)
British Air Transport Association (BATA)
British Balloon & Airship Club (BBAC)
British Business & General Aviation Association (BBGA)
British Gliding Association (BGA)
British Hang Gliding & Paragliding Association (BHPA)
British Microlight Aircraft Association (BMAA)
British Parachute Association (BPA)
British Airports Authority (BAA)
British Gliding Association (BGA)
British Helicopter Advisory Board (BHAB)
MOD ATC Flying
MOD DASC

NATMAC (National Air Traffic Management Advisory Committee) contd.

European UAV Systems Centre Ltd
Guild of Air Pilots & Air Navigators (GAPAN)
General Aviation Safety Council (GASCo)
Guild of Air Traffic Control Officers (GATCO)
Helicopter Club of Great Britain (HCGB)
Heavy Airlines
HQ 3AF, RAF Mildenhall
HQ DAAvn
Light Airlines
Popular Flying Association (PFA)
PPL/IR Europe
Royal Aero Club (RAeC)
RAF HQ AIR (Chairman MUACT)
UK Airprox Board (UKAB)
UKFSC

Airlines

British Airways
BMI
Continental Airways
Easyjet
Emirates
Eurojet
First Choice
Flybe
Globespan
Jet2
KLM
Loganair
Pakistan Airlines
Ryanair
Thomas Cook
US Airways
Virgin Airways

Westminster Members of Parliament Consituencies & Unitary Authorities (For information only)

Airdrie and Shotts
Coatbridge, Chryston and Bellshill
Cumbernauld, Kilsyth and Kirkintilloch East
East Kilbride, Strathaven and Lesmahagow
Falkirk
Glasgow East
Lanark and Hamilton East
Motherwell and Wishaw
Ochil and South Perthshire
Rutherglen and Hamilton West
Stirling Unitary Authority
Clackmannanshire Unitary Authority
East Dunbartonshire Unitary Authority
North Lanarkshire Unitary Authority
South Lanarkshire Unitary Authority
Glasgow City Unitary Authority