



## **Engagement Document**

**Update on previously consulted airspace to  
the North-East and East of London Southend  
Airport**

## **Contents**

1. Abbreviations / Glossary of Terms
2. Executive Summary
3. About this engagement
4. Background
5. Current LSA controlled airspace
6. Proposed additional airspace
7. Overview of the operational use of the proposed airspace
8. Traffic Levels
9. Conclusions
10. Next Steps

## **Appendices**

- 01 Links to documents and website
- 02 CAA Decision letter
- 03 List of Stakeholders
- 04 Airspace design during consultation process (2013)
- 05 Airspace design submitted to CAA as an ACP following the consultation (2014)
- 06 The airspace that was approved by the CAA (2015)
- 07 The airspace design that formed the original ACP Submission in 2014.
- 08 The current LSA airspace and the requested additional airspace
- 09 The GEGMU hold

## 1. Abbreviations / Glossary of Terms

### Abbreviations

ACAS	Airborne Collision Avoidance System
ACP	Airspace Change Proposal
AIP	Aeronautical Information Publication
AIS	Aeronautical Information Service
ALT	Altitude
ATC	Air Traffic Control
CAA	Civil Aviation Authority
CAP	Civil Aviation Publication (published by the CAA)
CAS	Controlled airspace
CDA	Continuous Descent Approach
CTA	Control Area
D138D	Danger Area to the east of Southend
FL	Flight Level
Ft	Feet (measurement)
IFR	Instrument Flight Rules
LSA	London Southend Airport
LTC	London Terminal Control
LTMA	London Terminal Manoeuvring Area
NATMAC	National Air Traffic Management Advisory Committee
NATS	National Air Traffic Services
NM	Nautical Mile
PIR	Post implementation review
RNAV	Area Navigation
SERA	Standard European Rules of the Air Regulation
SID	Standard Instrument Departure Procedure
STAR	Standard Arrival Route
TMA	Terminal Control Area
VFR	Visual Flight Rules

## Glossary of Terms

Abbreviation	Meaning	Comment
ACAS	Airborne Collision Avoidance System	Aircraft system based on SSR transponder signals providing advice to the pilot on potential conflicting aircraft that are equipped with SSR transponders.
AMS	Airspace Modernisation Strategy	The AMS supersedes the Future Airspace Strategy and sets out the ways, means and ends of modernising airspace through 15 initiatives that will modernise the design, technology and operations of airspace, initially focusing on the period until the end of 2024.
ATC	Air Traffic Control	A service provided for the purpose of preventing collisions between aircraft, and, on the manoeuvring area, between aircraft and obstructions, and expediting and maintaining an orderly flow of air traffic.
CAA	Civil Aviation Authority	The specialist UK aviation Regulator established by government to oversee all aspects of aviation activity in the UK.
CAP	Civil Aviation Publication	The UK CAA publishes Regulatory, Guidance and Information material in the form of CAPs.
CAP 725	CAA Guidance on the Application of the Airspace Change Process	A document published by the DAP which details the procedure by which a proposal to modify airspace dimensions, classification or usage in the UK can be put forward to DAP for approval. The process to be followed by sponsors of airspace change enables the CAA to meet its statutory duties established under the Transport Act 2000.
	Classification of Airspace	The ICAO system of classifying airspace by letter indicating the level of Air Traffic Service provided in the airspace and the meteorological criteria for VFR flight. Classes A to E are Controlled Airspace; Classes F & G are uncontrolled airspace. Class A airspace requires the mandatory operation of all flights according to the Instrument Flight Rules, Classes B, C, D and E controlled airspace permit VFR operations with differing levels of ATM compliance and application of separation by ATC.
	Class A Airspace	Controlled airspace in which the operation of flights according to the IFR is mandatory and in which ATC provides separation between all flights (including Special VFR flights).
	Class D Airspace	Controlled airspace in which both VFR and IFR flights are permitted and in which ATC provides separation between IFR flights (including Special VFR flights) and provides adequate management of VFR flights to permit effective integration of traffic and collision avoidance. In the UK, Class D airspace is the normal classification used for controlled airspace in the vicinity

		of aerodromes. Some Airway segments are also designated as Class D airspace.
CDA	Continuous Descent Approach	Continuous descent approach also known as optimised profile descent, is a method by which aircraft approach airports prior to landing. It is designed to reduce fuel consumption and noise compared to other conventional descents. Instead of approaching an airport in a stairstep fashion, throttling down and requesting permission to descend to each new altitude, CDA allows for a smooth, constant-angle descent to landing.
CTA	Control Area	A controlled airspace extending upwards from a specified limit above the surface to a specified upper limit.
FAS	Future Airspace Strategy	The development of future airspace management with has now been superseded by AMS.
FL	Flight Level	The height of an aircraft above a standard barometric pressure reference of 1013.25 Hectopascals and is the standard level reference for aircraft operations above the Transition Altitude.
GUNFY		This was project name for the current published hold established at GEGMU
IFR	Instrument Flight Rules	As prescribed by Section 5 of Standardised European Rules of the Air (SERA)
LARS	Lower Airspace Radar Service	A free service available to all aircraft for the provision of the radar element of UK Flight Information Services (UK FIS). Whilst designed for the provision of a radar service, LARS units do provide Basic Service to transiting aircraft, and this makes up a high percentage of the traffic loading.  This service is provided outside of Controlled Airspace.
LTC	London Terminal Control	That part of the LAC which provides the Terminal ATC services for the London TMA Airports.
LTMA	London Terminal Control Area	A Control Area established in the London and surrounding areas incorporating all of the major London airports including LSA.
NATS		Previously part of the CAA, NATS is an ANSP and was part privatised by the UK Government in 2001. NATS provides civil en route air navigation services in the UK under license from the Government and provides air navigation services at a number of airports under contract to the airport operators.

PANS OPS		ICAO Document 8168 Volume 2 “Design of Visual and Instrument Flight Procedures” .
RNAV	Area Navigation	A method of navigation which permits aircraft operation on any desired flight path within the coverage of station referenced navigation aids or within the limits of the capability of self-contained aids, or a combination of these.
SARG	Safety and Airspace Regulation Group	The part of the CAA which oversees all aspects of air safety including the operation of aircraft and air traffic services. The SARG is responsible for the airspace arrangements in the UK.  NB Prior to July 2013 these functions were undertaken by separate Departments within the CAA, namely the Safety Regulation Group (SRG) and the Directorate of Airspace Policy (DAP).
SND		This is the Non-Directional Beacon (NDB) at LSA. Used as a locator beacon for aircraft to navigate to the Southend overhead to fly instrument approaches (IAP) and is the holding fix for the holding pattern overhead LSA.
SSR	Secondary Surveillance Radar	Surveillance radar system which uses transmitters/receivers(interrogators) and transponders.
SVFR	Special VFR	A flight made in a Control Zone under conditions which would normally require compliance with the Instrument Flight Rules, but which is made in accordance with special instructions issued by the ATC Unit instead of in accordance with the Instrument Flight Rules and in which the aircraft must remain clear of cloud and in sight of the surface.
TMA	Terminal Control Area	A Control Area normally established at the confluence of a number of ATS Routes in the vicinity of one or more major aerodromes.
	Transponder	A receiver/transmitter (fitted to an aircraft) which will generate a reply signal upon interrogation.
UK AIP	UK Aeronautical Information Package	The State publication published by the CAA (CAP 32) to ICAO requirements detailing all of the aeronautical information and procedures applicable to civil aircraft operations in the UK. The UK AIP is a notifying document, which means that procedures notified within it have legal authority. Amendment of the UK AIP is in accordance with the AIRAC system.
	Vectoring	Provision of navigation guidance to aircraft in the form of specific headings, based on the use of an ATC surveillance system (radar).

VFR	Visual Flight Rules	As prescribed by Section 5 of SERA
	Wake Turbulence	The effect of the rotating air masses generated behind the wing tips of aircraft.

## 2. Executive Summary

London Southend Airport (LSA) currently operates in a Class D airspace environment, which was established in April 2015 following approval of an Airspace Change Proposal (ACP).

The design and volume of the airspace that formed part of the submission to the CAA, was not approved and instead was reduced in size based on the level of traffic complexity at LSA at the time.

In the decision letter, dated 23 January 2015 issued to LSA from the CAA, it confirmed 'If LSA wishes to introduce any further CAS (Controlled Airspace), the airport would first need to prove that traffic levels and/or levels of complexity justify the requirement for this airspace and a separate ACP would have to be submitted in order to gain CAA approval. If such an application is received within two years of implementation and the increased airspace requirement is within that contained in Enclosure 4, there would not be a requirement for further consultation, as LSA has already consulted on this airspace.'

LSA submitted an ACP in March 2017 to implement the portions of the airspace that had not been previously approved by the CAA as the traffic levels, as well as complexity, was increasing.

Having operated the airspace for nearly 4 years, LSA has a better understanding of the limitations of the current airspace design, which does have a direct impact on complexity and providing Continuous Descent Approaches (CDA's).

Since March 2017, LSA has been discussing the project with the CAA, but due to the high workload on the CAA it has not been possible to pursue this application until now.

Although LSA are not required to conduct further consultation, given the length of time since consultation was undertaken, LSA deems it is appropriate to engage with stakeholders to re-brief them on the pieces of airspace that originally formed part of the Controlled Airspace ACP that weren't approved for introduction by the CAA in 2015. With that in mind, this engagement document has been produced.

As well as this ACP, LSA is also working to introduce Standard Instrument Departures (SIDs) and RNAV Approaches Procedures which are being progressed as separate ACPs. Further details can be found on our website (See Appendix 01 for links).



### **3. About this engagement**

#### **What is this engagement about?**

This engagement seeks to re-brief and re-familiarise stakeholders with the airspace that was previously consulted upon during 2013 but was not implemented. LSA believes that the levels of traffic and complexity is such that the airspace shown in figure 2 labelled CTA 10X and CTA 11 requires implementation, this will be justified later in Section 7.

LSA has experience of the current airspace and has recognised the limitations of the design. With relatively small changes the airspace can work more effectively supporting the growth expected in the coming 5 years.

This airspace will enable LSA ATC to accommodate current traffic in a more efficient manner as well as manage future growth in traffic levels and anticipated complexity. It is sensible to implement the airspace now rather than waiting until the airspace cannot support the operation at LSA. Due to the required process for airspace change it is appropriate to address the issues in a timely manner in line with other airspace changes in the UK to ensure that the airspace is fit for purpose based on the expected growth at LSA.

Section 8 provides data on traffic levels including forecasted growth.

LSA wants to ensure that all stakeholders are aware of what was originally consulted on and, therefore, how the additional airspace will be used and what they can expect to see. This engagement document will not contain the detailed design of the airspace as this was covered in the original ACP submitted to the CAA in 2014. However, links have been provided in the Appendices for anyone who would like more detailed information how the design and type of the airspace was justified by LSA.

Appendix 01 will provide a link to the original consultation document from 2013.

#### **Why is this engagement being carried out?**

The original consultation on this airspace was completed during 2013. In 2015, the CAA approved the Controlled Airspace ACP that LSA had submitted but did not approve the 2 portions of airspace referred to in this document as CTA 10X and CTA 11. LSA feels that due to the length of time that has passed since the consultation, that it would be beneficial to engage with stakeholders, so they understand the purpose of the airspace that was not approved by the CAA in 2015 and its justification for implementation. Stakeholders should be aware that there are no changes in terms of the airspace that was consulted on and what LSA is seeking to introduce.

#### **Who are we engaging with?**

The full list of stakeholders can be found at Appendix 03. The list has been developed to include previously consulted stakeholders based on their proximity to the airspace and newly identified stakeholders that LSA feel may be interested. The engagement, however, is open to anyone who has an interest and as such the engagement document is available to download from the LSA website.

#### **How is this engagement being conducted?**

This engagement document will be sent via email to all the identified stakeholders listed in Appendix 03, with a covering letter. The document will also be available to download from the LSA website (link provided in Appendix 01). LSA will be proactive to ensure positive contact is made with all the

stakeholders. This is to ensure the information has reached them and to understand if stakeholders require any further details and clarification or whether it would be useful for them to have a meeting with the LSA team to better understand the proposals. LSA will hold an Engagement session at the airport on Tuesday 20<sup>th</sup> August 2019 where information will be available and the LSA team will be on hand to explain the proposal in further detail. Further details on this event will be sent via email to the stakeholders and be published on the website to allow anyone with an interest in this proposal to attend.

The previously published consultation document and consultation report will also be available to download in full, from the website, so stakeholders have full access to the original information.

### **How can I get in touch?**

We welcome dialogue and responses within the engagement process. Any questions or feedback on this engagement should be directed in the first instance by email to:

[LSAairspace@southendairport.com](mailto:LSAairspace@southendairport.com)

Alternatively, written questions or feedback can be sent to:

Sam Petrie  
Airport Project Manager  
London Southend Airport  
Southend on sea  
Essex  
SS2 6YF

### **Confidentiality**

Any responses to the engagement will be shared with the CAA as part of the ACP process. The CAA will be using this information to judge the validity of this engagement activity. LSA undertakes that apart from the necessary submission of material to the CAA, LSA will not disclose any personal details or content of responses to any third parties.

### **Timescales and Output**

LSA will respond to all enquiries regarding this airspace change, irrespective of when they are received, however LSA will be updating the CAA on this ACP in October 2019. LSA intends to provide a report of the engagement activity to the CAA which will summarise the methodology used, and responses received. If required, LSA's responses to any feedback raised will be included.

Stakeholders are requested to provide any questions or feedback by 30<sup>th</sup> August 2019 if they wish these to form part of LSA's update to the CAA.

## 4. Background

LSA began the process to re-establish Controlled Airspace (CAS) in 2012, with consultation taking place on the proposed airspace design during 2013. In 2014, LSA submitted an ACP to the CAA for their determination. Following feedback from stakeholders and changes to policy, the proposal for the airspace design that was submitted to the CAA for their review was reduced in size to that presented in the consultation document.

In the decision letter (See Appendix 02), the CAA approved the majority of the airspace, however, did not approve CTA 11 (formerly CTA 8 during consultation) and only approved part of CTA 10 (formerly CTA 6 during consultation).

The CAA confirmed in the decision letter, 'If LSA wishes to introduce any further CAS (Controlled Airspace), the airport would first need to prove that traffic levels and/or levels of complexity justify the requirement for this airspace and a separate ACP would have to be submitted in order to gain CAA approval. If such an application is received within two years of implementation and the increased airspace requirement is within that contained in Enclosure 4, there would not be a requirement for further consultation, as LSA has already consulted on this airspace.'

Section 8 will provide further details on current and future traffic levels.

CAS was implemented at LSA on 2<sup>nd</sup> April 2015.

In accordance with the regulatory decision, LSA submitted an Airspace Change Proposal (ACP) to the CAA in March 2017 to introduce the remainder of the airspace that was not granted approval in January 2015. As detailed above, LSA are not required to consult again on this airspace, however, the CAA has commenced their review of the ACP and following initial discussion, it was decided that given the length of time that has passed since the original consultation, engagement with those stakeholders who may be affected by the introduction of the additional airspace should be undertaken.

This document has been created to brief stakeholders of the proposed airspace change and re-familiarise them with the original application, which included the airspace that is now being requested.

This follow up engagement activity is linked to the original ACP, which was assessed against the requirements of CAP 725 and as such remains under the process detailed within CAP 725.

The following maps have been created throughout the Controlled Airspace ACP process and are contained within the Appendices for reference:

- Initial proposed airspace that went out to consultation in 2013 is shown in Appendix 04;
- Requested airspace that was submitted to the CAA in 2014 for the ACP following consultation process are shown in Appendix 05;
- Airspace that the CAA approved for implementation on 02 April 2015 is shown in Appendix 06;
- Airspace that could be introduced subject to LSA proving to the CAA that traffic levels and/or levels of complexity justify the requirement for this airspace are shown in Appendix 07;
- The current airspace and the new additional airspace are shown in Appendix 08.

## 5. LSA Current Controlled Airspace

### 5.1 General overview

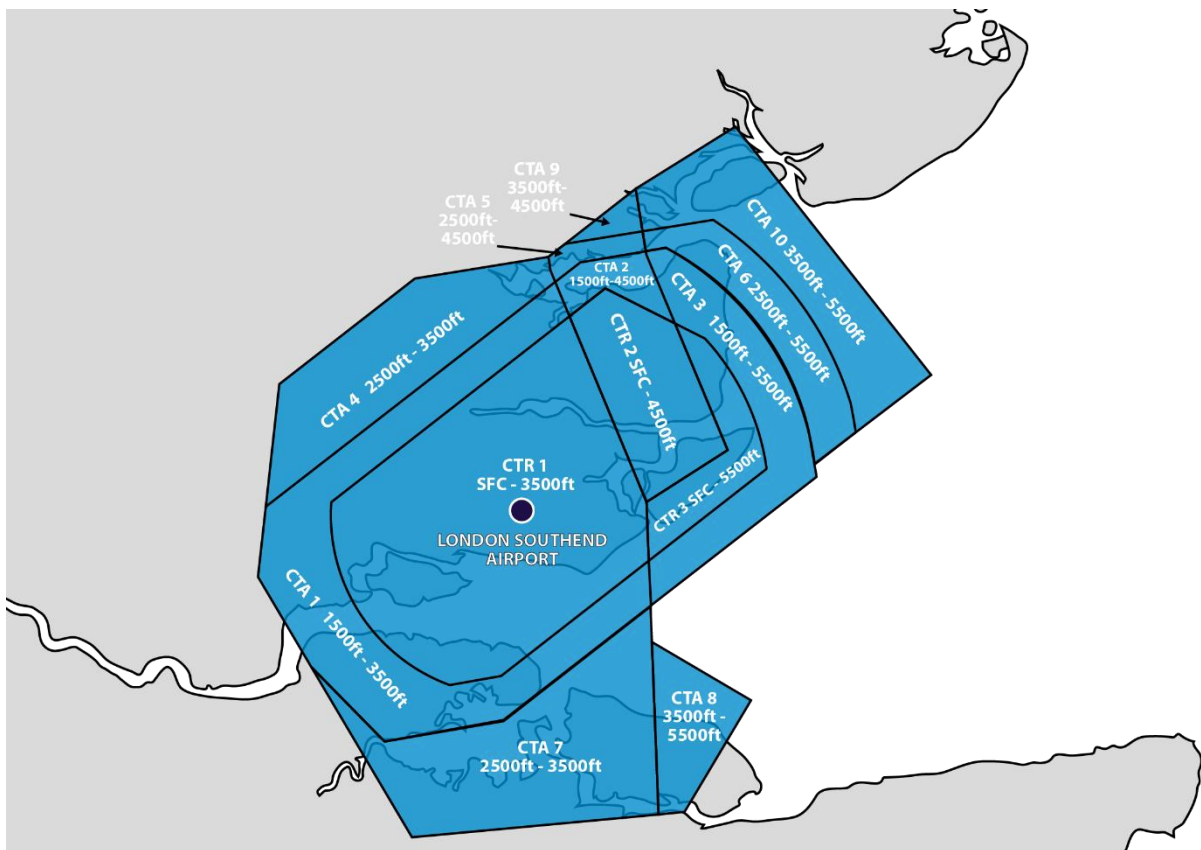
The current LSA CAS, which was introduced in April 2015, is shown in figure 1 below.

The CAA completed a Post Implementation Review (PIR) of the current airspace 12 months after its introduction. This PIR demonstrated that LSA ATC was managing the airspace appropriately and giving fair access to airspace users.

A link to this PIR can be found in Appendix 01.

The published LSA airspace configuration with adjacent LTMA can be found in links in Appendix 01 and in Appendix 07.

This current airspace configuration does not form part of this engagement process.



**Figure 1. Current LSA CAS configuration.**

LSA Air Traffic Control (ATC) having now had the operational experience of CAS, along with the introduction of the London Area Management Programme Phase 1A (LAMP1A) in February 2016 and the limitations of the current airspace configuration, feel that the justification for the additional airspace meets the requirements of the original comment from the CAA in the ACP approval.

With the increase in commercial flights, more flights are being concentrated into the current airspace to the point it is getting more difficult to achieve efficient flows of air traffic and accommodate all the requests for CAS access. In particular, many of the commercial flights, which fly IFR and therefore

require separation and suitable spacing, are often having to fly closer to the airfield and over land areas at levels of 3000ft and below. This is due to the current airspace configuration and the co-ordination procedures with London Terminal Control (LTC). More details are contained in Section 7.

LSA ATC also has the challenges of integrating VFR flights with the commercial flights whilst considering the impact of Airborne Collision Avoidance Systems (ACAS) and Wake Turbulence (vortices).

## **5.2 Airborne Collision Avoidance Systems (ACAS)**

The European Aviation Safety Agency (EASA) requires ACAS (effectively all aircraft use a model called 'TCAS II, version 7.1') to be fitted to all fixed wing turbine powered aircraft that have a maximum take-off weight of greater than 5,700 kg (12,566 lbs) or have more than 19 passenger seats.

The ACAS gives the pilot situation awareness on a screen in the cockpit about other aircraft in the vicinity that are fitted with a transponder and will provide either a Traffic Advisory (TA) or a Resolution Advisory (RA). The TA will just give a traffic alert and the pilot would not need to take any avoiding action at this stage but look out for conflicting aircraft, this alert would typically be given 45 seconds before an assumed collision. If it is an RA, typically given 30 seconds before an assumed collision, the pilot receives advice to climb, descend or maintain existing profile. Pilots are expected to respond immediately, even if it is against the ATC clearance that has been issued. As a guide an RA would be given when the system predicts the conflicting aircraft will get within 2nm and 600ft.

As nearly all commercial aircraft fly under the instrument Flight Rules, the separation minima are 1000ft or 3nm so the pilot should not normally receive any TA or RA against other IFR traffic.

Whilst there are no separation requirements between aircraft flying under Visual Flight Rules (VFR) and Instrument Flight Rules (IFR) within Class D, the only requirement is to pass traffic information, ATC obviously have a responsibility to safely integrate these flights and consider the potential ACAS alerts the pilot may receive. This can lead to additional spacing around the ACAS equipped aircraft than would be necessary under the Class D requirements. Nearly all commercial passenger and business aviation flights will be flying IFR and be fitted with ACAS. This obviously leads to more spacing requirements between IFR and VFR flights and leads to restrictions within certain areas of the airspace as ATC would have to consider keeping the VFR aircraft either 2nm or at least 600ft away from the ACAS equipped aircraft. ATC also have to consider the routes of transit aircraft to ensure they are safely integrated against arriving and departing aircraft especially close to the airfield and take into consideration that if an arriving IFR aircraft carries out a missed approach that aircraft would climb automatically to 2000ft and that will not place them into conflict with any transit or other aircraft in the aerodrome traffic pattern.

ACAS is there as a final safety measure. It is not used for routinely resolving traffic conflicts. ATC use other methods as detailed above to prevent alerts occurring.

## **5.3 Wake Turbulence**

All aircraft, including helicopters, generate vortices as a consequence of producing lift. The heavier the aircraft and the more slowly it is flying, the stronger the vortex. Vortices are especially persistent in calm conditions. They are most hazardous to aircraft with a small wingspan during the take-off, initial climb, final approach and landing phases of flight.

Wake vortices begin to be generated by fixed-wing aircraft when the nose wheel lifts off the runway on take-off and continue until the nose wheel touches down on landing.

The term 'wake turbulence' is used to describe the effect of the rotating air masses generated behind the wing tips of aircraft.

Wake turbulence separations and recommendations are applied to ensure that lighter aircraft that are following larger aircraft are not affected by this turbulence. This has its biggest impacts at levels below 3000ft (and therefore within the Southend CAS) when aircraft are following and passing close behind a heavier aircraft. An example of this would be a typical 4-seater light aircraft would be given instructions or advice to fly at least 5nm behind a 150-190-seater aircraft (The types used by easyJet and Ryanair) and 4nm behind a 70-seater propeller aircraft (Used by Flybe/Stobart Air). Again, this can lead to bigger space requirements behind the larger heavier aircraft and can make it difficult to position lighter aircraft in the landing sequence especially when there is stream of 'heavier' arrivals. An example of this is when the airport is using RWY 23 the larger aircraft are spaced 10nm apart (see Section 7, Para 7.2 for the reasoning) and there is often not time or space to position a lighter aircraft in the gap. Therefore, if there are 3 'heavier' inbounds the lighter aircraft generally has to wait and position behind the last aircraft some 30nm away from the airfield. Again, consideration must be made in case an aircraft performs a missed approach.

Whilst the additional airspace will not resolve the fundamental issues of the additional spacing required by ACAS and Wake turbulence, it will allow ATC to position the IFR (larger commercial) traffic away from the concentrated areas where VFR traffic operate and therefore giving ATC more opportunities to accommodate the VFR traffic requesting transits in the vicinity of LSA.

#### **5.4 Lower Airspace Radar Service (LARS)**

A Lower airspace Radar Service is a service available to all aircraft for the provision of the radar element of UK Flight Information Services (UK FIS). Whilst designed for the provision of a radar service, LARS units do provide Basic Service to transiting aircraft, and this makes up a high percentage of the traffic loading.

This service is available from LSA ATC to aircraft flying within 25 nm of LSA, subject to the limits of radar/radio cover, between the hours of 0900-1800.

The LSA radar controller providing this service will also be the controller who receives the requests for access into LSA CAS. Often, during the busier periods, there will be another controller (known as the 'Director') managing the CAS in another position operating on a different frequency. Therefore the 'LARS controller' will have to co-ordinate any flights that want to enter LSA CAS with the Director. As the Director is becoming increasingly busier with the traffic inside CAS, the process of co-ordination and accepting aircraft into the airspace without delays is becoming more and more challenging, especially if the LARS controller is busy as well. This is placing more workload on the LARS controller as they are now starting to have to wait for opportunities to co-ordinate with the Director which can lead to the LARS controller having to offer pilots alternative routes or delaying action whilst waiting for CAS entry clearance. Having this additional airspace will give the Director more options to move LSA flights over the sea to the east and north-east of Southend, giving capacity to accommodate transit flights in other parts of the airspace.

#### **5.5 Future**

With increased traffic planned for 2020 and beyond the current airspace will not support the airports growth and allow efficient use of this airspace by all users. LSA believe that the airspace that was

originally applied for in 2014 will allow the operation to grow effectively whilst giving ATC the best opportunity to maintain the levels of safety whilst achieving an orderly and expeditious flow of air traffic for the near future.

## 6. Proposed Additional Airspace

The proposed airspace has been through many iterations during this process, the two segments of airspace that this engagement is referring to have been colour coded and named as follows:

### CTA 10X (shown as the purple area on figures 2 and 3)

- Previously known as CTA 6 in the consultation phase during 2013;
- Previously known as CTA 6 in the LSA submission to the CAA in 2014;
- Known as CTA 10 in the CAA decision letter in 2015;
- Approximately 80% of this airspace is over the sea;
- The base of this airspace is 3500ft and the top is 5500ft;
- This will extend the existing CTA10 shown in Figures 1 and 2.

### CTA 11 (shown as the red area on figure 2 and 4)

- Previously known as CTA 8 in the consultation phase during 2013;
- Previously known as CTA 7 in the LSA submission to the CAA in 2014;
- Known as CTA 11 in the CAA decision letter in 2015;
- During the consultation and submission process this segment of airspace was from 3500ft to FL85 (8500ft). This was due to the base of the London Terminal Manoeuvring Area (LTMA) at the time being FL85 (8500ft). The London Area Management Programme Phase 1a (LAMP1a) was introduced on 4<sup>th</sup> February 2016 by NATS and that lowered the base of the LTMA to the east of Southend to 5500ft. The airspace between 5500ft-FL85 is now Class A airspace under the control of London Terminal Control (LTC);
- 100% of this airspace is over the sea.
- CTA 11 would now only be from 3500ft to 5500ft, so it again joins the base of the LTMA.

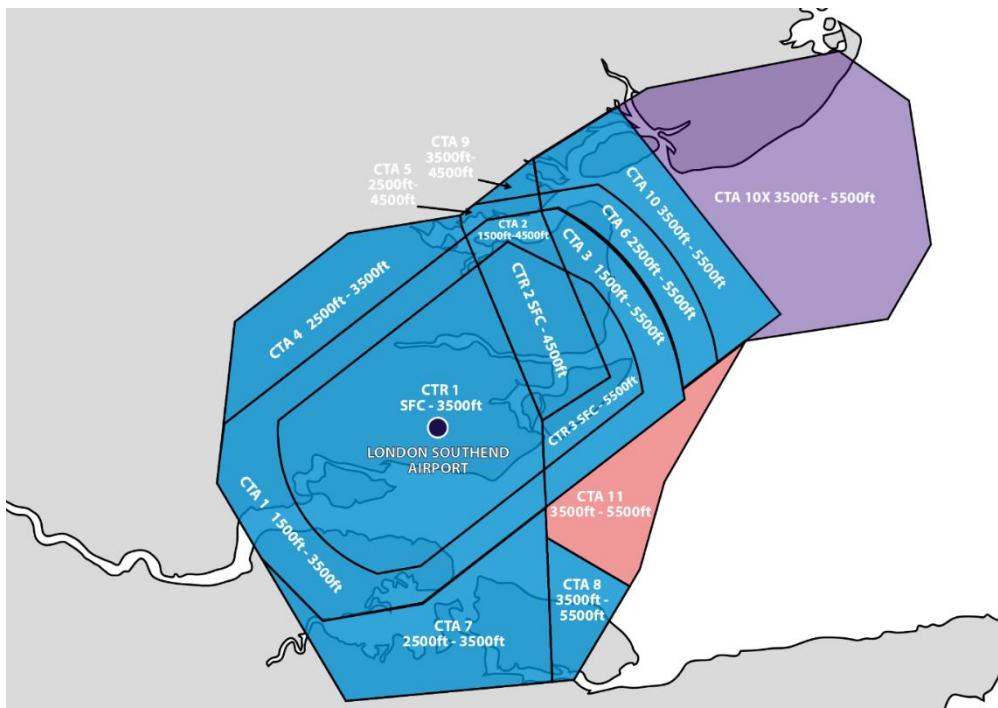


Figure 2. The two areas of airspace, coloured purple and red, are the areas of airspace which this engagement process is referring to. (All of the pieces of airspace above were consulted on in 2013 but only the blue areas were implemented in 2015.)



## 7. Overview of the operational use of the proposed airspace

### 7.1 CTA 10X (Purple area shown in Figure 3)

The main body of this airspace segment is designed to contain the protected area of an offshore holding pattern known as GEGMU. See Appendix 01 for a link to the published GEGMU hold.

Whilst the holding 'area' does extend over a small amount of land, the procedure is designed to keep the actual track of the aircraft over the sea. See Appendix 09 for the details of the hold design as well as a screenshot of the radar display to show an aircraft in the holding pattern at GEGMU.

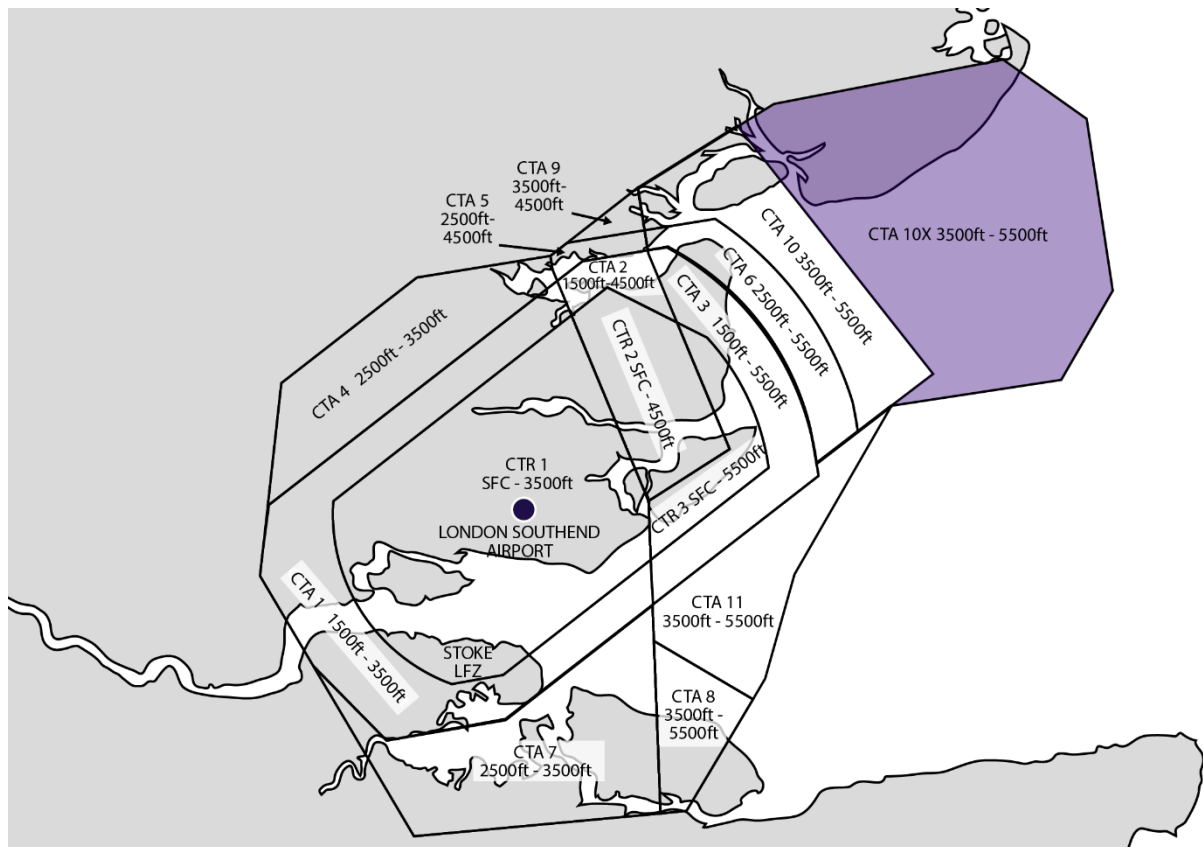


Figure 3

### 7.2 Justification for CTA10X

It should be noted the holding facility at GEGMU has already been approved and has been operationally available since the introduction of LAMP1a in February 2016. This was to facilitate the new Standard Arrivals Routes (STARs) for LSA flights arriving from the east and south, that were introduced as part of LAMP1a.

The GEGMU hold is published with available levels between 4000ft and 6000ft. Aircraft would hold 1000ft apart, so the hold offers 3 levels (4000ft, 5000ft and 6000ft). Unfortunately, due to LSA not receiving approval for this airspace in the original submission in 2015, LSA are not able to use the GEGMU hold in any meaningful way. Aircraft holding at 4000ft and 5000ft would be outside controlled airspace so that would not be suitable to the passenger carrying commercial aircraft. The

airspace at 6000ft is inside CAS but under the control of LTC at Swanwick and therefore LSA ATC must request to use this level for LSA traffic. The use of the hold at 6000ft cannot be guaranteed, as it must be approved on a tactical basis, and London Terminal Control (LTC) may have their own traffic that requires the use of that airspace.

The only place, within the current LSA CAS, where aircraft can hold is overhead the airfield at 2000ft and 3000ft. This is known as the SND hold. (See Link in Appendix 01). The use of the SND hold is not without issues especially when there are departures from LSA. An example of an aircraft in the SND hold is shown in Appendix 09.

Due to departing aircraft having to climb to a minimum level of 2000ft, this limits the holding options to one aircraft at 3000ft whenever there are departing aircraft.

Often the weather (i.e. fog) is not suitable for arriving aircraft to make an approach but could be suitable for departures. This leads to aircraft holding at SND at 3000ft waiting for weather improvement with departures only be able to depart initially to 2000ft.

If traffic is holding at SND at 3000ft, departing aircraft cannot climb above 2000ft until clear of the holding traffic, this can be up to 10nm from the airfield. The only other option is for ATC to vector the aircraft out of the holding pattern, this leads to extra workload both for ATC and the pilot.

Aircraft are restricted to lower levels in the holding pattern at SND, than they would use at GEGMU. The restricted lower levels that aircraft fly whilst in the SND hold and the requirement to cap departing traffic to 2000ft, results in more disturbance to people on the ground and leads to a negative environmental impact.

CTA10X would allow LSA ATC to use the GEGMU hold, rather than the SND hold, which would prevent most of the issues listed above.

As most aircraft holding at GEGMU will be flying over the sea and operating at 4,000ft and above, we expect the impact to those communities located under the holding area to be minimal.

As well as being used for holding aircraft, CTA10X would offer LSA ATC the option to position and space aircraft in the arrival sequence using airspace at 4000ft and above. In the current airspace configuration when LSA ATC have to establish an arrival sequence, often aircraft are positioned closer to the airfield, and the more populated land areas, at levels below 4000ft, which leads to disturbance on the ground. Alternatively, complicated vectoring with multiple delaying 'dog leg' turns are given which increases workload for ATC and the pilot. With the introduction of CTA10X this vectoring could be done over the sea, especially when using runway 23, therefore avoiding the impact to the communities on the ground.

LSA ATC has a requirement to keep aircraft within controlled airspace, (500ft above the base of the airspace) so aircraft would be 4000ft and above in CTA10X.

LSA ATC also has a challenge of the integration of arrivals from the north with the arrivals via GEGMU. Depending on their relative positions and the runway in use, this routinely leads to complicated vectoring and delaying action within the current airspace (marked blue in Figure 1 and 2) with aircraft having to be descended earlier than they need to, flying at lower levels and the associated environmental impact that brings. The current airspace design and volume will show limitations during busier periods as the airport traffic levels increase in the next 12 months (see section 8 for current and future traffic levels).

Without this additional airspace, aircraft will be positioned (radar vectored) closer to the airfield at 3000ft and below. This could also lead to restricting departures to 2000ft during the busier periods of the airport's operation, which could occur at any time and often at short notice, during the airports operating day (typically between 0630-2330).

Industry has recognised the importance of Continuous Descent Approaches (CDA's) as they improve efficiency, reduce cockpit workload and offer predictability for aircrew. Airspace design is key to achieving this. Under the current airspace design, aircraft arriving via GEGMU cannot remain inside CAS and make a stable straight in approach for runway 23 following Continuous Descent Approach (CDA) principles. Therefore, LSA ATC have a difficult balance of keeping aircraft within CAS as long as possible but also considering the descent profile, this often results in aircraft leaving CAS for up to 4nm prior to entering Southend CAS. This causes additional radio messages and extra workload for both controller and pilot.

If there is unknown traffic operating close the boundaries of Southend CAS, the IFR aircraft is kept inside CAS but that can lead to additional complicated vectoring, additional track miles, and potential unstable/rushed approach, which again causes unnecessary ATC and cockpit workload for the aircraft affected and any following aircraft. This is also not ideal from an environmental perspective; increasing fuel burn and flying over land areas at lower levels causing more disturbance to the local populous.

With the additional airspace the aircraft arriving via GEGMU could be descended earlier over the sea (to 5000ft) that would still ensure CAS containment, achieve a stable approach (CDA) and offer LSA ATC the option of reducing track miles for arriving flights using runway23

Another consideration for LSA ATC is the Section 106 agreement LSA has with the local councils, which requires LSA ATC to use runway 23 for arriving aircraft as much as is safe and practical to do so. Therefore, arriving aircraft are encouraged to use runway 23 than would normally be expected which results in the airspace to the north-east of Southend ATC being utilised a lot more.

When runway 23 is in use, arriving aircraft the size of Boeing 737/Airbus 319, (operated by Ryanair and easyJet respectively) often need to taxi to the end of the runway to turn around and then backtrack to the first available taxiway to vacate the runway. Due to the increased runway occupancy for these arrivals, there is a requirement for aircraft to be spaced 10nm apart in the arrival sequence. The vertical constraints of the current airspace often require LSA ATC to utilise this 10nm spacing at lower levels and over populated land areas.

Due to the tactical nature of changing runways as the result of the wind direction and the Section 106 agreement, LTC present all Southend arrivals arriving via the same sector 10nm in trail unless co-ordinated otherwise. Due to the limited holding options within LSA airspace, often LTC are requested to hold LSA traffic within LTC airspace. Whilst this can be accommodated for advance notice delays it is more of a challenge for short notice or tactical delays due to other traffic within LTMA which LSA has no control over. In practical terms LSA ATC can only offer holding facilities for one aircraft at a time within the current CAS configuration. As the airport and airspace is getting busier this is becoming more challenging for LTC and LSA.

**Note:**

- Approximately 66% of LSA arrivals have used runway 23 over the last 3 years;

- Approximately 75% of LSA IFR arrivals have used the GEGMU STARs since they were introduced in February 2016.

### **7.3 Impact on non-aviation communities CTA 10X**

Feedback received from Non-Aviation stakeholders during the consultation regarding CTA 10X can be summarised as follows;

- Volume too much;
- Wholly unnecessary / unjustified;
- Not required;
- Relocate the hold further offshore.

General feedback but not specific to CTA 10X

- Justification for all CTAs full stop;
- Noisy aircraft;
- Aircraft flying lower;
- Environmental impact;
- Overkill for Commercial Air Traffic.

As most aircraft holding at GEGMU and operating within CTA10X will be over the sea and operating at 4,000ft and above, we expect the impact to those communities located under the holding area to be minimal.

The holding pattern at GEGMU has been designed to keep the flight path of the aircraft over the sea.

### **7.4 Impact on aviation communities CTA10X**

Since the introduction of CAS at LSA, ATC regularly approve GA transit flights across the existing airspace for flights that could route further to the east (where CTA10X would be located), which would suggest that pilots are electing to avoid flying over the sea for extended distances as well as avoiding the Danger area complex which is in line with good flying practice. On this basis LSA believe there would be minimal impact to general aviation flights by the introduction of this piece of airspace.

LSA ATC would still have the same approach to accommodate pilot requests to use this piece of airspace in the manner they do with the current Class D airspace.

Based on the original consultation feedback and LSA's experience of that piece of airspace, the majority of users that would want to use this airspace will be equipped with radios. As this airspace is Class D, it is accessible to flights operating under both Visual Flight Rules (VFR) and Instrument Flight Rules (IFR). Pilots can request entry into this piece of airspace by contacting Southend ATC on the radio in the same way they do today. Based on the experience of the current airspace configuration, there have been minimal requests for access to the airspace by non-radio equipped aircraft for the last 2 years and the majority have been approved, therefore LSA doesn't expect this to be significantly different for CTA 10X.

During the consultation phase there was general concern that the airspace was too large, and aircraft would not get access into it. LSA ATC has accepted over 99% of the requests for entry into the current airspace, which is documented in the Post Implementation Review, conducted by the CAA (link in Appendix 01) and this has continued in the subsequent years. LSA ATC would seek to achieve the

same amounts of entry clearances within this additional airspace and will continue to work closely with airspace users wishing to use this airspace.

For more details on this portion of airspace please follow the link in Appendix 01 for the original consultation document.

### 7.5 Summary of CTA10X

In summary, CTA10X would allow:

- LSA ATC to hold aircraft arriving from the south and east at 4000ft and 5000ft without any co-ordination with LTC.
- Aircraft arriving from the north to be turned eastbound at 4000ft and above over the sea to position them in the landing sequence whilst ensuring they remain inside CAS.
- Aircraft arriving from the east via GEGMU could be descended earlier to achieve CDAs and less complex vectoring.
- An overall reduction in workload for controllers and pilots.
- Aircraft could be routed away from overland areas, currently below 4000ft, with an associated environmental benefit.

### 7.6 CTA 11 (Red area shown in Figure 4)

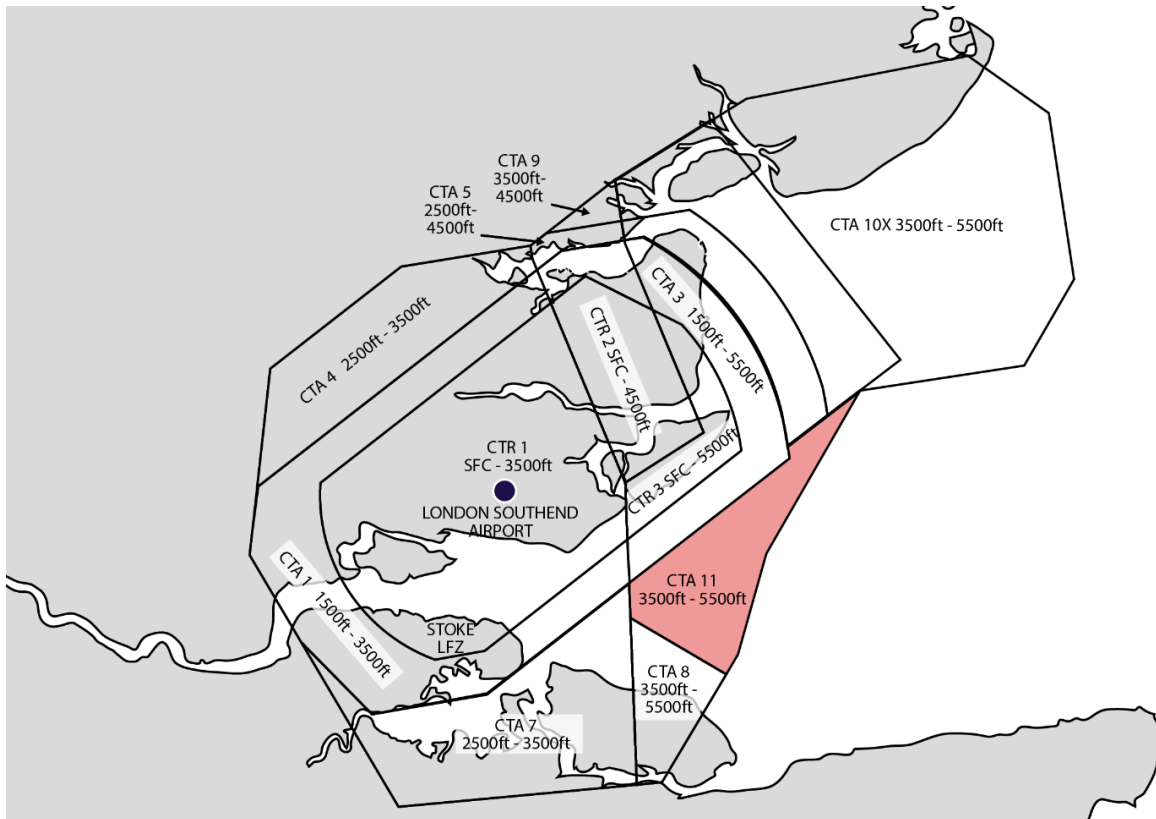


Figure 4



Figure 5 Taken from the original consultation document showing the Danger areas to the east of Southend (Highlighted in white box). D138A has subsequently been re-designated D138D but has the same dimensions. CTA 11 is shown as CTA 7 (green outline).



Figure 6 Showing the danger areas (Highlighted in white box) in relation to the current airspace configuration. D138A has subsequently been re-designated D138D but has the same dimensions.

The purpose is to provide a continuum of controlled airspace from 3500ft base level to the overlying LTMA base at 5500ft. This will facilitate direct arrival routings, either under radar vectoring or via RNAV routing waypoints when the D138 complex (Shoeburyness Danger Area) is not active and the interaction with other LTC flights allows. This will dramatically reduce the unnecessary extra track miles that aircraft have to fly when following the full GEGMU STARs, whilst still remaining inside CAS and flying over the sea which has a positive environmental impact.

LSA works closely with the Danger Area operator to ensure that the airspace is released back to other users as soon as they have finished with their requirements. This aligns with the Flexible Use of Airspace (FUA) concept. The FUA Concept allows the maximum shared use of airspace through enhanced civil/military co-ordination. The application of the FUA Concept ensures that any airspace segregation is temporary and based on real use for a specified time period.

Even when the danger areas are active, CTA 11 still offers shortcuts for arriving aircraft for runway 05 from the east as it enables LTC and LSA ATC to position aircraft over the sea to the south of the danger area and offer better opportunities to integrate LSA traffic by descending them to 4000ft earlier over the sea to get them below the traffic flying into London City and Biggin Hill.

### **7.7 Impact on non-aviation communities CTA 11**

Feedback received from Non-Aviation stakeholders during the consultation regarding CTA 11 can be summarised as follows

- Impact on Manston Airport;
- Cuts across existing Danger Area.

General feedback but not specific to CTA 11

- Justification for all CTAs full stop;
- Noisy aircraft;
- Aircraft flying lower;
- Environmental impact;
- Overkill for Commercial Air Traffic.

All of CTA11 is over the sea. Aircraft will routinely be at 4000ft or above, therefore, the impact to the closest communities would be deemed as minimal as there is no direct overflying of populated areas whilst aircraft are operating in this airspace.

### **7.8 Impact on aviation communities CTA11.**

Danger area D138D takes up approximately half of this airspace. The danger area is generally active from 0830-1630 Monday to Friday and therefore precludes entry for most of the CTA 11 area by any flights during that period. Even when the danger area is not active there are limited flights in this area due to it being a 'dead end' unless pilots wanted to enter or cross the existing LSA CAS. Most flights that would want to operate in this area would also be requesting to operate in other areas of LSA CAS so would be in radio contact with LSA ATC.

The Danger Area operator will release back the airspace to other users as soon as they have finished with their requirements.

Based on the original consultation feedback and LSA's experience of that piece of airspace, the majority of users that would want to use this airspace will be equipped with radios. As this airspace is Class D, it is accessible to flights operating under both Visual Flight Rules (VFR) and Instrument Flight Rules (IFR). Pilots can request entry into this piece of airspace by contacting Southend ATC on the radio in the same way they do today. Based on the experience of the current airspace configuration, there have been minimal requests for access to the airspace by non-radio equipped aircraft for the last 2 years and the majority have been approved, therefore LSA doesn't expect this to be significantly different for CTA 11.

During the consultation phase there was general concern that aircraft would not be permitted access into this piece of airspace. Southend ATC has accepted over 99% of the requests for entry into their current airspace, which is documented in the Post Implementation Review, conducted by the CAA (link in Appendix 01). LSA ATC would seek to achieve the same amounts of entry clearances within this additional airspace and will continue to work closely with airspace users wishing to use this airspace.

For more details on this portion of airspace please follow the link in Appendix 01 for the original consultation document.

## **7.9 Summary of CTA11**

In summary, CTA11 would allow:

- Aircraft arriving from the South to reduce their track miles (over the sea) to make a shorter approach for runway 05 and 23;
- Aircraft to be routed away from overland areas, currently below 4000ft, which gives an associated environmental benefit in terms of noise and directly flying over populated areas.
- An overall reduction in workload for controllers and pilots;
- Even when the Danger areas are active the options above would still be available, albeit to a limited degree.



## 8. Traffic levels

As can be seen from the figures below the airport ATMs and passenger numbers have grown significantly since 2016 and are forecast to have more than doubled by the end of 2019. Further traffic and passenger forecasts demonstrating continued forecasted growth can be found in the table below.

The current CAS configuration is showing signs of reaching its limitations particularly during the busier periods of operation. As stated previously, the traffic levels can increase very quickly with little notification due to the nature of many users requesting entry into the airspace at short notice.

This is often leading to high workload for both pilots and ATC due to the requirement to keep arriving and departing aircraft inside the current CAS boundaries whilst achieving the required lateral spacing with limited vertical airspace available.

Typical busy periods include, but are not limited to, the following situations:

- Simultaneous commercials arriving and departing aircraft that require separation.
- Multiple arriving commercial aircraft that require the appropriate spacing depending on the runway in use.
- Accommodating transit flights whilst there are arriving and departing flights. This can be challenging depending on the weather, runway in use and the route requested by the pilot.
- Accommodating slower moving aircraft whilst there are faster moving commercial aircraft in the traffic pattern.
- Accommodating training aircraft. This could be circuit traffic or aircraft practicing instrument approaches.
- Leisure flying from both based and non-based aircraft. This is often higher during periods of fine weather and at weekends.
- Integrating lighter aircraft in the traffic pattern whilst considering the wake turbulence requirements.
- Integrating traffic whilst considering the spacing to avoid Resolution Advisories (RA) from ACAS equipped aircraft.

Based on experience already with the operations in the first half of 2019, LSA ATC believe that the current CAS configuration will lead to restrictions to airspace access and efficient traffic flows during the busier periods. With increased commercial movements planned for 2020 and beyond the current airspace will not support the airports growth and allow efficient use of this airspace by all users. LSA feel that the additional airspace will allow the operation to grow effectively whilst maintaining the levels of safety, and orderly flow of air traffic of today and for the near future.

Year	Total Movements	Air Transport Movements (ATMs)	Pax
2016	23,449	9,201	0.874m
2017	26,674	12,158	1.095m
2018	34,990	17,613	1.488m
2019 (Forecast)	40,463	22,350	2.336m
2020 (Forecast)	43,270	25,857	3.167m
2021 (Forecast)	46,919	35,394	4.350m

2016-2018 taken from CAA Statistics.

The airport currently has approval for 53,500 movements under the Section 106 agreement with the local councils.

### 8.1 Additional operations in 2019

- Ryanair - 3 based aircraft from April 2019 (c126 movements a week);
- Loganair - from May 2019 (c68 movements a week);
- Blue Island - from May 2019 (c14 movements a week);
- New route to Newquay in April (up to 14 movements a week from May).

### 8.2 Lower Airspace Radar Service (LARS)

As mentioned in Section 5 (para 5.4) LSA ATC provide a LARS. This is service being provided by the controller who receives the requests for access into LSA CAS. With the increase in traffic levels inside CAS, the process of co-ordination and accepting aircraft into the airspace without delays is becoming more and more challenging, especially during busier periods. The current airspace, during peak periods, is reaching its capacity in terms of complexity and workload for ATC. The additional airspace will give LSA ATC options to reduce the concentration of traffic in the vicinity of the airport and this will offer the LARS controller better opportunities to co-ordinate and accommodate aircraft that wish to enter LSA CAS.

## 9. Conclusions

LSA intend to use the airspace as previously described in the consultation document. The only change being CTA 11 is now 3500ft – 5500ft, rather than up to FL85 (8500ft). LSA previously consulted on this segment of airspace from 3500ft to FL85 (8500ft). This was due to the base of the London Terminal Manoeuvring Area (LTMA) at the time being FL85 (8500ft). The London Area Management Programme Phase 1a (LAMP1a) was introduced on 4th February 2016 by NATS and that lowered the base of the LTMA to the east of Southend to 5500ft. The airspace between 5500ft-FL85 is now Class A airspace under the control of London Terminal Control (LTC).

The environmental statement made within the original consultation document is still valid. See Appendix 1 for the link to the consultation document. The environmental statement can be found in Section 11, pages 71-74.

The CAA PIR demonstrates that LSA ATC are managing the current airspace appropriately and giving fair access to airspace users.

Based on operations in 2019, LSA ATC believe that the current CAS configuration will lead to restrictions to airspace access and efficient traffic flows during the busier periods. With increased movements by commercial operators planned for 2020 and beyond the current airspace will not support the airports growth and allow efficient use of this airspace by all users. LSA feel that the additional airspace will allow the operation to grow effectively whilst maintaining the required levels of safety and achieving an orderly and expeditious flow of air traffic.

This airspace will allow LSA ATC to handle the current traffic levels in a more efficient and environmentally friendly manner. This will be achieved by having the option to use airspace over the sea to the north and east of Southend as much as possible at 4000ft and above, rather than using airspace over land with more heavily populated areas often at 3000ft and below.

The airspace will also give ATC better opportunities to accommodate continuous descent approaches.

The airspace will also allow LSA ATC the best opportunity to continue with the high rate of access to controlled airspace for all airspace users and in particular VFR transits. Without the introduction of CTA10X and CTA11 more flights will be concentrated into the current airspace configuration thus leading to airspace capacity being reached earlier. There are signs already that this is starting to be experienced with the current traffic levels.

It is sensible to implement the airspace now rather than waiting until the airspace cannot support the operation at LSA or more restrictions to other users are needed. Due to the required process for airspace change it is appropriate to address the issues in a timely manner in line with other airspace changes in the UK to ensure that the airspace is fit for purpose based on the expected growth at LSA.

In December 2018, following the announcement of the new Airspace Modernisation Strategy (AMS), which superseded the Future Airspace Strategy (FAS), Tim Johnson, Policy Director at the UK Civil Aviation Authority, said: "Airspace is a crucial part of the UK's infrastructure and it must be maintained and improved. Unlocking the benefits of modernisation will make journeys faster and more environmentally friendly. Better airspace design can help with the management of noise impacts and improve access for existing and new types of airspace users".

The AMS sets out a new shared objective between the CAA and the Government for modernising airspace which is to deliver quicker, quieter and cleaner journeys. It also states that ‘better airspace design can manage noise impact and improve access to other airspace users’

LSA believes that the levels of traffic and complexity, is such, that the airspace shown in figure 2 (labelled CTA 10X and CTA 11), requires implementation. It is also in accord with the policies set out by the UK Government and CAA.

## **10. What happens next?**

LSA will prepare and submit an Addendum to the ACP that was put forward to the CAA in March 2017.

This will include a summary of the engagement activity as well as validating any figures / information that was provided in the March 2017 ACP. Up to date information that has become available since submission will also be included.

The addendum will also contain the final options appraisal, detailing the options considered by LSA along with any other additional information required by the CAA. We anticipate that this will be submitted in October 2019.

Once submitted, the CAA will undertake its regulatory processes during a review period. After this process has been completed a Regulatory Decision will be made and published by the Director of Safety and Airspace Regulation.

If Regulatory Approval of the ACP is granted, the CAA, in conjunction with LSA will take the necessary steps to promulgate the change in the UK AIP. It is anticipated, if granted, that the airspace could be implemented in Spring 2020.

## APPENDIX 01: Links to Documents and Websites

- a. Controlled Airspace Consultation Document [Please click here](#) (Can be found at the bottom of the webpage)
- b. Controlled Airspace Consultation Report [Please click here](#) (Can be found at the bottom of the webpage)
- c. CAA PIR. Please click [here](#)
- d. Aerodrome Information published in the UK AIP. Please click [here](#)

Select Southend and under Charts related to Southend, the following charts are relevant to this engagement document.

- GEGMU hold chart (RNAV5 (VOR/DME, DME/DME OR GNSS) STANDARD ARRIVAL CHART - INSTRUMENT (STAR) RWY 05/23 SUMUM 1S, XAMAN 1S - ICAO AD 2-EGMC-7-1)
  - Southend CAS chart (AD 2-EGMC-4-1 CONTROL ZONE AND CONTROL AREA CHART)
  - SND Hold chart from IAP (INSTRUMENT APPROACH CHART ILS/DME/NDB(L) RWY 05 (ACFT CAT A,B,C) - ICAO AD 2-EGMC-8-1)
- e. Standard Instrument Departure Routes ACP. Please click [here](#).
  - f. RNAV Approach Procedures ACP. Please click [here](#).

## APPENDIX 02: CAA ACP Decision Letter 23 January 2015

Safety and Airspace Regulation Group

All NATMAC Representatives

23 January 2015

*Dear Colleagues,*



### CAA DECISION LETTER

#### INTRODUCTION OF LONDON SOUTHEND AIRPORT (LSA) CLASS D CONTROL ZONE (CTR) & ASSOCIATED CONTROL AREA (CTA)

##### 1. INTRODUCTION

- 1.1 During the 1960s, Southend was London's third-busiest airport. It remained London's third-busiest airport in terms of passengers handled until the end of the 1970s, when the role of "London's third airport" passed to Stansted. Following its purchase by Stobart Group in 2008, there has been an ongoing programme of development at London Southend Airport (LSA), with a newly built terminal and control tower, an extended runway, and a regular rail service running from Southend Airport station to Liverpool Street station in central London.
- 1.2 easyJet began operating services by opening a base at LSA in April 2012, and Irish carrier Aer Lingus Regional began regular flights to Dublin in the May. As a result, the airport has seen a rapid increase in passenger numbers. Around 617,000 passengers used the airport during 2012 with 721,661 passengers in the 12 months following the commencement of these services. Passenger numbers grew to around 970,000 in 2013 and the total for 2014 was 1,098,598. The airport operator hopes to increase passenger numbers to five million per year by 2020.
- 1.3 This substantial growth in passenger numbers has resulted in Air Transport Movements (ATMs) increasing significantly since 2011. Commercial Air Traffic (CAT) being reintroduced at LSA has resulted in ATMs rising from a figure of about 1000 per year in 2009/10, to 8086 in 2012, 9475 in 2013 and 11,456 in 2014. Overall traffic figures for 2012 were 30,280; for 2013 the figure was 31,624 and the 2014 figure was 36,309. Non-CAT movements consist of maintenance, repair & overhaul traffic, (MRO), as well as GA, military, business and private aircraft.

##### 2. PROPOSAL OVERVIEW

- 2.1 On 27<sup>th</sup> February 2013, LSA met with members of the CAA's Safety & Airspace Regulation Group (SARG) to conduct an Airspace Change Proposal (ACP) Stage 1 Framework Briefing on a plan to implement a Class D CTR and CTA in the vicinity of the airport. The airspace in the vicinity of Southend had previously given cause

for concern due to five Airprox<sup>1</sup> incidents in recent years including two recent Category A incidents. In both of these cases the UK Airprox Board concluded that the aircraft proximity meant that a serious risk of collision existed. The LSA CAS ACP is intended to enhance the protection of passenger-carrying CAT flights in the critical stages of flight and of other aircraft operating in the vicinity of LSA. At the Framework Briefing and over the course of the project, CAA experts have provided assistance to LSA in terms of helping them to understand the requirements of the airspace change process including the need for the appropriate level of consultation. Between 20<sup>th</sup> September and 19<sup>th</sup> December 2013, LSA conducted a sponsor consultation based on an airspace design which LSA believed at that time to be the minimum needed to meet their safety requirements; (see Enclosure 1).

- 2.2 In February 2014, LSA produced a Consultation Report demonstrating that it had taken account of stakeholder input to the consultation and as a result, the shape and size of the proposed CTR/CTA was reduced to take account of the requirements of stakeholders; (see Enclosure 2). LSA then submitted an ACP to the Airspace Regulation (AR) team on 30<sup>th</sup> May 2014 and operational and environmental assessments were carried out by the respective CAA team members.
- 2.3 Due to safety concerns following the series of Airprox incidents, the CAA encouraged LSA to consider the introduction of a Radio Mandatory Zone (RMZ) and this was implemented in time for the summer of 2014. LSA was required to complete a 60 day review following implementation and they provided an in depth report covering the benefits and weaknesses of operating an RMZ in the vicinity of LSA. Of particular note was the fact that a surprisingly high percentage of traffic appeared to pay no attention to the RMZ at all and did not call Southend to enter the airspace. It is not known whether these occurrences took place due to a lack of awareness of the RMZ or whether it was because the airspace classification remains as Class G, with pilots being unaware of the requirement to make a radio call to Southend. It should also be noted that although aircraft are required to establish contact with LSA within the RMZ, they are not required to comply with any requests for co-ordination due to the uncontrolled nature of Class G airspace. This has a negative impact on the deconfliction minima which can be used and on the utilisation of the airspace. Due to the complex nature of the airspace, the high traffic density and the number of non-transponder equipped aircraft, many of which are not visible on radar, an RMZ was not considered to be a permanent solution for the airspace around LSA.
- 2.4 During the compilation of the operational Case Study, it was realised that the LSA requirement for CAS was predicated on not just the present situation but also the requirement for containment of RNAV<sup>2</sup> procedures that would be introduced at a later date and would serve to link in with and complement the London Airspace Management Programme (LAMP) phase 1A changes over south-eastern England. To tie in with the London City and Stansted developments associated with LAMP, LSA is proposing RNAV SIDs<sup>3</sup> that would procedurally deconflict all future RNAV departures from other airport's procedures.

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<sup>1</sup>An Airprox is a situation in which, in the opinion of a pilot or air traffic services personnel, the distance between aircraft as well as their relative positions and speed have been such that the safety of the aircraft involved may have been compromised.

<sup>2</sup>Area navigation (RNAV) is a method of Instrument Flight Rules (IFR) navigation that allows an aircraft to fly a course based on a network of navigational waypoints, rather than navigating directly to and from beacons on the ground. This means that RNAV procedures are not dependent on ground based facilities.

<sup>3</sup>A standard instrument departure (SID) is an air traffic control coded departure procedure that has been established to simplify clearance delivery procedures.



- 2.5 Following internal debate concerning the amount of CAS proposed for Southend, a team of CAA specialist airspace regulators engaged extensively with LSA in order to reach agreement on further reducing the size of the controlled airspace (CAS). It was also determined that complete containment of proposed LSA procedures was not required at this stage due to the number of commercial movements currently supported by the airport.
- 2.6 I have therefore approved the more limited airspace change, see Enclosure 3. If LSA wishes to introduce any further CAS, the airport would first need to prove that traffic levels and/or levels of complexity justify the requirement for this airspace and a separate ACP would have to be submitted in order to gain CAA approval. If such an application is received within two years of implementation and the increased airspace requirement is within that contained in Enclosure 4, there would not be a requirement for further consultation, as LSA has already consulted on this airspace.

### **3. AIRSPACE EFFICIENCY**

- 3.1 I am required to secure the most efficient use of airspace consistent with the safe operation of aircraft and the expeditious flow of air traffic. I am satisfied that the protection provided by the new LSA CAS will enhance the service provision to passenger carrying CAT flights in the critical stages of flight and to other aircraft operating in the vicinity of LSA whilst still allowing airspace users to access the airspace as required.

### **4. AIRSPACE USERS**

- 4.1 I am required to satisfy the requirements of operators and owners of all classes of aircraft. Objections were received from the general aviation community and many of these were based on the size of the proposed CAS. LSA has since made continued efforts to minimise the impact of CAS on other airspace users by reducing the size of the CTR and CTA and this has enabled me to approve this proposal. A Class D CTR plus an RMZ or Transponder Mandatory Zone (TMZ) in Class G airspace would have made the airspace unnecessarily complex whilst not providing benefits in terms of more efficient management of the airspace. The Class D designation of both the CTR and CTA also means that access will continue to be available to the majority of aircraft operators.
- 4.2 Other airspace user requirements have largely been met, although it is likely to prove difficult for LSA to accommodate gliders that are unable to maintain a required level or level band. Also, despite commitments from LSA to accommodate them where possible, some non-radio traffic may not be able to access the airspace. With that in mind, LSA has already adapted the shape and size of their proposed CTR in order to enable microlights and other non-radio traffic to utilise the airspace adjacent to the CTR whilst remaining below the CTA. I am also satisfied that LSA have provisioned adequate ATC resources to enable reasonable demand for crossing services to be accommodated safely.
- 4.3 Letters of Agreement (LoAs) are being negotiated with the adjacent airstrips at Barling, Burnham, St Lawrence and Tillingham, as well as with Stoke Airfield and Canewdon Paragliders. They all contain commitments to resolve ATS procedures and to accommodate airspace requirements.

## **5. INTERESTS OF OTHER PARTIES**

- 5.1 The MoD Shoeburyness danger area complex straddles the new airspace structure. LSA has long standing procedures in place to ensure separation from these danger areas (D136/D138/D138A/D138B) when they are active and these procedures will continue to be utilised once CAS is implemented.

## **6. ENVIRONMENTAL CONSIDERATIONS**

- 6.1 The environmental impact of this change is considered to be minimal as CAT at LSA will continue to utilise the same routes as before, albeit on a more predictable and efficient basis under the protection of CAS. Whilst some general aviation traffic will need to, or will choose to route around the LSA CAS, most traffic will have the option of contacting LSA to gain a clearance to transit the airspace. I have therefore concluded that the overall environmental impact of this change is broadly neutral.

## **7. SAFETY**

- 7.1 Whilst there is a high density of diverse airspace activity in the airspace around LSA, airspace users have not always participated in the ATS available and slow moving traffic is not always seen on radar. Five Airprox incidents (three of which included CAT) have occurred since CAT resumed at LSA, meaning that a 'do nothing' option is not appropriate in this instance. I believe that the implementation of Class D CAS will enhance the protection of passenger carrying CAT flights in the critical stages of flight and of other aircraft operating in the vicinity of LSA.
- 7.2 As well as the 'do nothing' option, LSA has considered options which involved retaining Class G airspace but introducing either an RMZ or a Transponder Mandatory Zone (TMZ) or a combination of the two. From their experience of operating an RMZ, LSA considered their ability to establish and maintain consistent protection of CAT traffic to be in doubt. This was partly due to the high percentage of traffic which appeared to pay no attention to the RMZ and did not call Southend in order to enter the airspace. Additionally, whilst the need for a Class D CTR is recognised by the CAA, the extra complexity of a Class D CTR combined with a Class G RMZ/TMZ and the difference in requirements for each was considered likely to be a cause of more infringements rather than a means to reduce them. Therefore, due to the complex nature of the airspace, the high traffic density and the number of non-transponder equipped aircraft, many of which were not visible on radar, an RMZ was not considered to be a permanent solution to resolve the safety issues which exist in the airspace around LSA.
- 7.3 The role of the CAA is to ensure the safe, efficient and equitable usage of all UK airspace by all users and within that context my primary duty is to maintain a high degree of safety in the provision of air traffic services. As such, based on the findings of my staff in the CAA Safety and Airspace Regulation Group (SARG), I have concluded that a Class D CTR and CTA will enhance the safety of the airspace around LSA whilst enabling the majority of other airspace users to gain access to the airspace subject to receiving an ATC clearance. The appropriate safety management processes resulting from this airspace change will be completed prior to the introduction of any operational change and thus safety levels will be assured.

## 8. NATIONAL SECURITY

- 8.1 I am satisfied that national security will not be impacted by this proposal and the specific consultation requirements with the Secretary of State for Defence have been discharged by correspondence with the MoD which has confirmed it is content with this proposal.

## 9. REGULATORY DECISION

- 9.1 I am satisfied that the new CAS arrangements will help support greater safety and efficiency levels in the airspace surrounding LSA whilst not unduly disadvantaging other airspace users. I am also satisfied that the revised option put forward following changes made after consultation and liaison between the CAA and LSA is the appropriate option. I have therefore decided to approve the airspace as portrayed in Enclosure 3 for implementation on AIRAC 04/2015 (2<sup>nd</sup> April 2015). This airspace will be reviewed six months after implementation to ensure that it is working as anticipated.
- 9.2 If you have any queries, the SARG Airspace Regulation Project Leader is Clive Grant, who can be contacted on 020 7453 6551, [clive.grant@caa.co.uk](mailto:clive.grant@caa.co.uk)

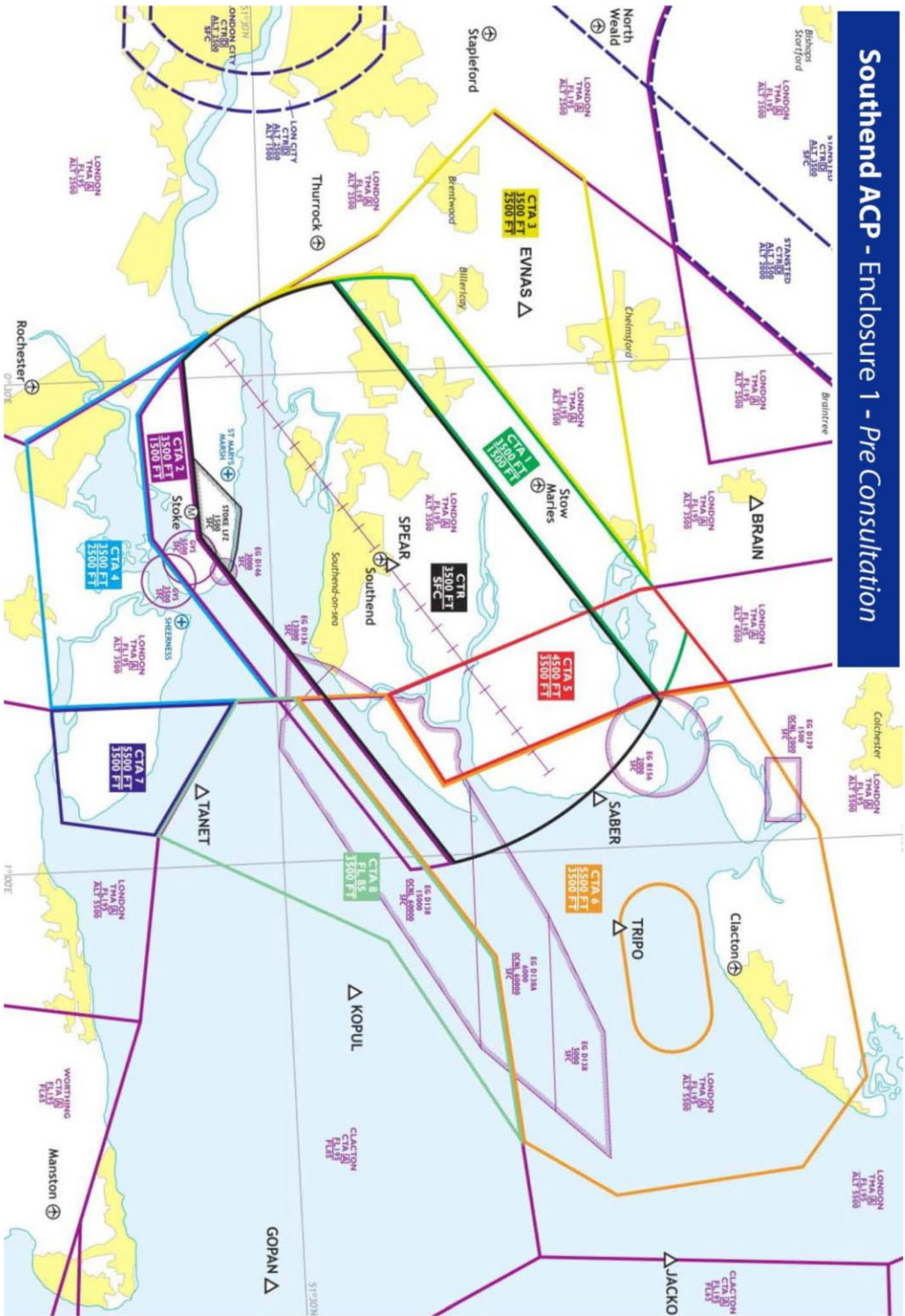


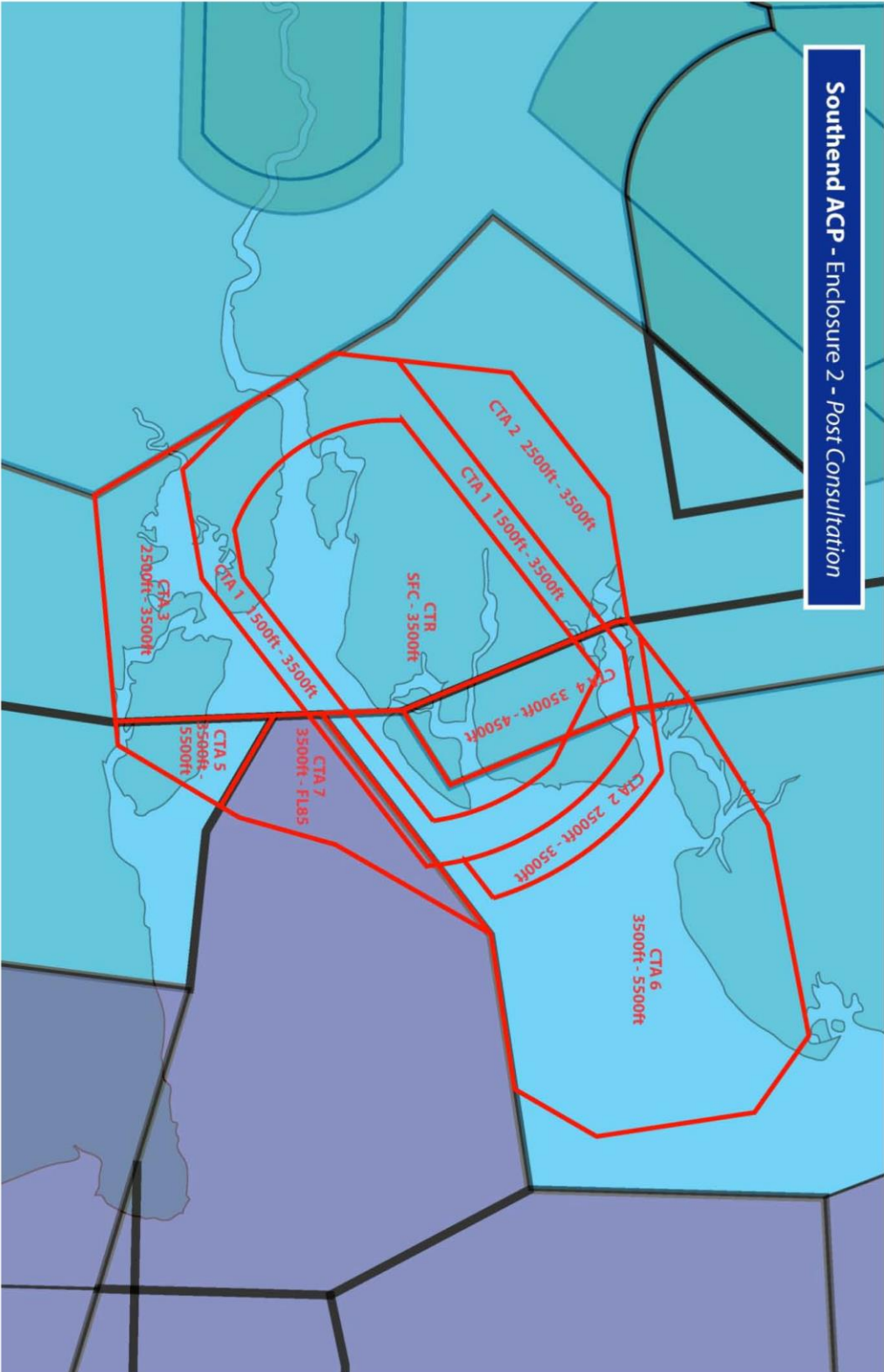
Mark Swan  
Director

### Enclosure:

1. Map showing proposed Southend Class D CTR/CTA pre-consultation
2. Map showing proposed Southend Class D CTR/CTA post-consultation
3. **Map showing Southend Class D CTR/CTA for implementation on 2 Apr 2015**
4. Map showing Southend Class D CTR/CTA which could be implemented before 2<sup>nd</sup> April 2017 without further consultation, but only following the submission of a separate ACP

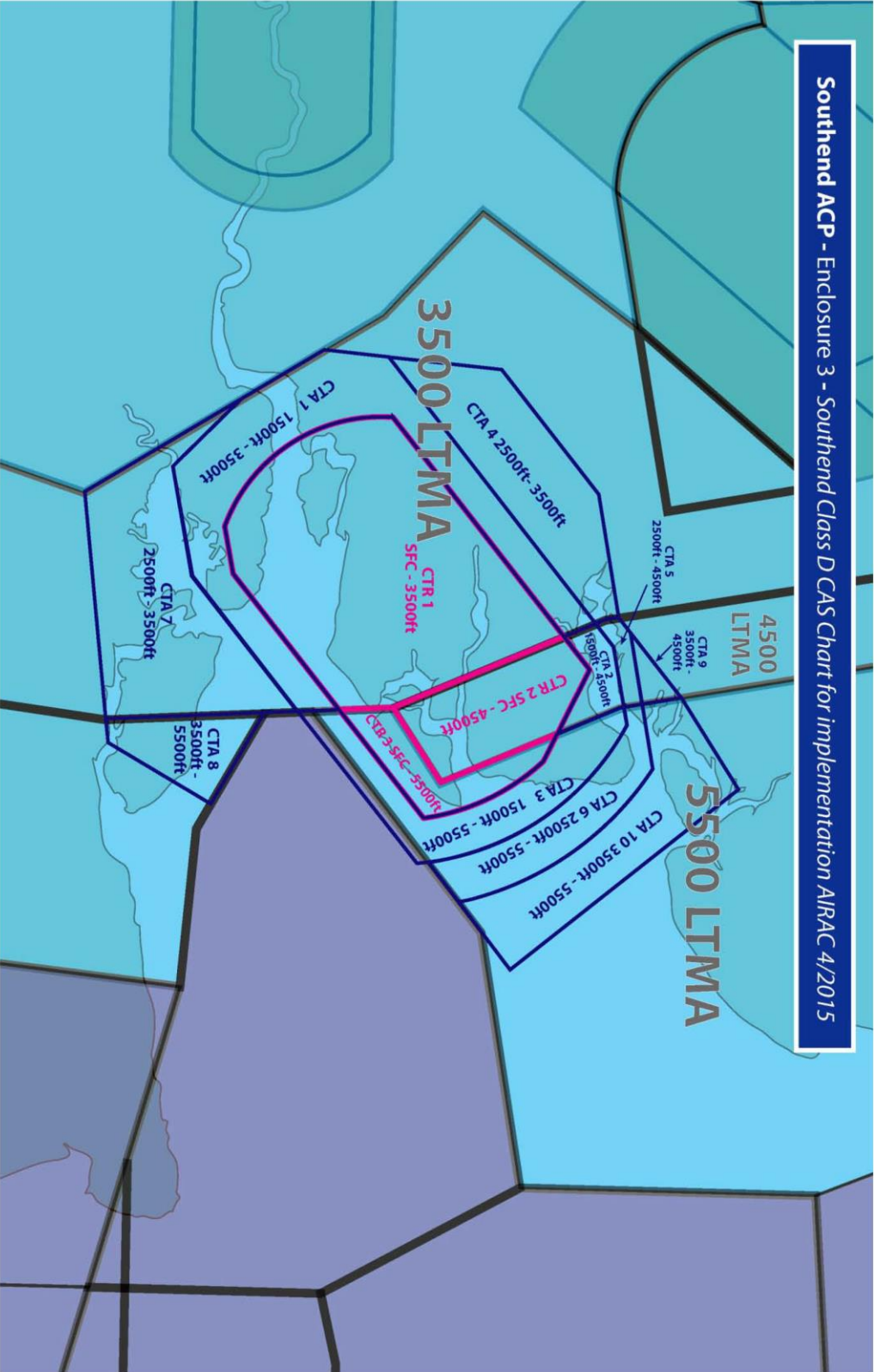
# Southend ACP - Enclosure 1 - Pre Consultation



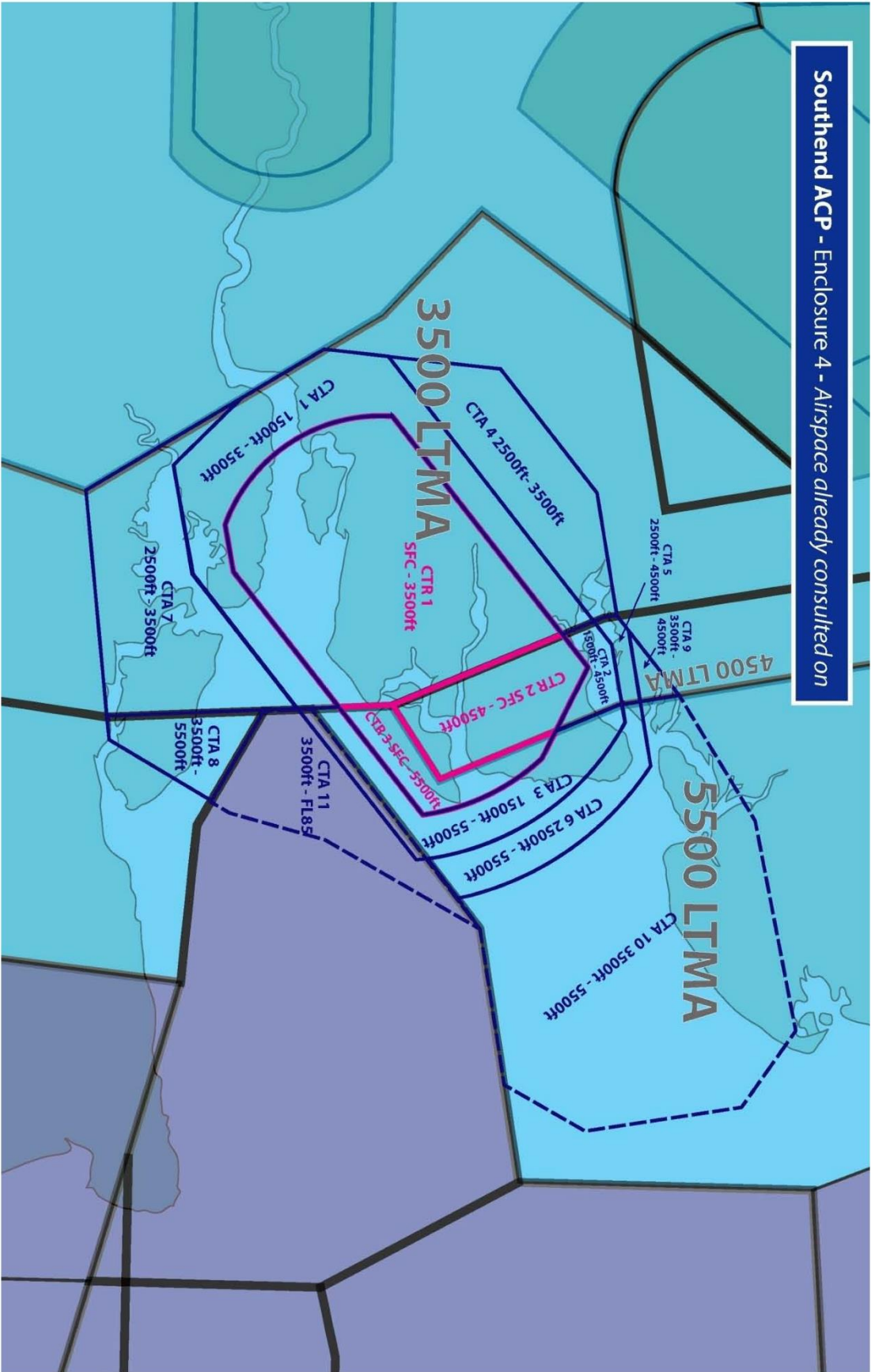


Southend ACP - Enclosure 2 - Post Consultation

**Southend ACP - Enclosure 3 - Southend Class D CAS Chart for implementation AIRAC 4/2015**



Southend ACP - Enclosure 4 - Airspace already consulted on



## **APPENDIX 03: List of Stakeholders**

The following stakeholders have been selected as they represent the most appropriate range of organisations or people that are potentially affected by the changes detailed in the engagement document.

### **National & Local Bodies / Organisations**

#### **NATMAC**

Airlines UK  
Airspace4All  
Airport Operators Association (AOA)  
Airfield Operators Group (AOG)  
Aircraft Owners and Pilots Association (AOPA)  
Association of Remotely Piloted Aircraft Systems UK (ARPAS-UK)  
Aviation Environment Federation (AEF)  
British Airways (BA)  
BAe Systems  
British Airline Pilots Association (BALPA)  
British Balloon and Airship Club  
British Business and General Aviation Association (BBGA)  
British Gliding Association (BGA)  
British Helicopter Association (BHA)  
British Hang Gliding and Paragliding Association (BHPA)  
British Microlight Aircraft Association (BMAA) / General Aviation Safety Council (GASCo)  
British Model Flying Association (BMFA)  
British Parachute Association (BPA)  
General Aviation Alliance (GAA)  
Guild of Air Traffic Control Officers (GATCO)  
Honourable Company of Air Pilots (HCAP)  
Helicopter Club of Great Britain (HCGB)  
Heavy Airlines  
Isle of Man CAA  
Light Aircraft Association (LAA)  
Low Fare Airlines  
Military Aviation Authority (MAA)  
Ministry of Defence - Defence Airspace and Air Traffic Management (MoD DAATM)  
NATS  
Navy Command HQ  
PPL/IR (Europe)  
UK Airprox Board (UKAB)  
UK Flight Safety Committee (UKFSC)  
United States Air Force Europe (3rd Air Force-Directorate of Flying (USAFE (3rd AF-DOF))



## **Local Bodies / Organisations**

Airport Consultative Committee  
CPRE – Essex  
English Heritage  
Environment Agency  
Friends of the Earth  
NATS  
National Trust  
Natural England  
Parliamentary Advisory Group  
Qinetiq (D136 / 138 Danger Area Operator)  
RSPB  
Stop Airport Expansion & Noise (SAEN)

## **Airlines / Based Tenants**

Air Malta  
easyJet  
Jota Aviation  
JRB  
Kings Aviation  
Ryanair  
Select Plant  
Seawing Flying Club  
Southend Flying Club  
Stobart Air  
Stobart Jet Centre  
TUI  
Volotea  
Empire Aviation Group  
Jet Executive  
Jetex  
Magma Aviation  
Flightworx Aviation Ltd  
Metis Aviation  
Castle Air  
Vistajet  
Netjets  
Woodgate Aviation  
Jetfly  
Hyperior Aviation  
Universal Aviation  
Globeair AG  
Centreline  
Tag Aviation  
Goldeck  
Air Hamburg  
Jet Aviation

London Executive Aviation  
Luxwing Operations  
Julian Story Aviation Ltd  
Saxonair  
Star wings Dortmund  
TBMI Aviation  
Smart Jet  
Prince Aviation  
Air Alsie  
Ortac Ops  
Capital Air Ambulance  
Rockwell Collins  
Xclusive Jets  
Signum Aviation  
Excellent Air GMBH  
Nomad Aviation  
Dragonfly Aviation  
Air X Charter  
Windrose Air Ops  
Flywatch Global  
Jetflight  
Total Corp Aviation  
MHS Aviation  
Air Charter Scotland  
Servizi Aerei Spa  
Lease Fly  
Capital Air Services  
Starspeed Operations

**MPs**

MP Clacton – Giles Watling  
MP Colchester – Will Quince  
MP for Maldon – John Whittingdale  
MP Southend East – James Duddridge  
MP Southend West – Sir David Amess

**Councils**

Essex County Council  
Colchester Borough Council  
Maldon District Council  
Rochford District Council  
Southend Borough Council  
Tendring District Council

Abberton & Langenhoe  
East Donyland  
East Mersea  
Fingeringhoe

Wivenhoe Town Council  
West Mersea Town Council

Asheldham and Dengie  
Burnham on Crouch Town Council  
Bradwell on sea  
Southminster  
Tillingham  
Tollesbury

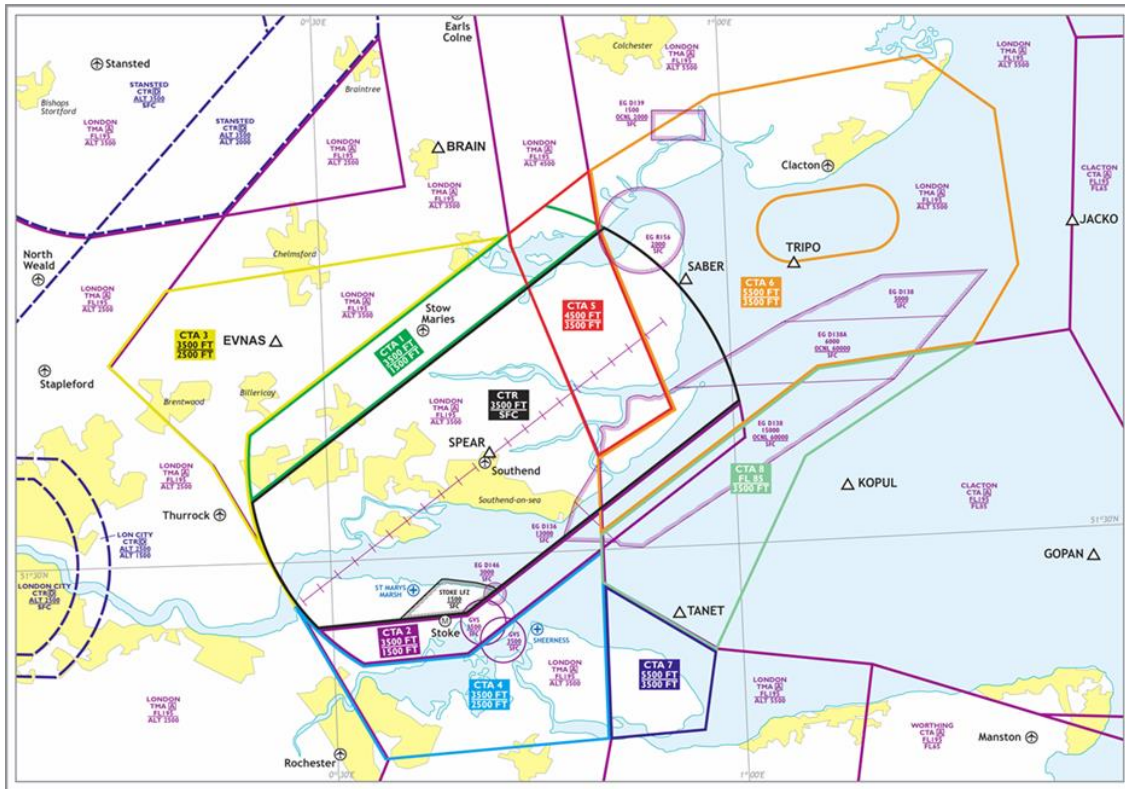
Foulness Island  
Great Wakering

Alresford  
Beaumont  
Brightlingsea Town Council  
Frinton & Walton Town Council  
Great Bentley  
Great Oakley  
Little Bentley  
Little Clacton  
Little Oakley  
St Osyth  
Tendring  
Thorpe Le Soken  
Thorrington  
Weeley

#### **Airports / Aerodromes / Clubs**

Andrewsfield  
Clacton  
Earls Colne  
Eastchurch  
Essex and Kent Gliding club (BGA)  
Farthing Corner  
Great Oakley  
London City  
London Heathrow  
London Luton  
London Stansted  
Manston  
Mersea Paramotor Club  
Maypole  
Rochester  
Stapleford  
Stoke

**APPENDIX 04: Airspace Design during Original Consultation (2013)**

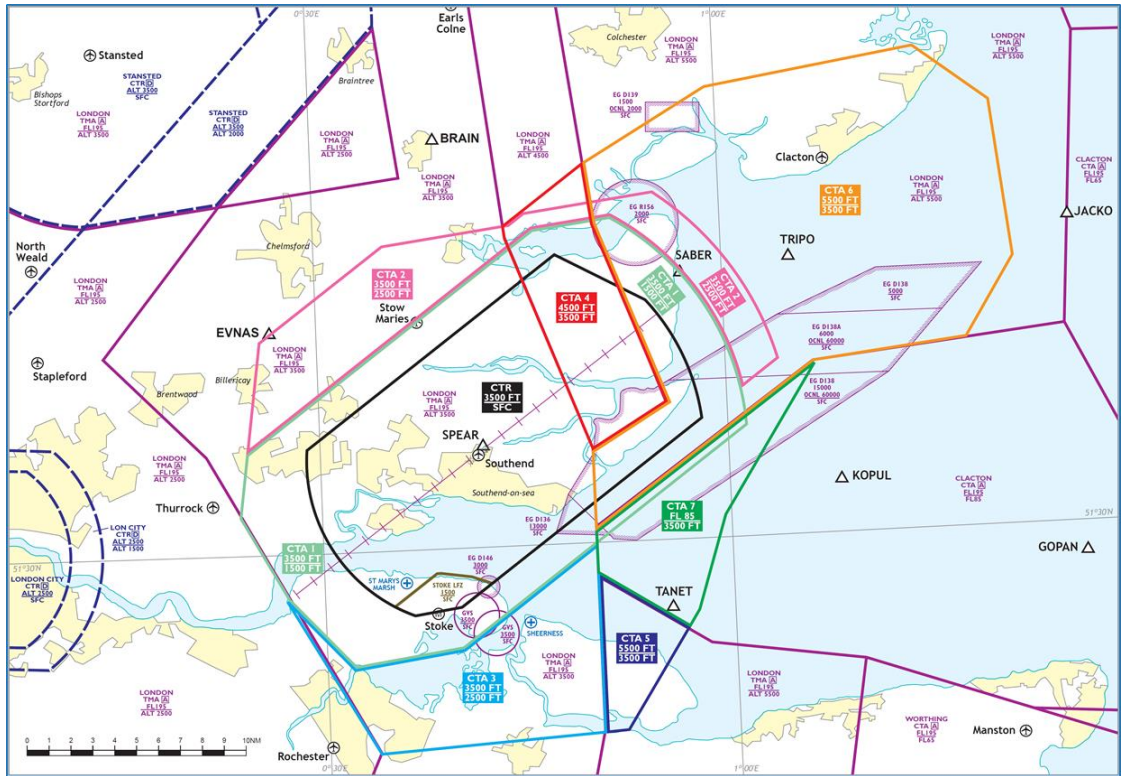


Proposed Airspace configuration submitted for consultation (CTA 6 & 8) in 2013



Proposed Airspace configuration submitted for consultation overlaid on 1:500,000 aeronautical chart (CTA 6 & 8) in 2013

**APPENDIX 05:   Airspace Design Submitted to the CAA in ACP (2014) after Consultation Feedback.**



Proposed Airspace configuration submitted for CAA approval (CTA 6 & 7) in 2014.



Proposed Airspace configuration submitted for CAA approval in 2014 overlaid on 1:50,000 aeronautical chart (CTA 6 & 7).

**APPENDIX 06: Airspace Design approved by the CAA (2015)**

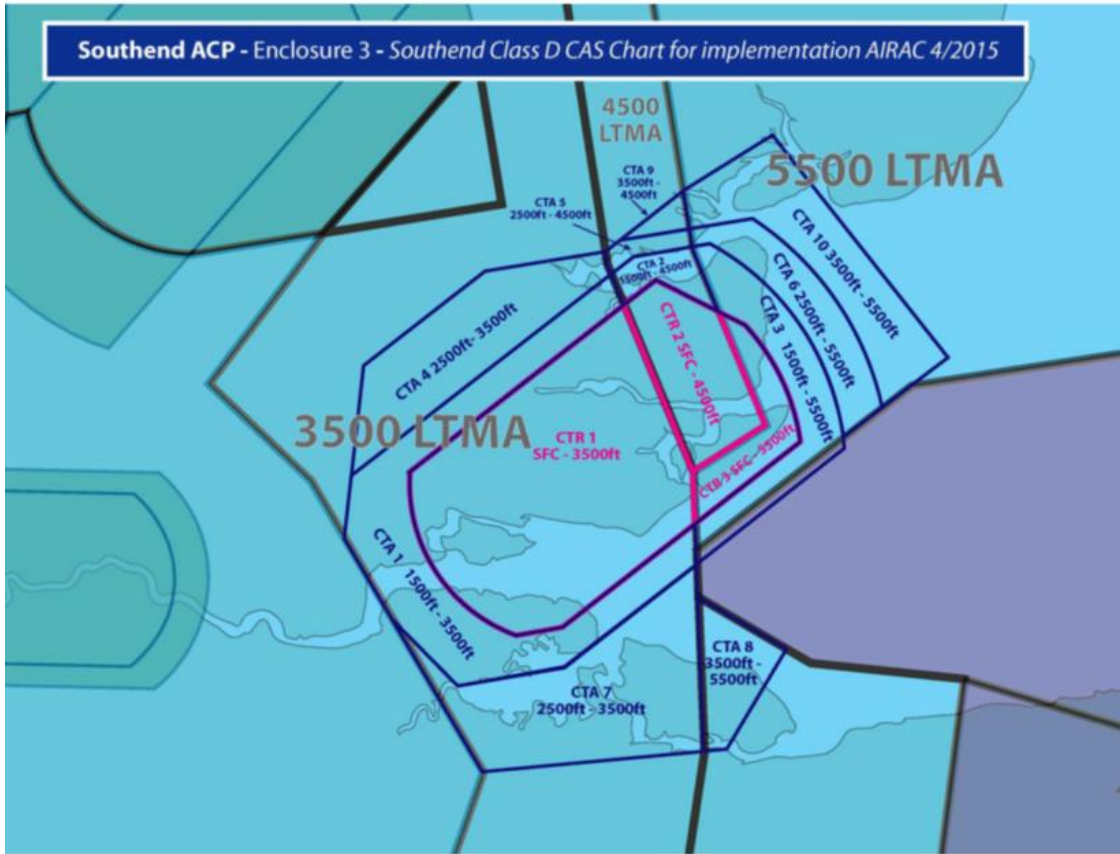


Chart known as Enclosure 3 contained within the CAA decision letter.



Current Airspace Configuration overlaid on 1:500,000 aeronautical chart.

**APPENDIX 07: The Full Extent of the Airspace Requested by LSA in the Original Controlled Airspace ACP Submission in 2014**

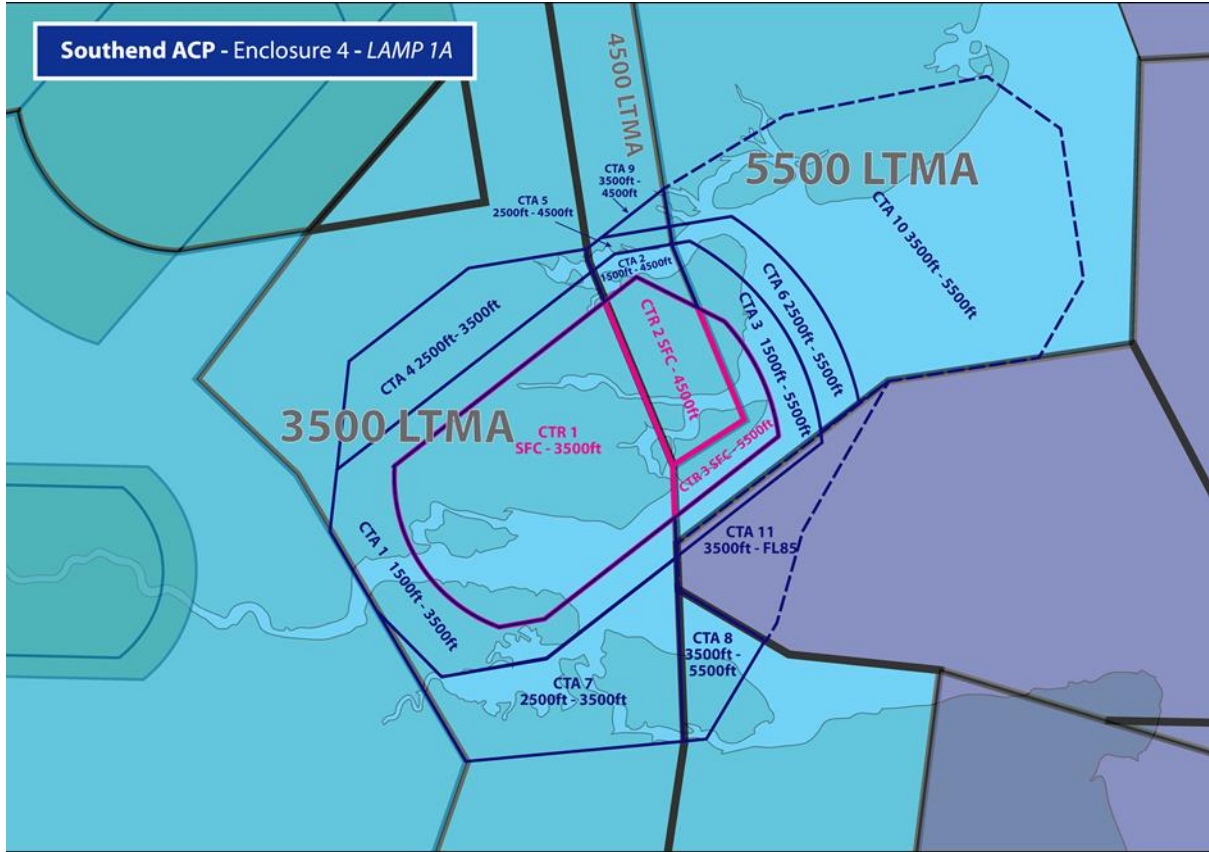
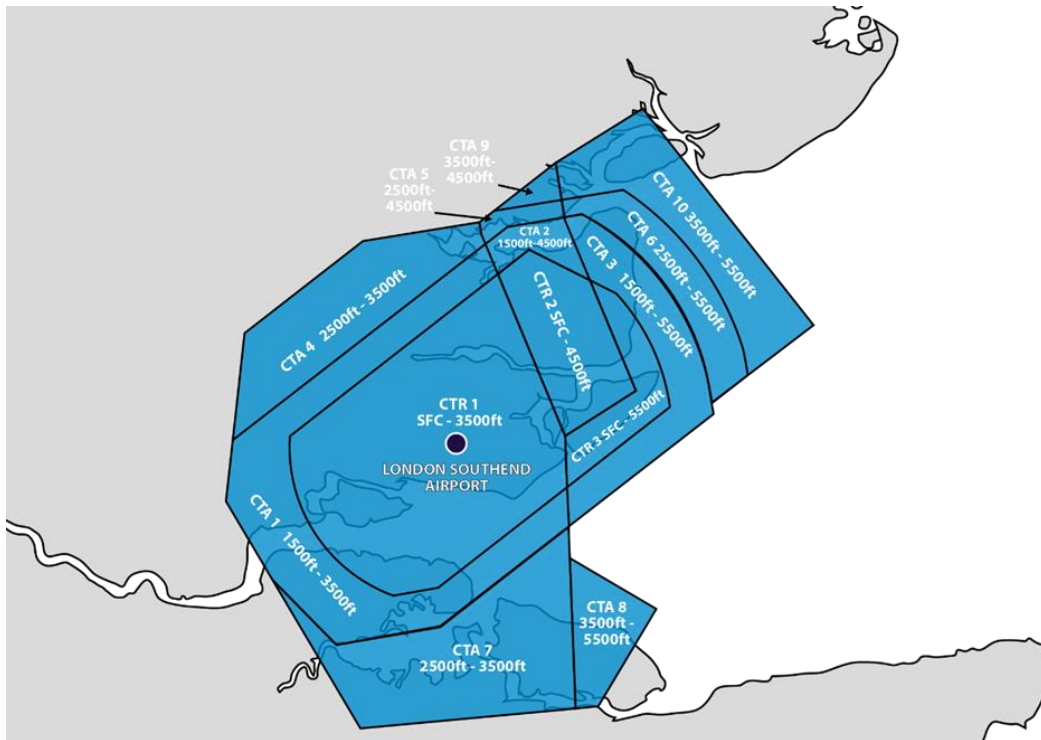
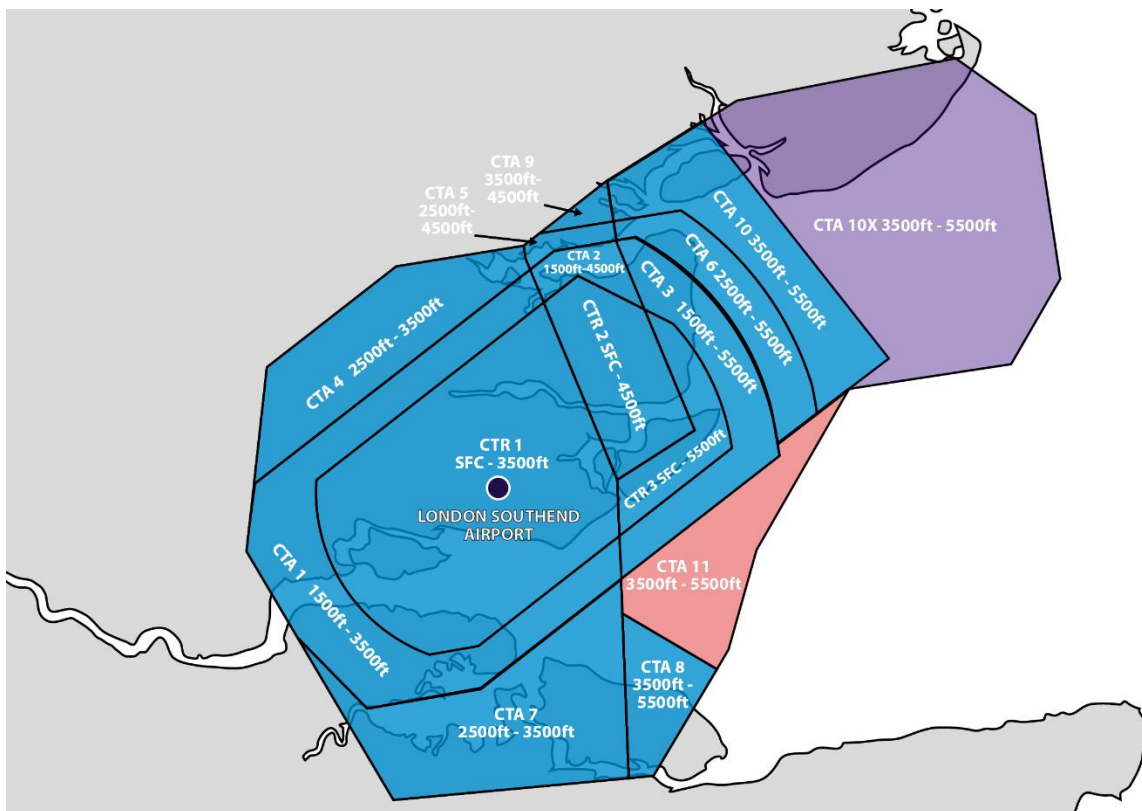


Chart known as Enclosure 4 contained within the CAA decision letter.

**APPENDIX 08: The Current LSA Airspace and the Requested Additional Airspace**



Current LSA CAS

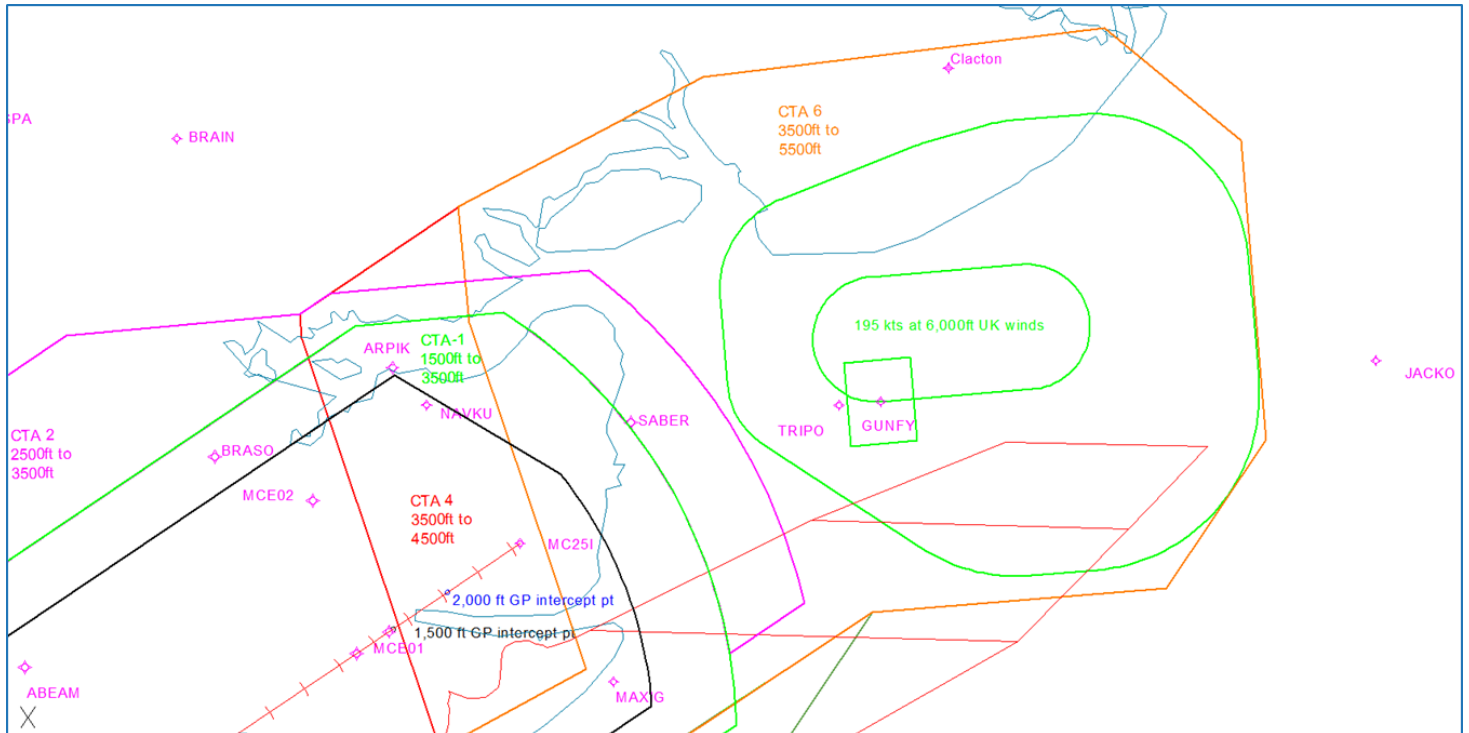


The two areas of airspace, which this engagement process refers to, coloured purple and red. (All of the pieces of airspace above were consulted on in 2013 but only the blue areas were implemented in 2015.)



## Appendix 09: GEGMU Hold

### The Design of the GEGMU hold



This is the design of the GEGMU taken from the original ACP submission.

It was known as TRIPO during the consultation/design stage. Following consultation, the holding fix was moved 1nm further to the east to point known as GUNFY (as depicted above). This did not change the area of airspace that was consulted upon.

The inner green racetrack line at GUNFY shows the projected flight path in the hold i.e. the track that aircraft would fly. The outer green line circle shows the primary protected area for the holding pattern. The vertical and lateral extents of the primary protected area are determined by PANS OPS criteria and ensure that there is no conflict when the aircraft is in the holding pattern.

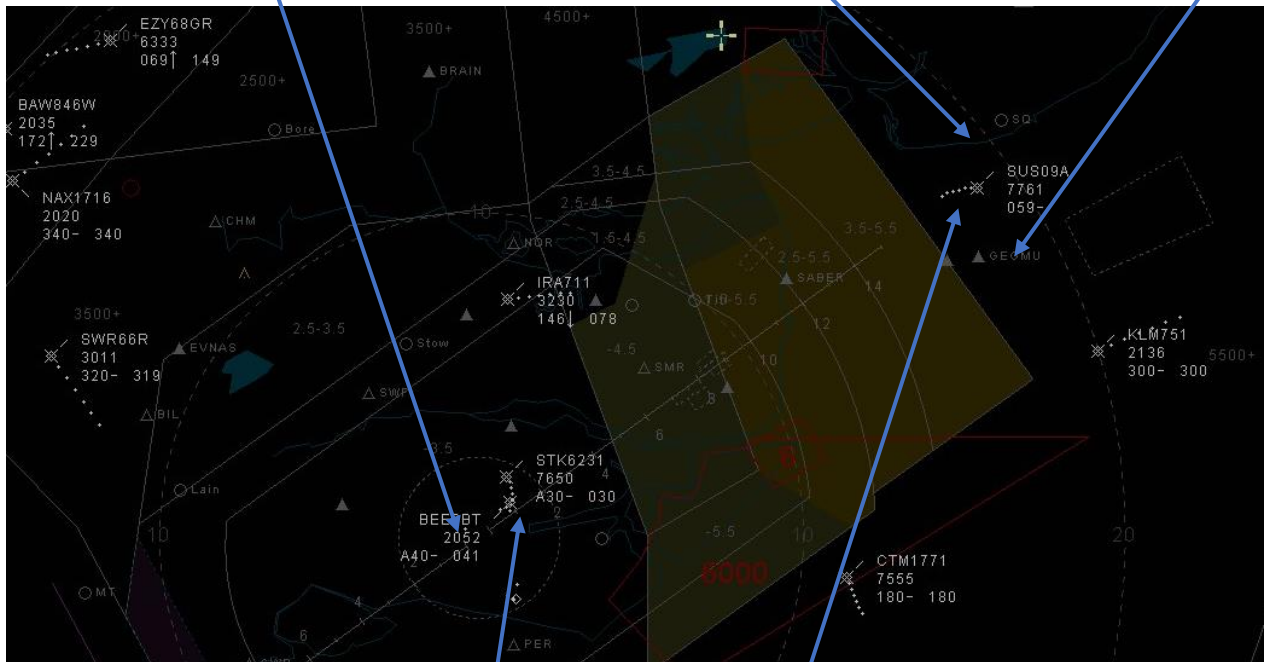
GUNFY is in the same place as the current GEGMU hold.

Screenshot of Radar Map to show Aircraft in the GEGMU Hold

London Southend Airport

Coastline at Clacton

Holding fix GEGMU



Aircraft in the SND holding pattern at 3000ft. Dashed line indicates the aircraft track

Aircraft in the GEGMU holding pattern at 6000ft. Dashed line indicates the aircraft track