



Sherburn Aero Club CAP1122 Review

CAP 725 Framework Meeting

October 26, 2016

The Structure of the Presentation

- The Draft CAP725 ACP Document
- The Safety Case Document
- Discussion
- Actions



The Draft CAP725 ACP Document



- **The Draft CAP725 ASC Document**
- Background
- Facilities
- The local Area
- Reason for this Proposal
- The LPV Approach
- Airspace Change Proposal
- Runway 28 Environmental Impact
- Runway 10 Environmental Impact
- Review procedure
- Annexe
- Annexe 1 Pilot Briefing
- Annexe 2 Flying Order Book inserts
- Annexe 3 Sherburn GNSS Operational Guide
- Annexe 4 LOA's

- **Background**



- Sherburn Aero Club is a private members club. The club is situated in North Yorkshire 16NM SE of Leeds Bradford Airport, and 20NM NNW of Doncaster Airfield. Sherburn is situated in Class G airspace.



Fig 1

- The airfield is dominated by initial PPL training, up to IR(restricted). A separate non connected Company provides CPL, ATPL, and IR training. The majority of the flying is VFR.
- Sherburn has 12 Club aircraft; these are used for training and hire. The fleet consists of 7 PA28 types, 1 Robin 2160 and 4 Aero AT-3. There are 54 Private aircraft based at Sherburn, the aircraft range from RV home builds, to light twins.
- There are around 35,000 movements annually. The majority of the aircraft are under 1.5tonnes, with currently one aircraft at 3.9tonnes
- The Club is suffering with a constant decline in members' from approximately 750 members 5 years back to around 250 currently. Flying hours are falling year on year

Sherburn from the air



Runway 28/10 IAP





- **Facilities**
- Sherburn has 4 large hangers, few aircraft are kept outside. The club house comprises of an operations area, briefing rooms, lecture room, and a lounge/dining area.
- Sherburn Engineering Ltd provides maintenance to the club fleet, member's aircraft, and non-based aircraft.
- The site is on a long term lease from a local farming family with ties to RAF operations going back to the 1940's
- The airfield has 4 runways 10/28 tarmac 10/28 grass, 06/24 grass, and 01/19 grass, 28 is the dominant runway. The LPV approaches have been designed for runways 10 and 28
- See Fig 3 for more detail

AERODROME CHART - ICAO

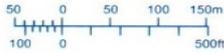
ARP 534703N 0011304W

AD ELEV 26FT

SHERBURN-IN-ELMET EGCJ

AERO INFO DATE 27 NOV 14

RUNWAY/TAXIWAY/APRON PHYSICAL CHARACTERISTICS		
APRON / RWY / TWY	SURFACE	BEARING STRENGTH
RWY 10/28	Tarmac	-
RWY 10/28	Grass	-
RWY 01/19	Grass	-
RWY 06/24	Grass	-
Main Apron	Asphalt	-
Taxiways A/B/C	Asphalt	-

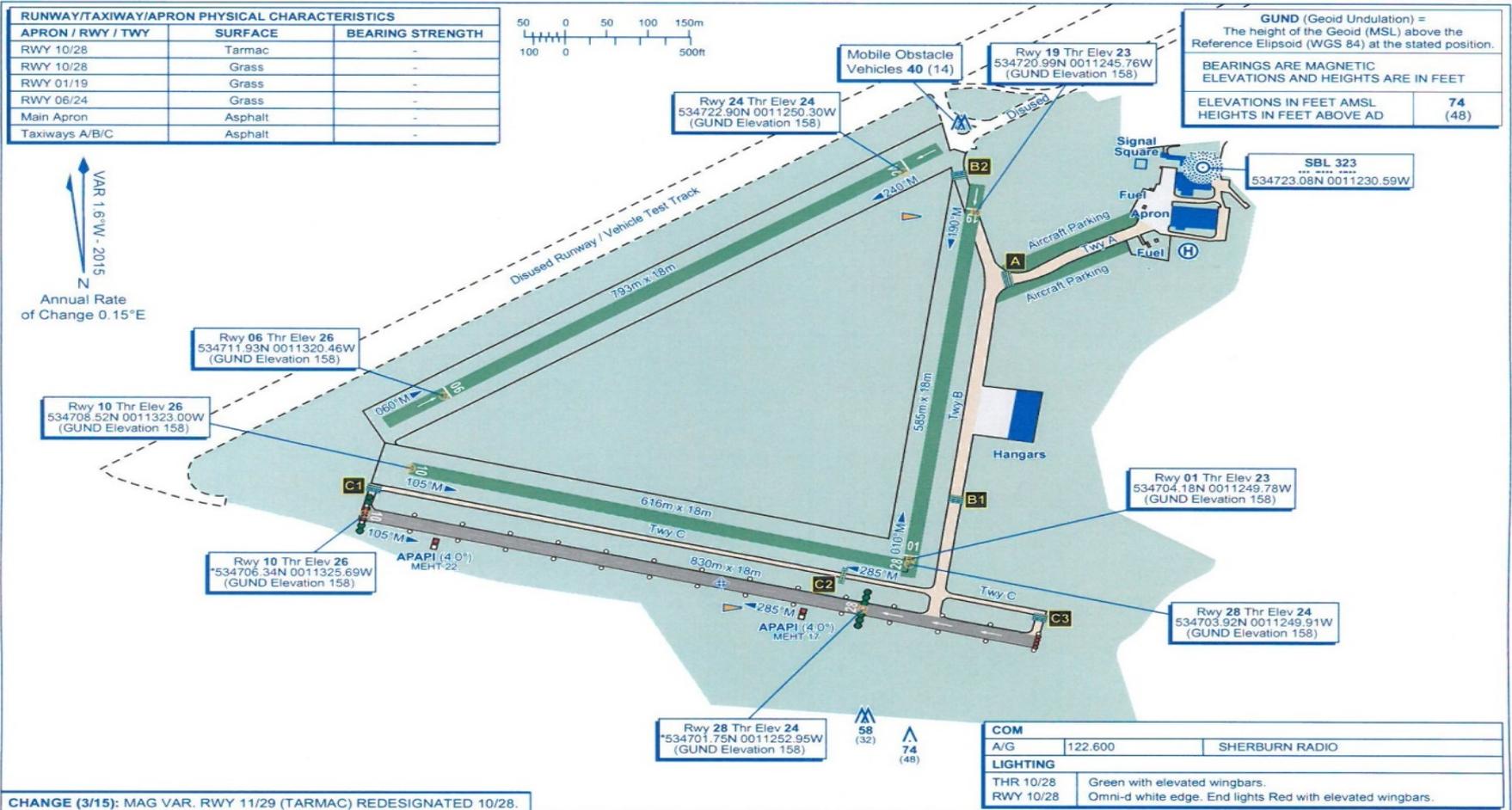


GUND (Geoid Undulation) = The height of the Geoid (MSL) above the Reference Ellipsoid (WGS 84) at the stated position.

BEARINGS ARE MAGNETIC ELEVATIONS AND HEIGHTS ARE IN FEET

ELEVATIONS IN FEET AMSL	74
HEIGHTS IN FEET ABOVE AD	(48)

VAR 1.6°W - 2015
Annual Rate of Change 0.15°E



CHANGE (3/15): MAG VAR. RWY 11/29 (TARMAC) REDESIGNATED 10/28.

Fig 3

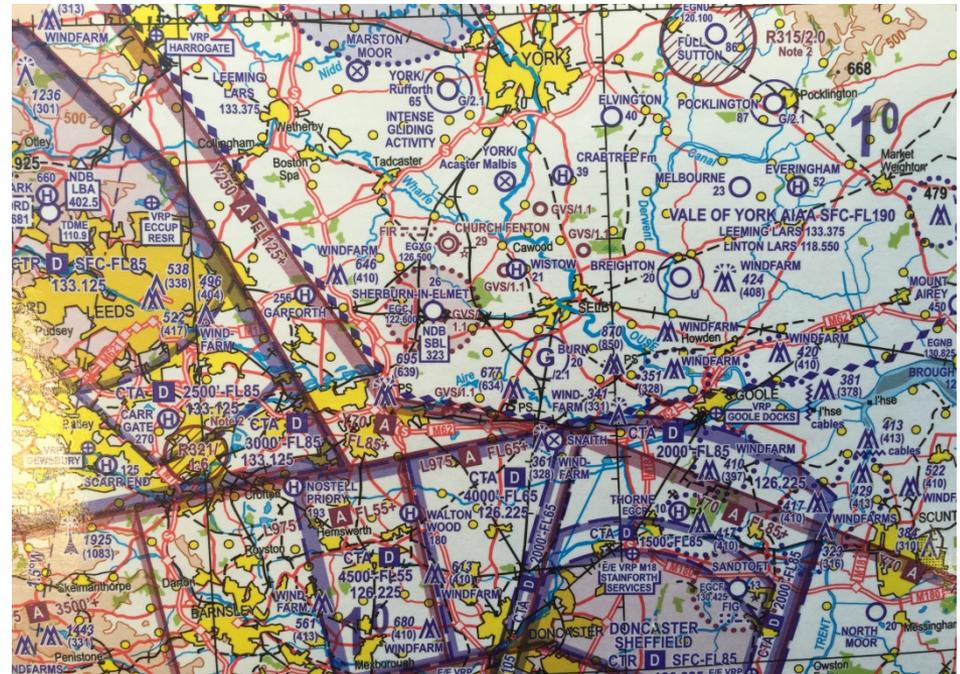
- **Facilities cont..**
- Sherburn provides Radio Service facilities; it currently has no approach procedures
- The aerodrome is RFFS category Special and provides Initial Emergency Response (IER)
- The Airfield operates a 2 mile ATZ
- There are typically 2 or 3 private charter aircraft movements per month, MTOW would be a King Air C90 at 4600kg
- A Community Liaison Group meets on a 6 monthly basis. The meeting takes place with local councillors, district councillors, and local community representatives. On behalf of Sherburn Aero Club, the meeting is attended by Director of Flight Operations & Training, and the Chairman. Invites are extended to other operators on the airfield i.e. Hields, AFT and Sherburn Engineering Ltd.

- **Local Flying Area**

- The local flying area is shown in Fig 4. Sherburn is in close proximity to Leeds East (currently very low utilisation), Leeds Bradford, and Doncaster, both of which have substantial CAS.

- In order to facilitate the safe and orderly flow of traffic LOA's, supporting CAP1122 type LPV approaches, have been agreed with the following local airfields.

- Leeds Bradford
- Doncaster
- Burn
- Leeds East
- Brieghton



Local Flying Area





- **The reason for this proposal**
- Sherburn is currently a VFR operation, and has no ATC. The club provides Radio Service. Aircraft are required to gain permission to use the airfield, requiring PPR
- The development of CAP1122 provides the opportunity for airfields, with no approach control, to operate LPV approaches.
- An LPV approach will provide several benefits to Sherburn.
- Improved safety.
- A structured approach in marginal conditions will prevent the “see and dive” approach often cited in accidents.
- CFIT is much less likely when using a LPV approach.
- A stabilised approach, normally expected with an LPV approach, will reduce the risk of a runway excursion accident.
- The procedures are designed to minimise flying over local villages where possible, thus keeping Sherburn noise impact to a minimum.
- A LPV approach will permit safer, all weather, approaches.

- **The LPV Approach**
- The approach was designed by GCAP who produced a document--
- Sherburn in Elmet RNAV (GNSS) 10 report, 010216 and
- Sherburn in Elmet RNAV (GNSS) 28 report, 211215
- Both these documents are filed and acknowledged as received by the CAA
-
- The flight paths for each approach is shown in Figs 6 & 9.

IAP Runway 10

UNITED KINGDOM AIP

AD 2-EGCJ-8-1

dd month yy

INSTRUMENT APPROACH CHART - ICAO

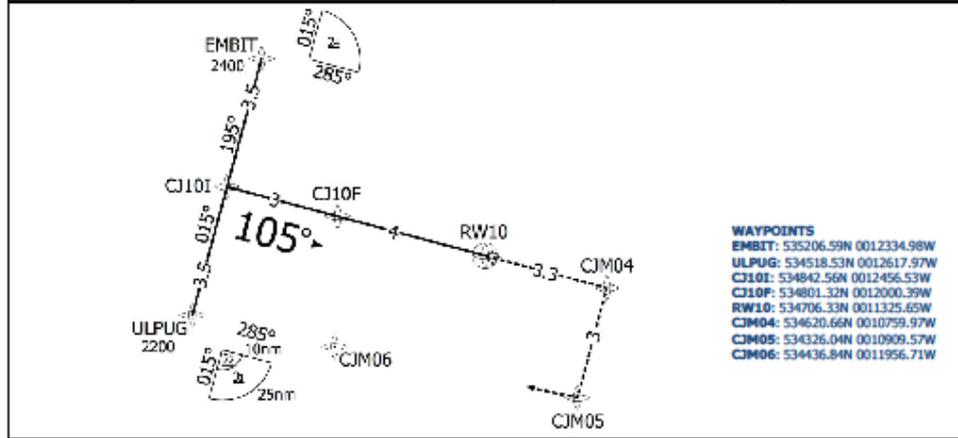
SHERBURN IN ELMET

RNAV (GNSS)

RWY 10

(ACFT CAT A)

	AG 122.6	SHERBURN RADIO	AD ELEVATION 25	TRANSITION ALTITUDE 5000
			THR. ELEVATION 25	
			OBSTACLE ELEVATION	
			BEARINGS ARE MAGNETIC	



WAYPOINTS

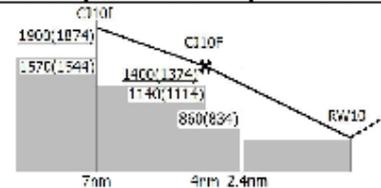
EMBIT: 535206.59N 0012334.98W
 ULPUG: 534518.53N 0012617.97W
 CJ10I: 534842.56N 0012456.53W
 CJ10F: 534801.32N 0012000.39W
 RWY10: 534706.33N 0011325.65W
 CJM04: 534620.66N 0010759.97W
 CJM05: 534326.04N 0010909.57W
 CJM06: 534436.84N 0011956.71W

RECOMMENDED PROFILE VERTICAL PATH ANGLE 3.1° (LNAV 5.45%), 331 FT/NM

NM to RWY10	3	2.4 (SDF)	2	1
ALT(HGT)	1070(1044)	870(844)	740(714)	410(384)

MAPS (LNAV): RWY10

Continuous climb to MSA.
 Initially on track 105°M to CJM04, then right on track 195°M to CJM05, then right on track 282°M to CJM06 then right on track 345°M to EMBIT.



Aircraft Category		A	Rate of descent					
OCA	APV	280(254)	G/S KT	130	120	100	80	70
(OCH)	LNAV	510(484)	FT/MIN	718	662	552	442	386
VM(C)OCA	Total Area	520(495)						
(OCH AAL)								

NOTE

1 Caution: Procedure lies close to Doncaster and Leeds CTA/CTR. Aircraft not in receipt of a zone transit clearance must remain clear.
 2 To carry out a further approach following a missed approach, follow the standard missed approach to CJM05 then route DCT ULPUG, max 1900 FT.
 3 BMC joins direct to CJ10I are not permitted.

CHANGE: INITIAL ISSUE
 AERO INFO DATE dd month yy

Civil Aviation Authority

AMDT AIRAC mm/yy

IAP Runway 28

UNITED KINGDOM AIP

AD 2-EGCJ-8-1

dd month yy

INSTRUMENT APPROACH CHART - ICAO

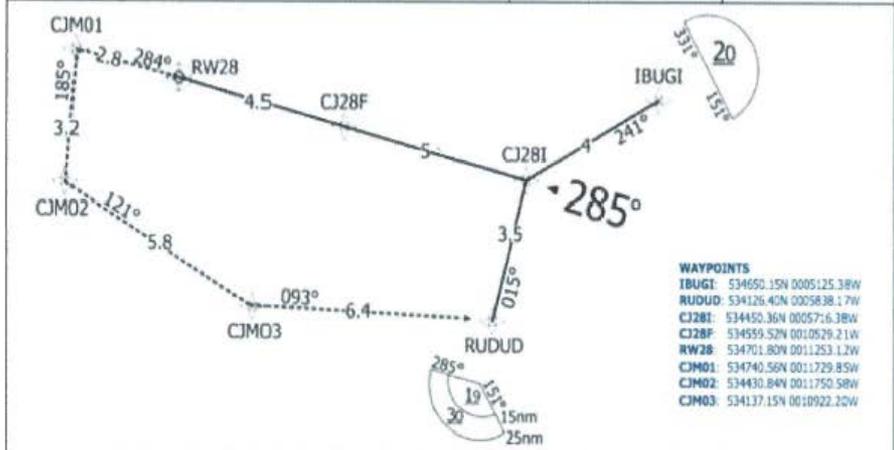
SHERBURN IN ELMET

RNAV (GNSS)

RWY 28

(ACFT CAT A)

	A/G 122.6	SHERBURN RADIO	AD ELEVATION 25
			THR ELEVATION 25
			OBSTACLE ELEVATION
MSA 25NM ARP		BEARINGS ARE MAGNETIC	TRANSITION ALTITUDE 5000

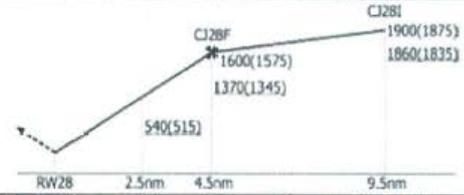


RECOMMENDED PROFILE VERTICAL PATH ANGLE 3.2° (LNAV 5.58%) 339 FT/NM

RM to RW28	4	3	2.5(SDF)	2	1
ALT(HGT)	1480(1415)	1100(1075)	930(905)	760(735)	420(395)

MAPt (LNAV: RW28)

Continuous climb to not above 1900.
Initially on track 284°M to CJM01, then left on track 185°M to CJM02, then left on track 121°M to CJM03, then a final left on track 093°M to RUDUD.



Aircraft Category		A					
OCA	APV	350(325)					
(OCH)	LNAV	410(385)					
YM(C)OCA	Total Area	520(495)					
(OCH AAL)							

Rate of descent	G/S KT	130	120	100	80	70
	FT/MIN	735	678	565	452	396

NOTE

- Caution: Procedure lies close to Doncaster and Leeds CTA/CTR. Aircraft not in receipt of a zone transit clearance must remain clear.
- Aircraft cannot join between 105°M and 151°M so pilots must self-position to be within the capture region for the appropriate IAF or the IF.

CHANGE: INITIAL ISSUE

AERO INFO DATE dd month yy

Civil Aviation Authority

AMDT AIRAC mm/yy

Airspace Change Proposal

There is no Airspace change proposed in this application.

- **Environmental Impact Runway 28**
- Currently aircraft approach Sherburn from all directions with a concentration over the ATZ and around 1 mile around the ATZ.
- Aircraft using the LPV procedure will reduce movements over the ATZ, and the additional 1 mile around, as a descent dead side will not be required.
- The procedure traffic will be using the same final track as existing traffic, hence no additional environmental impact.
- The tracks to the CJ28F and the missed approaches are new routes in, but the low utilisation expectations will not cause a significant increase in environmental impact.
- Aircraft already fly over these areas in normal departures and arrivals.

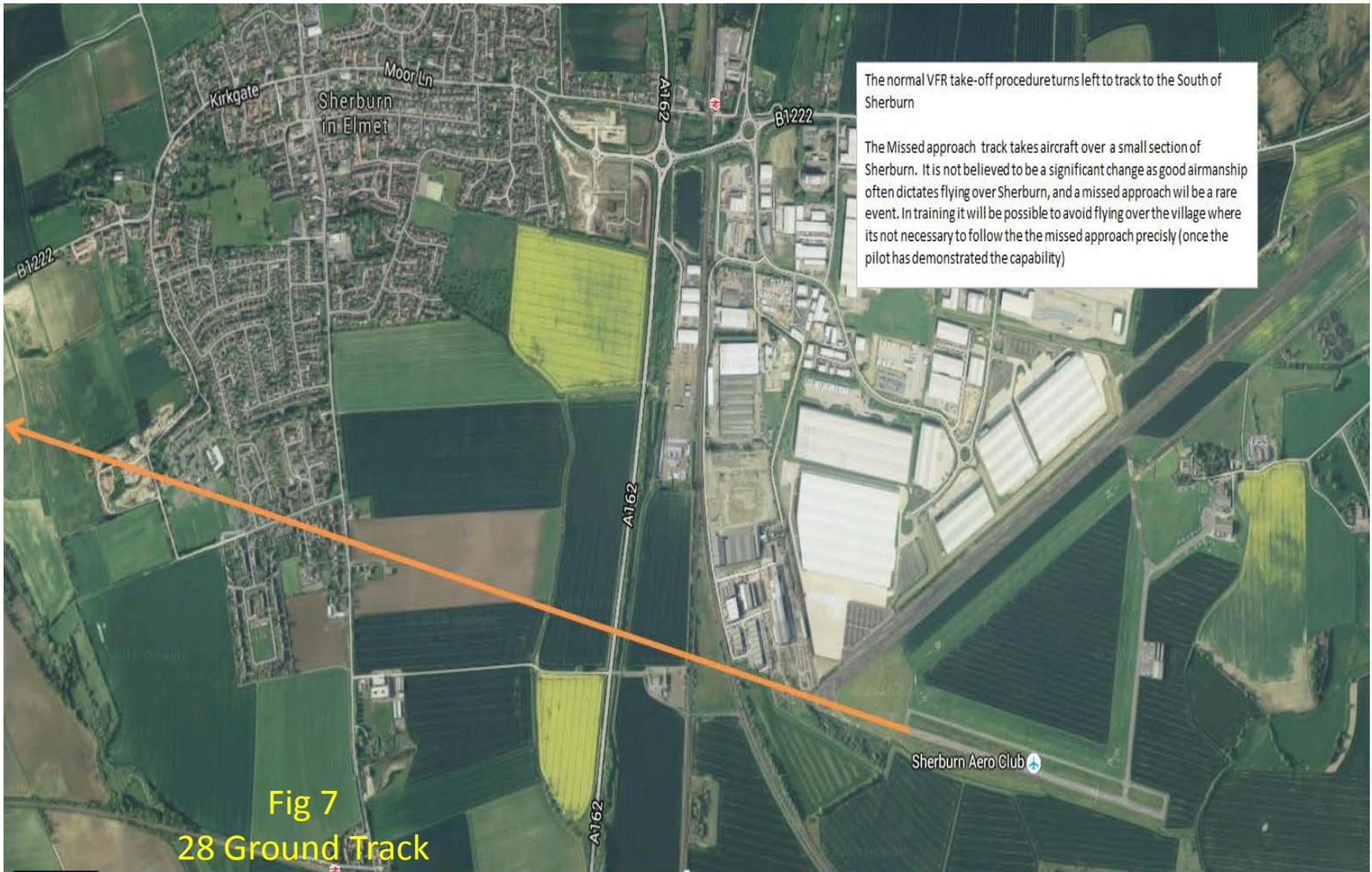


Fig 5
Short final 28

- Sherburn noise complaints are all based on circuit traffic. It is very rare to have any complaint away from the ATZ where aircraft are above 1000ft, usually its aerobatic aircraft that attract noise complaints away from the airfield. The expected utilisation of the procedure is very low, less than an average of 1 per day. The utilisation will be monitored and reviewed after the first 7 months, and annually thereafter.



Fig 6
28 Ground Track on CAA map



The normal VFR take-off procedure returns left to track to the South of Sherburn

The Missed approach track takes aircraft over a small section of Sherburn. It is not believed to be a significant change as good airmanship often dictates flying over Sherburn, and a missed approach will be a rare event. In training it will be possible to avoid flying over the village where its not necessary to follow the the missed approach precisely (once the pilot has demonstrated the capability)

Fig 7
28 Ground Track

- Sherburn believes there is no relevant change in our environmental impact by introducing the Runway 28 procedure, as such any further consultation, beyond our existing consultation group, would be disproportionate. The procedure designer optimised the noise impact in the design.

- **Environmental Impact Runway 10.**
- Currently aircraft approach Sherburn from all directions with a concentration over the ATZ and around 1 mile around the ATZ.
- Aircraft using the procedure will reduce movements over the ATZ, and the additional 1 mile, as a descent dead side will not be required.
- The procedure traffic will be using the same final track as existing traffic, hence no additional environmental impact.
- The tracks to the CJ10IF and the missed approaches are new routes in, but the low utilisation expectations will not cause a significant increase in environmental impact.
- Aircraft already fly over these areas.



Fig 8

Short Final 10

Sherburn's noise complaints are all based on circuit traffic. It is rare to have any complaint away from the ATZ where aircraft are above 1000ft, usually its aerobatic aircraft that attract noise complaints away from the airfield.





10 tracks on CAA map

- Sherburn believes there is no relevant change in our Environmental Impact by introducing the Runway 10 procedure, as such any further consultation , beyond our existing consultation group, would be disproportionate. The procedure designer optimised the noise impact in the design.

- **Review Procedure**

- A review of the introduction of the LPV approaches will take place within 7 months of the initial introduction, and every 12 months thereafter.
- The Chairman of the Club will be responsible for ensuring a Procedure Review takes place, and to present the review to the Board of Directors. The Board will sanction any changes required for the safe continuation of the LPV procedures, and minimise any changes in environmental impact that are identified.

- The review will
- Review the log of LPV movements (the issue of PPR numbers)
- Study any pilot reports
- Study any incident reports
- Study the number, type, and location of noise complaints
- Evaluate any changes in the approach and missed approach paths
- Review the overall environmental impact
- Produce a review document covering the list topics above

- **Annexe**
- **Annexe 1 Pilot briefing Ver 1.0, September 2016**
- The Sherburn (SAC) GNSS procedures are based upon CAP1122, approaches into non towered airfields.
- SAC does not provide any radar cover on the approaches; it is the pilot's responsibility to acquire a radar service when available from Doncaster when runway 28 is in use, or Leeds when runway 10 is in use. It must be noted that a radar service is only available when workloads permit
- SAC is RADIO SERVICE only
- Pilots are to remain clear of all local controlled airspace unless a clearance is received.
- The GNSS procedure is only available with a cloud base below 1200ft. All approaches must be VFR above this level. SAC will determine when the procedures are in use.

- All pilots wishing to use the GNSS approach must obtain PPR and a slot time. The following information will be required before a PPR Number will be provided
- Reg No
- Type
- MTOW
- POB
- ETA
- Contact Number
- Responsible person contact number
- How long staying?
- Fuel required, and type
- Agreed Slot Time

- If an approach is being made without radar cover contact SAC RADIO SERVICE (122.6) as soon as possible to confirm the runway in use and procedure status.
- Mandatory calls are required at
 - 5 minutes (or 25NM) before your arrival at the planned IAF
 - At the IAF
 - At the IF
 - At the FAF
 - At 2NM
 - Going around (where applicable)
 - When clear of upwind (if applicable)
- Be aware of Burn Gliding Club 5.1NM SE of SAC Airfield. Burn Base on VHF frequency 129.975 can be used to acquire local gliding information.
- Pilots are reminded they are responsible to ensure the PIC and aircraft are approved for flying GNSS procedures
- Note the close proximity of Leeds East Airport (LEA) who also operates GNSS approaches.
- LEA and SAC do not permit simultaneous approaches.

- **Annexe 2 Flying Order Book inserts Ver 1.0 September 2016**
- The Sherburn GNSS procedures are based upon CAP1122, approaches into non towered airfields.
- Sherburn does not provide any radar cover on the approaches; it is the pilot's responsibility to acquire a radar service when available from Doncaster when runway 28 is in use, or Leeds when runway 10 is in use. It must be noted that a radar service is only available when workloads permit
- Sherburn is RADIO SERVICE only
- Pilots are to remain clear of all local controlled airspace unless a clearance is received.
- The GNSS procedure is only available with a cloud base below 1200ft. All approaches must be VFR above this level. SAC will determine when the procedures are in use

- All pilots wishing to use the GNSS approach must obtain PPR and a slot time. The following information will be required before a PPR Number will be provided
- Reg No
- Type
- MTOW
- POB
- ETA
- Contact Number
- Responsible person contact number
- How long staying?
- Fuel required, and type
- Agreed Slot Time

- If an approach is being made without radar cover contact Sherburn Radio Service (122.6) as soon as possible to confirm the runway in use and procedure status.
- Mandatory calls are required at
 - 5 minutes (or 25NM) before your arrival at the planned IAF
 - At the IAF
 - At the IF
 - At the FAF
 - At 2NM
 - Going around (where applicable)
 - When clear of upwind (if applicable)
- Be aware of Burn Gliding Club 5.1NM SE of Sherburn Airfield. Burn Base on VHF frequency 129.975 can be used to acquire local gliding information.
- Pilots are reminded they are responsible to ensure the PIC and aircraft are approved for flying GNS procedures
- Training must be conducted with SAC instructors in VFR
- Note the close proximity of Leeds East Airport (LEA) who also operates GNSS approaches. LEA and SAC do not permit simultaneous approaches.

- **Annexe 3 Sherburn GNSS Operational Guide, Ver 1.0 September 2016**
- The Sherburn GNSS procedures are based upon CAP1122, approaches into non towered airfields.
- Sherburn does not provide any radar cover on the approaches; it is the pilot's responsibility to acquire a radar service when available from Doncaster when runway 28 is in use, or Leeds when runway 10 is in use. It must be noted that a radar service is only available when workloads permit.
- Sherburn is RADIO SERVICE only
- Pilots are to remain clear of all local controlled airspace unless a clearance is received.
- The GNSS procedure is only available with a cloud base below 1200ft. All approaches must be VFR above this level. SAC (CFI) will determine when the procedures are in use

- All pilots wishing to use the GNSS approach must obtain PPR and a slot time. The following information MUST be recorded by desk staff before a PPR Number will be provided. The PPR book will contain the PPR No. and a form to be completed with the following
 - Reg No
 - Type
 - MTOW
 - POB
 - ETA
 - Contact Number
 - Responsible person contact number
 - How long staying?
 - Fuel required, and type
 - Agreed Slot Time

- If an approach is being made without radar cover pilots will use Sherburn RADIO SERVICE (122.6) as soon as possible to confirm the runway in use and procedure status.
- Mandatory calls are required at
 - 5 minutes (or 25NM) before your arrival at the planned IAF
 - At the IAF
 - At the IF
 - At the FAF
 - At 2NM
 - Going around (where applicable)
 - When clear of upwind (if applicable)
- Training must be conducted with SAC instructors, and in VFR
- Inform the ground staff of an inbound aircraft using the GNSS procedure and request the lights are put on for all GNSS approaches

- External training is prohibited, all training must be conducted with SAC instructors
- Pilots departing when a GNS arrival is due must be briefed as follows
- A GNS arrival is due
- GNS landing traffic have priority over departing traffic
- Aircraft must not depart if the GNS traffic has called FAF
-
- A review must take place after 7 months and annually thereafter. The Chairman is responsible for carrying this out and reporting to the board
-
- Review the log of LPV movements (the issue of PPR numbers)
- Study any pilot reports
- Study any incident reports
- Study the number, type, and location of noise complaints
- Evaluate any changes in the approach and missed approach paths
- Review the overall environmental impact
- Produce a review document covering the list topics a) to f)

LOA's

- I have assumed a limited time for this presentation
- The Full LOA's have not been produced in this presentation
- Key words covering the main points of the LOA's are provided

LEA LOA



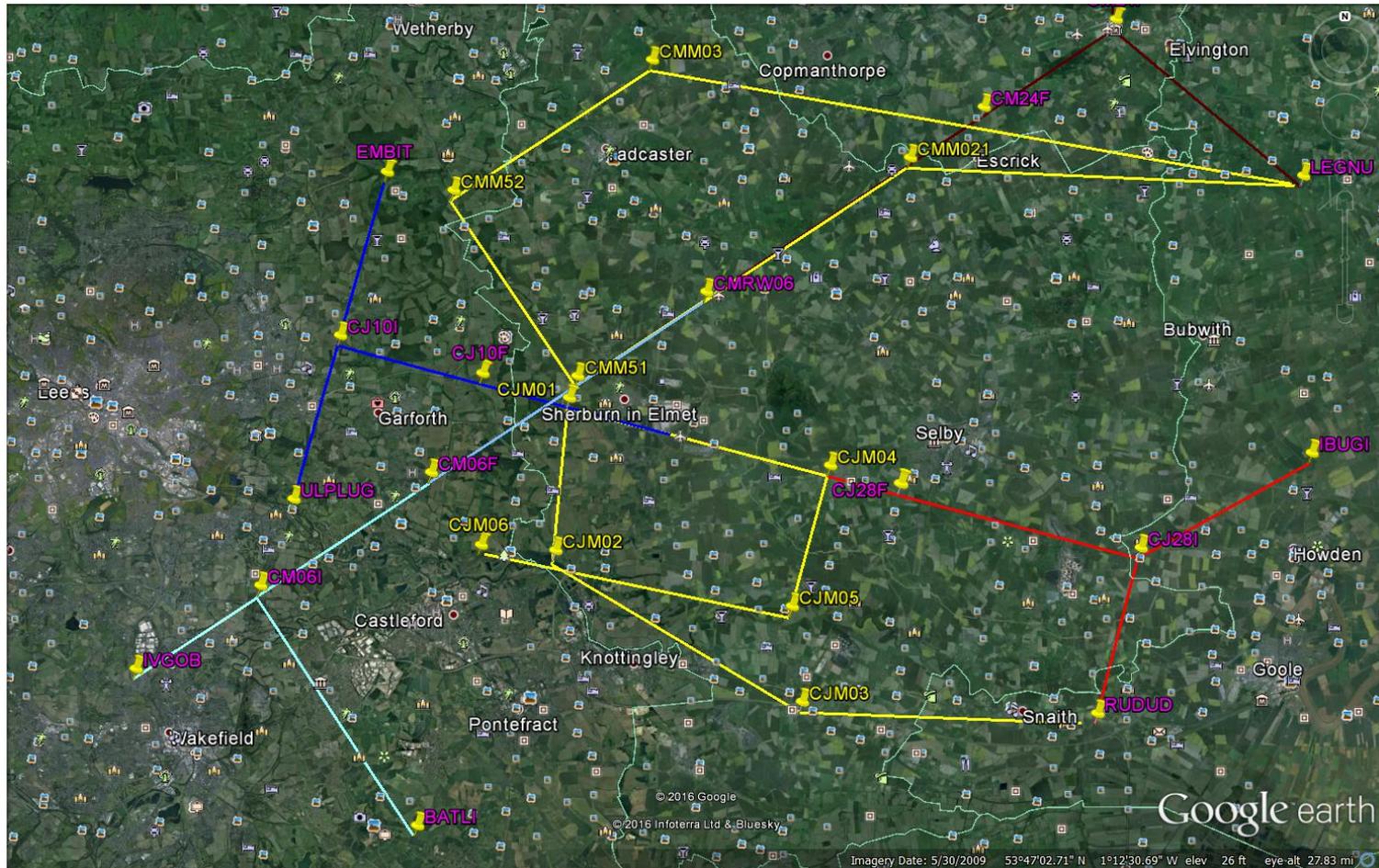
- Sherburn Aero Club and Leeds East Airport entered into a Letter of Agreement on 15th March 2016 to ensure, as far as is reasonable practical, that the aviation activities of both parties can operate in a safe and responsible manner
- The Letter of Agreement deals specifically with VFR Approaches and outlines the necessity for additional coordination prior to aircraft commencing GNSS approaches to either airfield.
- This addendum outlines the arrival procedures of Sherburn Aerodromes GNSS approaches, which are based on CAP1122 - approaches into non towered airports, on runways 10 and 28 and the additional coordination that will take place between the Parties

LEA LOA



- There will be telephone co-ordination between SAC and LEA
- QNH will be coordinated
- There will be no simultaneous approaches, PPR will be required, and aircraft will need a GNSS slot time
- Both LEA and SAC will advise based, and transiting traffic, of the GNSS approaches
- The Letter of Agreement Appendix 1 shows all approach tracks on google earth

Sherburn & LEA Tracks



LEA LOA



- There will be telephone co-ordination between SAC and LEA
- QNH will be coordinated
- There will be no simultaneous approaches, PPR will be required, and aircraft will need a GNSS slot time
- Both LEA and SAC will advise based, and transiting traffic, of the GNSS approaches
- The Letter of Agreement Appendix 1 shows all approach tracks on google earth

LBA & DRH LOA's



- LBA & DRH will advise transiting Pilots of the GNSS procedures
- LBA & DRH will provide deconfliction service when workloads permit
- LBA & DRH will provide coordination when workloads permit
- In general DRH will provide services when SAC is using runway 28
- In general LBA will provide services when SAC is using runway 10.

Arrival Procedures



- The arrival procedures for traffic arriving at Sherburn Aerodrome on a GNSS approach shall be as published, detailed below.
- All traffic requiring a GNSS approach at Sherburn Aerodrome shall be required to contact Sherburn Aero Club to book an approach slot and shall require a PPR reference number
- All traffic with PPR inbound on a GNSS approach shall have priority over all VFR traffic with exception of emergency traffic. Sherburn Aerodrome Air Ground Radio shall notify all traffic on frequency by broadcast of any inbound traffic on a GNSS approach.

Local a/g LOA's



- The LOA's contain details of the tracks on Google earth, and a CAA map
- An up to date copy of the procedures will be provided by SAC
- The agreement requires the operator to brief based and transiting aircraft of the GNSS procedures

Safety Case



- A Safety Case Document has been produced and filed with the CAA. A review of this will be carried with Phil Cropper as soon as practical.



THANK YOU