



THE DRONE REGULATORY ENVIRONMENT



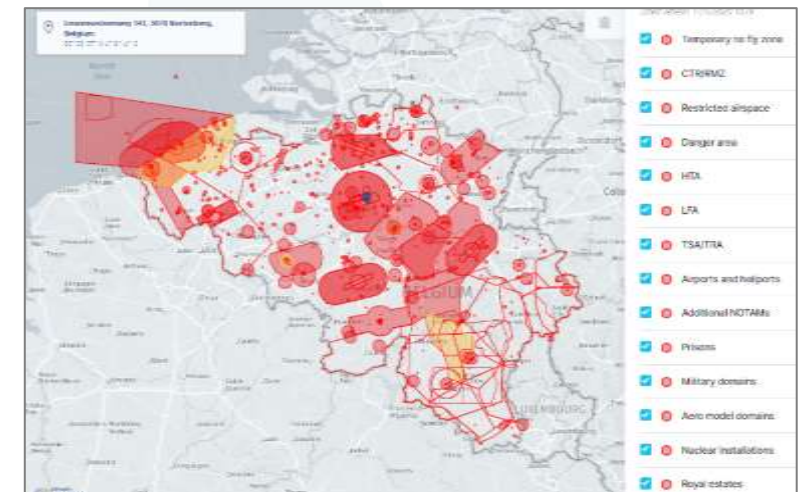
6

CTRs & Military areas AS GEOZONES

THREE CATEGORIES DRONE OF FLIGHT



What ever the category you fly in
(each with their own generic rules and requirements
which apply everywhere)
ALWAYS make sure you **ALSO** comply
with
the **Geo-Zone requirements**



GEO-ZONES managed by **skeyes** nice to guide you

using  Drone Service Application

☒ Aero model domains

☒ Airports and heliports **Only the mil. Ones!**

☒ CTR/RMZ

☒ Danger area **All of them are military**

☒ HTA **All of them are military**

☒ LFA **All of them are military**

☒ Military domains **All of them are military**

☒ Nuclear installations

☒ Prisons

☒ Restricted airspace **Only the mil. ones!**

☒ Royal estates

☒ TMA/CTA

☒ TSA/TRA **All of them are military**



DSA Planner User portal



Fly Pilot mobile web app



skeyes nice to guide you

DSA
Powered by
SkeyDrone

PLANNING

FLIGHT APPROVAL

FACTICAL
AUTHORISATION

VISUALISATION
COORDINATION

DSA Greenlight Authorisation portal



DSA Control Visualisation portal



ATCO/AFISO

Multi-stage
pre-authorisation



Planner

Allows operators to manage their fellow operators, pilots and drones, as well as plan and manage their operations in skeyes' CTR's and EBKT RMZ/TMZ.



Fly

The mobile web interface for operators and pilots for operators and pilots in the field, on the day of the flight.



Greenlight

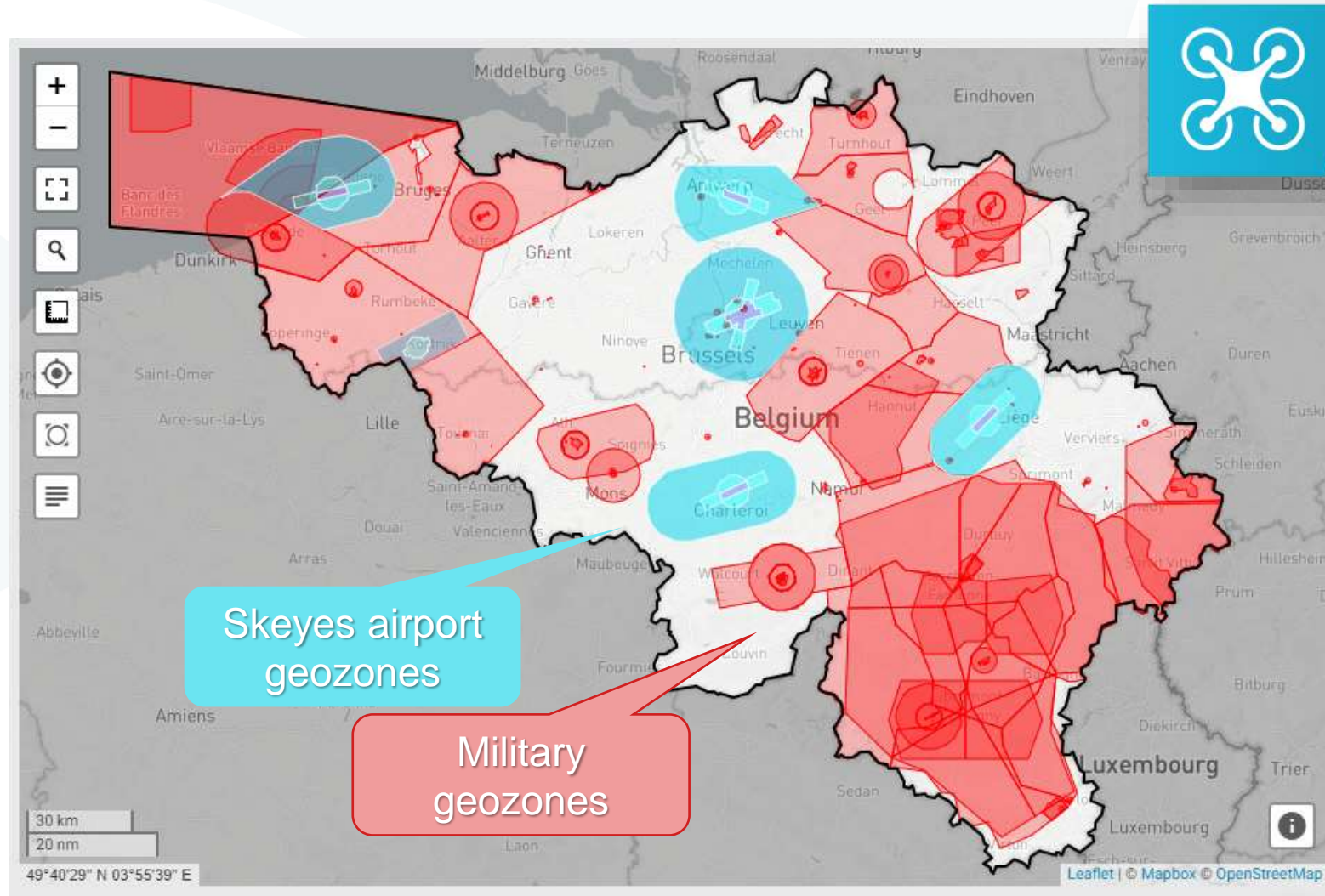
skeyes' dedicated module for reviewing and approving operation requests. Allows for flawless authorisation, commenting and communication with operators & pilots.



Control

The module specifically designed for ATS. Allows an advanced visualisation & monitoring over all drone operations in skeyes' CTR's and EBKT RMZ/TMZ.

All geozones where you are obliged to use



Drone Service
Application

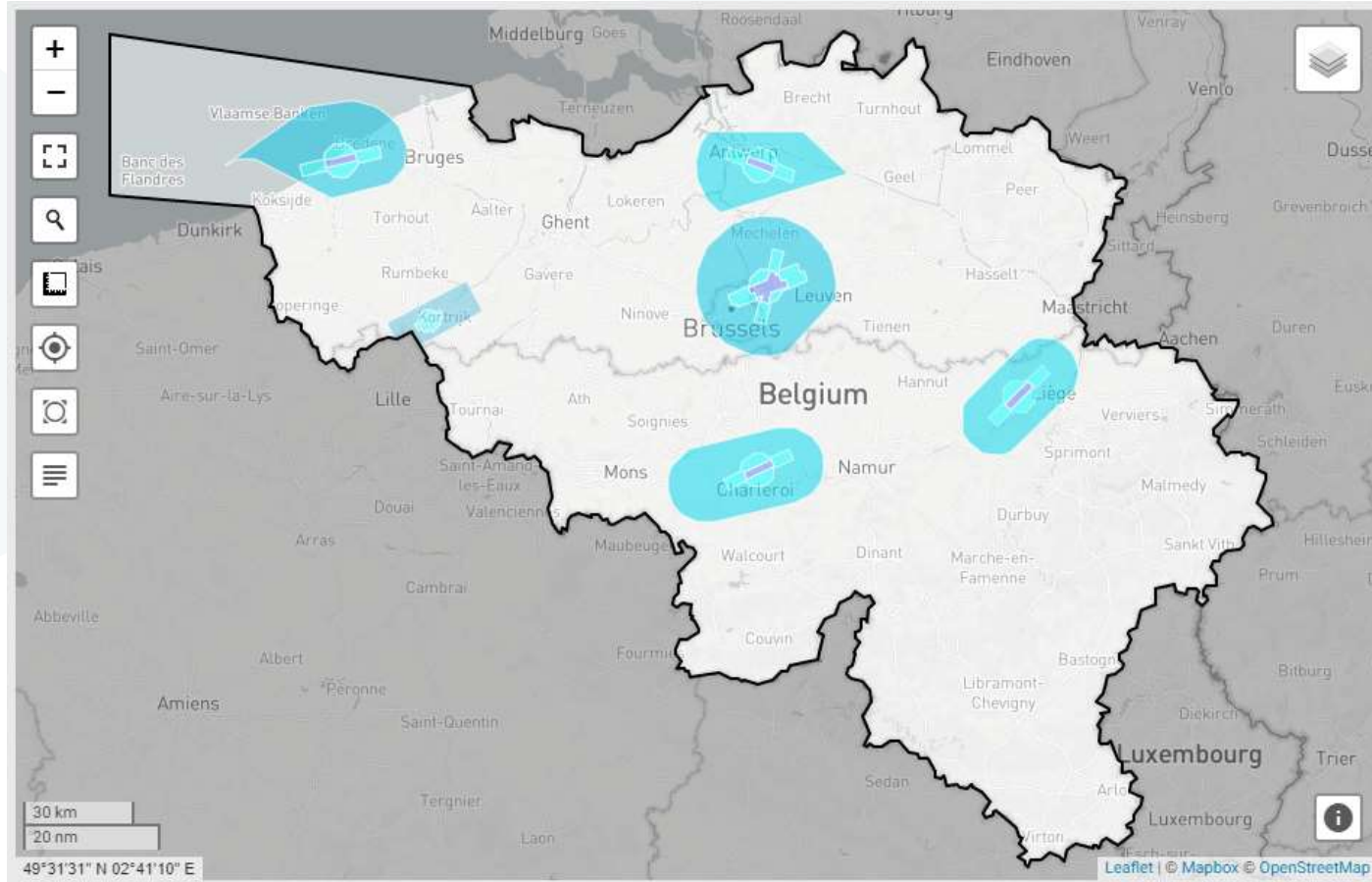
<https://www.skeyes.be/nl/diensten/drone-home-page/you-and-your-drone/>

<https://www.skeyes.be/fr/services/drone-home-page/you-and-your-drone/>

6.1 CIVIL CTR zoom-in



GeoZones in low airspace managed by **skeyes** nice to guide you

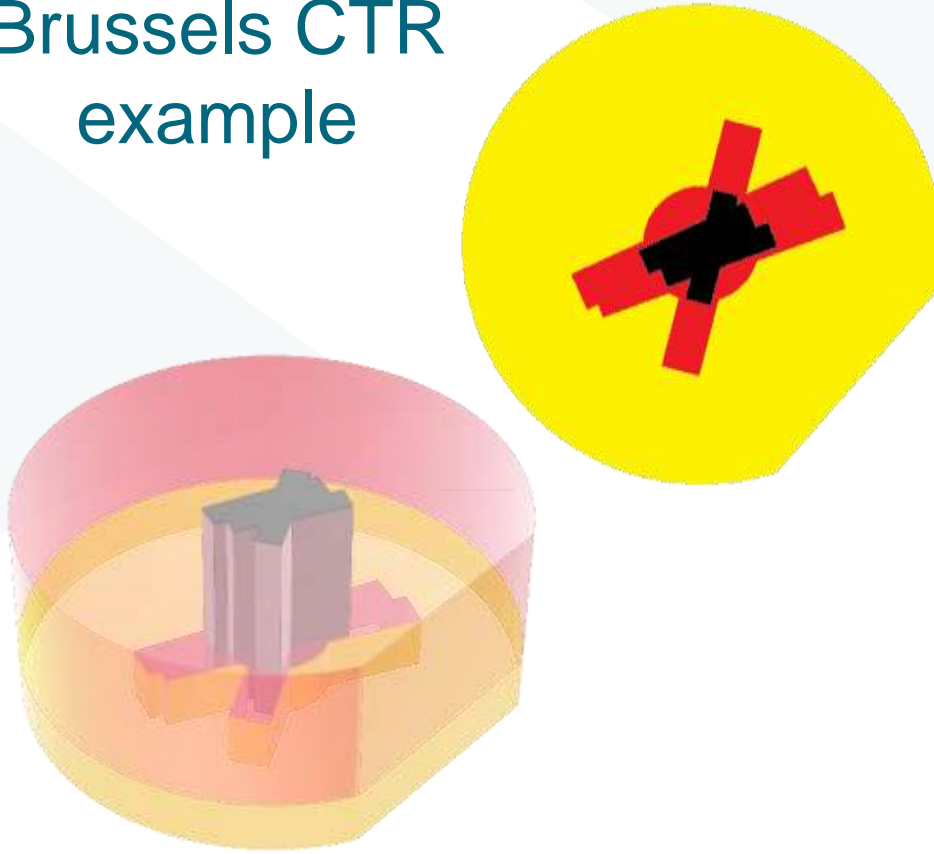


CTRs around the 5 civil airports +
RMZ around Kortrijk airport



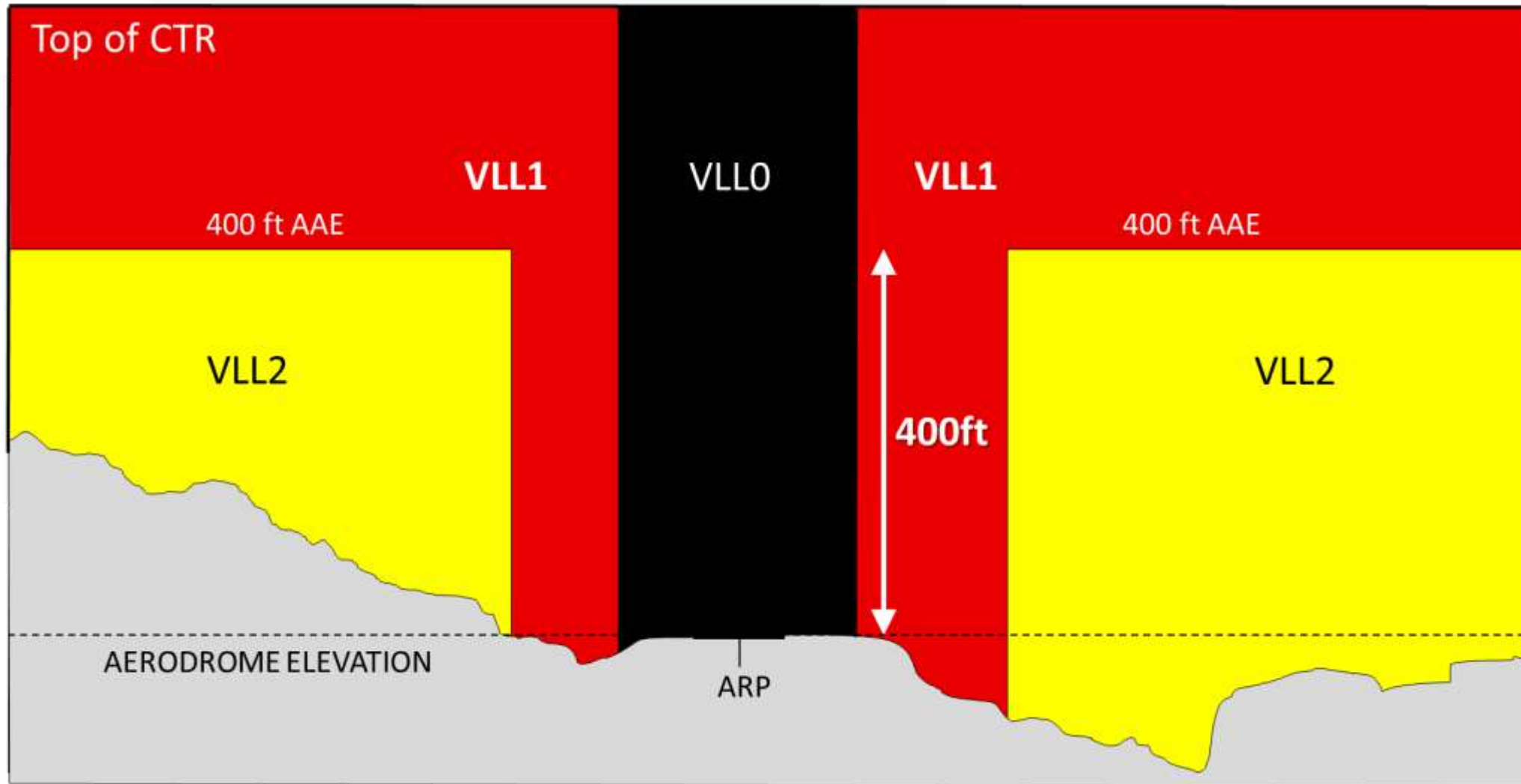
Civil CTRs no longer one monolithic block

Brussels CTR example



- Definition of 3 sectors within CTRs taking into account the impact of drone activity on manned aircraft activity :
 - VLL0 'black': very high
 - VLL1 'red': high
 - VLL2 'yellow': moderate
- Rules and procedures in order to handle drone activity depending on mainly:
 - Location of the activity (VLLx)
 - Category of drone flight (OPEN or SPECIFIC)

CTR VLL topology (Brussels, Antwerp, Liège, Charleroi, Ostend)



CTR VLL rules

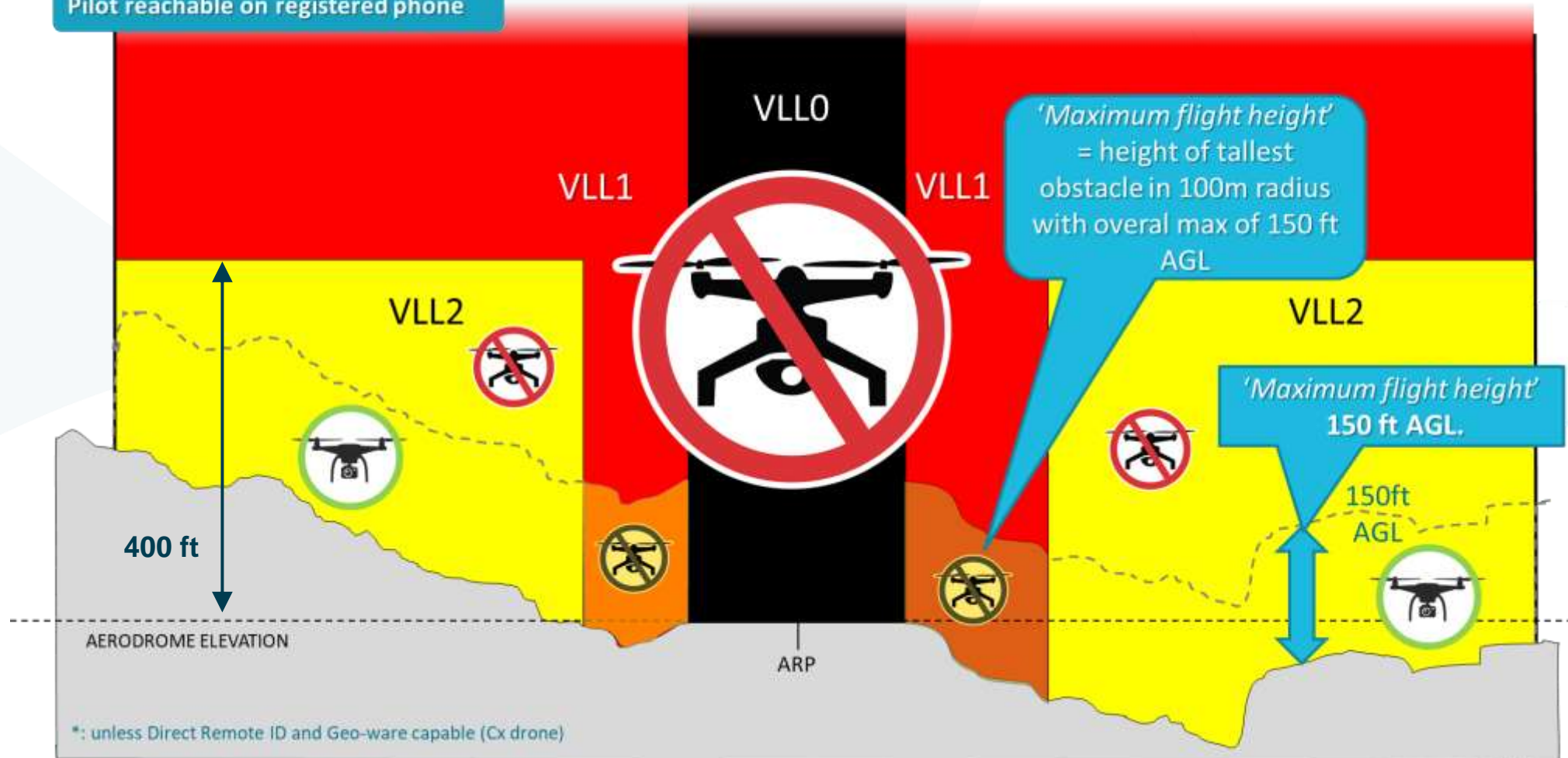
Obligatory use of



Drone Service
Application

OPEN category summary: only allowed if drone MTOM < 900g*

Pilot reachable on registered phone

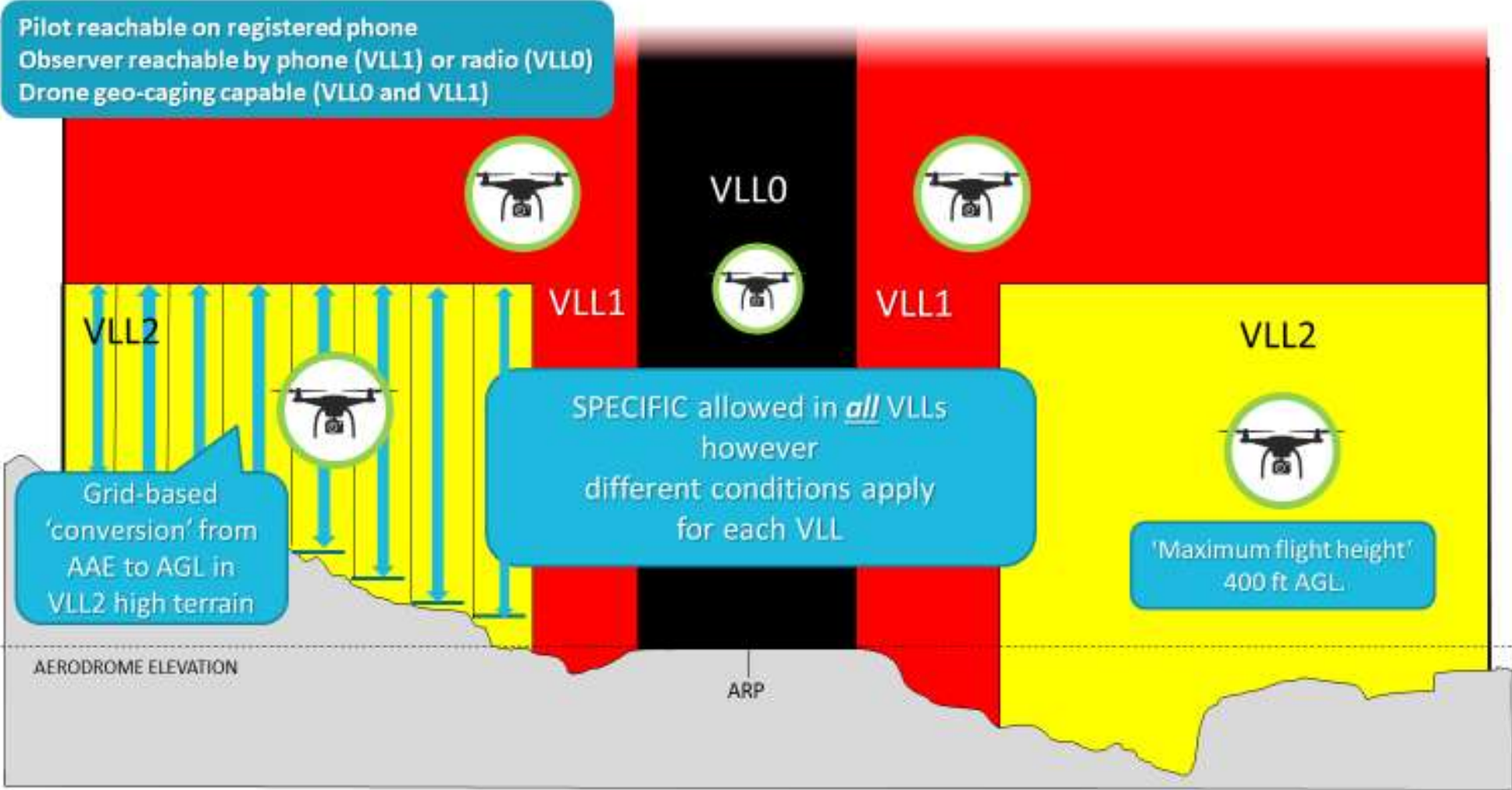


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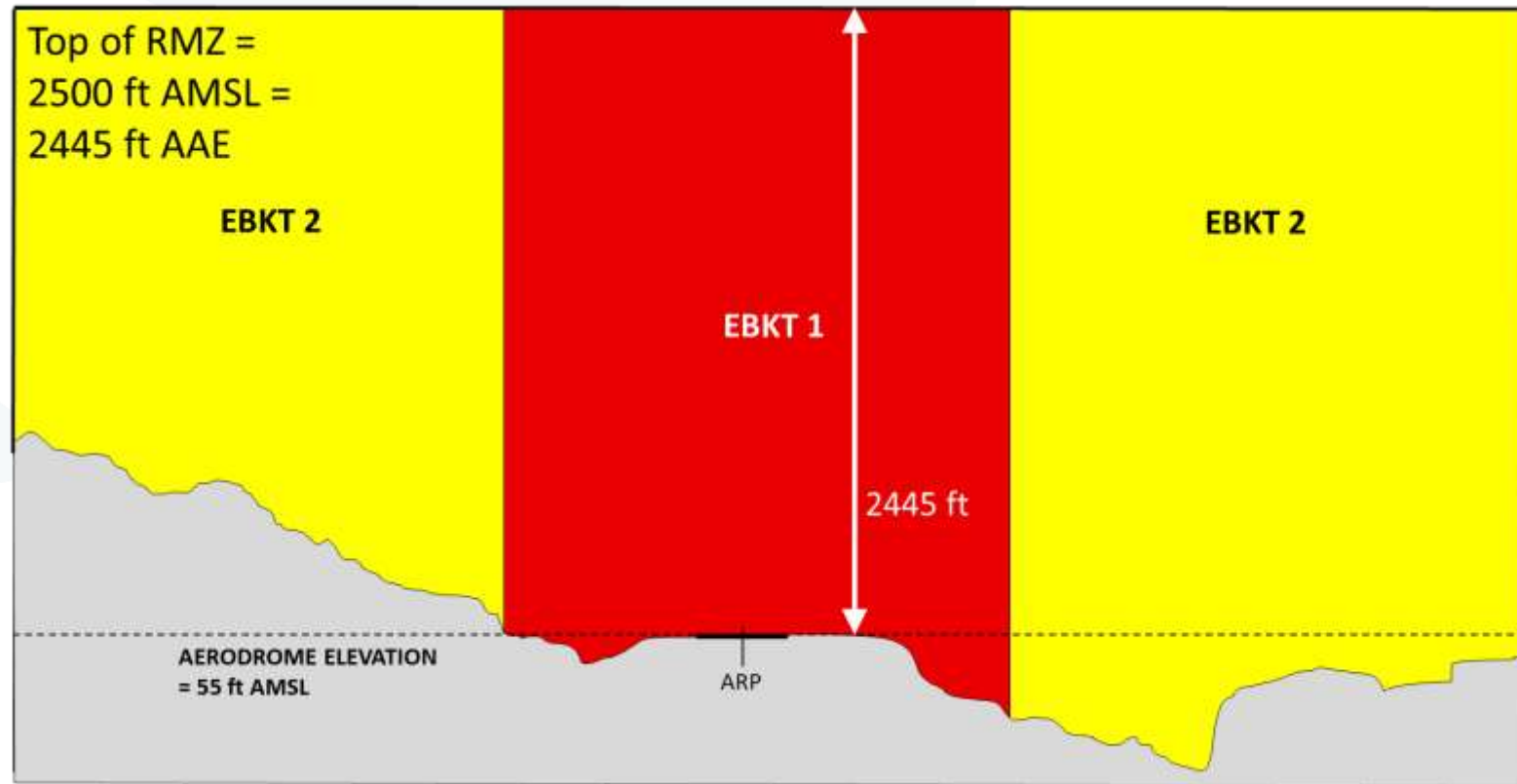


Drone Service Application

SPECIFIC category summary



Kortrijk EBKT RMZ topology

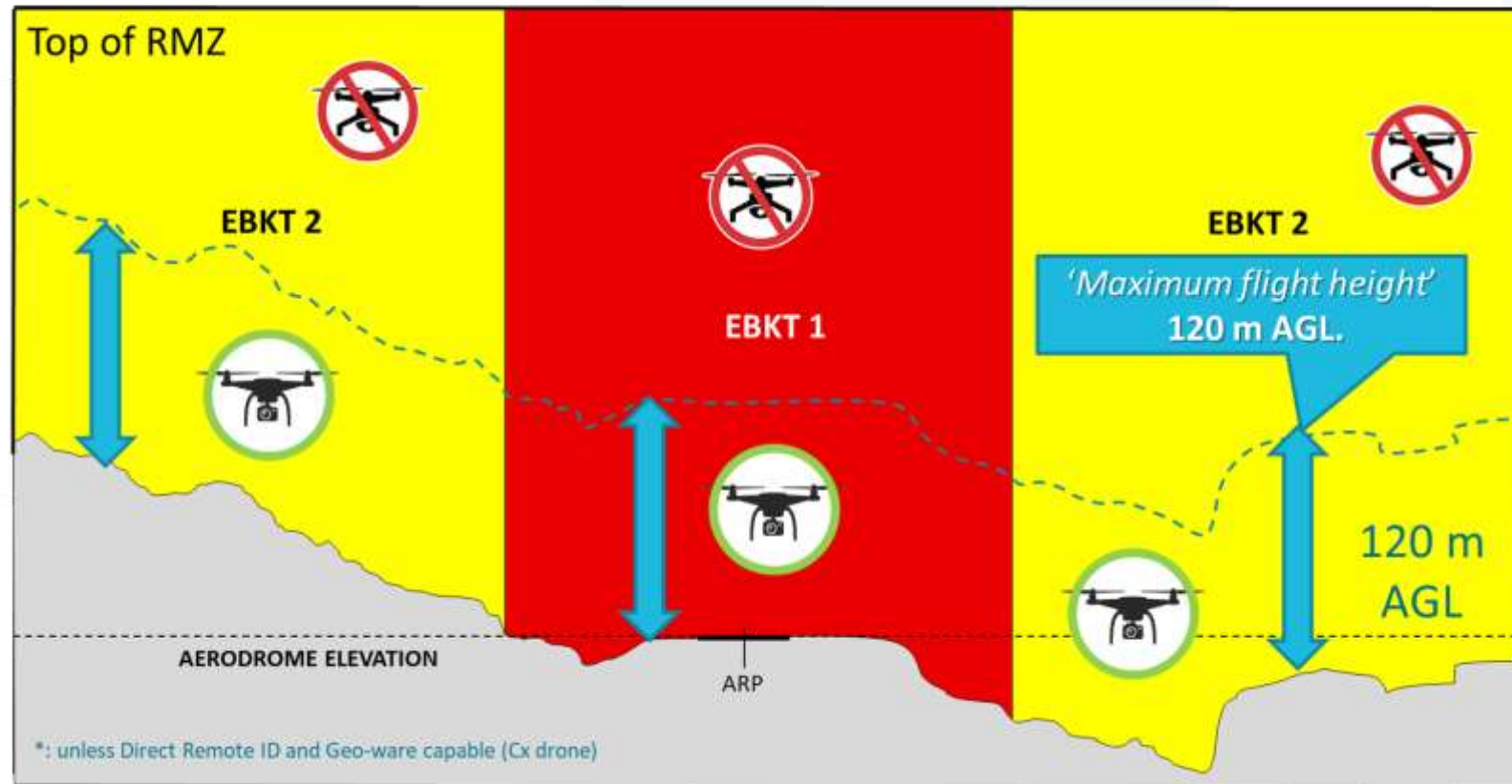


Kortrijk EBKT RMZ rules

OPEN & SPECIFIC category summary

Pilot reachable on registered phone

OPEN only allowed if drone MTOM < 900g*



Obligatory use of



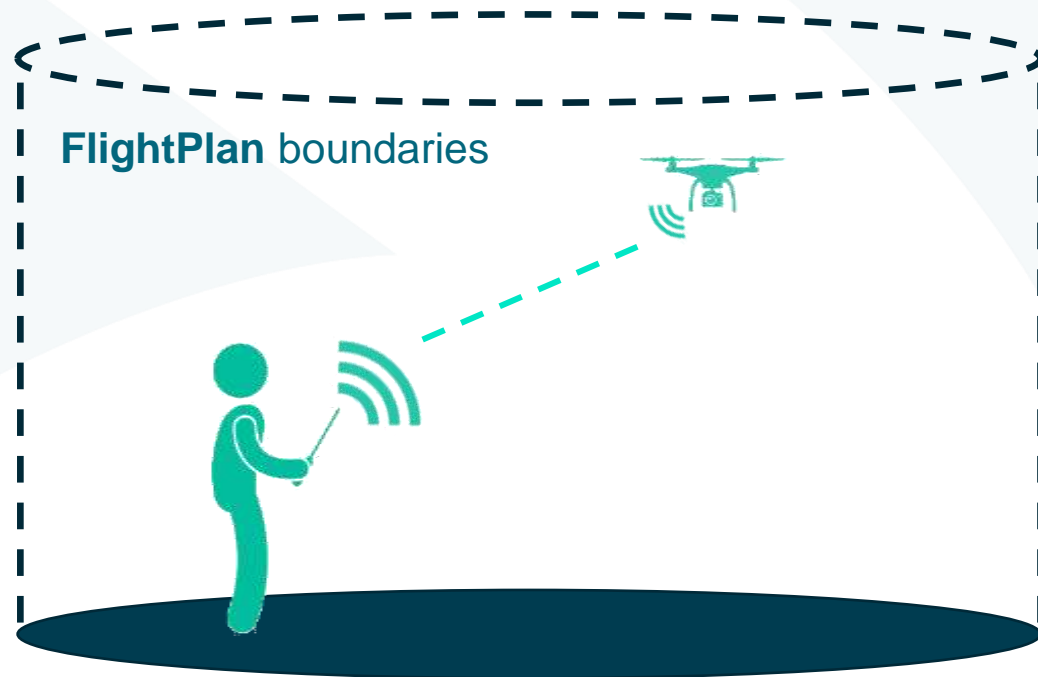
Drone Service Application

Mandatory drone characteristics as per GeoZone Ministerial Decree

artnr	GeoZone type	<u>UAS equipped with certain technical features</u>
art. 29	Civil CTR VLL 0	Geo-awareness, direct remote ID & geo-fencing
art. 30	Civil CTR VLL 1	Geo-awareness, direct remote ID & geo-fencing (only for Specific)
art. 31	Civil CTR VLL 2	Geo-awareness, direct remote ID
art. 32	Civil TMA&CTA	Geo-awareness, direct remote ID & geo-fencing
art. 34	EBKT Zone 1	Geo-awareness, direct remote ID
art. 35	EBKT Zone 2	Geo-awareness, direct remote ID

What is Geo-Caging when imposed by **skeyes** nice to guide you / ?

No definition in the 945/947 EU reg.

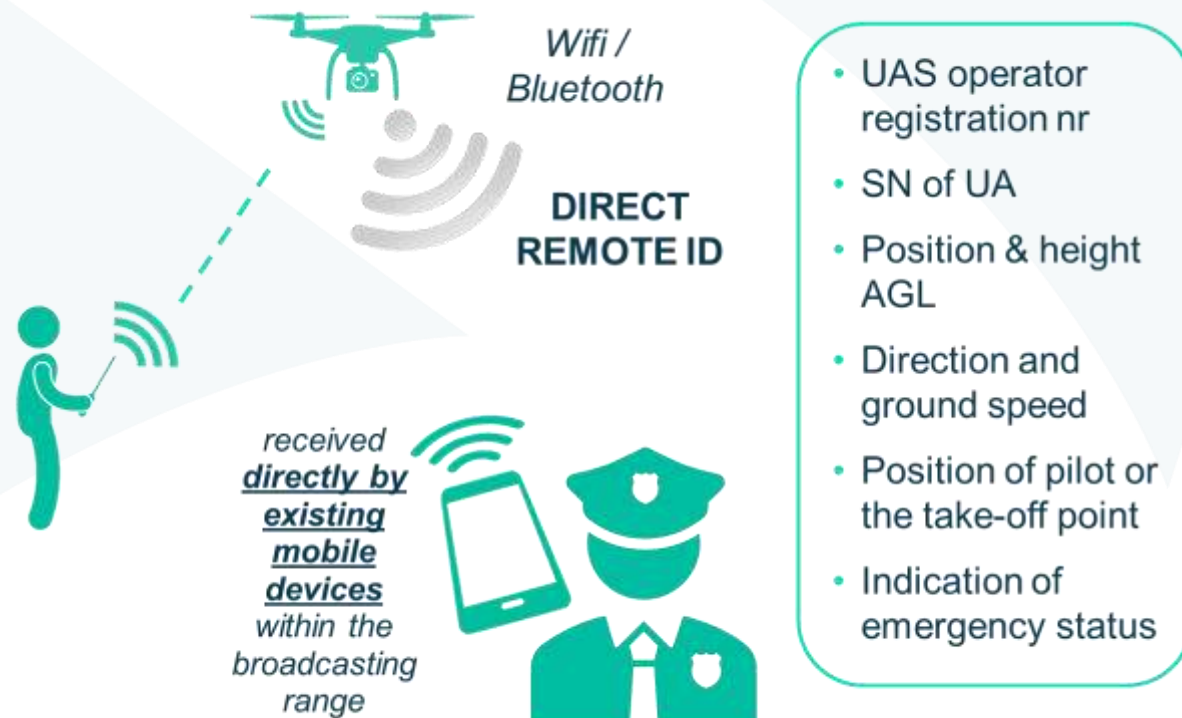


Can only be imposed by a GeoZone

- Referred to as a system that prevents the drone from flying over a given altitude and a given distance outside a given volume of airspace (vertically and horizontally) as defined during the flight planning phase of the drone operation.
- It is equivalently referred to in the EU Delegated Act in the section used to define the obligatory characteristics of a C6 drones as being 'a system that prevents the UA from breaching the horizontal and vertical limits of a programmable operational volume'.

What is Direct Remote ID when imposed by **skeyes** nice to guide you ?

Definition as per 945/947 EU reg.

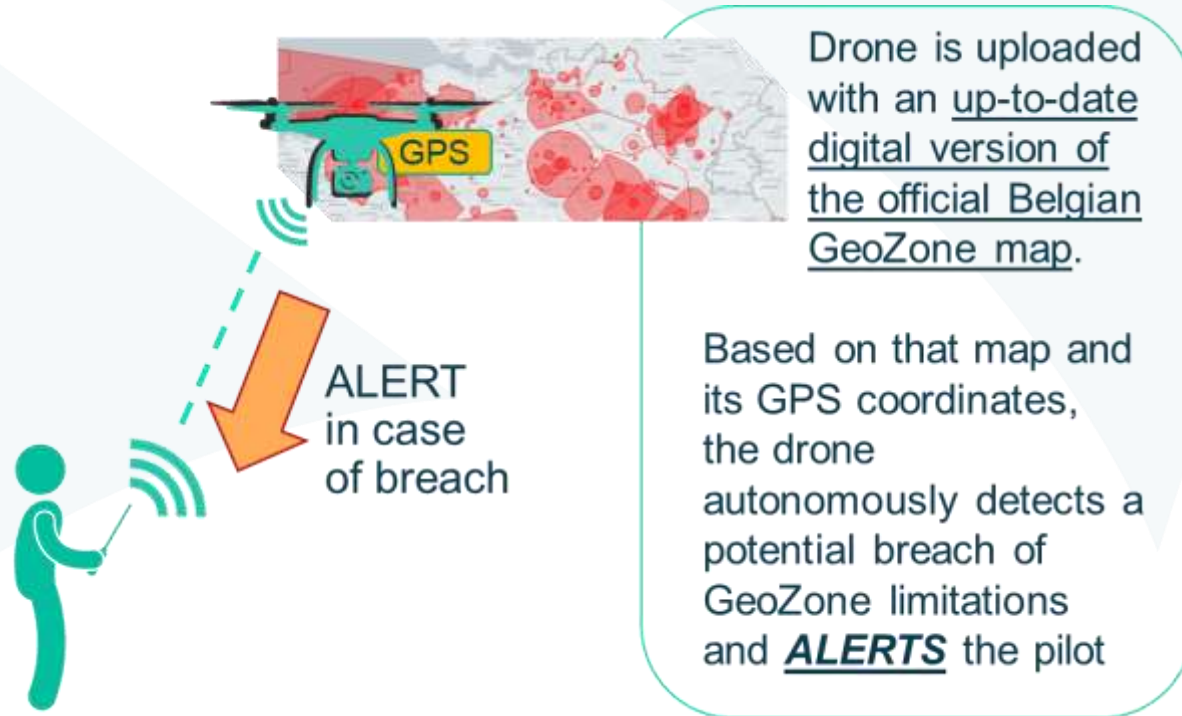


When/where is it mandatory?
(if not imposed by a GeoZone)

- For flights in the Open category: C1, C2, non-tethered C3, C5 and C6 drones by definition have this feature on board and only when using those drones is there an obligation in the Open category to have direct remote ID active during the flight. Such Cx-compliant drones are however not yet available on the market.
- Its use is obligatory for all flights in the Specific category only as from 1/1/2024.

What is Geo-Awareness when imposed by **skeyes** nice to guide you / ?

Definition as per 945/947 EU reg.



not be confused with the functionality offered on DJI drones called 'DJI geofencing' as this DJI drone feature refers to the alerting of the pilot based on a bespoke map designed and made public by DJI based on its very own safety criteria.

When/where is it mandatory? (if not imposed by a GeoZone)

- C1, C2 and C3 drones operated in the Open category by definition have this feature on board and should have it activated during all flights. It is optionally available on C5 and C6 drones (to be used to execute STS1 and STS2 as of 1/1/2024), if present on them it should be activated during all flights.
- Cx-compliant drones are however not yet available on the market today 1/1/2022.

Exemption to Geo-awareness and Remote ID obligation up to 1/1/2024 for the Open category when using drones with MTOM < 900g and the Specific category (Art. 37 of the GeoZone MB)

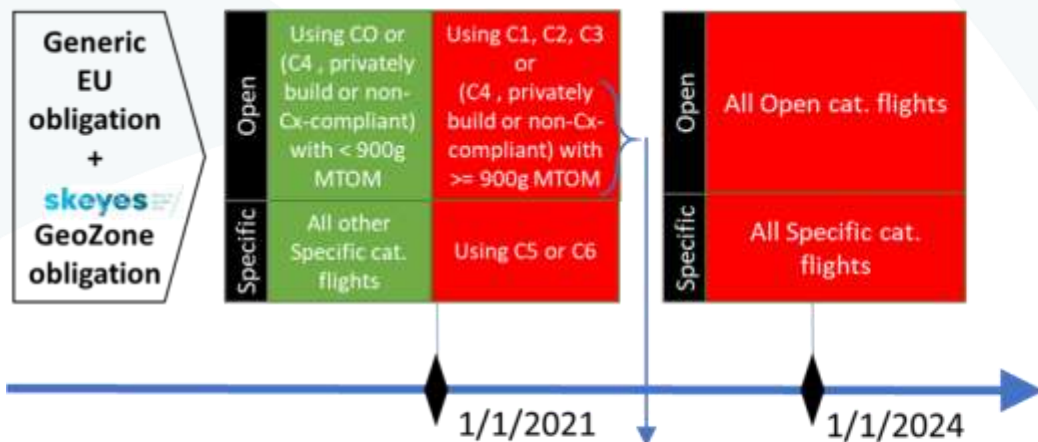


CIVIL CTR/RMZ/TMA GEOZONES

Direct Remote ID obligation

Reminder: all C1, C2, C3, C5 and C6 drones are by definition Direct Remote ID compliant (once they become available)

Overall conclusion



Flights with these type of drones would require a Direct Remote-ID add-on device to be compliant (if not supported by the drone itself)

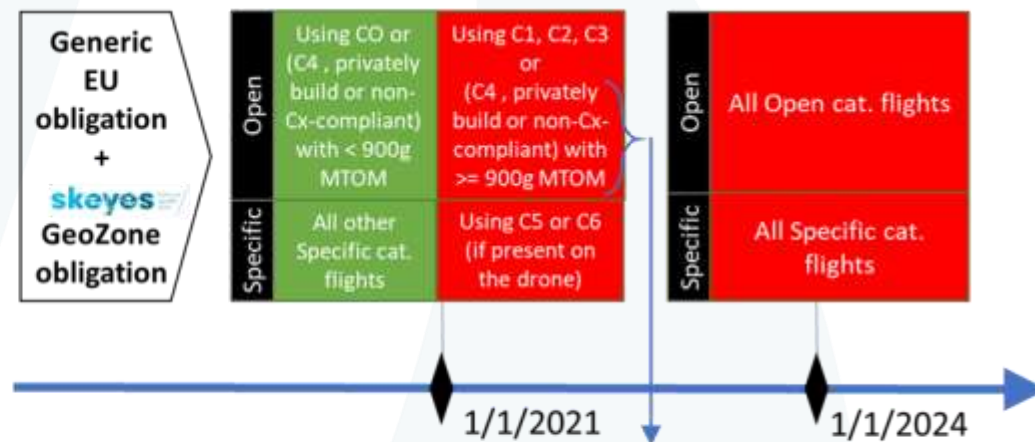
Red = made mandatory for ...

Green = NOT made mandatory for ...

Geo-awareness obligation

Reminder: all C1, C2 and C3 drones are by definition Geo-awareness compliant (once they become available)

Overall conclusion



These type of drones have currently (1/1/2022) no real possibility to be geo-aware compliant as defined by the EU-rules

Impact of the delay for Geo-awareness en Remote ID to 1/1/2024 for drones with MTOM < 900g in the Open category (Art. 37 of the GeoZone MB)

Direct Remote ID obligation

Geo-awareness obligation

CONCLUSION for the  / Civil GeoZones:

SPECIFIC category:

no additional Geo-awareness and Remote-ID requirements until 1/1/2024

OPEN category:

- **If drone MTOM equal or above 900g:** Geo-awareness and Remote-ID mandatory already as from 1/1/2021, **making it now de-facto impossible to fly**
- **If drone MTOM below 900g:** no additional Geo-awareness and Remote-ID requirements until 1/1/2024

DSA Planner
User portal



PLANNING

skeyes nice to guide you

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FLIGHT
APPROVAL



DSA Greenlight
Authorisation portal



SPACC

skeyes nice to guide you

Fly
Pilot mobile web
app



TACTICAL
AUTHORISATION

VISUALISATION
COORDINATION



DSA Control
Visualisation portal



skeyes nice to guide you
ATCO
ATCO SVR



two stage authorisation process

DSA Planner
User portal



PRE-AUTHORISATION
(i.e. 'strategic' APPROVAL)



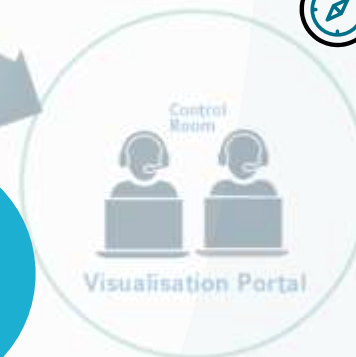
DSA Greenlight
Authorisation portal



Fly
Pilot mobile web app



DSA Control
Visualisation portal

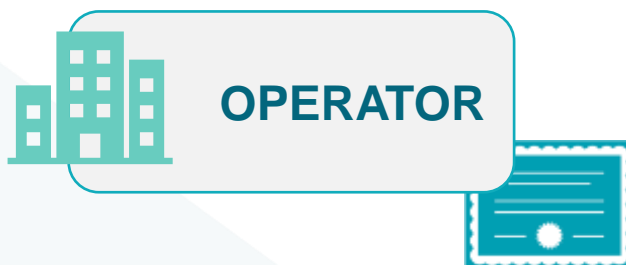


AUTHORISATION
(i.e. 'tactical', just before take-off)

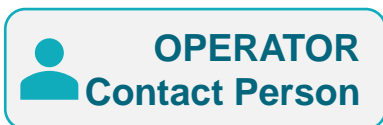


full authorisation workflow

Operator = legal entity (company or person) responsible for the operation



- **Obligatory operator registration, unless flights only occur in the Open category with:**
 - true toy drone
or
 - a drone < 250g not equipped with a camera
- **Is the holder of a Operational Authorisation or a LUC (if applicable)**
- **Is represented by a**



Pilot = person, in control of the flight

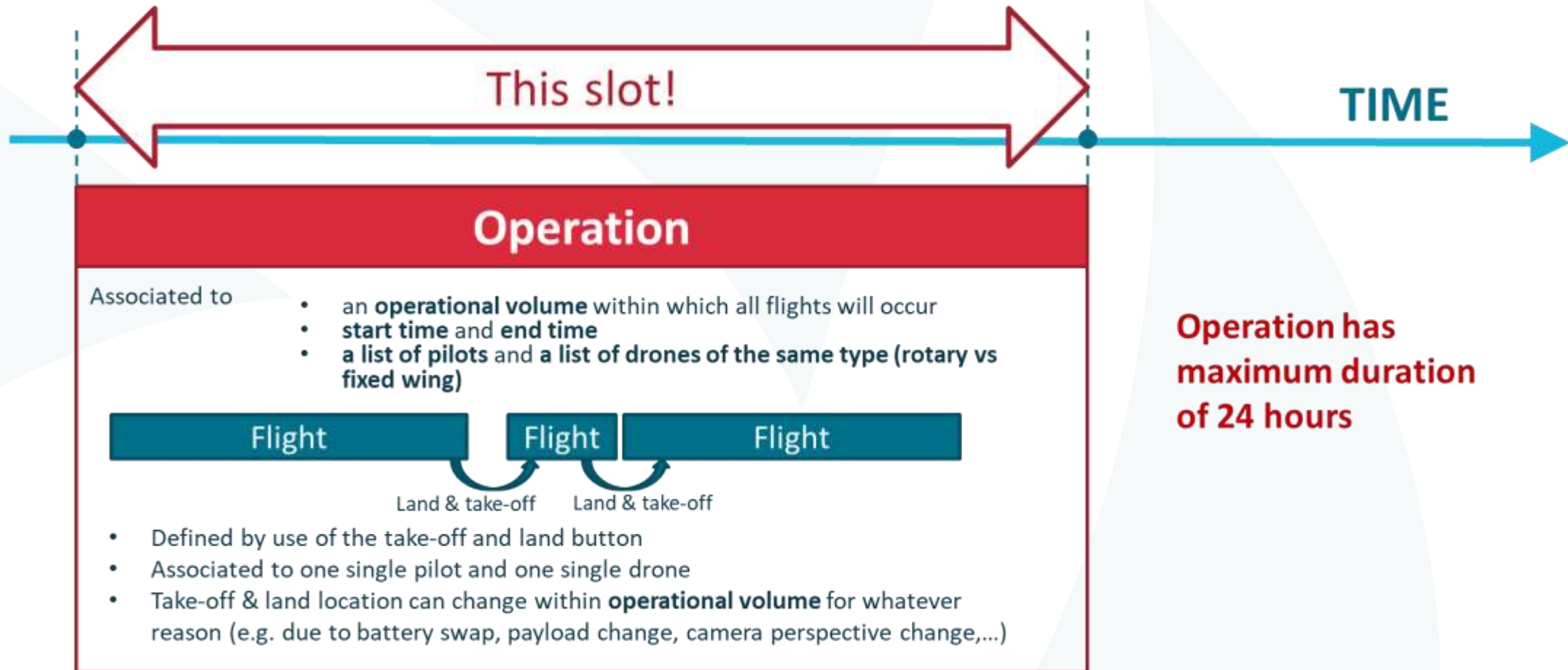


**Proven pilot competencies
In the form of a pilot license, e.g.:**

- “Proof of completion of on-line theoretical knowledge examination” required for Open category A1 flights
- “Certificate of remote pilot competency” required for Open category A2 flights
- “Accreditation of completion of STS1 practical skill training” required for STS1 flights



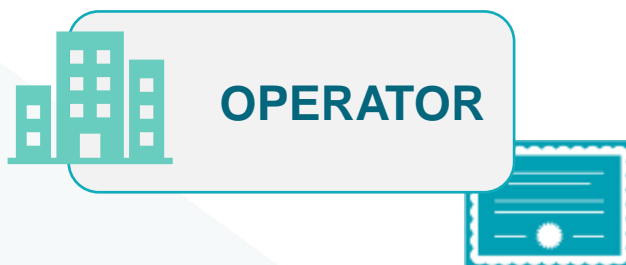
What is being (pre-) authorized?





full authorisation workflow

Operator = legal entity (company or person) responsible for the operation



There is no access to a drone operator registration data base, listing the official 'Operator Admin' contact person



No verification is done in DSA on the claim done by a person that he/she is the official 'Operator Admin'

- ➔ remains the responsibility of the person that issues such claim
- ➔ more than one person can be Operator Contact
- ➔ Operator contact needs to consent with every flight authorisation request

Pilot = person, in control of the flight



**Proven pilot competencies
In the form of a pilot license, e.g.:**

- “Proof of completion of on-line theoretical knowledge examination” required for Open category A1 flights
- “Certificate of remote pilot competency” required for Open category A2 flights
- “Accreditation of completion of STS1 practical skill training” required for STS1 flights



full authorisation workflow

A DSA user can not create an operation and issue an authorisation request if he/she does not assign these two roles:

**Operator Contact =
person, representing the
operator** (responsible for the
operation)



**Pilot = person,
in control of the flight**





authorisation workflow overview

TIME

TAKE-OFF

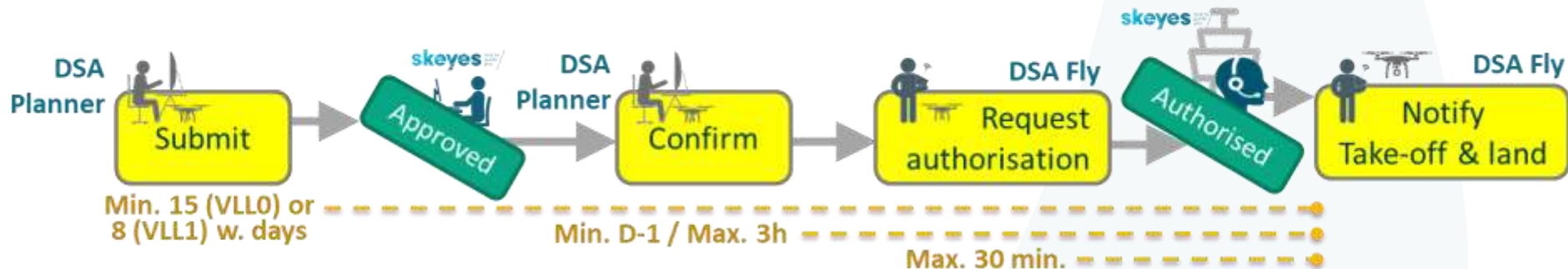
**VLL 2
& EBKT 2:**



EBKT 1:

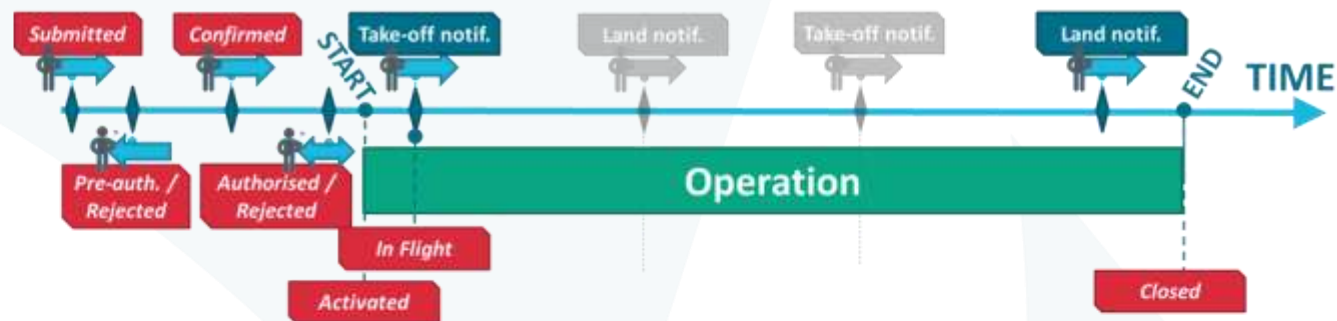


**VLL 1
& VLL 0:**





who can do what?



	Creator	Operator contact	Prime pilot
Create and submit flight authorisation request	Using DSA Planner	-	-
Confirm the flight (not required in VLL2 and EBKT2)	-	Using DSA Planner or Fly	Using DSA Planner or Fly
Request (tactical) authorisation (not required in VLL2, EBKT1 and EBKT2)	-	-	Using DSA Fly
Notify take-off & land <i>ALWAYS REQUIRED EVERYWHERE</i>	-	-	Using DSA Fly
Cancel/discard the flight authorisation request	Using DSA Planner	OR Using DSA Planner	OR Using DSA Planner
Close the operation (declare end of operations before the planned end-time = early termination of the flight)	-	-	Using DSA Fly

end2end authorisation workflow (1)

User portal DSA Planner



Planning (incl. upload) &
authorisation mgmt

DSA

Powered by Skeydrone



VLL 0:	No later than D-15
VLL 1:	No later than D-8
EBKT1	
VLL 2:	
EBKT2	No later than H-3
:	

Start

End

Operation = submitted



- an **operational volume** within which all flights will occur
- **start time** and **end time**
- **one primary pilot**, a list of **back-up pilots** and a list of **drones of the same type**



end2end authorisation workflow (2)

User portal
DSA Planner



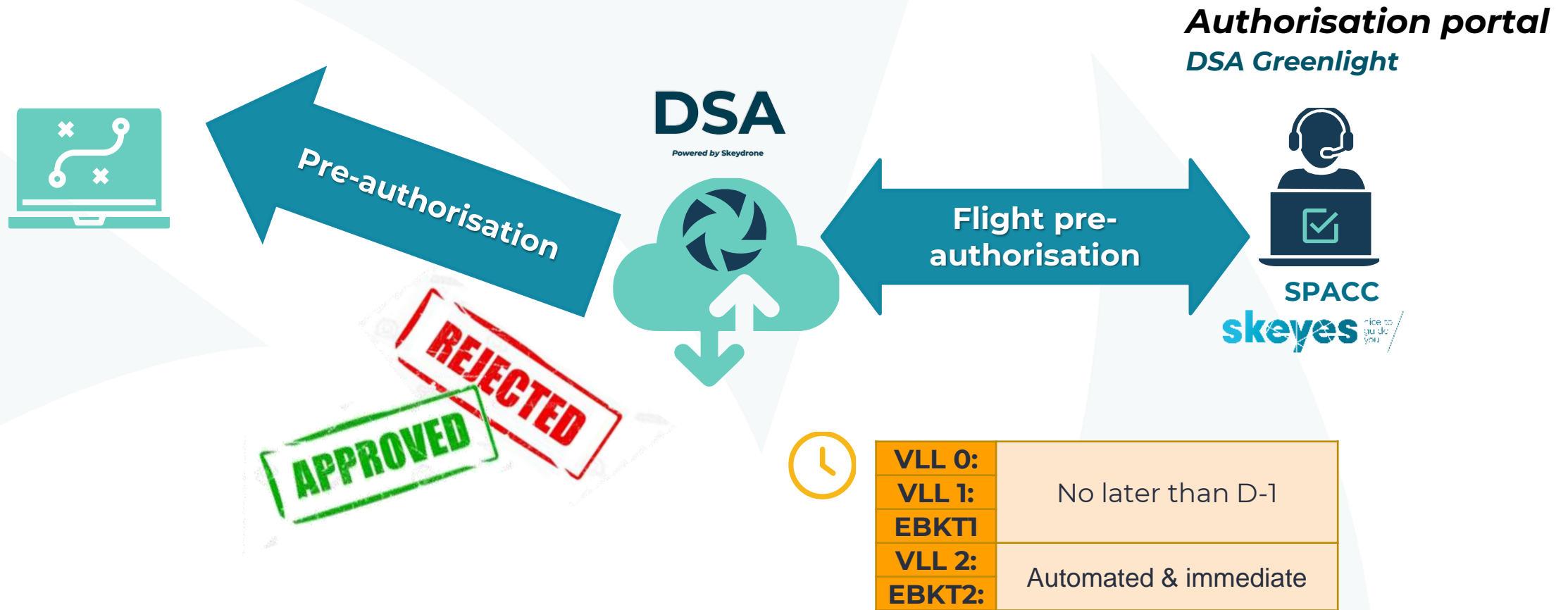
Authorisation portal
DSA Greenlight



SPACC
skeyes nice to guide you

VLL 0:	Manual proces in skeyes
VLL 1:	
EBKT1	
VLL 2:	Automated & immediate
EBKT2:	

end2end authorisation workflow (3)



User portal DSA Planner



Pre-authorisation
retrieval and sending
of flight confirmation

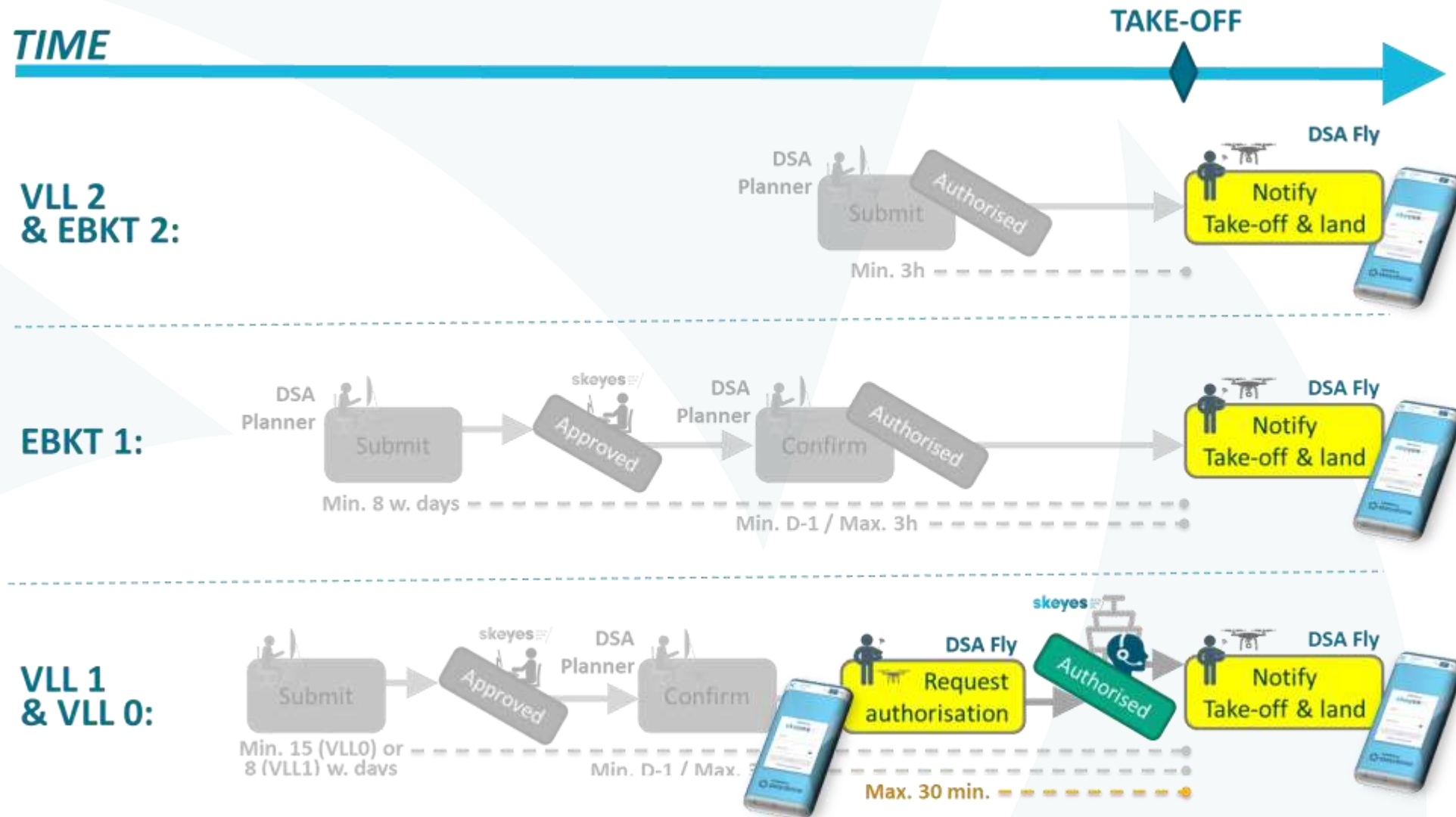
DSA
Powered by Skeydrone



VLL 0:	Not earlier than D-1
VLL 1:	and
EBKT1	no later than H-3
VLL 2:	Not required
EBKT2:	



when to use the Fly mobile web app





end2end authorisation workflow (5)

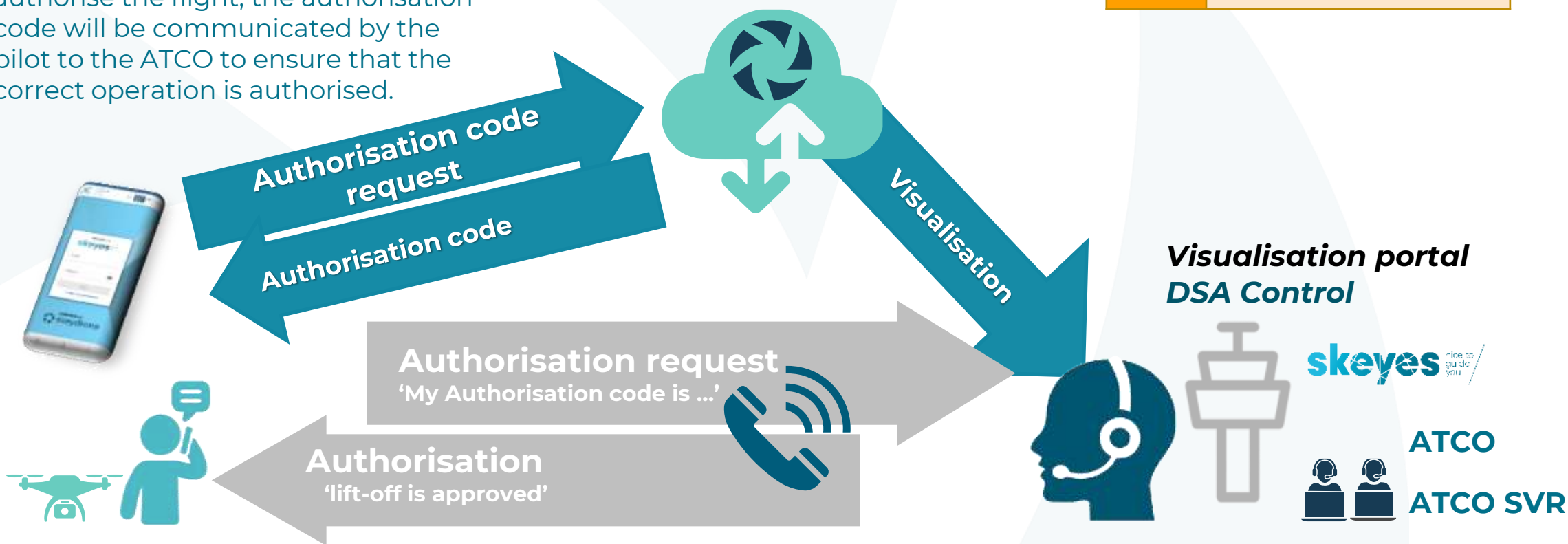
Upon Authorisation request, the DSA generates an **Authorisation code** that is shown both to the Pilot and the ATCO.

When the pilot calls the tower to authorise the flight, the authorisation code will be communicated by the pilot to the ATCO to ensure that the correct operation is authorised.

DSA
Powered by Skeydrone



VLL 0:	At H-½, by RADIO
VLL 1:	At H-½, by PHONE
VLL 2:	
EBKT1:	Not required
EBKT2:	





end2end authorisation workflow (6)

Pilot notifies “take off” & “land”
(can be multiple times within approved
& authorised operation window)

VLL 0:

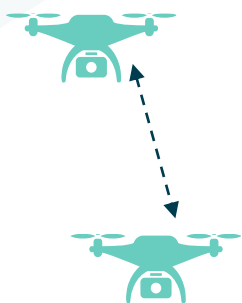
VLL 1:

VLL 2:

EBKT:

Obligatory use
of the
“take-off” & “land”
notification button

Pilot app
DSA Fly



Authorisation retrieval,
declare ‘take-off’

Declare ‘land’



Visualisation:
‘IN FLIGHT’

‘ACTIVATED’

Visualisation portal
DSA Control




skeyes

ATCO



ATCO SVR



6.2 Military areas zoom-in

GeoZones in low airspace managed by **skeyes** nice to guide you

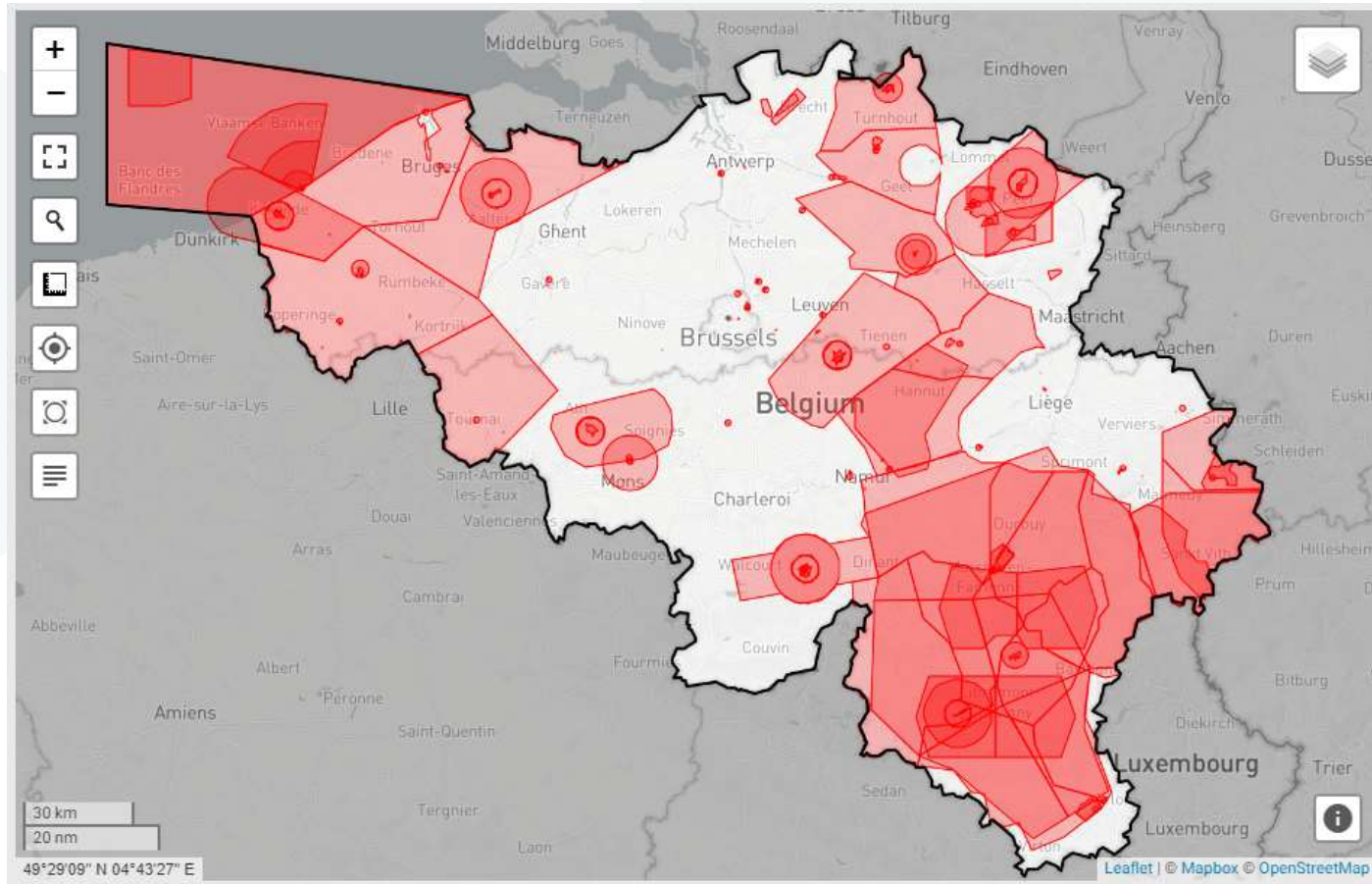
Obligatory use of



in all military geozones



- ✓ **Military Geozones**
- ✓ Mil Controlled Aerodromes
- ✓ Mil Uncontrolled Aerodromes
- ✓ Mil Helistrips
- ✓ Helicopter Training Areas (HTA)
- ✓ Low Flying Area (LFA)
- ✓ Temporary Segregated Areas (TSA)
- ✓ Danger Areas
- ✓ Restricted Areas
- ✓ Mil Domains



For further details and possible updates on the applicable regulations in Belgium: please consult: <https://mobilit.belgium.be>

DSA Planner
User portal



skeyes nice to guide you

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PLANNING

FLIGHT
APPROVAL



DSA Greenlight
Authorisation portal



SPACC



Fly
Pilot mobile web
app



TACTICAL
AUTHORISATION

VISUALISATION
COORDINATION



DSA Control
Visualisation portal

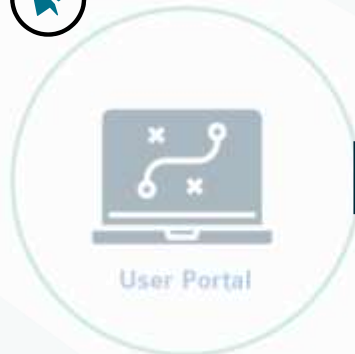


skeyes nice to guide you
ATCO
ATCO SVR



single stage authorisation process

DSA Planner
User portal



User Portal

**PRE-AUTHORISATION
REQUIRED**

(i.e. 'strategic' APPROVAL)



DSA Greenlight
Authorisation portal

SPACC



Authorisation Portal

Fly
*Pilot mobile web
app*

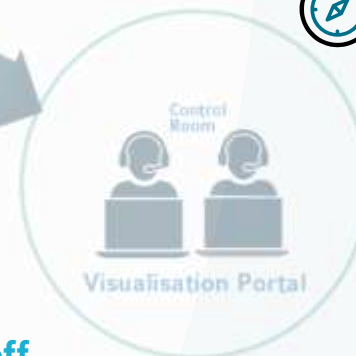


Pilot App

NO AUTHORISATION
(i.e. no 'tactical' clearance for take-off
required by the ATCO just before take-off)



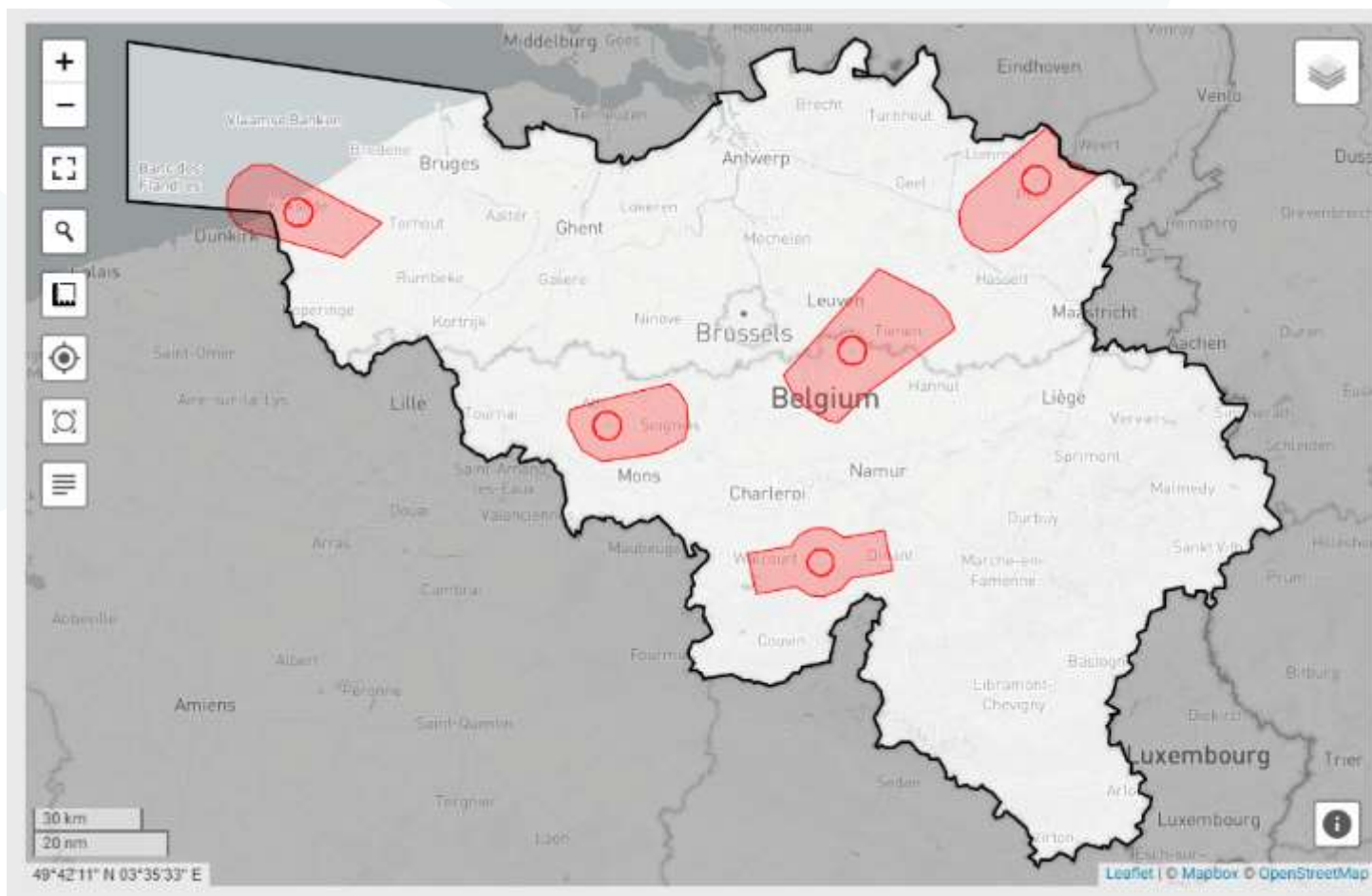
DSA Control
Visualisation portal



Visualisation Portal



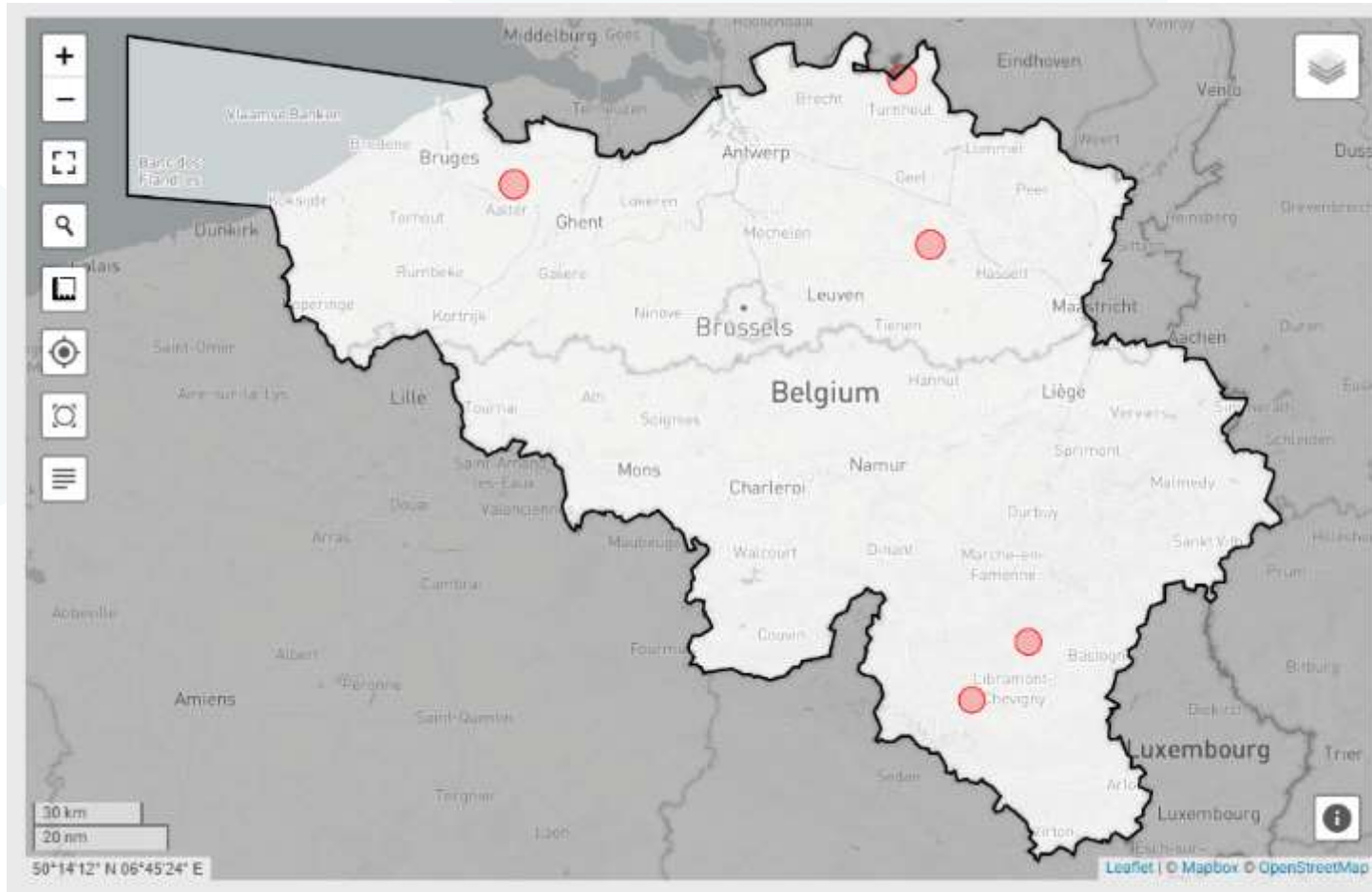
Military CTRs



If/when CTR is active:

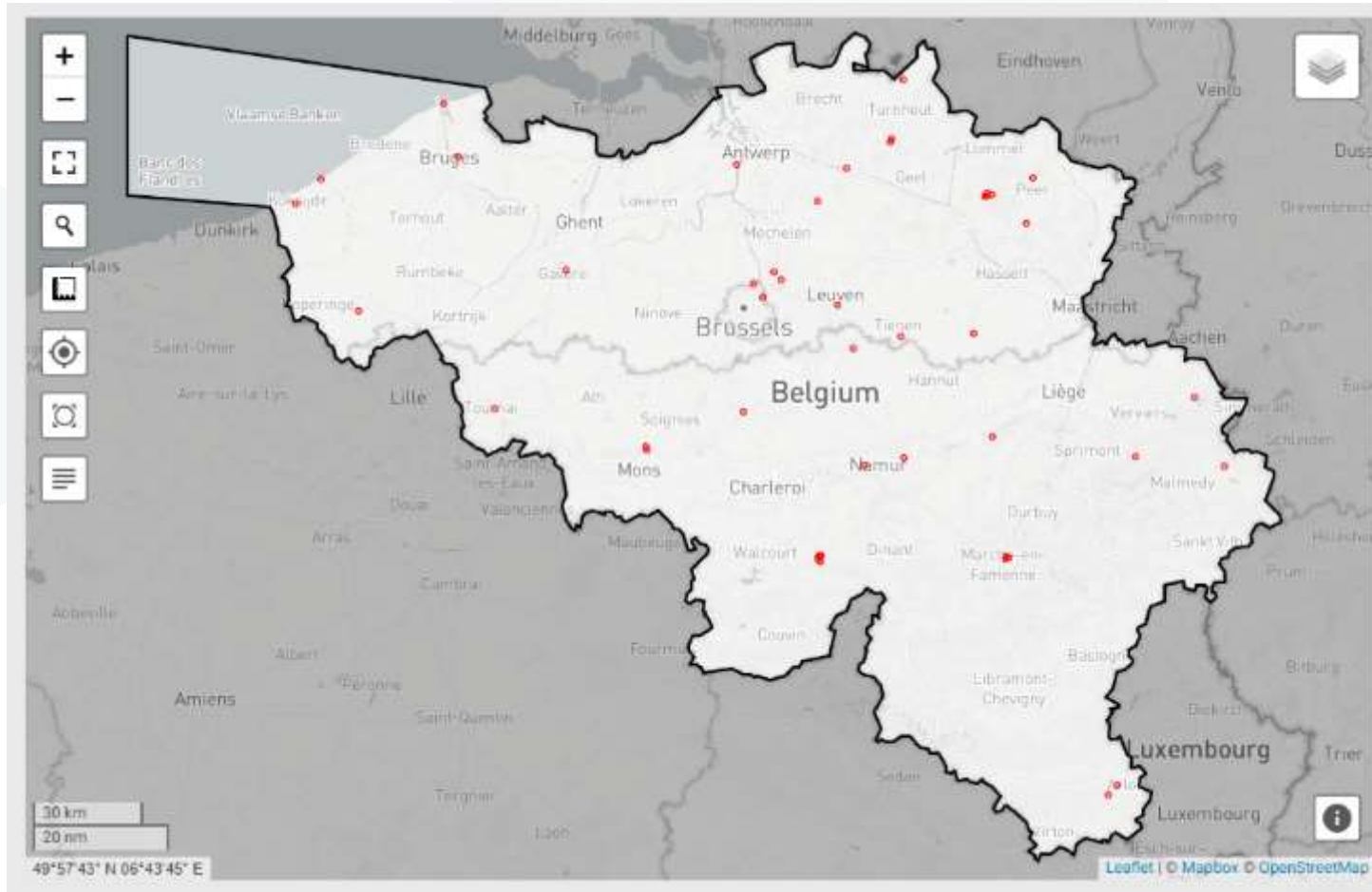
- Reject of all flights above 35ft
- Reject of all flights within circle of 2NM around airport.

Military uncontrolled areodromes



Approval review done by SPACC for all flights

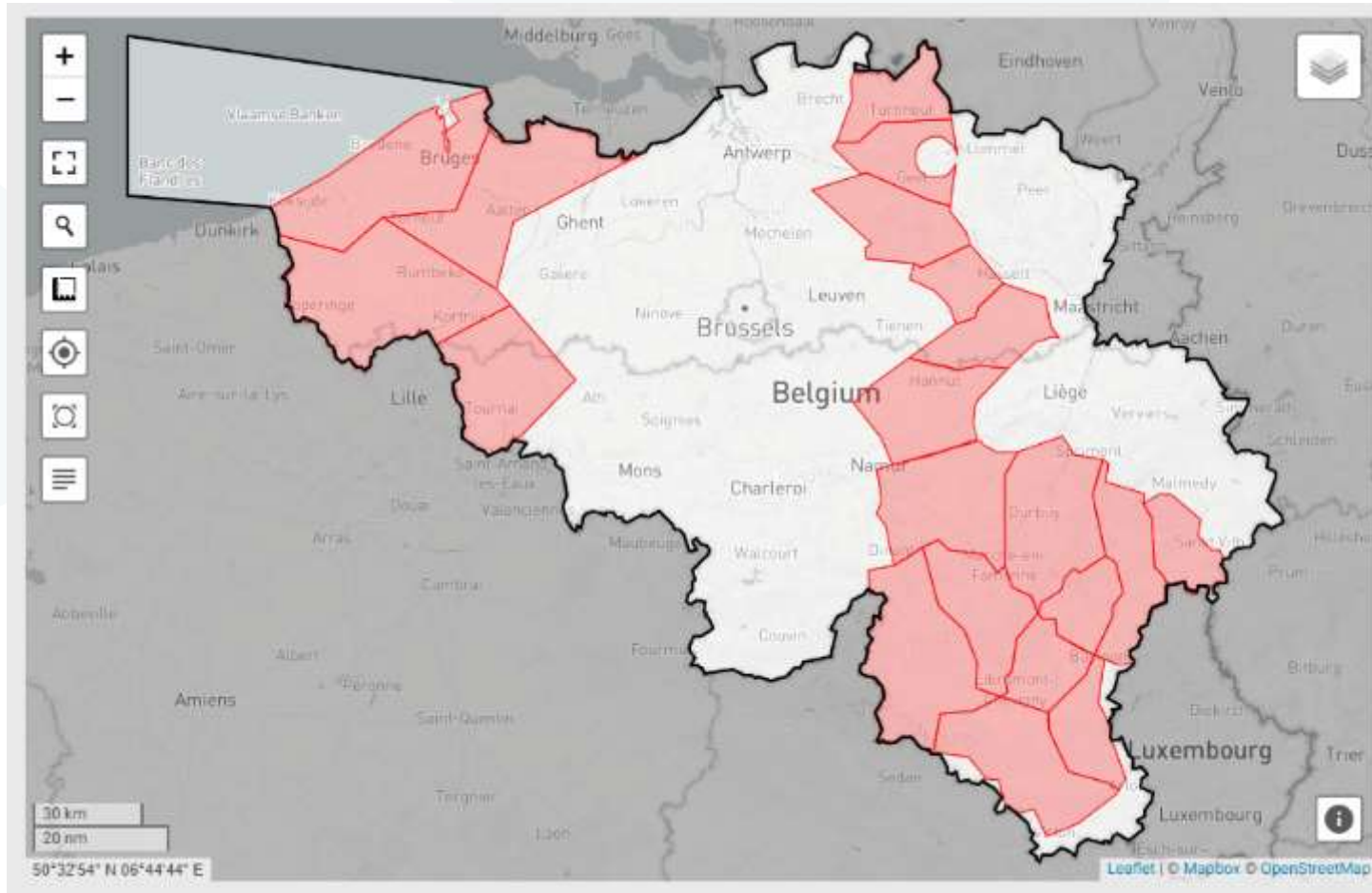
Military helistrips



Auto approval of
all flights with
drone of
MTOM<900g
below 35ft

Approval review
done by SPACC
of all flights with
drone of
MTOM>900g

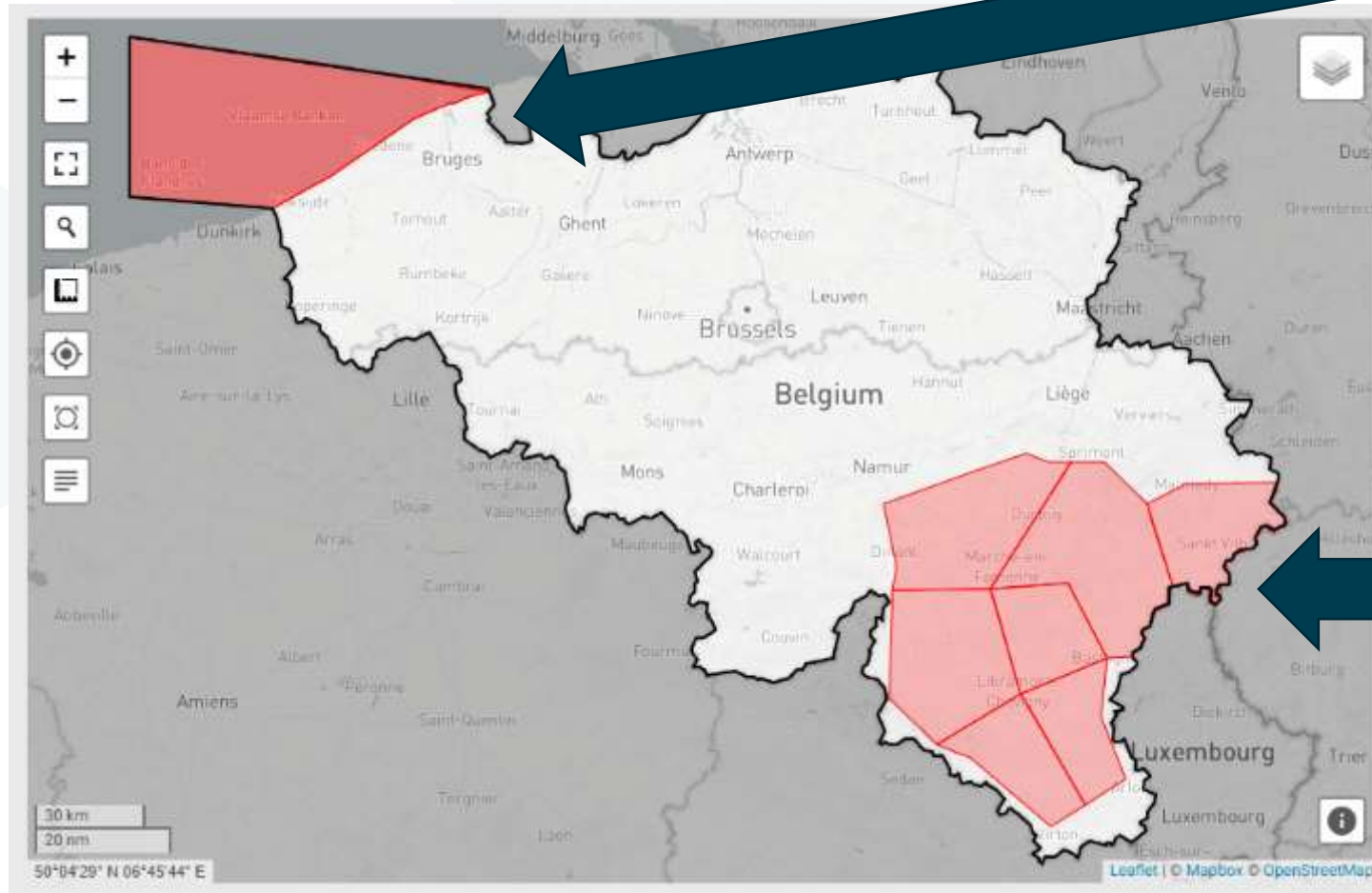
Helicopter Training Area (HTA)



If/when zone is active:

- Reject of all flights with drone of MTOM>900g
- Reject of all flights above 35ft

Low Flying Area (LFA)



If/when zone is active

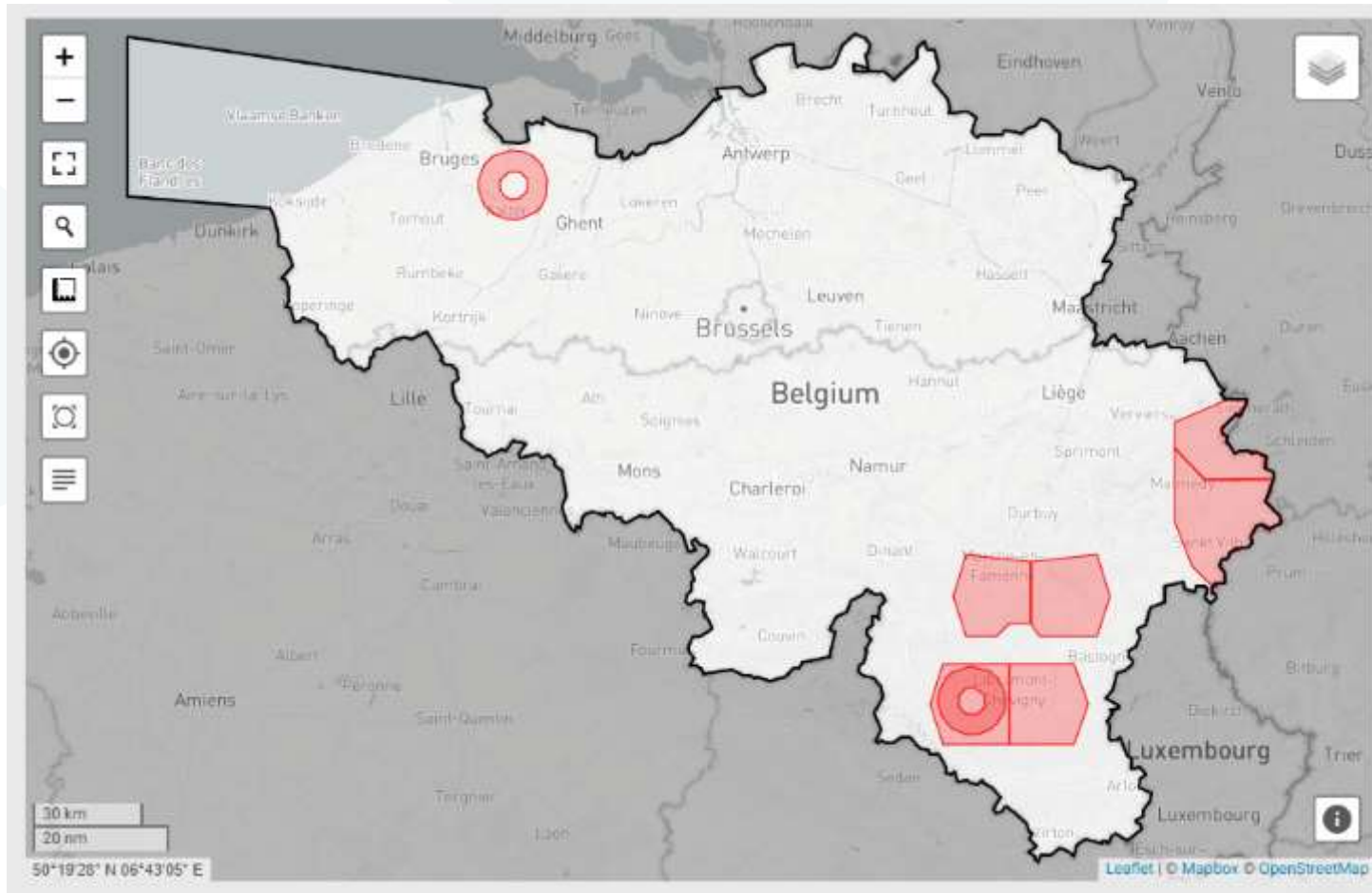
Reject of all flights with drone of MTOM > 900g

Reject of all flights above 35ft

If/when zone is active

Reject of all flights above 150ft

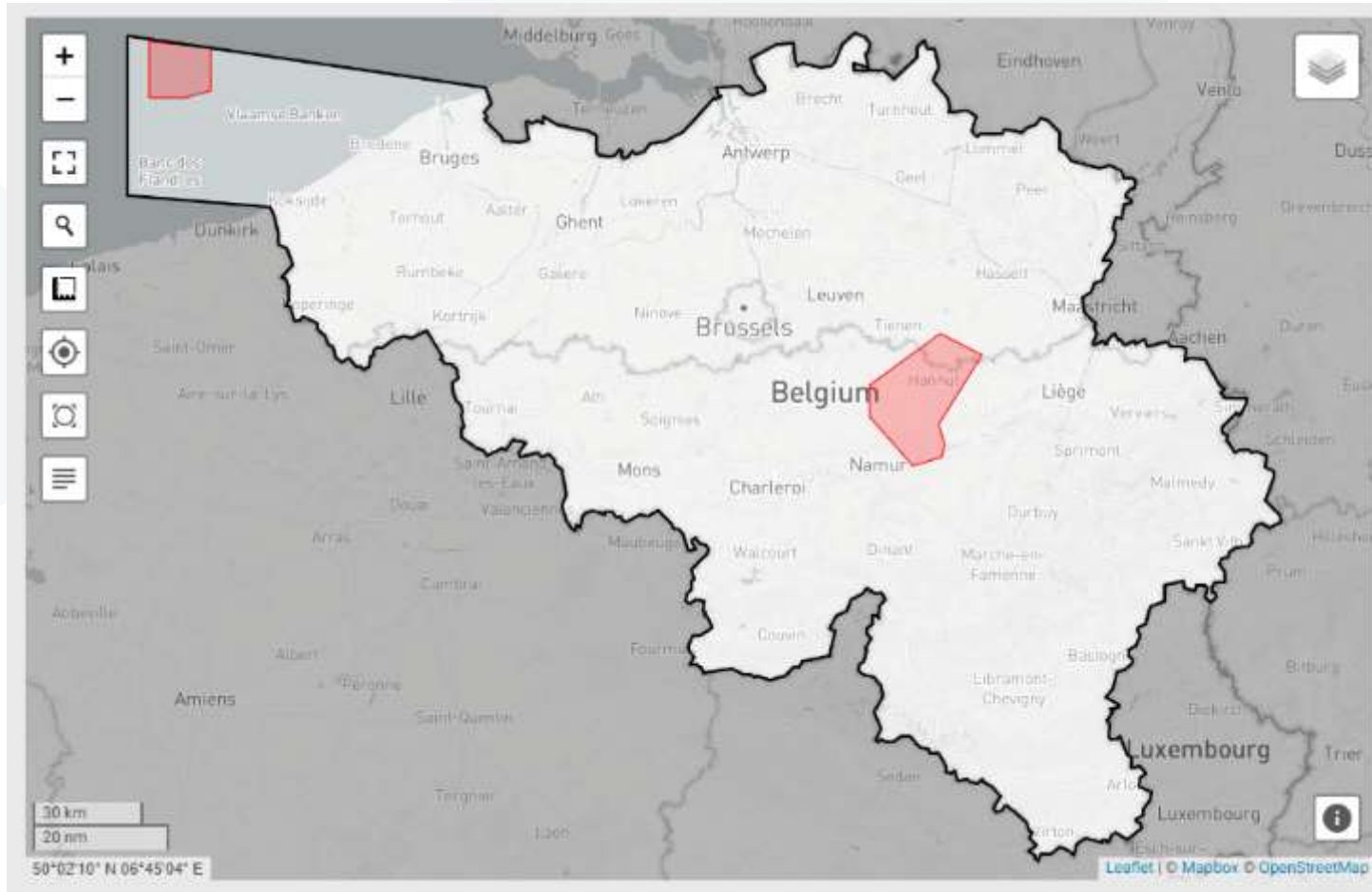
Military Temporary Segregated Area (TSA)



If/when zone is active:

approval review done by SPACC of all flights above 35ft

Military Danger Area

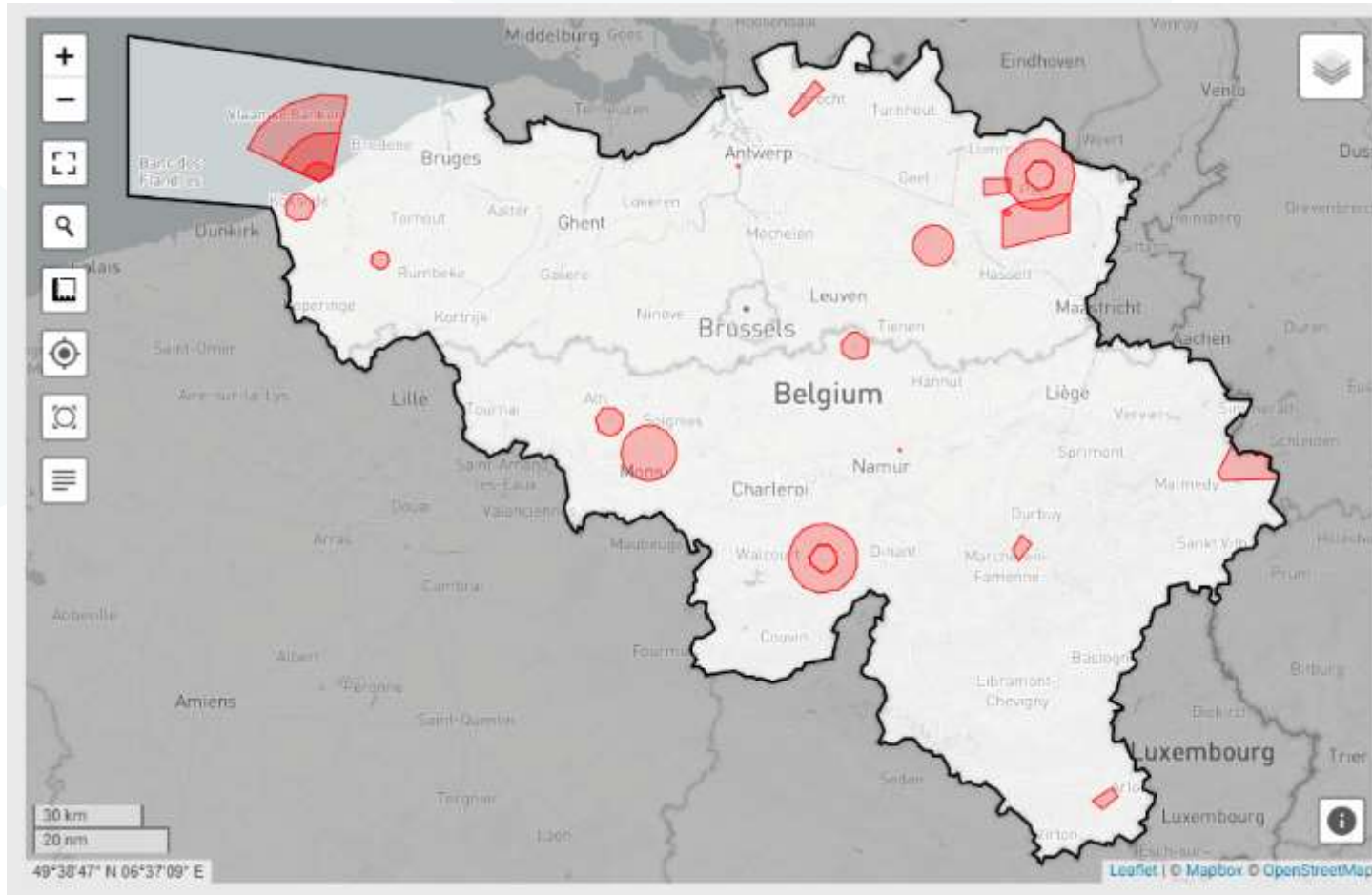


If/when zone is active:

Reject of all flights with drone of MTOM>900g

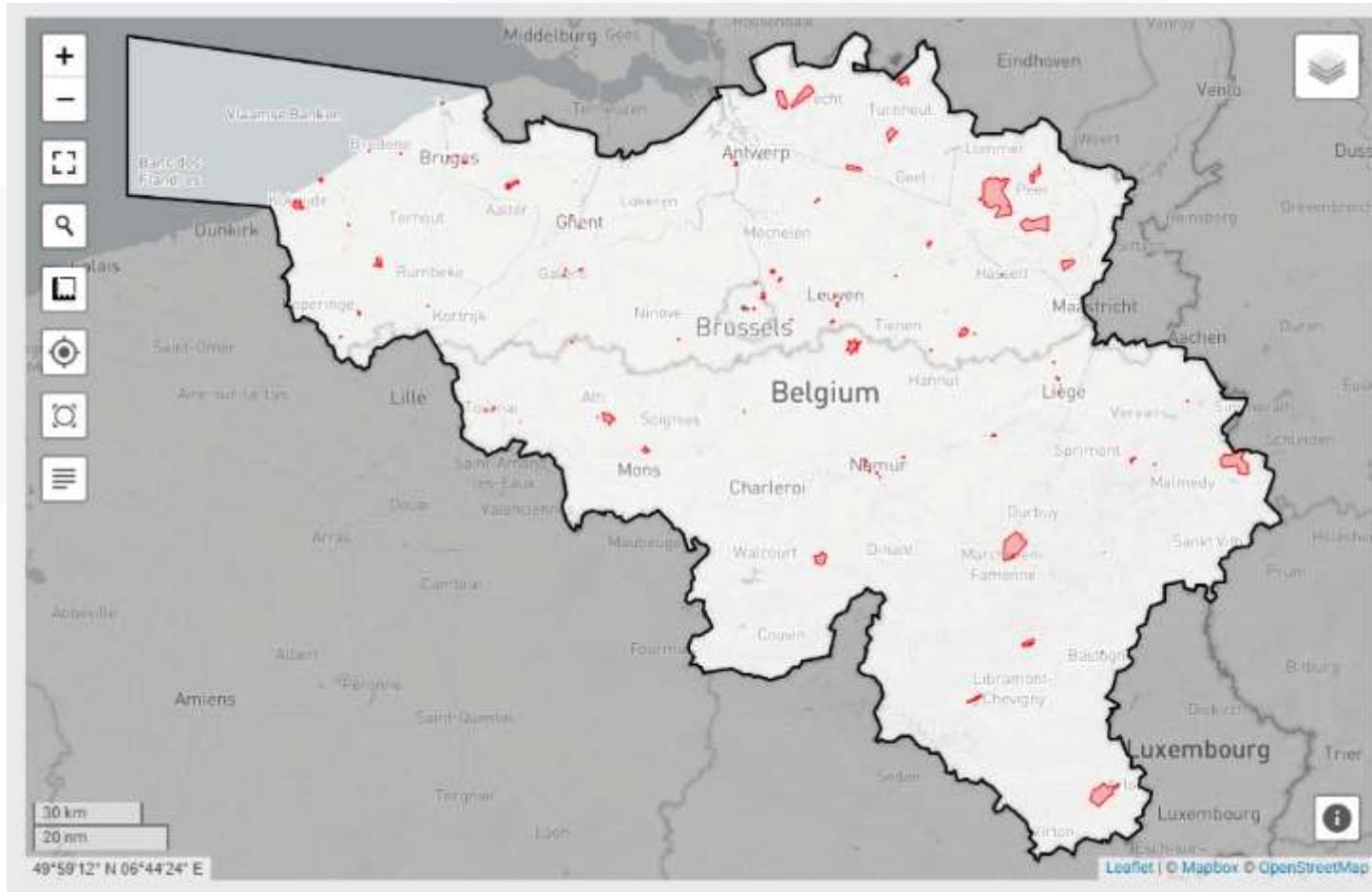
Reject of all flights above 35ft

Military Restricted areas



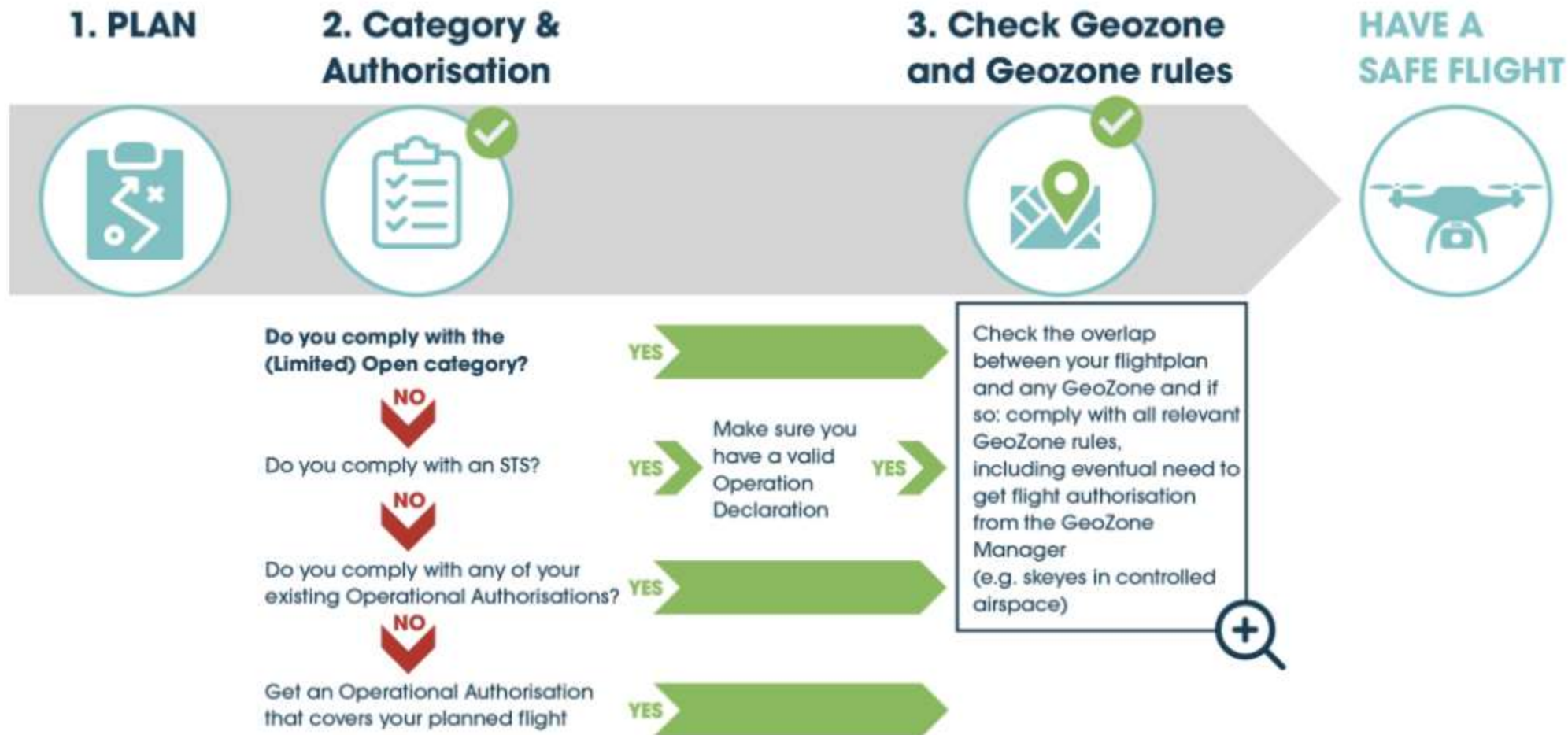
Approval review done by SPACC of all flights above 35ft or with drone of MTOM>900g

Military domains



Approval review done by SPACC for all flights

HAVE A SAFE FLIGHT



HAVE A SAFE FLIGHT

Check your position on :



map.droneguide.be

Check on that map which GeoZones overlap with your flightplan and list all of them in YOUR LIST of relevant GeoZones.

Check each relevant Geozone



For each GeoZone on YOUR LIST you will have to go and see who the GeoZone Manager is and what extra rules he imposes

Comply with EACH Geozone



Make sure you comply with all additional conditions for each zone (e.g. max flight height, drone requirements, ...)

GET ALL YOUR FLIGHT AUTHORISATIONS



Get all your authorisations from the different Geozone managers (if required)

6.3 All other geozones



Other GEO-ZONES

☒ Aero model domains

☒ Airports and heliports Only the CIV. Ones, excl. EBKT!

☒ CTR/RMZ

☒ Danger area All of them are military

☒ HTA All of them are military

☒ LFA All of them are military

☒ Military domains All of them are military

☒ Nuclear installations

☒ Prisons

☒ Restricted airspace Only the CIV. ones!

☒ Royal estates

☒ TMA/CTA Special case, all above 1500ft

☒ TSA/TRA All of them are military

Other GEO-ZONES: all require prior flight authorization by Geozone Mgr

- Model aircraft terrains
- Civ. uncontrolled aerodromes excl. EBKT
- Civ. Heliports excl. EBKT
- Nuclear installations: geo-awareness + direct remote ID obligation*
- Prisons: direct remote ID obligation*
- Civ. Restricted area's
 - Seaport (with additional access conditions)
 - UAS test facilities (with additional access conditions)
 - Brussels wider city area
- Royal estates

*: exemptions for Geo-awareness and Remote-ID requirements until 1/1/2024 for Open category flights with MTOM < 900g and Specific category flights