ESTONIAN AIR FORCE

Tapa Air-to-Ground Range

Range Regulation

Edition 1

Change 6

Effective Date: 21APR2022

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Record of Changes

Change Identification	Date inserted	Effective date	Inserted by
Chg 01	18MAY2015	01JUN2015	Espinho
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Chg 06	14APR2022	21APR2022	Espinho

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Table of Contents

Separate documents part of the Regulation:

Appendix A…….	Approved Attack Headings
Appendix B……..	Laser Survey Report
Appendix C…….	Range Control Team Check-lists (SOP)

NOTE: Appendix C will only be distributed on request

Chapter 1 - Overview and Range Description

1. **Scope -** This document provides information and establishes procedures for the safe usage of the Air-to-Ground Range in the Central Training Area (CTA).

2. **Reference Documents** - The reference documents for these Regulations are:

   a. AFMAN 13-212 Vol.1
   b. Kaisteväe Keskpolügooni Kasutuseeskiri
   c. AFI 11-214
   d. STANAG 7144 / ATP-3.3.2.1
   e. STANAG 3606 / ARSP-04
   f. STANAG 4495 / AEP-4495
   g. AFRL-RH-19-119367 2502 (Appendix B)
   h. AIP Estonia (eaip.eans.ee)
   i. FM 1-140
   j. LoA between EANS and EDF – Estonian Airspace Management at Levels 2 and 3
   k. Estonian National Technical Annex (NTA Estonia) – Military Flying Procedures in Estonian Airspace
   l. Aviation Regulation of the Estonian Defence Forces
   m. Õhuruumi korraldamise eeskiri Kaitseväes
   n. AMedP-1.11

   NOTE: References j, k and l are available at

   https://mil.ee/en/air_force/#t-military-aviation-publications

3. **Document and update responsibility**

   a. The entity responsible for this document is the Estonian Air Force A3/7. The entity responsible for the publication of the document is the Commander of Estonian Air Force.
   b. This document will be constantly revised to reflect updated data regarding new target location, new authorized patterns, aircraft and weapons. Changes (incl. addenda) will be produced by A3/7 and released upon the Order of the Commander of the Estonian Air Force.

4. **Acronyms**

   AGL – Above Ground Level
   AGR – Air-to-Ground Range – The range concerning this document.
   APC – Armoured Personnel Carrier
   APP – Approach Service. In this document, it refers to Tallinn APP
   BSA – Basic Surface Attack
   CAS – Close Air Support
   CTA – Estonian Defence Forces Central Training Area – Kaitseväe Keskpolügoon
   CP – Contact Point
   DB – Dive Bomb
   DCA – Dual-Capable Aircraft
   DPI or DMPI – Designated (Mean) Point of Impact

DZ – Drop Zone
EANS – Estonian Air Navigation Services
EDF – Estonian Defence Forces
ECM – Electronic Countermeasures
EOD – Explosive Ordnance Disposal
FAC – Forward Air Controller (Ground) – The same as JTAC
FAC-A – Forward Air Controller-Airborne
FIR – Flight Information Region
FL – Flight Level
FRA – First Run Attack
HADB – High Altitude Dive Bomb
HAR – High Angle Rockets
HARB – High Altitude Release Bomb
HAS – High-Angle Strafe
HATR – High Altitude Tactical Rockets
IAM – Inertially-Aided Munition
ID – Identification
ILS – Instrument Landing System
IP – Initial Point
IR – Infrared
JFO – Joint Fires Observer
JTAC – Joint Terminal Attack Controller
KIO – Knock-It-Off
LAHD – Low-Angle High-Drag
LALD – Low-Angle Low-Drag
LAR – Low Angle Rockets
LAS – Low-Angle Strafe
LAT – Low Altitude Toss
LATR – Low Altitude Tactical Rockets
LEP – Laser Eye Protection
LRS – Long Range Strafe
LRSS – Liaison Range Safety Specialist
LSDZ – Laser Safety Danger Zone
LSO – Laser Safety Officer
MSL – (Height above) Mean Sea Level
NM – Nautical Mile
NORDO – No Radio
NTA – National Technical Annex
NVD – Night Vision Device
OP – Observation Point
PID – Positive Identification
QNE – International Standard Atmosphere Pressure - 1013,25 hPa / 29.92 inHg / 760mmHg
QFE – Local atmospheric pressure
QNH – Local atmospheric pressure adjusted to Sea Level
RCO – Range Control Officer
RPA – Remotely Piloted Aircraft
SA – Situational Awareness
SAT – Surface Attack Tactics
SOP – Standard Operating Procedures
TACP – Tactical Air Control Party
TOCP – Time over Contact Point
TTP – Tactics, Techniques, and Procedures

TTS – Two Target Strafe
TWR – Aerodrome Control Service or RCO control tower
UAS/V – Unmanned Aerial System/Vehicle
UHF – Ultra-High Frequency
VHF – Very-High Frequency
WDZ – Weapons Danger Zone

5. Definitions

Attack Restriction – Ingress, ordnance delivery, or egress restrictions depending on situation, (such as, threats, weather, terrain, rules of engagement, etc.)

Hung Ordnance – Any item attached to the aircraft for the purpose of dropping or firing which has malfunctioned or failed to release. In addition, hung ordnance includes the following items: External fuel tanks after unsuccessful jettison attempt; Remaining ordnance after an inadvertent release; 20/30 mm ammunition after a gun malfunction (no fire, unplanned cease fire, runaway gun, or gun unsafe indication); any stores determined to be in an unsafe condition.

Inadvertent Release – Uncommanded fired or dropped ordnance. If commanding a single release, do not consider a double bomb release as an inadvertent release if the releases occur from a practice bomb dispenser.

Impact Area – The area on a range immediately surrounding a target or designated mean point of impact that is approved for the actual delivery of ordnance. Within this document, Impact Area means Target Area 2 (Sihtmärgiala 2).

Jettison – The selective release of stores from an aircraft for other than a normal attack.

Laser Safety Area – Areas within the CTA marked for the purpose of Laser Safety. These are wider than LSDZs.

Laser Surface Danger Zone – As identified in the laser certification process, that area on the surface where a class 3 or 4 laser injury potential may exist during laser operation.

Ordnance –

Boosted Munitions (forward firing): Munitions such as the guided missiles and unguided rockets, driven by propellant. These are also considered live munitions when they are equipped with an explosive or incendiary warhead.

Training:

Full-scale Inert: Concrete-filled or cast ductile iron bombs of the same size and weight of the Live Munition but containing no explosives, pyrotechnics, or chemical agents. E.g. BDU-50

Practice Bombs: Practice bombs may be full-scale or sub-scale. Practice bombs may have a smoke spotting charge or a small explosive charge. For the purpose of this document, “Practice Bombs” means sub-scale bombs. E.g. BDU-33

Target Practice (TP): Ball projectile gun ammunition that has no explosive in the projectile.

Live Munitions: Munitions containing a fuze and/or a high-explosive (HE) or incendiary warhead designed to detonate either prior to or upon impact. They can be bombs, missiles, rockets, bullets, etc.

Range Control Officer (RCO) – The person responsible for range operations and safety.

Release – The intentional separation of a free-fall aircraft store, from its suspension equipment, for purposes of employment of the store.

Unexpended Ordnance – Ordnance that is still onboard because no release was attempted.

Unintentional Release – Ordnance fired or dropped through pilot error.

Weapons Footprint – The ground and airspace for lateral and vertical containment of projectiles, fragments, debris, and components resulting from the firing, launching, and/or detonation of aviation delivered ordnance. These may be produced using the WDZ tool, the eHIAT software, or based on official information from the users.

6. Range Location

a. Tapa Air to Ground Range(AGR) is located within the EDF Central Training Area (CTA), in Kuusalu parish, Harju County, Estonia
b. The range is roughly in the middle of EED14, AMI VORTAC (115.300MHz; CH 100X) radial 073/048.
c. The coordinates for the Impact Area are 35V MF 330 820 / N 59º 22’ 17” E025º 49’ 16”
d. For planning purposes, these are the charts suggested to be used:
   (1). TPC (1:500.000) – D-3D (or Estonian VFR Chart edited by Estonian CAA)
   (2). 1:50.000 charts – O-35-16-CD, O-35-28-AB, O-35-17-CD, O-35-29-AB

7. Range Boundaries

a. The impact area of the AGR is depicted in Annex A and B with a thick blue line
b. The boundaries of the CTA are depicted in Annex A with a simple magenta line.
c. The boundaries of EED14 are depicted in Annexes A and B with the red edged line.
d. An additional (extended SDZ) marked around the boundaries of the CTA with dashed red line. This area may be active for ground weapons SDZs.

EED14 N 59 17 49 E025 46 28 – N 59 16 17 E025 55 27 – N 59 26 37 E025 53 50 – N 59 27 30 E025 43 13 – N 59 17 49 E025 46 28	<u>14700 FT MSL</u> SFC	Gunfiring. Activity notified by NOTAM. Information about activity can be received from Tallinn APP and ACC.

8. Airspace

a. The airspace associated with the Air to Ground Range is divided into 2 blocks. The lower block has 4 sectors and the upper block has 2 sectors.

Lower Block

EER15D 591633N 0261500E - 591639N 0255647E - 591614N 0254748E - 592104N 0254049E - 592119N 0253627E - 592412N 0253544E - 594716N 0255524E - 594421N 0261500E - 591633N 0261500E	FL95 SFC	Military air operations. Activity notified by NOTAM one day before (D-1) operations. Flight information about activity is available from Tallinn APP and Tallinn ACC. Flight by non-participating aircraft within/to/from the active area shall be pre-coordinated by pilot on the contacts given in NOTAM.
EER15E 591617N 0265703E - 591633N 0261500E - 594421N 0261500E - 594100N 0263727E - 593316N 0264925E - 593151N 0271520E - 592412N 0271450E - 591617N 0265703E		
EER15F 590730N 0253952E - 592119N 0253627E - 592104N 0254049E - 591614N 0254748E - 591639N 0255647E - 591633N 0261500E - 590730N 0261500E - 590730N 0253952E		
EER15G 591633N 0261500E - 591617N 0265703E - 590730N 0263755E - 590730N 0261500E - 591633N 0261500E		

Upper Block

EETSA15B 594716N 0255524E - 594421N 0261500E - 590730N 0261500E - 590730N 0253952E - 592412N 0253544E - 594716N 0255524E	FL305 FL95	Area managed by AMC. Military air operations. Time of ACT by AUP/UUP.
EETSA15C 594421N 0261500E - 594100N 0263727E - 593316N 0264925E - 593151N 0271520E - 592412N 0271450E - 590730N 0263755E - 590730N 0261500E - 594421N 0261500E		

NOTE:
Within this document, airspace may be referred as:
Only “TSA”, “R”, or “D”, meaning EETSAXX, EERXX or EEDXX;
“TSA15”, meaning EETSA15B and EETSA15C together or the relevant sector;
“R15”, meaning EER15D, E, F and G together or the relevant sector

b. For ease of planning, consider 2 sectors:
    a. Sector West consisting of TSA15B, R15D and R15F,
    b. Sector East consisting of TSA15C, R15E and R15G.
c. Normally, when the range is in use, both Restricted airspace (R) and Temporarily Segregate Airspace (TSA) of the same sector will be activated
d. Above FL95 (TSAs), the airspace is AMC manageable and allows tactical changes when civilian traffic flow permits. Below FL95 (Rs), the airspace is non-AMC manageable and requires a NOTAM 1 day prior. Last minute changes to the planned flight activity may not be possible. Changes to the planned activity in AMC manageable areas must follow AUP/UUP timelines.
e. The boundaries of R/TSA15 are depicted in Annex B:
    (1). R15D, R15F with lighter green line, and TSA15B with darker green line,
    (2). R15E, R15G with lighter magenta line, and TSA15C with darker magenta line.
f. Intended usage of the sectors is as follows: Sector West is for Dry and Hot operations in the AGR; Sector East is for dry operations only, or to increase the size of the airspace for operational reasons (e.g. Bomber orbit) or deconfliction.
g. The airspace is for military flight training, to include, but not limited to, air-to-ground operations and air-to-air training. This means the airspace, or portions of it, may be

unavailable and/or usage may need to be deconflicted by the Military Approved Agency or the Military Airspace Manager, iaw Reference j.

h. Usage of R/TSA15 for dry operations without an RCO is possible, but pilots will maintain clear from NOTAMed airspace (including D14). Further information is contained in Reference j.

i. In the scope of Air to Ground Operations, booking and activation of D14 is not required, with the condition that R15D is NOTAMed. D14 and R15 areas will be activated and deactivated by NOTAM.

9. Noise Sensitive Areas and other areas with overflight restrictions

a. Within Range Airspace, the following areas shall be avoided:
   (1). Sensitive Fauna Area F24 – SFC to 1000ft AMSL, from 01APR to 30NOV
   (2). Sensitive Fauna Area F9 – SFC to 1500ft AMSL, all year
   (3). D13 – SFC to 2400ft AMSL, when active
   (4). D8 – SFC to 2200ft AMSL, when active
   (5). TSA20 – SFC to 40500ft AMSL, when active

NOTE:
An Air-to-Surface Missile Range is being set up within TSA20 for a test period. Procedures of the Missile Range, including flying into TSA20 for the purpose of missile shooting training, are not in the scope of this regulation. Consult the RCO for guidance on procedures for the Missile Range.

b. The location of these areas is in Annex B

c. Aircrews and RCOs will check active NOTAMS before flight activity.

10. Targets - Information about the targets, ammo, events and procedures, is in Chapter 4.

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Chapter 2 - Responsibilities and Scheduling

1. Definitions

a. Region Manager – A person in charge of the sustainable management and safe use of training areas in their area. The CTA lies in the Northern Region.
b. Senior Safety Specialist – A person, appointed by the Regional Manager, who is responsible for the safety of the training area and the coordination of training events. In the absence of a Senior Safety Specialist, he/she will be replaced by a Safety Specialist of the Training Area.
c. Operating Agency – The Estonian Air Force.
d. Primary Users – Estonian Air Force Flight Squadrons and any unit deployed in Ämari Airbase.

2. Scheduling

a. Normal requests will be sent by email, no later than on the 10th day of the previous month, using the format in Annex C, to the following entities:

To: Estonian Air Force RCOs at rco@mil.ee
CC: CTA Senior Safety Specialist at kvkp@kaitseinvesteeringud.ee
Estonian Air Force A7 at kv.s.ov.a7@mil.ee

In case of Exercises and Training Events, the request and coordination will be done during the planning phase.

b. RCO, CTA and A3/7 will coordinate the usage of the range in the following format:
(1). RCO:
(a). Receives the booking request and gathers more information if required.
(b). Checks the amount of ground required for the event, to include weapons footprints.
(a). Books the grounds in the BRONTOS system and coordinates joint usage of the CTA with other users. EED14 will be booked and NOTAMed as per the information introduced in the BRONTOS system.
(c). Coordinates with the AGR user or with other CTA users for sentries to secure the perimeter of the area. If these are not available, informs A7.
(d). Requests the required airspace from the Airspace Planning Department in accordance with ref m. If required, deconflicts the simultaneous usage of R/TSA15 sectors with the other airspace users.
(e). Prepares a Shooting Order (in case of live fire) or Activity Order (in case of "dry" missions), IAW Appendix C, to be signed by the Chief of Staff of the Air Force.
(f). Prepares the administrative requirements for the event *inter alia*:
i. Vehicle Request
ii. Siselähetus esildis – to be done with information to the chief of A3/7

(2). CTA:
(a). Approves the booking of the range IAW own procedures.
(b). Coordinates the needs for firefighting and medical support IAW Ref. B.
(c). Sets up targets as needed after coordination with the A3/7 and RCO.
(d). Nominates a Liaison Range Safety Specialist to be present during hot operations.

(3). A3/7:
(a). Nominates at least 1 range controller (and at least 1 observer if the bombing circle is to be used). For events with higher traffic and hot operations, it is advisable to nominate 2 RCOs (one for monitoring aircraft deliveries and another for coordinations, HOTOs and check-in briefs). Crew rest will also be taken into account in defining the number of RCOs.
(b). In case there is an Exercise Support Order (or similar), adds the names of the Air Force personnel (RCOs, Observers, etc.) participating in the event.
(c). If required, organizes sentries to secure the area, based on the information from the RCO.

(4). Conflicting requests will be worked on between the the RCO and the other ground users. If an agreement that satisfies both parties cannot be reached, the RCO will pass the information to A7 who will pass it to J7. J7 will determine, based on the ChoD's yearly order, who has priority of usage.

(5). On the 15th of the previous month, the CTA will produce the scheduling for the next month, to be approved by the Northern Region Manager, IAW Reference B.

c. Usage of the airspace outside of D14 (for dry flying activity within R15/TSA15, without usage of the range) can be directly coordinated with the TACP (CAS) or CRC (other missions) and does not require coordination with the CTA. This does not waive restrictions imposed by the simultaneous usage of D14 by other users, i.e. restriction of flying inside D14 if active by NOTAM.

d. The AGR does not have fixed operating hours. As a guideline only, consider the following timings: from 10:00L to 18:00 (summer time) or from 1 hour after SR to SS (winter time). However, the total time per day between the beginning of the first slot and the end of the last slot shall not be more than 7 hours during winter or 8 hours during summer. Operations during more than 5 days in a row are to be approved on a case by case basis.

e. Slots – For planning purposes, the AGR operates 32 time slots, 45min each, starting at 00:00L and ending at 2400L. The same mission can use more than 1 slot at the time, subject to availability. A list of slots is depicted in Annex H.

f. Due to noise abatement, and in compliance with Estonian Law, activities of a noisy nature such as drop of live weapons, strafe and low level flying, is prohibited between 22:00L and 06:00L. The night preceding a day off (FRI, SAT and the night prior a bank holiday) the prohibition is between 00:00L and 07:00L

3. Weather information

a. Tapa Army Barracks is equipped with an AWOS station that relays the information to Ämari Airbase.

b. Units located at Ämari will get weather information regarding the AGR from Ämari Meteo for planning purposes.

c. Units not located at Ämari can access this information via phone +372 717 3413 or mobile phone +372 5340 5249.
d. The RCO will provide information of wind and altimeter setting using the information from Tapa AWOS, or from equipment in the main tower (if available).

4. EOD procedures

a. Regular range clearance operations will be done in accordance with CTA procedures.
b. In case ground personnel find any ordnance, it shall not be handled or removed. Personnel are to contact, during AGR activity, the RCO (who will pass the information to the CTA) or the CTA directly, IAW Ref. B.
c. In case of a dud, the following procedures are to be taken:
   (1). The aircrew will make a dry pass at a safe altitude to determine the location of the dud, and pass the information to the RCO.
   (2). The RCO will make a note in the Range Logbook. This will include the time, the type of weapon and the location.
   (3). This information will be given to the CTA ASAP. RCO and CTA will coordinate and determine the urgency. The RCO will have authority to either continue or cancel the remaining of flight activity before the dud is handled by EOD team, after consultation with the Flight Lead.
   (4). CTA will send an EOD team as coordinated with the RCO.
d. NOTE FOR GROUND PARTIES: It is prohibited to enter the UXO Area without EOR certification or without the presence of an EOR.

5. Fire Hazard and Firefighting

a. Fire Hazard Level is determined by the Estonian Weather Service, and can be checked online at http://www.ilmateenistus.ee/ilm/prognoosid/tuleohukaart/ or http://ilm.pri.ee/tuleohukaart.
b. The usage of certain type of weapons and devices will be restricted depending on the active Fire Hazard Level for the CTA area.
c. Annex D shows the several levels and associated needs and restrictions.
d. The CTA Senior Safety Specialist can waive restrictions on usage of certain weapons, on condition that adequate firefighting equipment is readily available.
e. Aircrews are responsible for passing information to the RCO regarding any fire within the CTA (inside AND outside of the AGR).
f. The LRSS (or the RCO, if LRSS is absent) is responsible to inform the CTA Senior Safety Specialist of any reported fires.
g. Extra personnel, located or not in the towers, can be scrambled for initial firefighting with the available equipment. Caution will be exercised in order not to expose these personnel to unnecessary risks. The prohibition to enter the UXO area also applies in case of fire.
h. Extra guidance for ground personnel can be found at Ref. B.

6. Environment protection

a. Ground personnel will observe the regulations stated in Ref. B regarding environment protection.
b. Aircrews will restrict their actions to the minimum needed for training, in order to minimize the environment impact in the area. Flight safety is still paramount.

7. Other responsibilities

a. Responsibilities of ground personnel, to include the RCO, TACPs, perimeter sentries and firefighting teams, not contained in this document will be found in Reference B.

Chapter 3 - Range Control Procedures

1. RCO Responsibilities

a. The RCO is responsible for controlling all flights using the range and all aircraft (including UAS) using active Range airspace. The RCO will monitor all aircraft on Range for safe performance of the mission. During FAC/JTAC or FAC-A controlled operations, the RCO will act as a safety observer, and will hold abort authority.

b. The RCO is responsible for monitoring range weather. Weather minima for weapons release will be, during day, 1500ft AGL ceiling and 5 Km visibility, and during night 3000ft ceiling and 8 Km visibility. If weather does not meet minima, flights may use the range for dry operations above Minimum Safe Altitude, at the RCO's discretion. Lower weather minima can be allowed for helicopter, airdrop and Special Operations, with prior briefing between the RCO and the using agency. This will be 800ftAGL ceiling and 3 Km visibility. Aircraft will keep at least 300ft separation from cloud base.

c. The RCO is responsible for monitoring communication systems and suspending Range operations when air-to-ground communication is lost.

d. The RCO is responsible for executing the Normal Operations and Contingency Operations Checklists (as per Appendix C).

e. The RCO is responsible for suspending range operations in the event of a helicopter MEDEVAC or Firefighting missions when requested by CTA.

2. RCO Certification - Personnel qualified to perform RCO duties will:

a. Have an aviation background. Pilots, Air Traffic Controllers, Fighter Controllers.

b. Attend Tapa AGR RCO training. The Tapa RCO training program defines the several subjects that an RCO must be familiar with, understand and/or be proficient, and includes:

(1). Academics – The student is to be familiar with the reference documents, and with this Regulation.

(2). Checklists – The student is to be familiar and employ the checklists in Appendix C

(3). Laser Safety – The student is to understand issues related with Laser Safety, and understand the range restrictions for Laser operations.

(4). Receive EOD safety and munitions recognition brief.

(5). Scheduling – The student is to be proficient in the scheduling process, become a user of BRONTOS, and be proficient in the coordination with the CTA.

(6). Airspace coordination – The student will be able to book required airspace within the time limits.

(7). Conventional Profiles – The student is to be familiar with the conventional patterns, to include headings, altitude and attitudes for the different deliveries. He is also required to be able to assess visually if the aircraft is compliant.

(8). CAS Operations – The student is to be familiar with operations with a TACP and/or FAC-A.

For more detailed information, see the Tapa RCO Training Program.

c. Demonstrate to the satisfaction of a qualified RCO, the capability to schedule, coordinate and conduct range operations in a safe and professional manner.

d. To maintain the qualification, an RCO must perform RCO duties once within the last 12 months. If more than 12 months pass, the RCO is deemed unqualified and needs to attend RCO training again.
e. "Exercise RCOs" are foreign military personnel, with RCO qualification and experience, who perform the duties of RCO during events and exercises. Prior controlling at Tapa AGR, they shall receive a briefing with the procedures relevant to the amount of control they are authorized to do, and shall be supervised by an Estonian RCO until they are deemed proficient. Exercise RCO can control only aircraft related with the exercise, and it is not foreseen they would coordinate or control airspace, except if instructed to do so.

3. RCO Operations:

a. The RCO will participate in the Team Briefing to be held 2 hours prior the first flight of the day.
b. The RCO will arrive at the tower at least 60 minutes prior to the first scheduled mission. This may be shortened to 30 min in case preparation of the tower and targets is minimal.
c. The RCO will ensure (the day before, if possible) that the range is set up.
d. The RCO will ensure the range is clear of unauthorized personnel and vehicles.
e. The RCO will ensure a weather measurement is taken if ceiling or visibility is estimated below 5000' AGL or 10 Km visibility.
f. The RCO will check communications systems.
g. The RCO will ensure CTA is informed, in local time, when the AGR is going hot and again upon ceasing operations. A munitions expenditure report will also be relayed to Range Control with the "range cold" call.
h. The RCO will determine the Fire Danger Condition and firing status of the other ranges during the Team Brief. Any extra restrictions will be issued by the CTA Senior Safety Specialist at this time (provision of firefighting teams and fire trucks shall be considered and coordinated the day prior).
i. The RCO will ensure compliance with the published Range schedule. Extension of Range periods will not be approved without concurrence of both the Leader of the flight scheduled for the next slot, the RCO and the LRSS.
j. The normal status for the AGR is Class A Range operations (IAW Ref. A). The RCO will monitor each pilot's pattern, delivery angle and recovery altitude to ensure safety for both the flight and Range crewmembers. For HARB events where visual contact with aircraft from the ground cannot be monitored, the RCO may pass release authority to Flight Lead. It is still the responsibility of the RCO to ensure proper targets and run in restrictions are briefed. Each pilot will report **"In Hot" with heading** prior receiving a clearance from the RCO, even during operations other-than CAS.
k. The AGR may provide Class C service, provided that the aircraft do not employ any type of weapon, do not fly into an active D14 and deconfliction between ground and air is not required. In such cases, the RCO will be in a position where he has radar picture and all communications means to coordinate airspace and contact the aircraft. LRSS is not required in these cases.

l. The RCO will provide clearance to expend ordnance to each flight member on each pass, except when control of the Range has been transferred to a FAC/JTAC or Flight Lead. An RCO may opt to provide "flight clearance" for each pass, as long as safety is assured.
m. During FAC/JTAC or flight lead control of a flight, the RCO will act as a safety observer. The RCO maintains overall control of the Range and abort authority even when the flight is under FAC/JTAC or flight lead control. FAC/JTAC control of the flight will be terminated at mission completion, at the end of the scheduled Range period, or if, in the RCO's judgment, an unsafe operation is being conducted.
n. The RCO will issue advisories, gross errors, and fouls to aircrews and FAC/JTAC in accordance with applicable directives and analysis of tactical feasibility.
o. The RCO will suspend Range operations when:
   (1). The weather is below minimums published in 1.b. of this chapter.
   (2). Two way radio contact is lost.
   (3). Personnel, equipment, or vehicles are observed in the Range complex.
   (4). An aircraft is down in the CTA complex.
   (5). A MEDEVAC operation is in progress.
   (6). Conditions exist which may have a bearing on the safe operation of the Range.

4. CTA Liaison Range Safety Specialist (LRSS) Qualification. To be able to integrate the AGR control team, the LRSS must:

a. Have been working in the CTA for a minimum of two years,
b. Be familiar with the AGR Regulation and Checklists,
c. Have knowledge of the type of weapons used in the AGR.

5. CTA LRSS Responsibilities:

a. The CTA LRSS is responsible to assist the RCO in maintaining situational awareness of the activities in the CTA, and in control of the AGR as described in the check-lists.
b. The CTA LRSS is responsible for all members of the Range crew assigned to the Range under his direct supervision. These include sentries, firefighters, and other personnel. It does not include TACP personnel on the ground (not in tower). Additionally, the CTA LRSS is responsible for all aspects of maintenance of the AGR facilities and set up of targets, unless otherwise assigned by the CTA Senior Safety Specialist.
c. The CTA LRSS is also responsible to provide the RCO with information regarding the usage of other ranges within the CTA, helping the RCO to have situational awareness.
d. The CTA LRSS will monitor the fire-fighting status of range equipment and personnel, and will assist the RCO in determining the correct condition and restrictions.
e. During fire-fighting operations, the CTA LRSS should assist the RCO from the tower with command and control functions, unless acting as part of the fire-fighting crew.

6. Flight Safety

a. The RCO and Flight Lead are charged with the safe and prudent operation of aircraft on the Range.
b. At no time will any aircrew member using the Range circumvent published procedures.

c. It is the responsibility of each pilot/crew member to ensure proper delivery techniques are employed, safe recovery altitudes are maintained and to ensure they have properly identified the target prior to the release of any munitions.

d. Only personnel involved in the control of the AGR is to be in the cabin of the Main Tower during air activity. For the purposes of this paragraph, “Air Activity” starts with the first phone call regarding aircraft information, handover or airspace coordination and ends when the airspace is de-activated.

e. Fatigue management. As a principle, all activities performed by an RCO, including driving from and to his/her normal working place or place of rest, briefings, target check, etc., are considered as operation related ground activities, IAW Ref n. Scheduling of RCO personnel shall take into consideration a minimum off-duty time of 11 hours per 24 hours, to include a minimum of 8 hours of sleep. The limitations of maximum total time per day stated in Chapter 2, para 2.d. assume 1 RCO only. For extended usage beyond these limitations, operations shall be conducted by 2 or more RCOs in a phased way. The factors considered in the limitations imposed include climatic, environmental and circadian conditions, operating conditions on the tower and the demand of the RCO in performing his/her tasks (procedural control, range and flight safety considerations).

7. Range Emergency Procedures:

a. Safety is the primary consideration in all aspects of Range operations. The RCO will make every effort to ensure the safety of range personnel and aircraft utilizing the Range. The RCO is responsible for reporting hazards or incidents to the appropriate agencies. Due to the multitude of emergency situations which could arise, this regulation cannot possibly cover all emergency contingencies. The best judgment of the RCO must be exercised to handle any emergency in a timely and professional manner. In the event of an abnormal situation, the RCO will execute the proper check-list from the AGR SOP. The RCO is the on-scene commander and will remain so until relieved by another competent authority.

Chapter 4 - Flight Procedures

1. Coordination

a. For EER15 airspace booking purposes, users must confirm the airspace requests 3 working days in advance. Typically, the unit will send a weekly schedule NLT Thursday of the week prior operations.
b. Users must confirm the usage of the airspace and usage of the range the day prior. The RCO should receive from the unit the information as formatted in Annex I.
c. In case of BSA or similar training, the Lead will contact the RCO previously with the set-up of events and weapons to be used. If the Lead fails to contact the RCO previously, the information shall be passed on check-in.

2. Weather minima

a. The RCO will not permit weapon deliveries when the weather is determined to be below the following minima:
   (1). Day weather minima -1500ft AGL, 5 Km visibility
   (2). Night weather minima – 3000ft AGL, 8 Km visibility
   (3). Helicopters, Airdrop and SpecOps – 800ft AGL, 3 Km visibility
b. Weather below minima does not preclude the RCO clearing flights to do training above weather.

3. Communications

a. The RCO callsign is “MUDPIT”
b. Range control Frequencies:
   (1). Check-in/Traffic – 119,025MHz
   (2). Strike – 280,225MHz
   (3). Back-up – 122,250MHz (not monitored)
c. Video Downlink (C band)
   (1). 4580,0MHz;
   (2). 4680,0MHz
   (3). 4870,0MHz
   (4). ESTAF aircraft can use their assigned S Band frequencies

4. Airspace, Range Entry

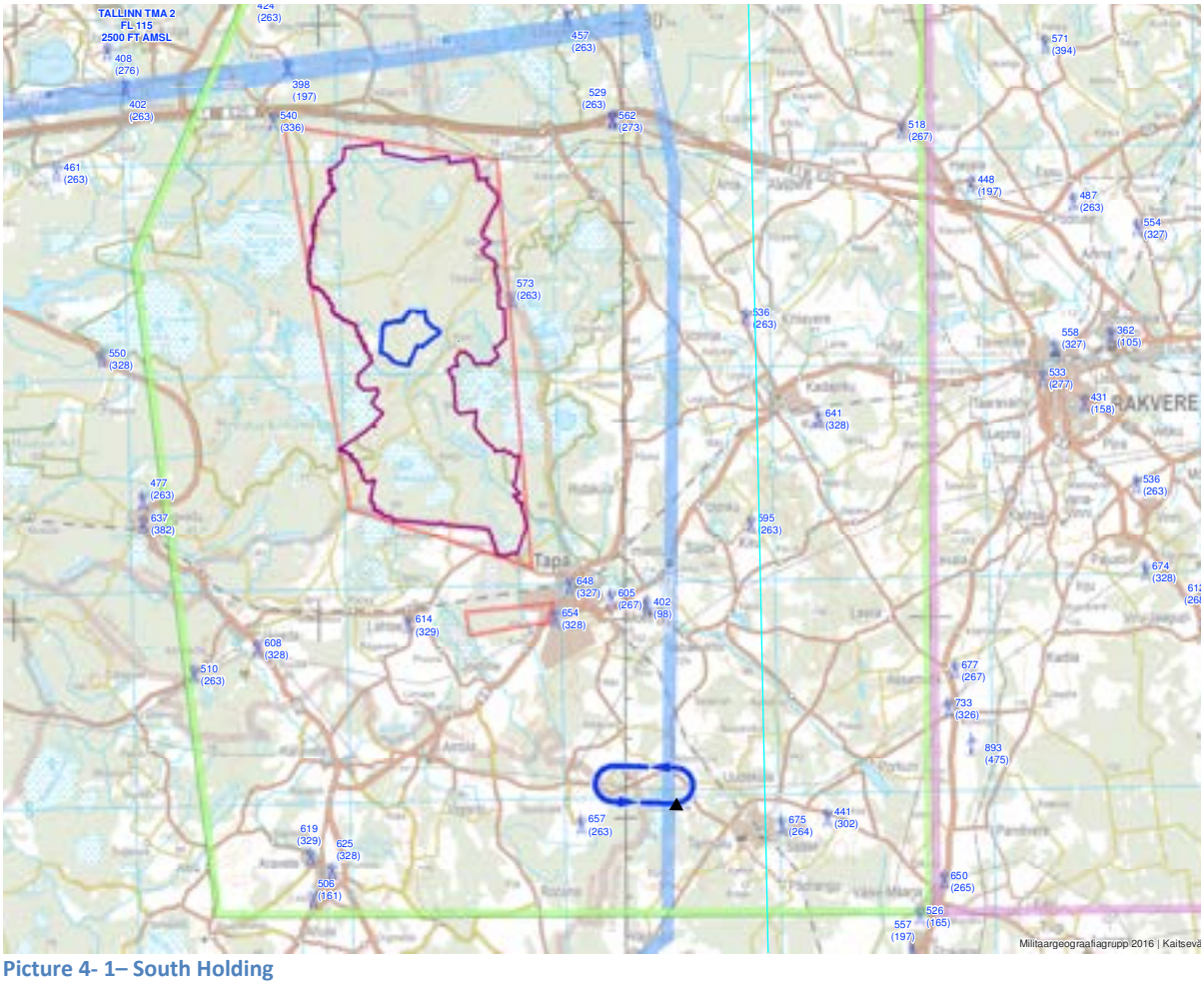
a. Range Airspace is described in Chapter 1, para 8.
b. Routing to the range will be at the unit’s discretion. Aircraft will enter and exit the range via CPs (see Annex F):
   (1). CP 2 is used as default entry point.
   (2). CP 4 is used to access directly Sector East for deconfliction, or when inbound from the southeast
   (3). CP 5 will be used for low level entries into R15D if R15F is unavailable
c. Entry altitudes/FL will be agreed between MUDPIT and ATC or CRC.
d. Only aircraft that are scheduled, or for which there is a previous coordination, will be allowed to enter the range. The RCO has the rights to deny entry of unscheduled flights.

e. When a flight makes radio contact, the lead shall provide the following information to the RCO:
   (1). Callsign
   (2). Number and type of aircraft
   (3). Weapons load (real)
   (4). Position and altitude
   (5). Time to CP

f. the RCO will transmit the following when clearing the flight onto the range:
   (1). Altimeter setting,
   (2). Surface winds, visibility, sky condition and significant weather,
   (3). Fire Condition,
   (4). Bird Condition,
   (5). Active airspace (R/TSA15 vertical limits, D13 and D8),
   (6). Reported traffic,
   (7). Any other restriction.

g. Aircraft will only enter R/TSA15 after being cleared by the RCO via radio, and will hold over Contact Point (G airspace) or as directed by the RCO until cleared to proceed to D14.

h. The RCO may push aircraft to hold either in Sector East (TSA15C, R15E/G), or in the South holding in Sector West (TSA15B, R15D/F).



Picture 4- 1– South Holding

(1). South Holding
(a). Holding point set at N59º 10’ 20” E026º 02’ 30”
(b). Left hand standard rate turns (3º/s)
(c). Outbound leg 260ºMag
(2). Altitude will be coordinated. FL95-FL105 block shall be reserved for RPAs when required.
(3). Aircraft established on South Holding shall:
(a). Take care not to bust airspace to the South and to the West. Inbound leg track is parallel to the south airspace boundary with ca 2 NM separation.
(b). Not cross North of 59º 14’ 00” line. Visually it equates to Tapa airfield.

5. Range Departure

a. Previous departure coordination must be done by the RCO or the flight lead. The RCO will check with the flight lead if coordination has been done 10 min prior departure. If not, flight lead should provide departure intentions:
(1). Call Sign,
(2). Number and type of aircraft (if different from frag),
(3). Flight rules (VFR/IFR)
(4). Departure CP,
(5). Departure altitude/FL,
(6). Time over CP,
(7). Destination or next point in route (intentions after CP).
The RCO will coordinate with the appropriate entity and give back to the flight the ATC clearance and range airspace exiting instructions.

NOTE:
In case the clearance expires before exiting, the aircrew shall receive a new clearance from Civil ATC before exiting Range Airspace into controlled Airspace.

Exiting into controlled airspace without ATC clearance is a violation of airspace

b. Prior to exit, armament safety checks will be accomplished and transmitted to the RCO by all flight members.
c. Range departure should be done through CP2 (primary) or CP4. CP5 can be requested for flights inbound EETN/Tallinn.
d. Range departure for aircraft with hung ordnance should be done via CP1 if the aircrew decides to take a route over the sea. A Minimum Risk Route different from the one established in this regulation shall be made available to the RCO.
e. Altitudes/FL for exiting will be indicated by the RCO after coordination with ATC or CRC. Aircraft are to comply with the altitude/FL provided in the departure instructions and be established prior departing airspace.
f. If the RCO provides a Flight Level with the departure instructions, aircrews are to reset altimeter to 1013,25 hPa (29,92 inHg or 760 mmHg) during the climb, making sure deconfliction with other flights is guaranteed. Transition altitude is 5000 ft.

g. Aircraft shall contact the next controlling unit (ATC or CRC) and get clearance prior leaving the airspace

6. Targets

a. There are several targets within the A/G Range to use with different weapons. The table below has a description of the targets, their location and weapons associated.
b. Other targets can be set up, on request, for dry operations only.
c. The weapon information stated in the table below is a general indication for the existing targets. The allowed sets of aircraft/event/weapon are those stated in Appendix A
d. Any deviance from the current publication will have to be requested and coordinated previously with the Range, and safety footprints need to be delivered to, and approved by the Range.

Tgt #	Name	Construction	MGRS (35V)	LatLong (DDMMSS.ss)	Elev (ft)	Intended Weapons
1	Bombing Circle	Dirt floor. Orange mesh makes the circles.	MF 33386 82148	N592221.99 E0254940.08	281	Practice Bombs
2	APC	Scrapped vehicle	MF 32900 81953	N592215.41 E0254909.52	285	Live and inert full-scale bombs, Practice Bombs, Strafe, Rockets
3A	Village	Single Conex	MF 33350 81957	N592215.79 E0254938.41	294	Practice bombs, Inert full scale, Inert/WP Rockets
3B		Single Conex	MF 33328 81839	N592211.95 E0254936.76	290	
3C		Single Conex	MF 33205 81776	N592209.85 E0254929.06	290	
3D		Single Conex	MF 33162 81951	N592215.49 E0254926.10	272	
3E		2 Conex, T-shape	MF 33326 81923	N592214.67 E0254936.55	290	Practice Bombs, Inert full scale, inert rockets
3F		2 Conex, L-shape	MF 33288 81944	N592215.34 E0254934.11	282	
3G		2 Conex, T-shape	MF 33287 81897	N592213.82 E0254934.09	292	
3H		Single Conex	MF 33258 81869	N592212.90 E0254932.26	282	
3I		Concrete Bunkers	MF 33334 81901	N592213.96 E0254937.48	285	Practice bombs, Strafe
3J			MF 33331 81892	N592213.68 E0254936.88	283	
3K		Scrapped vehicle	MF 33184 81770	N592209.65 E0254927.68	289	
3L		Scrapped vehicle	MF 33300 81939	N592215.19 E0254934.86	282	
4A	Convoy South	Scrapped vehicles	MF 33752 81491	N592200.94 E0255003.98	278	Practice Bombs, Inert full scale
4B			MF 33722 81476	N592200.44 E0255002.09	279	
4C			MF 33691 81462	N592159.97 E0255000.13	280	Practice bombs, Strafe, Rockets
4D			MF 33687 81431	N592158.98 E0254959.93	279	
5A	Convoy North	Scrapped Vehicles	MF 33435 82096	N592220.33 E0254943.27	281	Practice bombs, Strafe
5B			MF 33455 82104	N592220.61 E0254944.52	281	
5C			MF 33479 82129	N592221.42 E0254946.00	278	
5D			MF 33495 82151	N592222.13 E0254947.00	277	
6	Bomb Shelter	Underground Shelter	MF 33071 82085	N592219.77 E0254920.23	275	Live and inert full-scale bombs, Practice Bombs, Strafe, Rockets
7	SA-9	Scraped Vehicle	MF 33447 82044	N592218.66 E0254944.06	288	DRY TARGET

NOTE 1: Coordinates and elevations are CAT 1. Elevation Datum EH2000 Note 2: The target maps in Annex F may show a mismatch between the coordinates and the physical targets. In these situations, the RCO will assess the risk and may restrict or authorize the engagement of these targets.

7. Weapons characteristics:

a. All live bombs are to be equipped with Contact Fusing.
b. Strafing will be done using Target Practice rounds (or equivalent inert)[1].
c. Bomb deliveries through the weather are approved only for Bomber operations, with the following conditions:
   (1). Coordinates to be used are the ones in the table above or, with approval from the RCO, coordinates previously generated in visual conditions by a TGP capable of generating Cat 2 coordinates or better.
   (2). Unguided inert full-scale, on targets 2, 3, and 6.
   (3). Unguided inert sub-scale, on targets 1, 2, 3, 5 and 6.
   (4). GPS/INS Guided bombs not approved.
   (5). Dropping an LGB for late guidance is not approved.

8. Towers

a. The range is equipped with two towers. In normal operations, the East tower is the Main and the West tower is the flank. The tower cabins are painted with a yellow and black checker pattern, and have a flashing red light on top. The red light is only lit during night time.
b. Aircraft **shall not** point to or overfly any of the towers, especially during attack runs. Show of Force and similar activities require approval from the RCO.
c. Tower coordinates:

Main Tower (East)	35V MF 34628 81935	N 59 22 15.81 E025 50 58.95
Flank Tower (West)	35V MF 31678 81027	N 59 21 44.77 E025 47 53.19

9. Switchology

a. All switches will be Safe:
   (1). Enroute
   (2). While outside D14
   (3). All the time during dry ops
b. Switches can be Hot only when inside D14, on final, while on an attack run with delivery intentions. It is acceptable that switches are Hot outside D14 just prior turning to final, and at all times while in the primary or secondary conventional patterns, as long as the RCO is previously informed of unit's national restrictions.

[1] Live rounds can be used against targets set at sea, with a minimum of 3 months prior notice, and subject to approval.

c. During bomber operations, switches will be safe until a drop solution that guarantees impact of weapons in the target area has been acquired. Once weapons are away, switches shall be turned safe again.
d. For AC-130 operations, switches will be safe until established in the firing orbit. In addition, switches will be safe during the flight through the no-fire fans within the orbit.
e. See para 17. f. below for switchology for door gunner operations

10. Foul Criteria

a. The RCO will assess a foul for any of the following reasons:
   (1). Violation of Flight or Range safety.
   (2). An unintentional double-firing burst or strafing beyond the foul line.
   (3). Lazy recoveries from LAS/LRS/TTS pass resulting in the aircraft descending below 75 feet.
   (4). Aircraft expending on the wrong target. (With live weapons, it will be considered a Gross Foul)
   (5). Aircraft expending ordnance without clearance.
b. The RCO and/or the Flight Lead will direct any aircraft receiving two fouls, a gross foul, executing a dangerous pass, or creating a disruptive environment, to safe their switches and either hold high and dry or depart the range. The decision to hold or depart will be based upon the desires of the Flight Lead and situation precipitating the removal of the flight member.
c. The RCO will also issue advisories, fouls and gross fouls to JTACs when their actions go against RCO instructions, Range Regulations or is Flight or Range Safety is violated.

11. Weapons Release

a. The RCO is the clearance authority for A/G weapons within the Range.
b. Authority can be handed over to a TACP, FAC-A or the Flight Leader, at the RCO's discretion. The RCO still holds abort authority and can retake clearance authority at any time.
c. Each pilot will report **"In Hot" with heading** prior receiving a clearance from the RCO or FAC/JTAC, even during operations other-than CAS.
d. The terms used will be:
   (1). **"CLEARED HOT"** – Aircraft on final is authorized to release weapons. This will only happen once the RCO/TACP/FAC-A is satisfied with the attitude of the aircraft and after the pilot called a "CONTACT TARGET/TALLY TARGET" (except for bomber operations, where clearance will be given after the "1 min to release" call)
   (2). **"CONTINUE DRY"** – Aircraft on final is authorized to continue with the simulated attack. Under no circumstances will an aircraft deploy any weapon after a CONTINUE DRY.
   (3). **"ABORT ABORT ABORT"** – Aircraft on final will abort the attack (either real or simulated). Even if an abort code was previously established, an abort call without the code will be valid and aircraft will comply.

(4). **"CONTINUE"** – Continue with present action or manoeuvre. Does not imply authorization to pickle.

(5). **"(C/S) KNOCK-IT-OFF KNOCK-IT-OFF KNOCK-IT-OFF"** – All aircraft will cease the current activity due to safety concerns. All aircraft and the RCO will confirm individually the KIO call. Once the situation has been solved, activity may restart.

12. Flares and Chaff

a. Chaff release is prohibited in all range airspace.

b. Usage of flares, both self-defence and illumination, is allowed, but requires prior approval from the RCO.

c. Flares are to be released **only** inside EED14, if possible over the impact area.

d. The minimum altitude of flare release will depend on the Fire Hazard Level. Refer to Annex D. The RCO may add additional restrictions.

13. Conventional Range Procedures

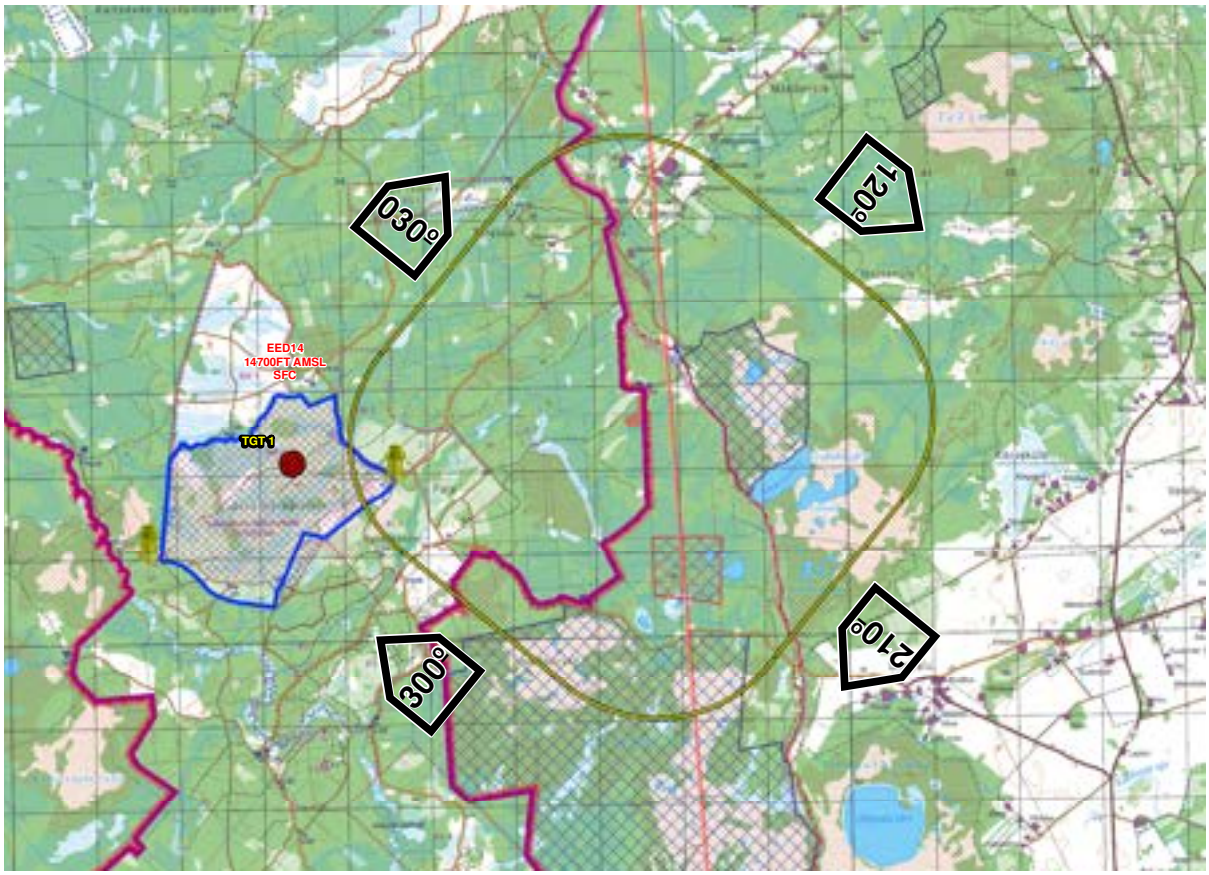
Aircraft	Weapon	Primary		Secondary	
F-16	BDU-33	Tgt 1	300º +/- 10º	Tgt 1	190º +/- 10º
	20mm TP	Tgts 4, 5[2]	300º +/- 10º	Tgts 4, 5[2]	190º +/- 10º
	Mk-82, BDU-50[3]	Tgt 2	310º +/- 10º	Tgt 2	160º +/- 10º
Typhoon	27mm FAP only	Tgt 4, 5A, 5B[2]	300º +/- 10º	Tgt 5[2]	190º +/- 10º
	27mm TP (RMTK)	Tgt 5	300º +/- 10º	NIL	NIL
	GBU-16 Inert	Tgt2 (high)	145º +/- 10º	NIL	NIL
		Tgt2 (low), Tgt 3 Tgt4 (low), Tgt 6	140º +/- 10º	NIL	NIL
Tornado	27mm TP (RMTK)	Tgt 5	300º +/- 10º	NIL	NIL
	BDU-33 / DM38	Tgt 1[4]	300º +/- 10º	Tgt 1[45]	190º +/- 10º
	Mk106 / DM18s/28	Tgt 1	300º +/- 10º	Tgt 1	190º +/- 10º
	GBU-16 Inert	Tgt2 (high)	145º +/- 10º	NIL	NIL
		Tgt2 (low), Tgt 3 Tgt4 (low), Tgt 6	140º +/- 10º	NIL	NIL
Hawk	3 Kg PB	Tgt 1	300º +/- 10º	Tgt 1	190º +/- 10º
A-10	30mm TP	Tgts 4, 5[2]	300º +/- 10º	Tgt 5	190º +/- 10º
	BDU-33	Tgt 1	300º +/- 10º	Tgt 1	190º +/- 10º
Su-22	LBOB-100	Tgt 2	300º +/- 10º	NIL	NIL
	30mm TP	Tgt 3A,B,I,J	320º +/- 10º	NIL	NIL

[2] The RCO will brief the target in force

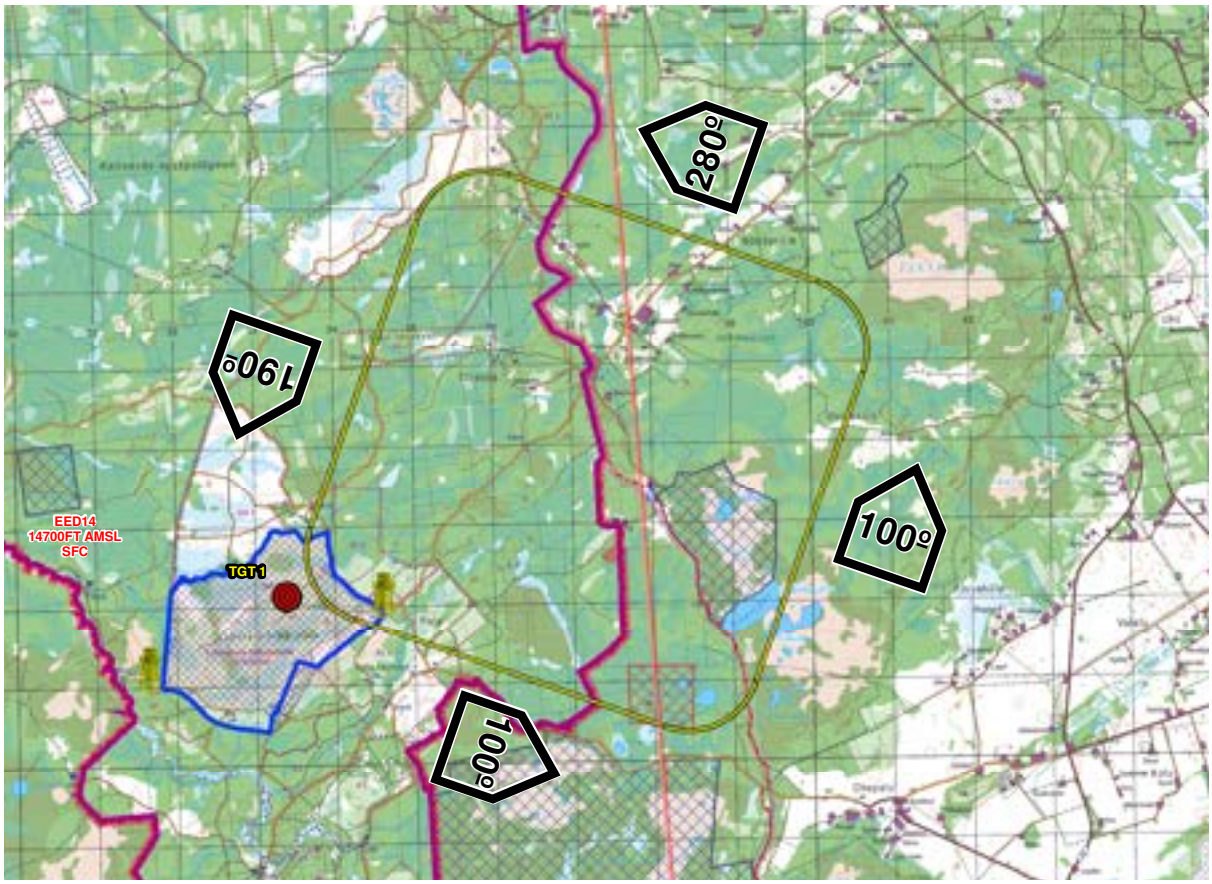
[3] Not available for LOFT

[4] Not available for LOFT (DEU004)

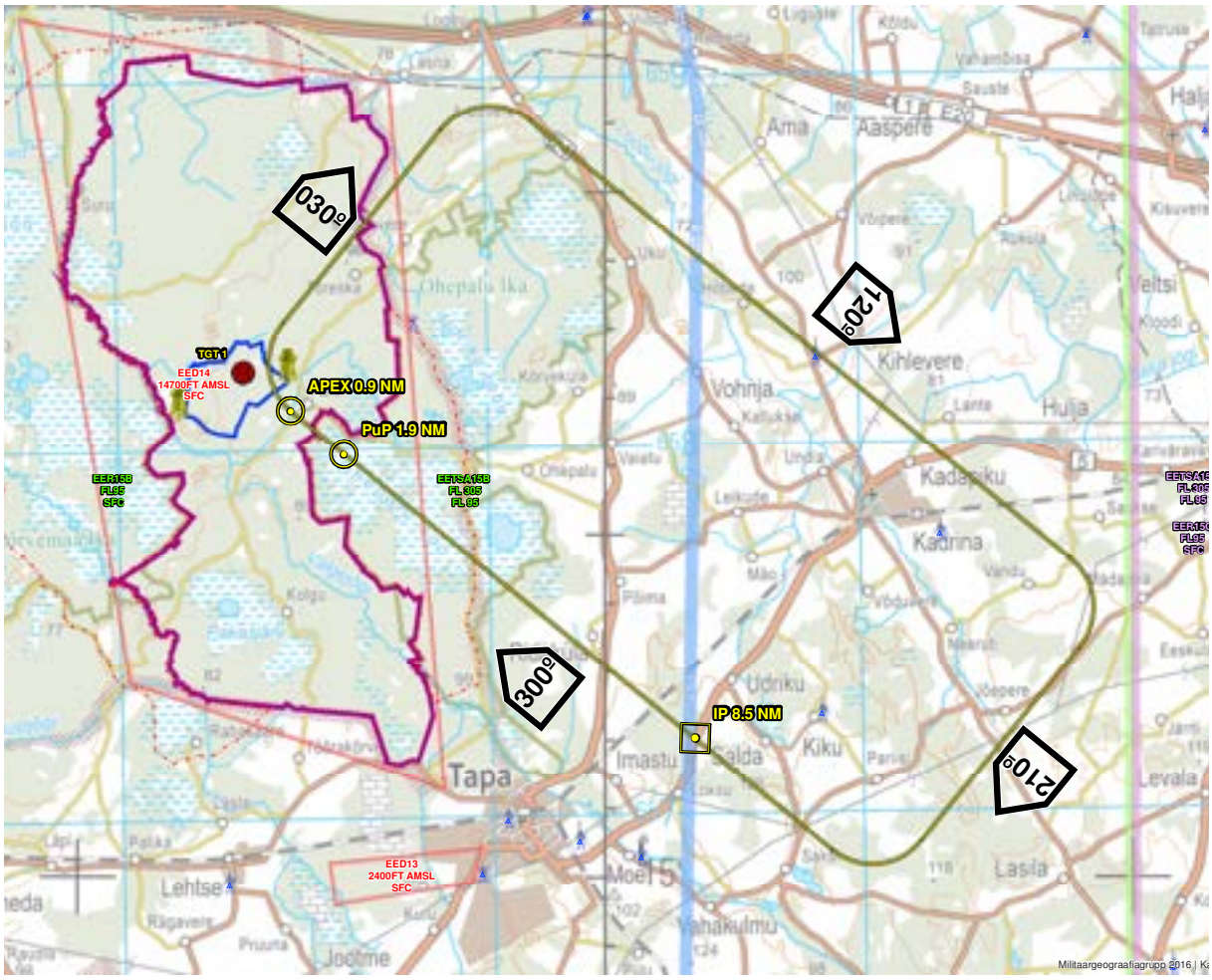
[5] Not available for HARB (DEU009/4) and Mini-LOFT (DEU005)



Picture 4- 2 - Primary Pattern (Generic)



Picture 4- 3 - Secondary Pattern (Generic)



Picture 4- 4 - F-16 DCA pattern

Flights will adapt the patterns to the flight characteristics of their aircraft, mentioning such fact to the RCO prior the flights.

Conventional patterns not listed above, for weapons approved in Appendix A, can be previously coordinated with the RCO.

When approved, flights can use “GBU patterns” for guided ordnance, typically LGBs. A wide pattern and a narrow pattern are established:

Wide – Final leg is a “straight-in with turn”. It starts at IP Angry heading 190º and bends left to heading 140º.

Narrow – Standard box pattern, final 140º

Flights are to inform the RCO which pattern they prefer to use. Note that the wide pattern takes about 10 min to fly.

Do not overshoot the turns to final due to proximity of airspace boundary. For reference, the 190º leg on the wide pattern is 2 NM from the boudary

Picture 4- 5 – GBU pattern

14. Tactical Range Procedures

a. The restricted run-in headings, specific ordnance and deliveries are listed in Appendix A.
b. The RCO may impose additional restrictions and/or reduced run-in headings for specific events.
c. Refer to Annex E for IPs used for operations in the range.
d. The RCO (or the TACP/FAC-A who has clearance authority delegated by the RCO) will provide clearance to expend ordnance to each flight member on each individual pass. Aircraft with weapons aboard will have “switches safe” when departing D14. This includes manoeuvring for a second pass. Refer to point 9. b. of this chapter.

15. Close Air Support

a. The presence of an FAC/JTAC shall be requested in the request form in annex C on "Additional/Remarks" field. Coordination between the TACP and the unit will be done afterward.
b. CAS operations shall be done IAW ATP-3.3.2.1 or JPub 3-09.3.
c. FAC/JTAC shall keep live deliveries within footprint restrictions or other restrictions imposed by the RCO.
d. Whenever possible, strafe runs shall be Type 1 controls.
e. Type 3 controls shall be only dry.
f. Aircrews are to check-in and check-out with Mudpit prior entry/exit the airspace.
g. TACPs shall operate using the frequencies of the Range.
h. FAC/JTACs shall request weapons by their identification (i.e. "Mk-82", "BDU-33", "30mm", etc.) and **shall not use** the terms "Bomb" and "Gun" while coordinating the attack runs with the aircraft.
i. FAC/JTACs will receive a Range brief prior controlling. This brief is constantly updated. FAC/JTACs must ensure they have the latest information.

NOTE:
The Range Brief provided to TACPs may contain additional rules (temporary or permanent) not contained in this regulation.

16. Rotary Wing transit procedures:

NOTE:
The rules below DO NOT APPLY to MEDEVAC, SAR and HOSP flights. Such flights shall contact the RCO, who will deconflict with other air assets and give priority to the MEDEVAC/SAR/HOSP flight.

a. These procedures apply to transit of rotary wing assets inside R15B when there are operations in the AGR by other assets, even if the rotary wing assets are supporting ground troops in other ranges inside the CTA. Transit procedures can also be followed for RW operations when there is no RCO in place.
b. The most probable LZs to be used in and near R15D are:
   (1). Tapa Airfield,
   (2). Läsna Helipad,
   (3). Rutja Airfield.
c. Transit.
   (1). Whenever there are other assets operating in the AGR, transit of RW assets inside an active R15D and/or R15F is done via Helicopter Routes (HRs). Transit outside HRs is only allowed with prior coordination with the RCO, or in case of emergency.
   (2). Aircraft performing real life MEDEVAC, SAR and HOSP flights are exempt, but need to be in radio contact with the RCO.

(3). HRs are NOT activated or booked. They run from SFC to 200ftAGL. Some HRs around the CTA are inside D14. The RCO will advise of any non-usable HRs and recommend/coordinate alternate routing.

(4). HRs allow passage to/from the CTA at established points, to support troops in specific ranges/training areas within the CTA, or for helicopter gunnery at the AGR.

(5). Transit to airspace other than R15D/F is also done via HR. Transit inside the confines of an active R15E or R15G is to be deconflicted accordingly. The RCO may assist in the deconfliction.

(6). A map with the HRs and the coordinates of the points is contained in Annex J.

d. Coordination.

(1). RW units planning to operate within D14 and/or R15 must contact the RCO, exchange contacts, and get information about the Range´s scheduled activity. In case there is activity, the unit shall follow the remaining procedures.

(2). RW unit or FARP Ops will pass the RW operations schedule to the RCO the day prior, as per annex I. Frequency to be used is 119,025 MHz.

(3). If entering R15D/F from other airspace, the pilot will contact the RCO via radio prior crossing the entry ACP

(4). If taking off from an LZ/Helipad within R15D/F, RW unit/FARP Ops or the pilot will advise the RCO 2 min prior take-off. If unable to contact the RCO, take off making sure no conflict will arise, and advise the RCO of airborne status.

(5). All RW flying within R15 will monitor the RCO frequency for SA

(6). The pilot will advise the RCO when exiting R15D/F or on landing (full stop) at the FARP/LZ/Helipad (inside R15D/F).

(7). At the end of operations in the AGR, the RCO will inform flying RW assets and RW unit/FARP Ops that the operations are over, tower is closed and airspace (R/TSA15) is de-activated if that is the case.

17. Rotary Wing Gunnery Procedures.

a. Weapons allowed are:

(1). 20mm, 30mm cannon TP

(2). 7,62mm and 12,7mm (.50cal) MGs forward firing and door gunner TP/Ball, when pintle mounted

(3). 70mm Rockets inert (M274 and WTU-1/B warheads or equivalent)

(4). It may be possible to use other weapons/warheads. Units with this request can contact the RCO for coordination.

b. Modes of fire. The following are the modes of fire usable in Tapa AGR. Crews will refer to Appendix A to confirm parameters and mode of fire approved for each weapon and each target.

(1). Hover fire,

(2). Running Fire,

(3). Dive Fire,

(4). Door gunnery – “Dog Bone”/“Racetrack” and “circular”

c. BPs. BPs will be established for hover fire. Location of the BP will depend on the type of weapon and footprint. Typically, BPs will be on the road running from the main tower

to SW. Locations will be scouted and coordinated with the user depending on their needs, the weapons footprints and the Range´s capabilities and restrictions. The RCO shall have a map with the agreed BPs and footprints in the tower.

d. Door gunner patterns. Like BPs, these will be surveyed and coordinated with the user, depending on needs, footprints and Range's capabilities and restrictions. The RCO shall have a map with the patterns and footprints in the tower

e. Rocket restrictions
   (1). Rockets will be expended in dive fire only.
   (2). Minimum speed is 60KIAS.
   (3). Ripple fire is prohibited. Crews can, however, fire several aimed rockets in a single pass.
   (4). LOFT and indirect fire are prohibited.

f. Safety:
   (1). For forward firing modes, general rules apply (see para 9 above). In addition, machine guns will be cleared and placed on safe immediately after the attack run.
   (2). For door gunner, while performing Dog Bone or Racetrack profiles, the pilot will normally receive flight lead control upon request. The pilot shall switch Master Arm to "HOT" and Gun Power switch to "ON" when the aircraft is established on the straight legs and call "IN HOT" via radio for information purposes. Master Arm shall be switched to "SAFE" and Gun Power switch to "OFF" with an informative "OUT COLD" call prior the turning leg. If the machine gun safety is not operated by the pilot, the gunner will safe the weapon during turns and only remove the safety at the pilot's command.
   (3). In case of communications failure between the pilot and the gunner, the gunner will immediately cease fire, clear and safe the weapon

g. Emergency procedures
   (1). In case of hung or misfired rocket, switches will be made safe. If the hung rocket or misfire cannot be cleared or declared safe, the pod will be jettisoned in the impact area. Refer to para 23. d. below.
   (2). In the event of a runaway gun, the gunner will immediately notify the pilot and keep the gun pointed to the target area until the weapon ceases to fire. No more attempts to use the weapon will be made. If possible, the pilot should keep the aircraft on hover with the gun pointed to a direction within the approved fire directions.
   (3). All other situations will be handled as per general procedures in this regulation and national and unit SOPs.

18. AC-130 Procedures

a. Entry – As per general procedures. If deconfliction is required, the RCO will prefer to use South Holding.

b. Altitude block
   (1). The altitude block for AC-130 operations is between 6500 and 10000 ft AMSL.
   (2). Crews will take care in monitoring altitudes AMSL and Flight Levels for deconfliction and airspace containment. Transition Altitude in Estonia is 5000ft AMSL.

(3). Hot operations will only be approved if the weather is suitable to observe the target area. Hot operations below 6000ft AGL are not approved.

(4). The RCO may authorize a lower orbit for dry training.

c. Overhead orbit

(1). A standard 360º orbit around the targets is established.

(2). Upon approval to join the overhead orbit, the aircraft will clear the target area for personnel, vehicles, etc. prior to commencing fire, and notify MUDPIT of any intrusion.

d. Engagement

(1). Aircrews will be authorized to fire when the aircraft is aligned to sidefire:

i. 30mm - 030º counter clockwise to 280º and 210º counter clockwise to 100º

ii. 105mm – Refer to Appendix A for authorized targets and fire directions

(2). When approved, fire directions for Tgt 1 and Tgt 5 for 105mm TP will take into consideration the 700m no-fire headings due to the proximity of the N-S road east of the impact area.

(3). No personnel will be closer than 650m from the targets during AC-130 operations

(4). The headings indicated in Appendix A are

i. 30mm, 105mm – Fire Direction

ii. AGM-176 - Aircraft Heading.

(5). If not being controlled by a TACP or FAC-A, the AC-130 will call when tracking a target and state the weapon to be used. MUDPIT will then clear the aircraft to fire. This clearance is valid until the end of the engagement of the current target. For engagement of another target, a new clearance will be issued by the RCO after a “Tracking Target” call with type of weapon has been issued. With each clearance, the RCO is delegating control of the weapon to the PIC. It is the PIC’s responsibility to ensure firing occurs only within the approved fire directions, or as restricted by the RCO. RCO still retains abort authority.

e. Emergencies/Abnormal operations

(1). In case of emergency/abnormal operation, follow the procedures stated in Para 24 below, except as complemented below:

(2). Runway gun (30mm) – Crew is to physically and electrically secure the weapon as per own procedures. Report runaway gun to the RCO for inclusion in the log.

(3). Jettison (105mm)

i. Continue flying the orbit, descending to 3000ft AGL, 158KTAS and 35º bank angle.

ii. Adjust the orbit in order to jettison the round to the proximity of target 2 when the aircraft is heading 070º to 360º.

iii. Do a second orbit if required to extract the round. If after the second orbit the ammunition was not extracted, depart the range via the safest route.

iv. Track the jettisoned round until impact and report the impact location to the RCO for log and EOD.

f. Scoring – Tapa range does not currently have the capability to score AC-130s

19. Bomber Procedures (B-52, B-1)

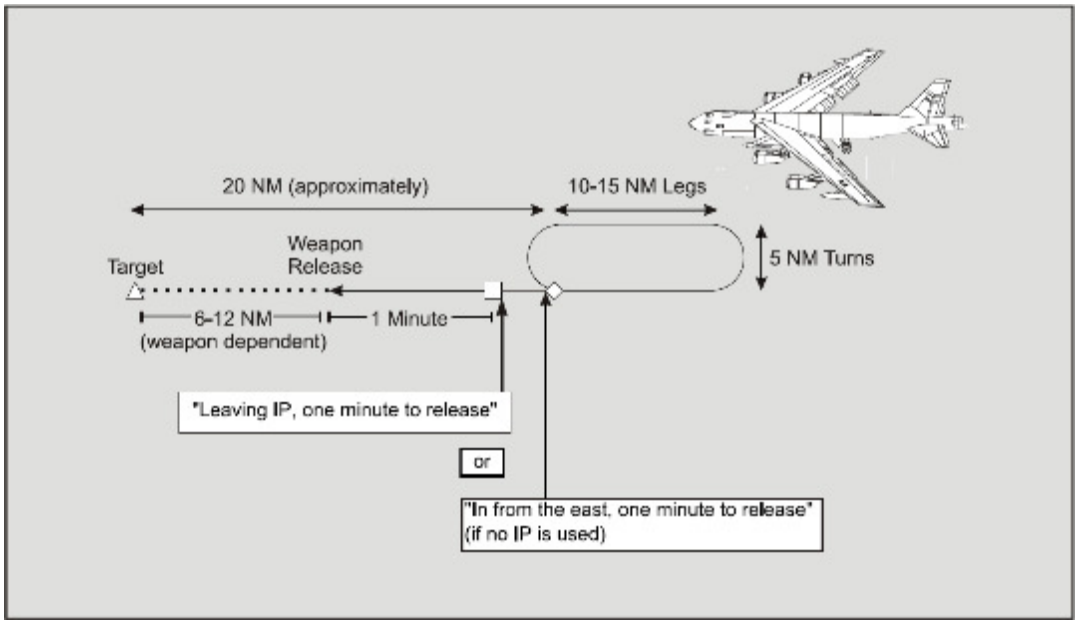
a. Airspace. Bomber operations will utilize both TSA15B and TSA15C, where the orbit and attack can be done up to FL300.

b. Entry/Exit. Bombers will enter/exit TSA15B/C via the established CPs. Altitude of entry/exit is tactically coordinated between RCO, and CRP or ATC

c. Attack profile. Typically, bombers will use the profile shown in Picture 4-5 below. Crews are to plan and adjust their orbits and run-ins, taking into account available airspace and, in case of Hot runs, the heading restrictions for the weapons, which are stated in Appendix A.

d. Drops through weather are approved as stated in point 7.c. of this chapter.

e. Crew will comply with national and unit procedures in order to prevent a weapons impact out of the impact area.



Picture 4- 6 – Bomber CAS

20. UAS/RPA coordination. The following procedures are to be applied whenever R/TSA15 are active and there are operations in the AGR:

a. Class III assets will be considered no different than manned FW assets, as long as they are RPA (a pilot is commanding the aircraft, or monitoring the pre-planned route and able to intervene if required), and will follow the same procedures as for manned aircraft, including scheduling, coordination, communications with the RCO and, in case of Combat UAS, delivery restrictions as stated in Appendix A. Switchology to be used is the same as for fighters.

Lost-link procedures should be planned to be a 15 min delay on Holding South at FL100 (1013,25 hPa/29.92 inHg), while squawking 7600, after which the aircraft departs range airspace via CP2. Deviations from this Lost-link plan shall be coordinated with the RCO.

Typically, Class III aircraft will be launched from and will recover to airdromes outside R/TSA15 and fly with an IFR flight plan. If launch and/or recovery is to happen inside R/TSA15, follow the generic coordination procedures as for Class I and II below. Deconfliction with other assets will be normally done by altitude.

b. Classes I and II are typically launched from/recovered to positions within the range airspace. The following rules apply:
   (1). Pre-Information – Units intending to use UAS within Range airspace (R15) must contact the RCO, exchange contacts, and get information about the Range´s scheduled activity. In case there is activity, the unit shall follow the remaining procedures. UAS units planning to operate within R15 must contact the RCO, exchange contacts, and get information about the Range´s scheduled activity. In case there is activity, the unit shall follow the remaining procedures.
   (2). Coordination – The unit operating UAS will coordinate with the RCO the day prior operations, by sending a map with the routes and airspace requests, and a filled Coordination Sheet. The Coordination Sheet format is in Annex I (second format), and includes the following:
      (a). Unit and POC information
      (b). Asset type and class (NATO UAS Classification)
      (c). C/s (if applicable)
      (d). Launch time and location
      (e). Flight route
      (f). Recovery time and location
      (g). Airspace required (using MGRS)
      (h). Maximum altitude enroute
      (i). Lost-link procedure and route with altitude (if auto-return)
      (j). Any remarks
   (3). Weather
      (a). Classes I and II will not launch unless able to maintain VMC minima of 2000 ft AGL and 5 Km visibility.
      (b). During flight, UAS will maintain 500 ft below clouds.
      (c). If the UAS enters IMC, the operator will immediately command the aircraft to its recovery site and land, and inform the RCO it has entered IMC and give a route from its current position to the recovery site.
      (d). UAS will not operate under SVFR, nor VFR on top of clouds
   (4). Lights – UAS shall use position lights from sunset to sunrise. If fitted, anti-collision lighting shall be used at all times, except when it may harm the performance of other aircraft crews.
   (5). The RCO has authority to restrict UAS operations in terms of airspace and/or time within R/TSA15 and D14.
   (6). UAS operations cannot conflict with manned aircraft operations in the range. A minimum of 1000ft separation shall be ensured by the RCO.
   (7). Integration of manned and unmanned assets is to be planned prior and information to be passed to the RCO. In this information, deconfliction measures shall be noted.

(8). In any case, the unit operating UAS shall contact the RCO NLT 5 minutes prior launch. The RCO has the right to delay the launch.
(9). Upon recovery, the unit shall inform the RCO.
(10). If a lost-link situation occurs, the unit must immediately inform the RCO, and keep the RCO updated until link is re-established or aircraft is recovered.
(11). In any other abnormal situation, including emergencies, the unit must inform the RCO and keep him updated until the situation is over.
(12). The POC must have available means of communication, in case the RCO needs to suspend air activity. It is desirable that the operator have direct radio communications with the RCO.

21. Airdrop procedures

a. Tapa AGR **does not** have a surveyed DZ.
b. Personnel drop – Currently, personnel drop is not authorized at Tapa AGR. If a DZ is temporarily established for personnel, a set of procedures is to be made and complied with for the length of the training or exercise.
c. Cargo drop – Drop of cargo is authorized in the impact area. Users must understand that the recovery of such cargo may not be possible and can be used as targets in the AGR. Users will accept responsibility for the loss of airdropped loads
d. Any drop shall be done only under VMC.
e. DZ Village
    (1). DZ Village coordinates – N 59º 22' 13" E025º 49' 31". Elevation 285ft. Run-in 350º Magnetic or 170º Magnetic
    (2). DZ Village is located in the centre of the impact area, within an area formed by the 4 containers at the corners of the Village (target 3)
    (3). Scheduling – Normal scheduling procedures apply. See Chapter 2
    (4). Coordination – Mission information will be passed to the RCO the day prior, in Annex I format. This will include:
        (a). Type of mission – Airdrop
        (b). Time at CP, time of departure from the range
        (c). number of bundles per pass (in SCL box)
        (d). Airspace required
        (e). DZ controller c/s (insert "Mudpit" if no DZ controller will be present
        (f). Number of passes and altitude of passes in Remarks
        (g). Any other info in Remarks.
    (5). Communications – All calls shall be made in the range's frequencies.
    (6). Flow
        (a). Aircraft will check-in at a CP as per general procedures
        (b). The RCO may direct the aircraft to a holding inside R/TSA15 due to traffic in the range. Expect Holding South as standard. Altitude of holding will be coordinated tactically. Aircraft will be allowed to leave the holding once other traffic has departed or no longer a factor.
        (c). A "Cleared on Range" call does not mean clearance to drop.
        (d). It is advisable that the first run be dry for visual identification of the DZ. Crews can declare "First Run Drop".

(e). Once aircraft are inbound for the drop, it will call “1 minute to drop”. The RCO will give surface winds (if available) and a “Cleared to Drop”.
(f). Aircrew will call “Load Away” and time of fall.
(g). RCO will confirm drops “Good Chute” and monitor for malfunctions.
(h). Automatic drop systems will be in safe mode until the RCO gives a “Cleared to Drop” call.
(i). The “1 minute” call and clearance will be given for each pass.
(j). Aircrews will comply with national and unit procedures to prevent an off-range release.
(k). The RCO can give a “No Drop” call at any time if the drop is determined to be unsafe. In this case, aircrews can proceed with a “dry run” unless the RCO states otherwise.
(l). Tapa Range will not have personnel in the drop zone. The only interaction with the mission is done by the RCO.
(m). Drop Zone/Aerial Port teams are to report to Tapa Range Service Centre or to the Main Tower at the time pre-coordinated, but never less than 1 hour (or 30 min at the tower).
(n). The RCO can delegate clearance authority to a qualified Drop Zone Controller, but will retain abort authority.

(7). Other generic procedures in this regulation apply.

22. Laser Operations – Tapa AGR is Laser certified IAW ARSP-4 and AFI-48-139. The following will be complied with at all times:

a. Usage of Laser systems for pointing and designation requires advanced notification, normally included in the Range Request Form.
b. Laser designators and pointers authorized to be used in the range must be listed either in the Laser Systems List of Appendix B (or updated version of the list) or as a weapon system in appendix A.
c. All Laser Operators, to include aircrews, shall receive a Laser Safety Briefing prior the usage of Laser Systems.
d. Lasers shall not be shot above the horizon or above the backstops, except for “lasso” technique by TACPs, following the procedures in ATP-3.3.2.1 or JPub 3-09.3; and laser systems used by range personnel to measure the ceiling.
e. Lasers shall not be shot against standing water or iced surfaces (to include ice layer above the snow) or shiny surfaces.
f. Ground Laser Designators:
    (1). Shall be fired only when the system is aimed at the target.
    (2). Shall be fired only from the main tower. Firing from the flank tower and from the Hill Op is possible, when there is a weapon footprint that supports such operations, and there are no other users in the CTA, and requires prior approval from the Commander of the CTA.
    (3). Approved targets depend on the fire position and usage of the GLD (i.e. stabilized, hand-held or night) and are stated in Ref g.
g. Airborne Laser Designators

(4). Aircrews shall aim their pods at the target and have positive identification of the target prior firing the Laser.

(5). Aircrews will also maintain within the approved flight profile (in terms of altitude/slant range) stated in Appendix B. This also applies to rotary wing operations, with a minimum altitude of 800ft for ranges less than 1NM.

(6). Aircrews will ask approval to use combat lasers from the RCO. Once approved, aircrews will call “Laser On” and “Laser Cold” for RCO SA.

h. Laser Safety

(7). Ground personnel and other CTA users shall maintain outside of the Laser Safety Area in force. If inside the LSA, all personnel is required to wear Laser Eye Protection matching the wavelength and optical density of the Laser System in use. Other CA users shall be briefed on the active LSA. LSA maps are in Annex G.

(8). Targets will be checked by range personnel prior operations for reflective surfaces.

(9). The RCO may restrict or forbid usage of Laser Systems in cases where Laser Safety may not be guaranteed. All Laser Operators shall cease Laser operations if unauthorized personnel are detected in the LSA, and shall report such fact to the RCO.

(10). In case of suspected Laser injuries, the RCO is to be informed.

i. The current certification is valid until the 30th of September 2018, and the range needs to be resurveyed every 3 years to maintain its certification.

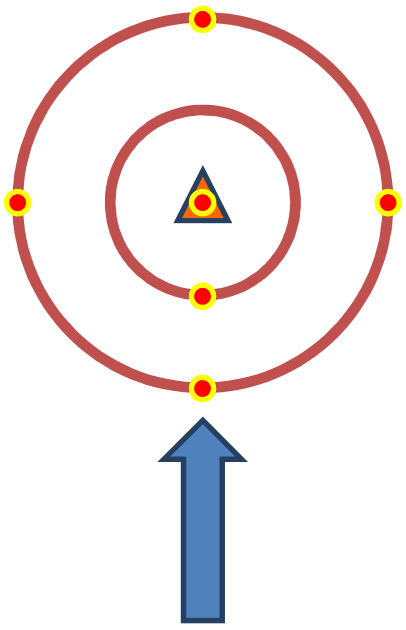
23. Night Operations

a. Night minimum altitude is 1000ft AGL (1400ft MSL).

b. The AGR has no artificial illumination.

c. Usage of LUU type flare for target illumination must be requested and approval will be based on weather and fire condition.

d. The bombing circle will have oil lamps (or other lighting devices) in the following pattern:



Picture 4- 7 – Night illumination

e. Light/heat sources (oil lamps) can be placed in or near targets on request.
f. The RCO will inform what targets have light sources on check-in.

24. Emergencies/Abnormal Operations

Safety is the primary consideration in all aspects of Range operations. The RCO will make every effort to ensure the safety of range personnel and aircraft utilizing the Range. The RCO is responsible for reporting hazards or incidents to the appropriate agencies. Due to the multitude of emergency situations which could arise, this regulation cannot possibly cover all emergency contingencies. The best judgment of the RCO must be exercised to handle any emergency in a timely and professional manner. In the event of an abnormal situation, the RCO will execute the proper check-list from the AGR SOP. The RCO is the on-scene commander and will remain so until relieved by another competent authority.

NOTE: Aircraft facing an abnormal situation or emergency are to inform the RCO, who will assist as required.

a. Lost Comms:
   (1). Aircraft losing radio contact will cease weapons deliveries. A dry pass and wing rock should be made to alert the RCO.
   (2). Aircraft experiencing radio failure will set the transponder code to 7600 and try by any means to re-establish radio contact with the RCO or any other aeronautical facility.
   (3). In case no radio contact is re-established, the aircraft will de-conflict from other traffic, fly by the main tower, East of the tower on a N-S heading and make a left 360º turn before resuming the flight back to EEEI. Whenever possible the aircraft shall proceed to EEEI VFR in uncontrolled airspace, exiting the area via CP 2 at 2000ft MSL. If IFR, or exiting into controlled airspace (Tallinn TMA), the procedures set in ICAO Annex 10 Vol II are to be followed
   (4). Aircraft shall exit the airspace no earlier than 7 minutes after setting the transponder code to 7600.
b. Controlled bailout: 305º magnetic heading at 1500’ MSL. Initiate sequence 500m before strafe targets #4 (South Convoy). Trim aircraft nose down if capability exists. Adjust for winds to ensure pilot/crew land south of the AGR impact area boundaries.
c. Controlled jettison: 350º heading between 1000-3000' MSL. Fly inbound target 2. Jettison when passing abeam the flank tower. The RCO will advise of other jettison areas in case the primary is not available.
d. Runaway Gun: When abeam the main tower, turn to a 305º heading and maintain until cessation of firing. Once the pilot is able to safe the gun, no further attempts will be made to operate the gun.

e. Inadvertent or unintentional release off Range (unexplained/explained): Safe all systems on the involved aircraft and hold high and dry over the Range. Aircrew will relay description of and approximate position of dropped object to RCO. RCO will note time of incident and report to the CTA. CTA will coordinate with Military EOD and Civilian Rescue Service, IAW established procedures for off-range UXO. If the incident is an inadvertent (unexplained) release, the aircraft should be escorted home, if feasible.

f. Hung ordnance – The crew is to use their unit's SOP for determining Hung Ordnance. If Jettison attempt applies, it shall be done as described above. If the ordnance was not jettisoned, the aircraft are to safe switches and proceed to EEEI via CP1. The suggested track is depicted below.

Picture 4- 8 – Minimum Risk Route

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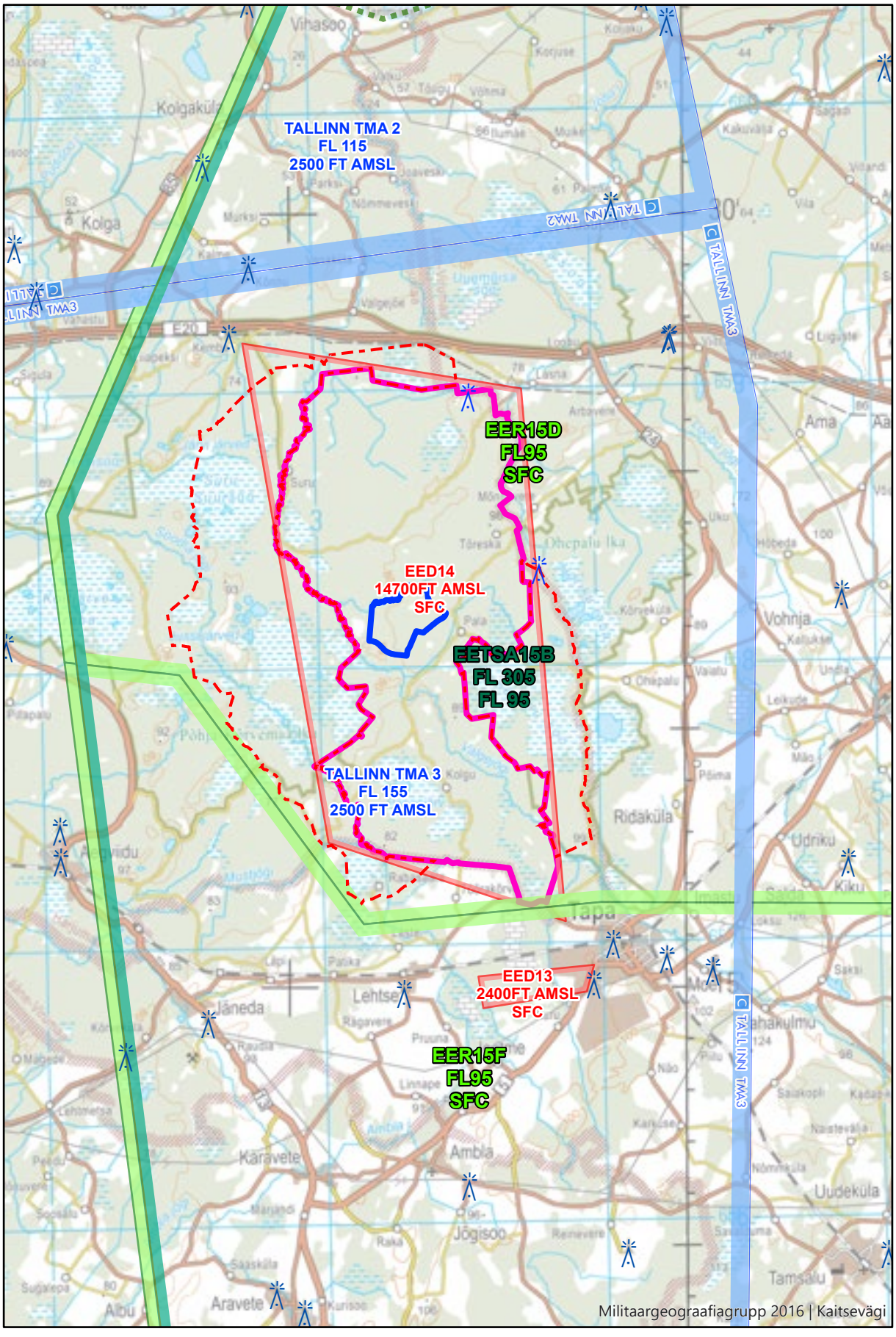
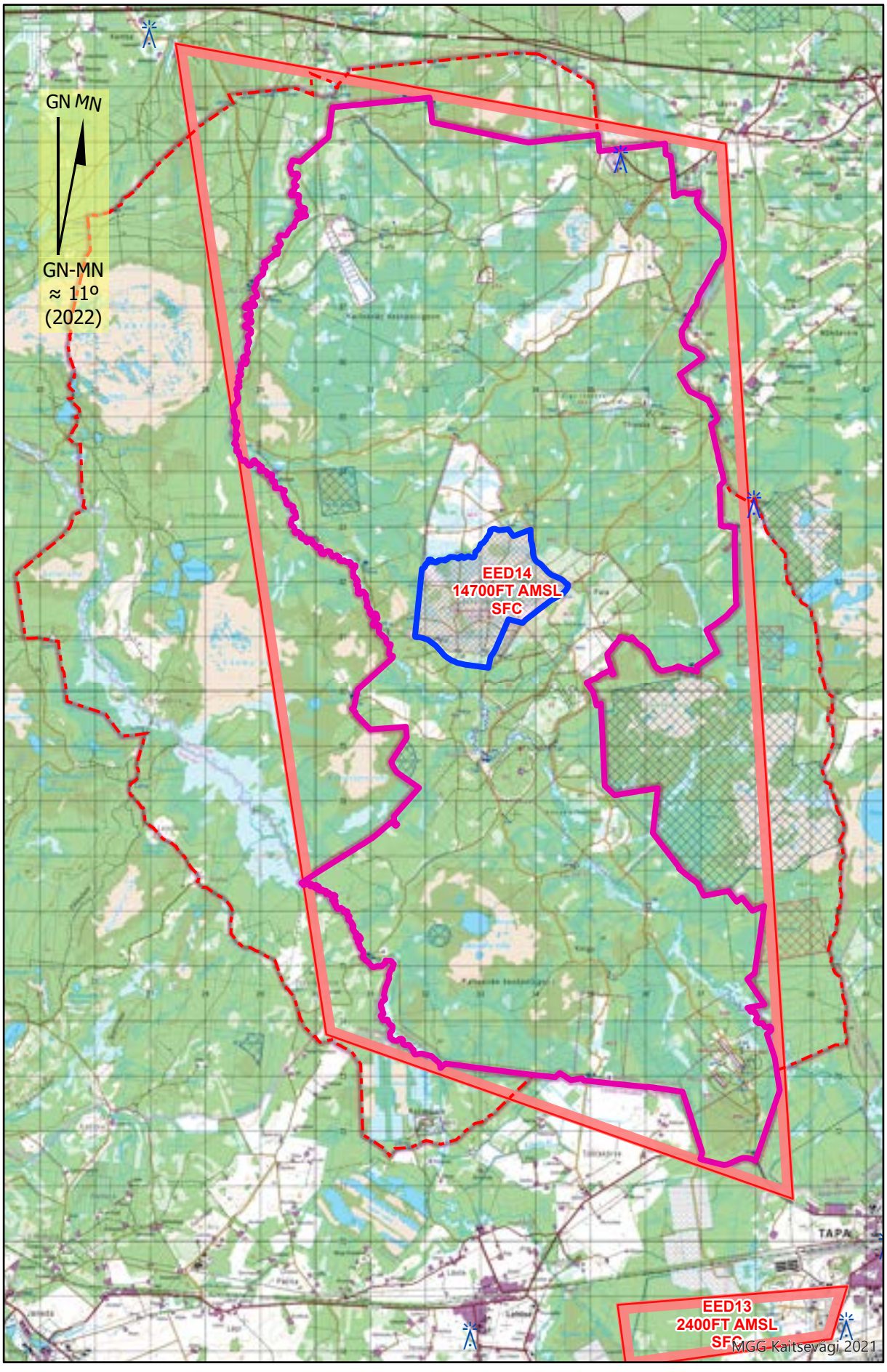
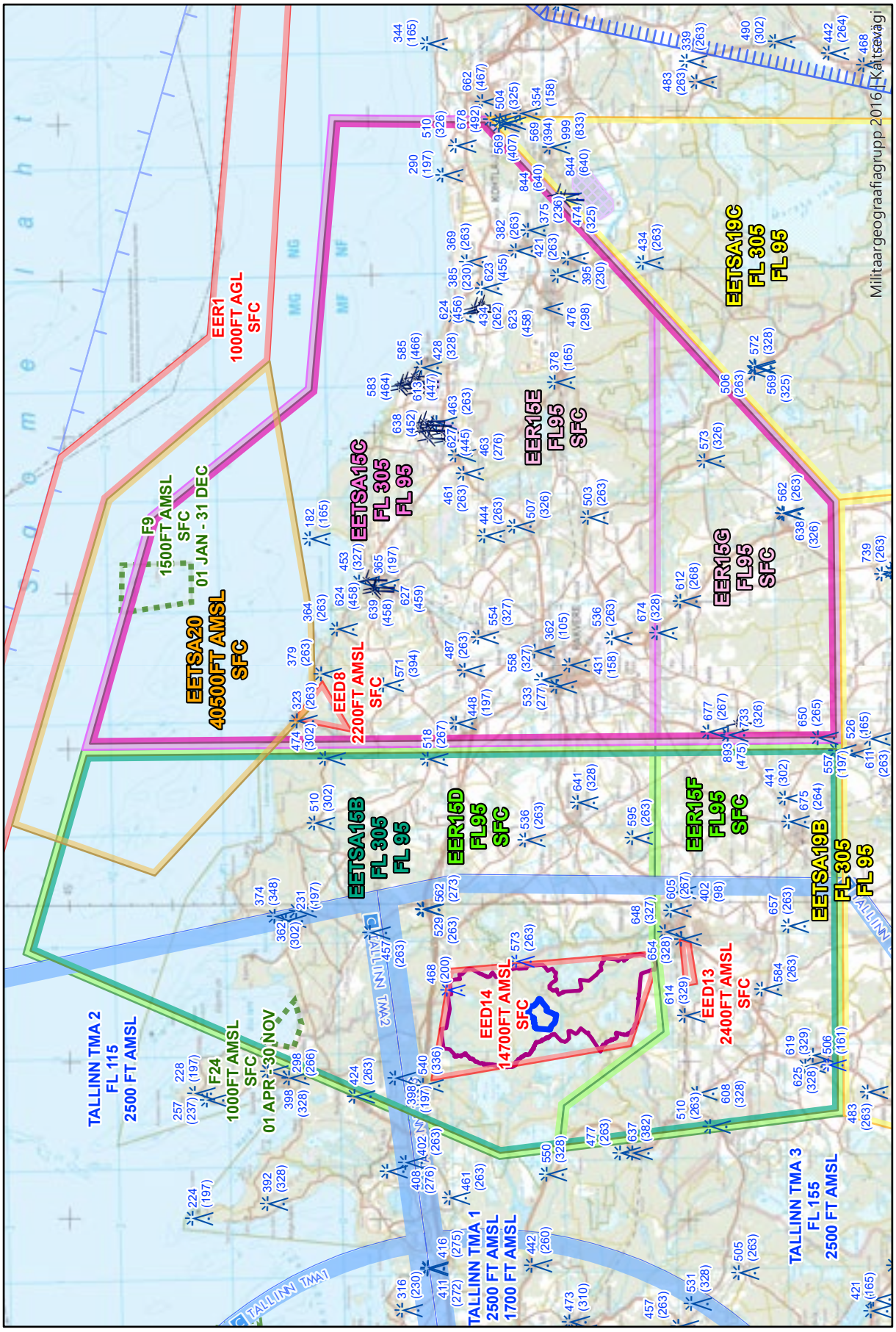
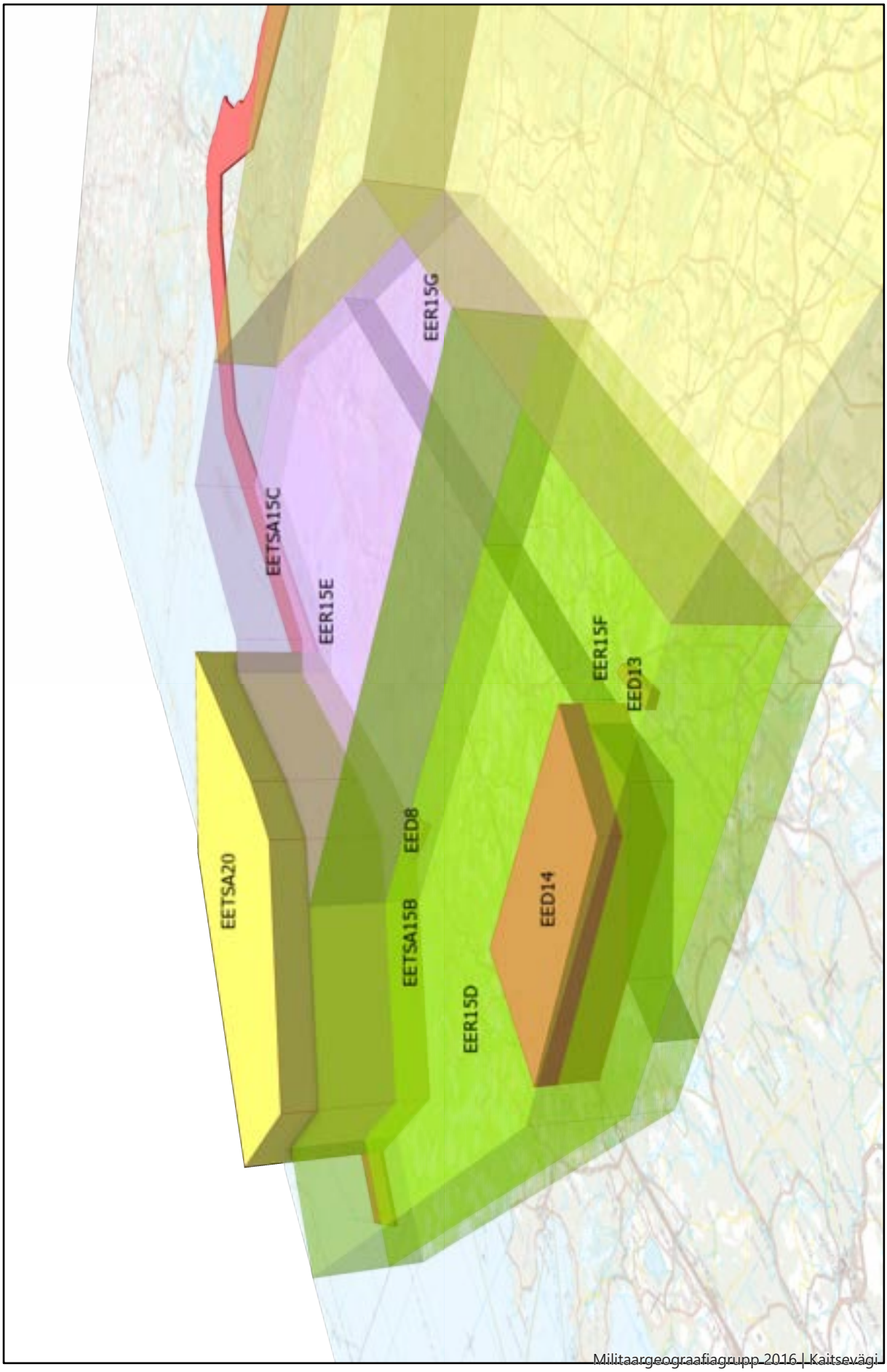
Annex A - CTA Boundaries

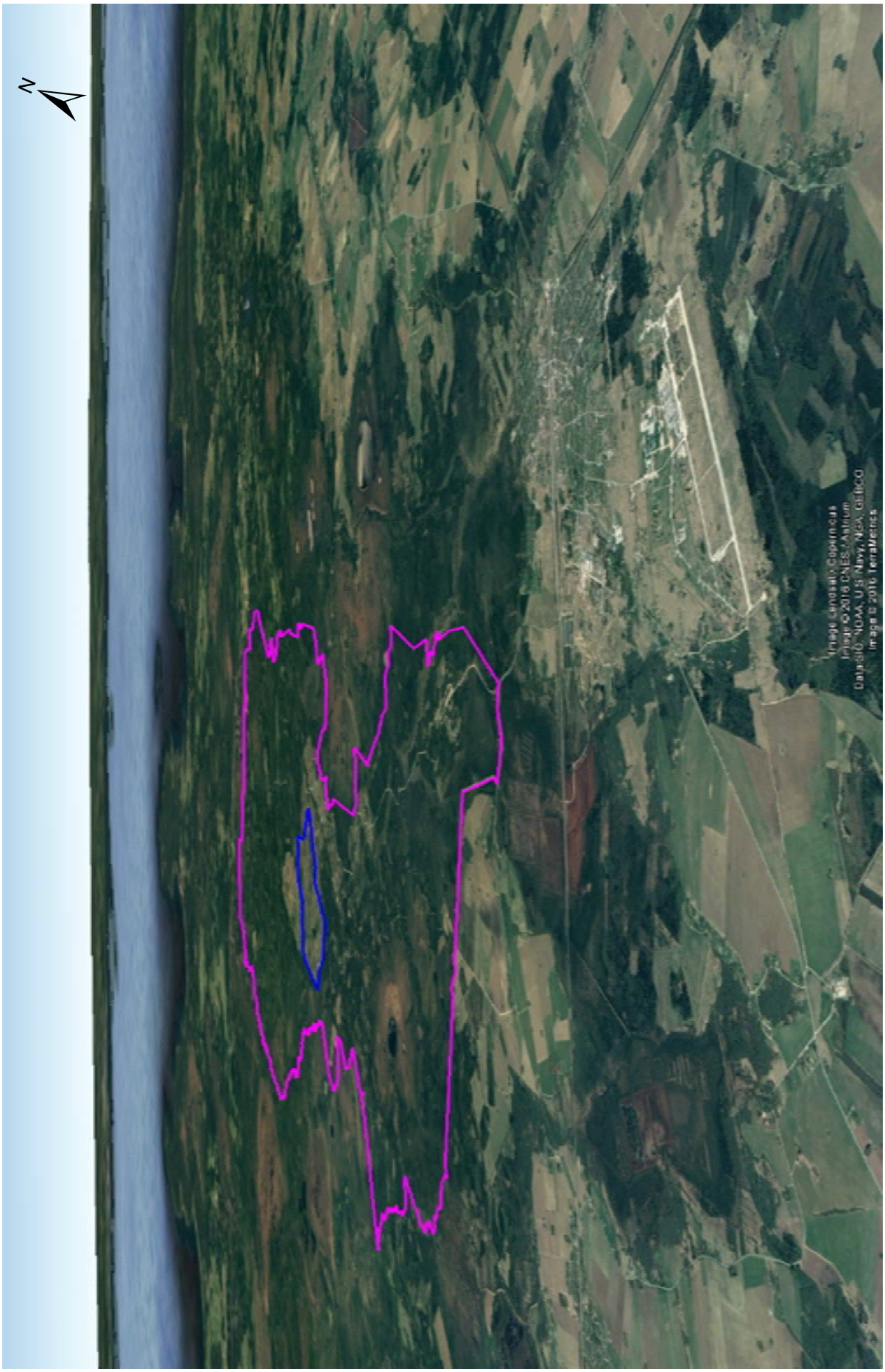



GN MN
GN-MN
≈ 11°
(2022)
EED14
14700FT AMSL
SFC
TAPA
EED13
2400FT AMSL
SFC
MGG-Kaitsevägi 2021

Annex B - Airspace boundaries and aerial views




EER15G
EETSA15C
EER15E
EER15F
EED13
EED8
EETSA20
EETSA15B
EED14
EER15D
Militaargeograafiagrupp 2016 | Kaitseväg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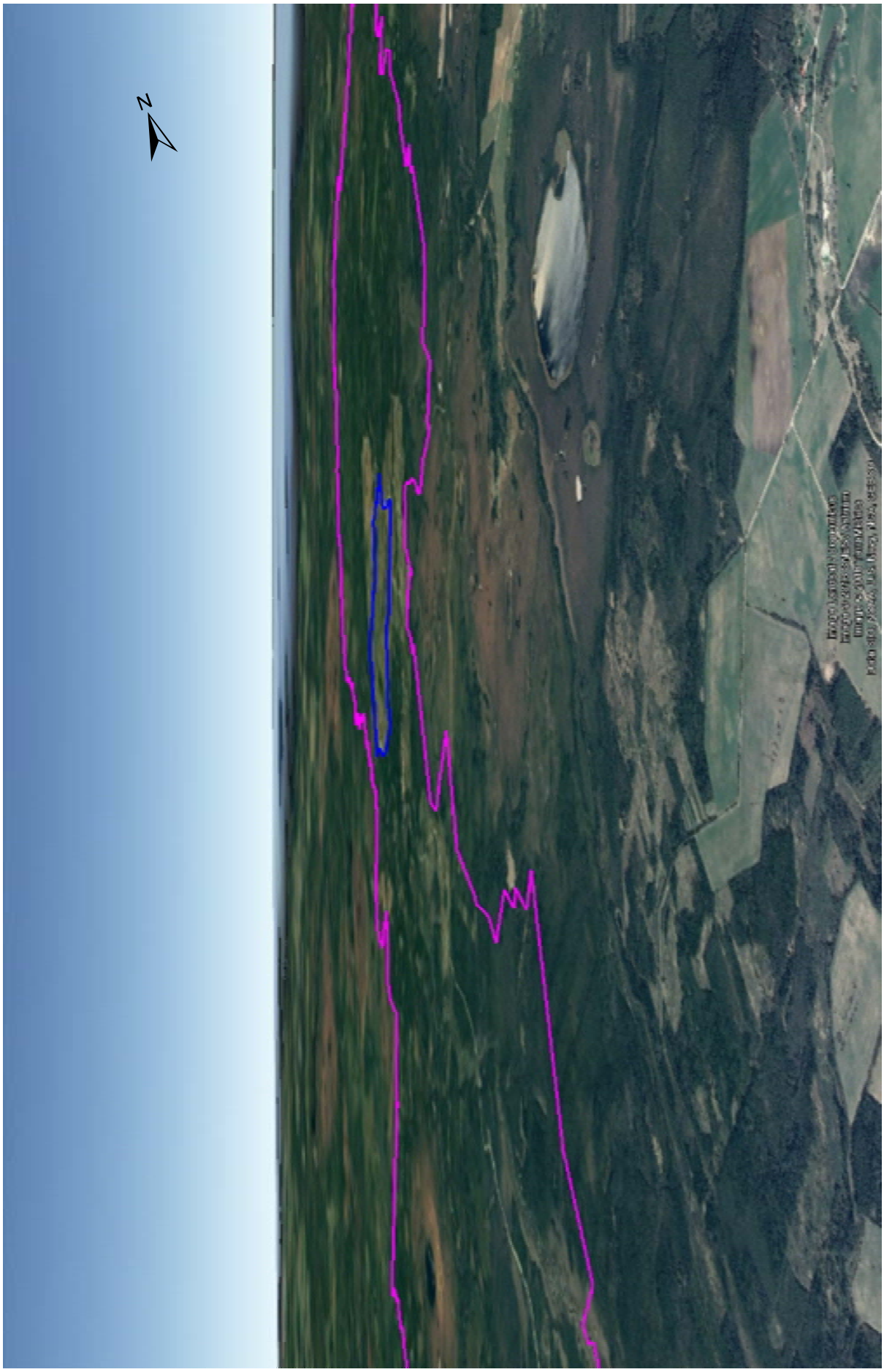
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Annex C – Request Format

Estonian Air Force Request for Usage of Air-to-Ground Range					
Requester's Unit					
Requester's POCs (please give 2)	Name				
	Position				
	Phone Nr. (cell)				
	Email				
Date(s) of Mission					
Requested Slots (Time on/Time off)					
Number & Type Aircraft					
Departure Airdrome					
Arrival Airdrome					
Airspace needs					
Number & Type of Weapons (total)	Guns				
	Rockets				
	Bombs				
	Practice Bombs				
	Others				
Extra Equipment (VDL, TGP, Etc.)					
Do you require the Bombing Circle to be Scored?					
Remarks/Aditionals					

Estonian Air Force

Request for Usage of Air-to-Ground Range

Requester's Unit		152nd SQN EST AF			
Requester's POCs (please give 2)	Name	Maj Joe Smith	Capt John Doe		
	Position	Sqn Cmdr	Planning Officer		
	Phone Nr. (cell)	+372 999999999	+372 555555555		
	Email	Joe.smith@mil.ee	John.doe@mil.ee		
Date(s) of Mission		28FEB2012	28FEB2012		
Requested Slots (Time on/Time off)		10:00-11:00	11:00-12:00		
Number & Type Aircraft		2x L-39	2x L-39		
Departure Airdrome		EEEI	EEEI		
Arrival Airdrome		EEEI	EEEI		
Airspace needs		TSA15B/C SFC-FL100 D-14 GND-5000AGL	TSA15B GND-FL100 D-14 GND-5000AGL		
Number & Type of Weapons (total)	Guns	100x 23mm TP, TPT	-NIL-		
	Rockets	14x 70mm inert	-NIL-		
	Bombs	2x Mk-82	-NIL-		
	Practice Bombs	-NIL-	12x BDU-33		
	Others	-NIL	-NIL-		
Extra Equipment (VDL, TGP, Etc.)		TGP with VDL	-NIL-		
Do you require the Bombing Circle to be Scored?		No	Yes		
Remarks/Additionals		Request TACP team for first slot Request permission to deploy flares type XX-123 Request VDL frequencies, C Band			

Annex D - Fire Index Table

Colour	Fire Hazard Level	Names	Obligations and Restrictions
	Level I	No Fire Hazard	- No additional restrictions
	Level II	Low	- First response firefighting equipment must be readily available.
	Level III	Medium	- Same as Level II - Release of HE and WP/Pyro ordnance needs approval from the CTA Sr. Safety Specialist, who may request extra firefighting assets to be in place. - Flares min altitude 2000ft AGL
	Level IV	High	- A firefighting team will be on standby near the Main Tower (or other suitable place near the AGR). - A fire truck will be available on call. - Usage of tracers, WP/Pyro Rockets and HE ammo are forbidden. - Flare min altitude 5000 ft AGL - Release of bombs with smoke charge, only with Cold Spot. Hot Spots are forbidden
	Level V	Extremely High	- Inert rockets need approval from the CTA Sr. Safety Specialist. All other rockets forbidden. - Strafe (TP only) and inert bombs (no charges) are allowed. - No Flares allowed. - A firefighting team with fire truck will be on standby near the Main Tower (or other suitable place near the AGR).

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Annex E – CPs and IPs

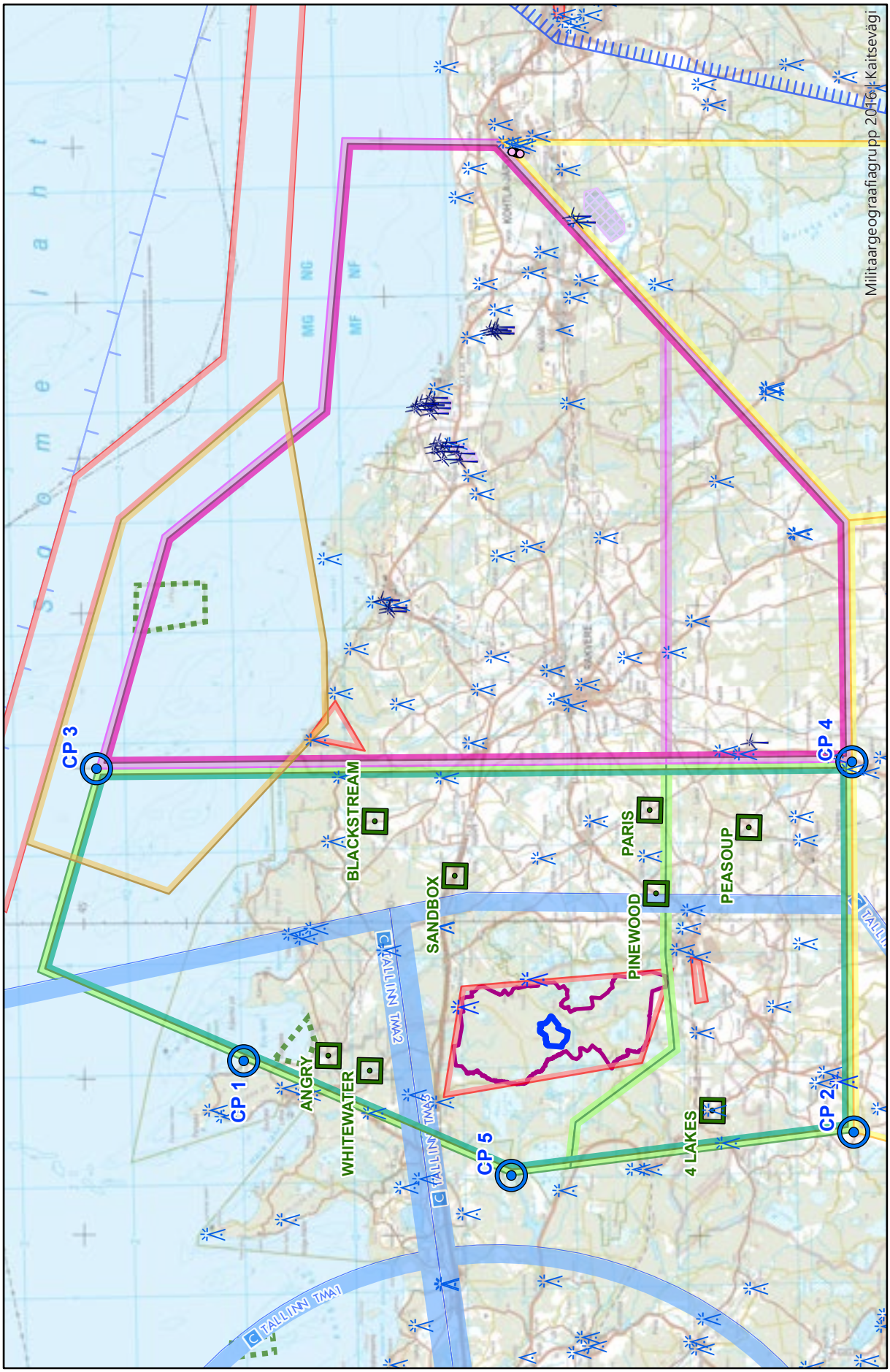
Initial Points

ID	Elev.	Location	Description
Paris	242	N 59° 17' 22.78" E 026° 10' 34.16"	T-Junction W of small lake
4 Lakes	242	N 59° 14' 23.51" E 025° 41' 55.46"	T-Junction S of industrial complex
Pinewood	344	N 59° 17' 05.81" E 026° 02' 37.43"	Road N of Powerlines
Sandbox	262	N 59° 26' 54.59" E 026° 04' 25.35"	Double Y-Junction on Highway
Whitewater	68	N 59° 31' 05.67" E 025° 45' 46.45"	Y-Junction of Rivers
Peasoup	328	N 59° 12' 33.02" E 026° 08' 50.72"	Bridge
Blackstream	183	N 59° 30' 47.17" E 026° 09' 42.37"	Bridge
Angry	41	N 59° 33' 07,02" E 025° 47' 13,78"	X-road

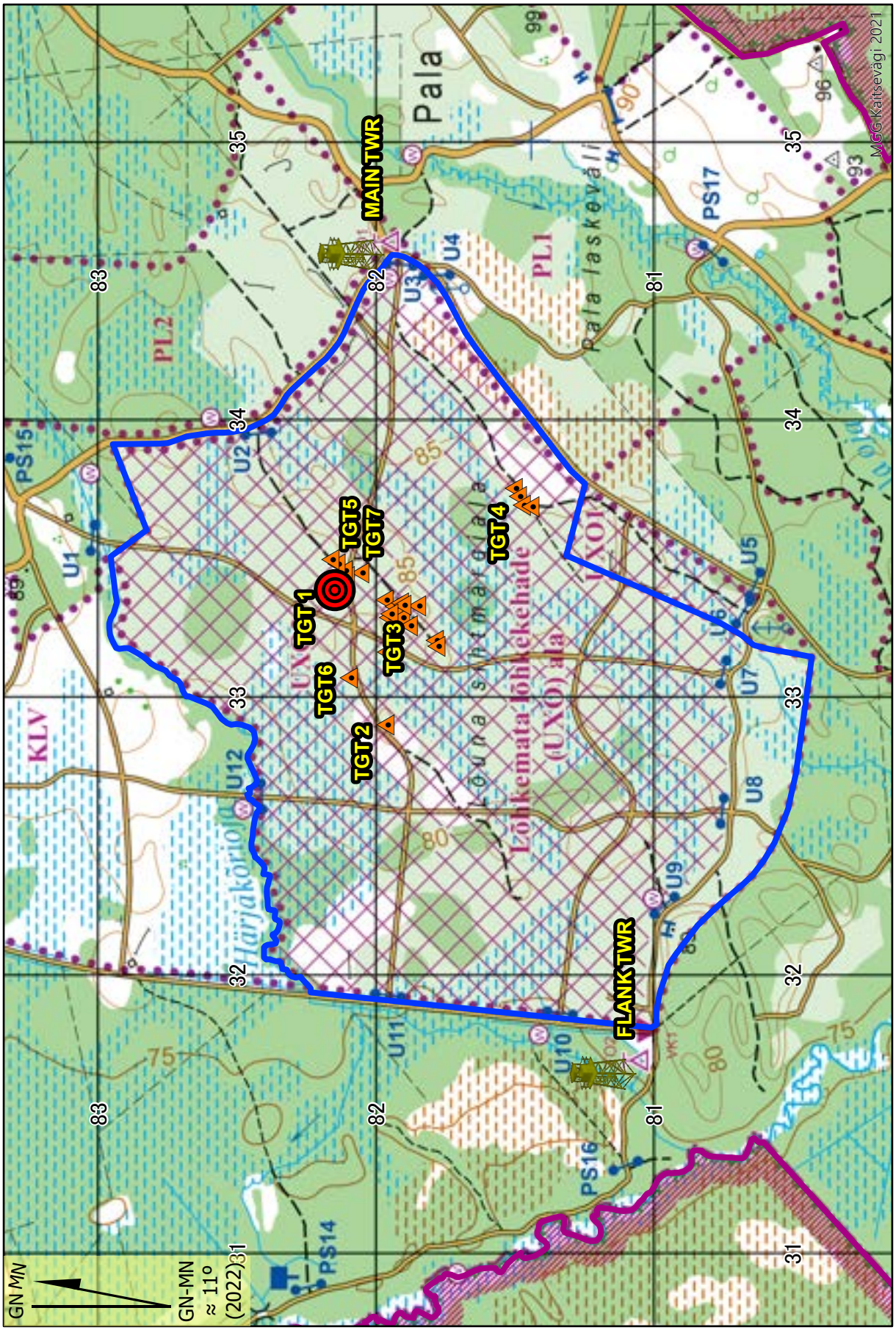
In addition to these IPs, Keyhole procedures are approved. Care shall be exercised in order to avoid populated areas. Airspace boundaries and restrictions shall be taken into consideration.

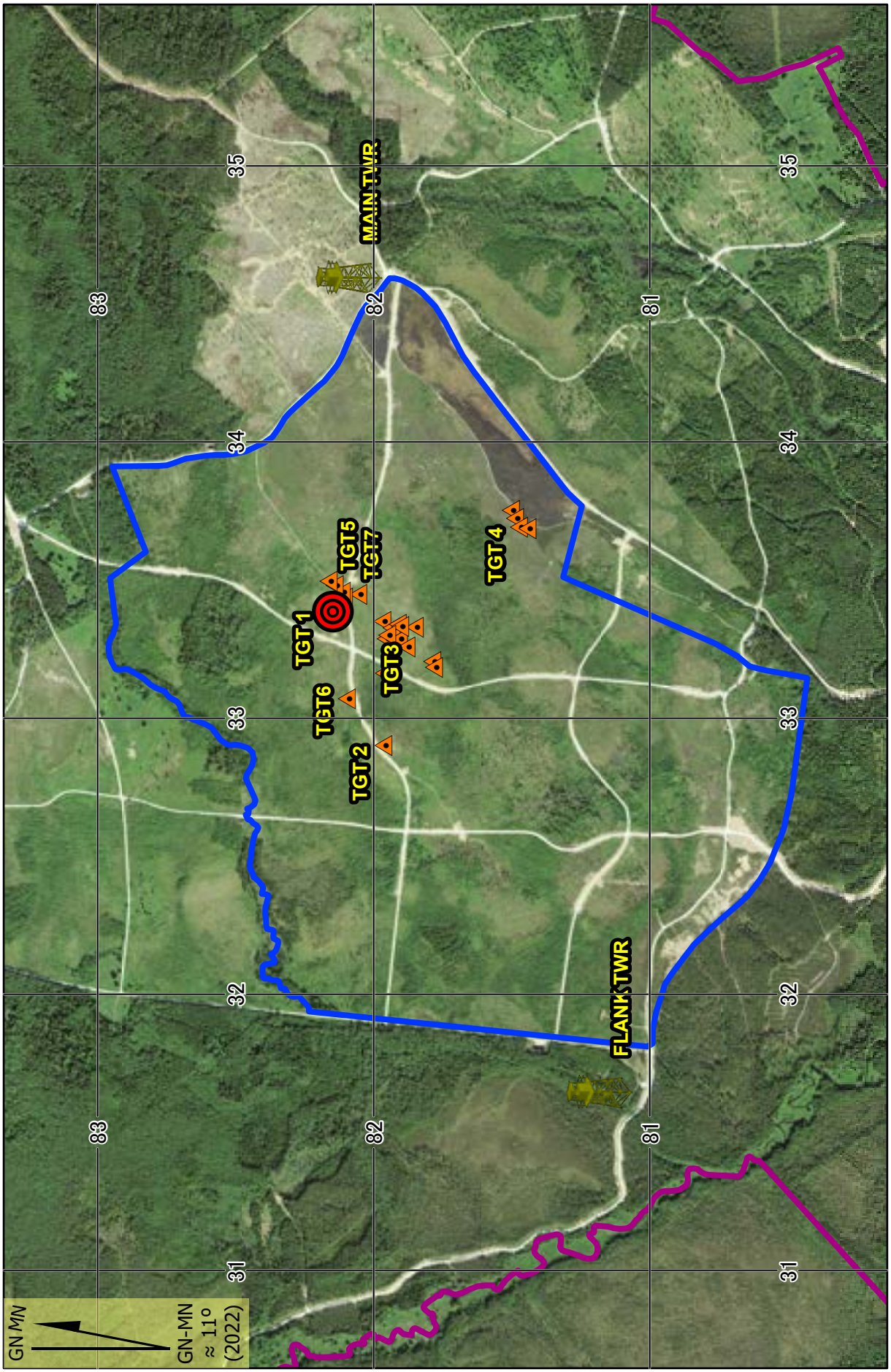
Contact Points

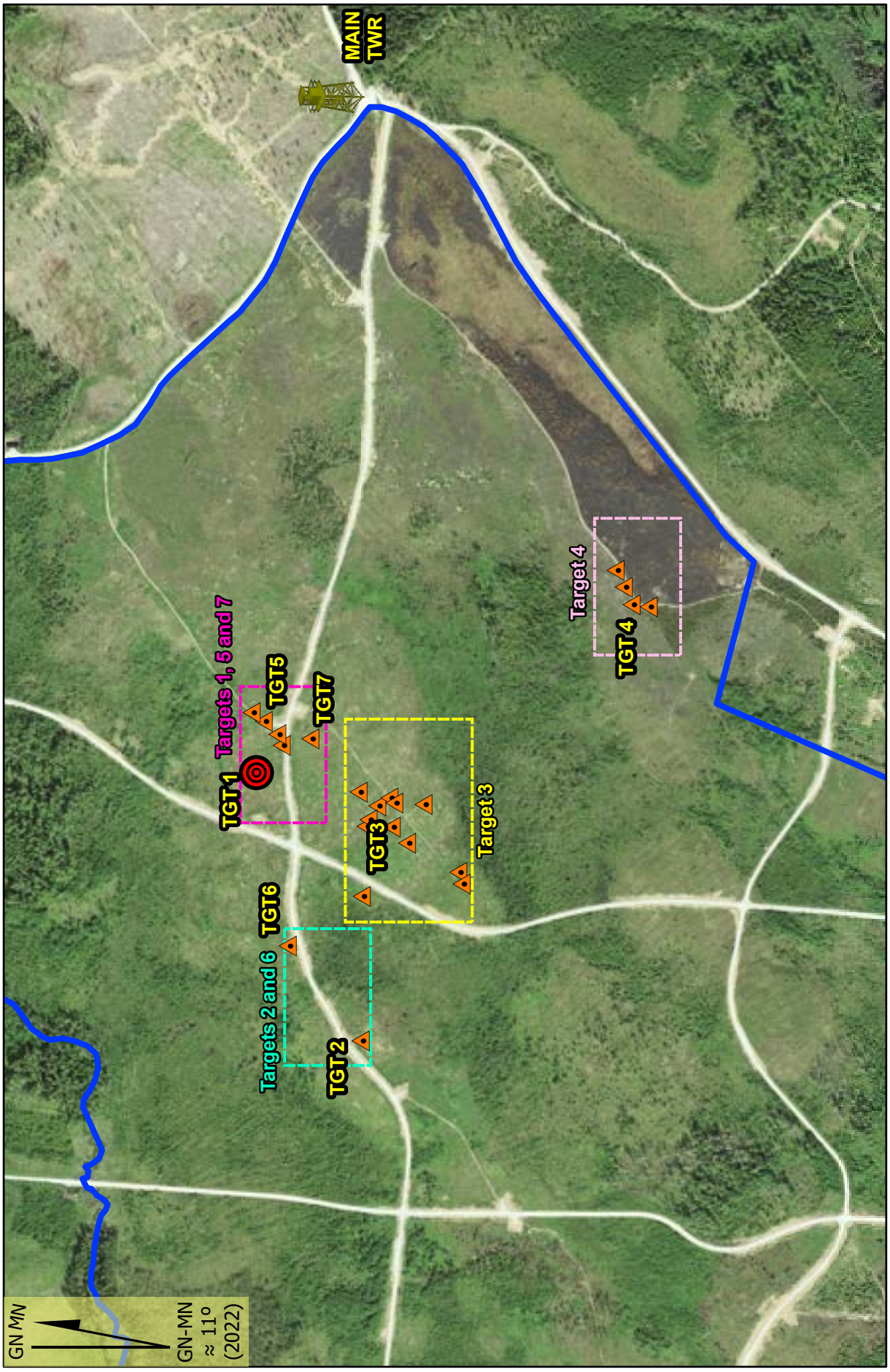
ID	Elev.	Location	Description
CP 1	32	N 59° 37' 15.00" E 025° 46' 45.00"	Village on the cape
CP 2	262	N 59° 07' 30.00" E 025° 39' 52.00"	Open field N of village
CP 3	0	N 59° 44' 21.00" E 026° 15' 00.00"	Over Sea
CP 4	364	N 59° 07' 30.00" E 026° 15' 00.00"	Väike-Maarja village
CP 5	233	N 59° 24' 12.00" E 025° 35' 44.00"	NE of Soodla reservoir

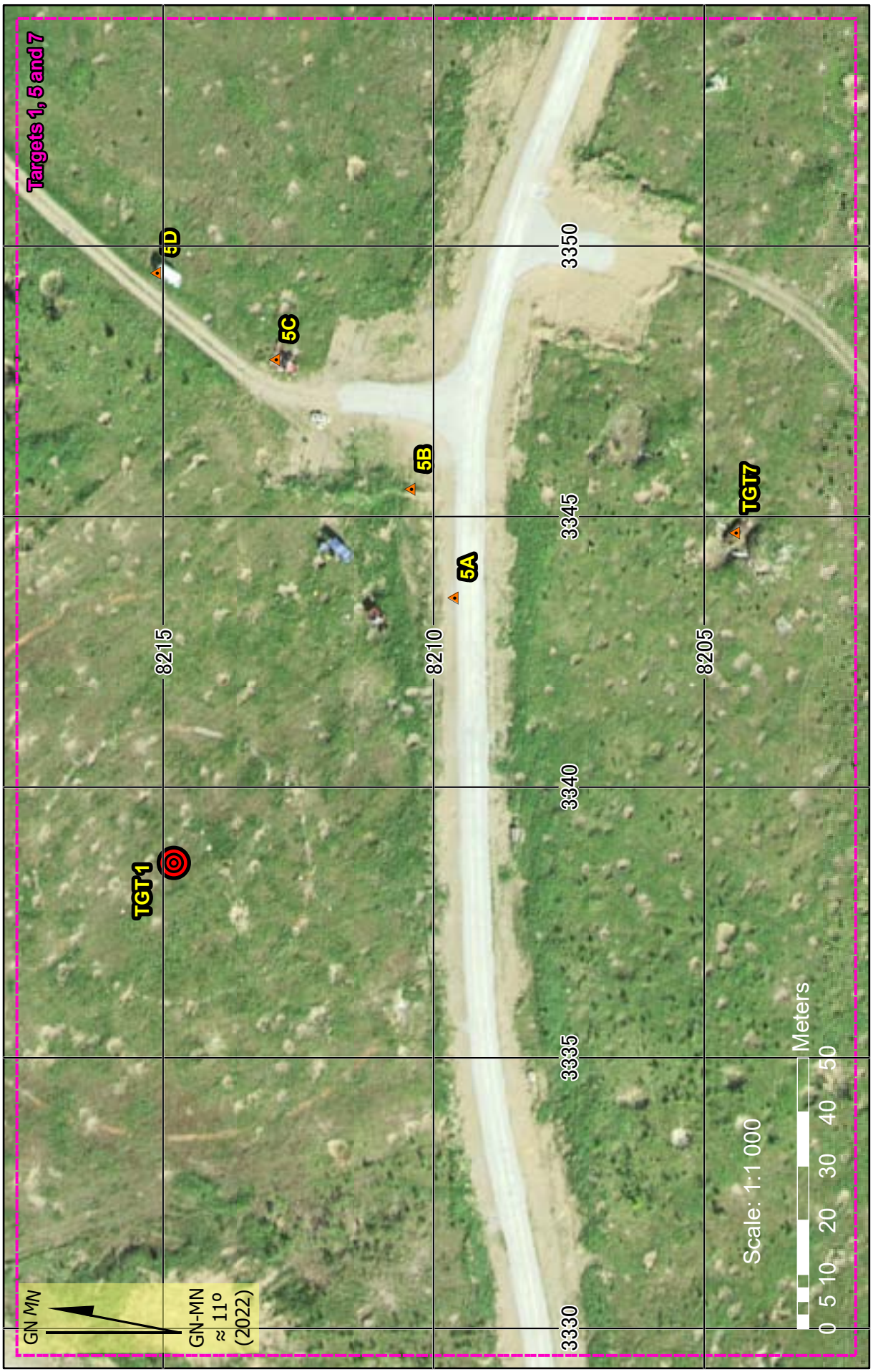

CP 3
CP 4
CP 1
CP 2
CP 5
BLACKSTREAM
SANDBOX
PARIS
PINEWOOD
PEASOUP
ANGRY
WHITEWATER
4 LAKES
TALLINN TMA2
TALLINN TMA1
Militaargeograafiagrupp 2016 | Kaitsevägi

Annex F - Target Maps




MAIN TWR
FLANK TWR
TGT 1
TGT2
TGT3
TGT 4
TGT5
TGT6
TGT7
GN MN
GN-MN
≈ 11°
(2022)


MAIN TWR
Target 4
TGT4
Targets 1, 5 and 7
TGT5
TGT7
TGT1
TGT3
Target 3
TGT6
Targets 2 and 6
TGT2
GN MN
GN-MN ≈ 11° (2022)


Targets 1, 5 and 7
5D
5C
5B
5A
TGT1
TGT7
8215
8210
8205
3350
3345
3340
3335
3330
GN MN
GN-MN
≈ 11°
(2022)
Scale: 1:1 000
Meters
0 5 10 20 30 40 50


Targets 2 and 6
TGT6
TGT2
8205
8200
8195
3305
3300
3295
3290
GN MN
GN-MN
≈ 11°
(2022)
Scale: 1:1 000
Meters
0 5 10 20 30 40 50


Target 3
GN MN
GN-MN
≈ 11°
(2022)
3A
3B
3C
3D
3E
3F
3G
3H
3I
3J
3K
3L
8195
8190
8185
8180
3315
3320
3325
3330
3335
3340
3345
Scale: 1:1 500
0 10 20 40 60 80 100
Meters


GN MN
GN-MN
≈ 11°
(2022)
Scale: 1:1 000
0 5 10 20 30 40 50
Meters
4A
4B
4C
4D
3380
3375
3370
3365
8150
8145
8140
Target 4

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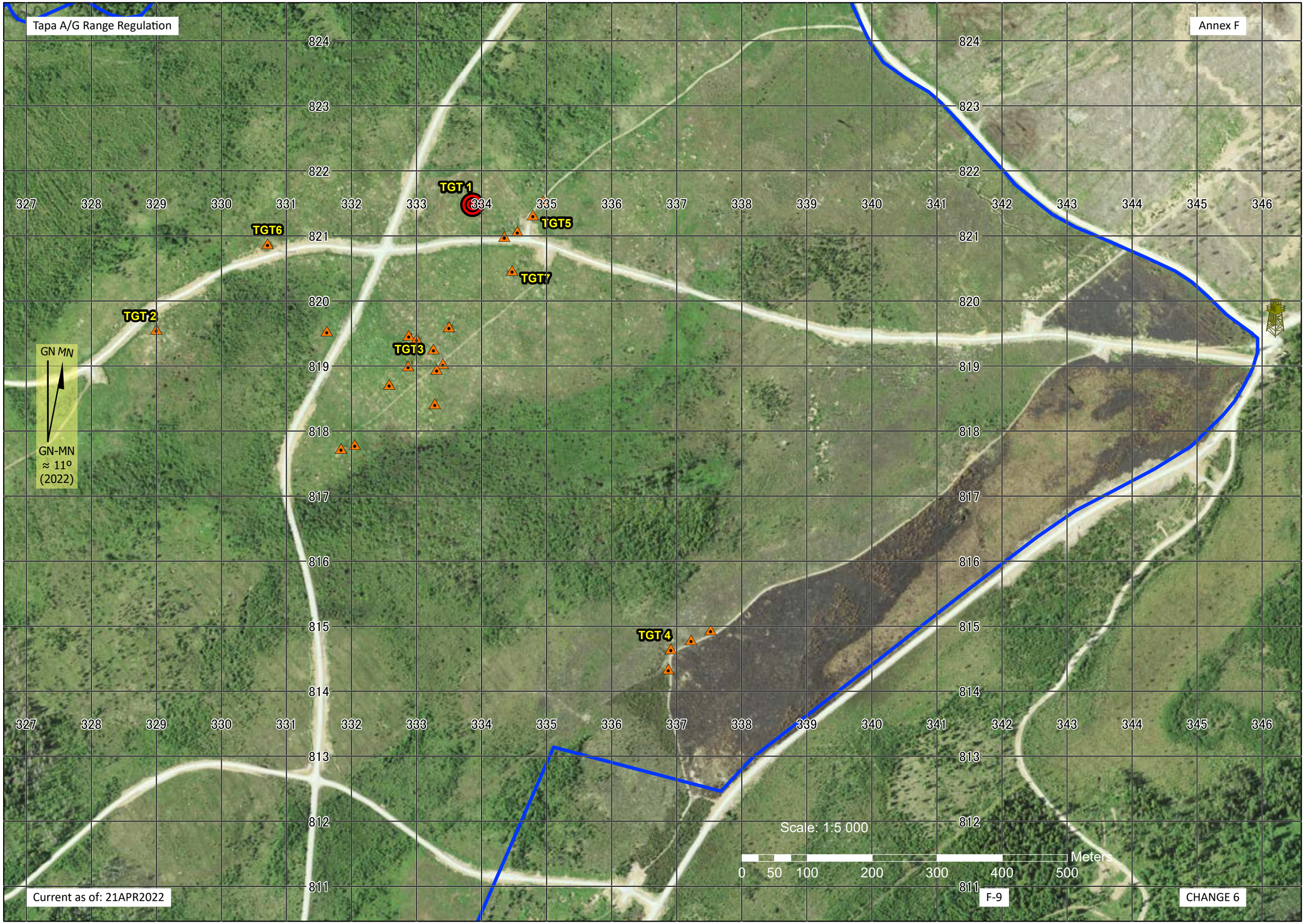
Tapa A/G Range Regulation
Annex F
TGT 1
TGT 2
TGT3
TGT4
TGT5
TGT6
TGT7
GN MN
GN-MN
≈ 11°
(2022)
824
823
822
821
820
819
818
817
816
815
814
813
812
811
327
328
329
330
331
332
333
334
335
336
337
338
339
340
341
342
343
344
345
346
Scale: 1:5 000
Meters
0
50
100
200
300
400
500
Current as of: 21APR2022
F-9
CHANGE 6

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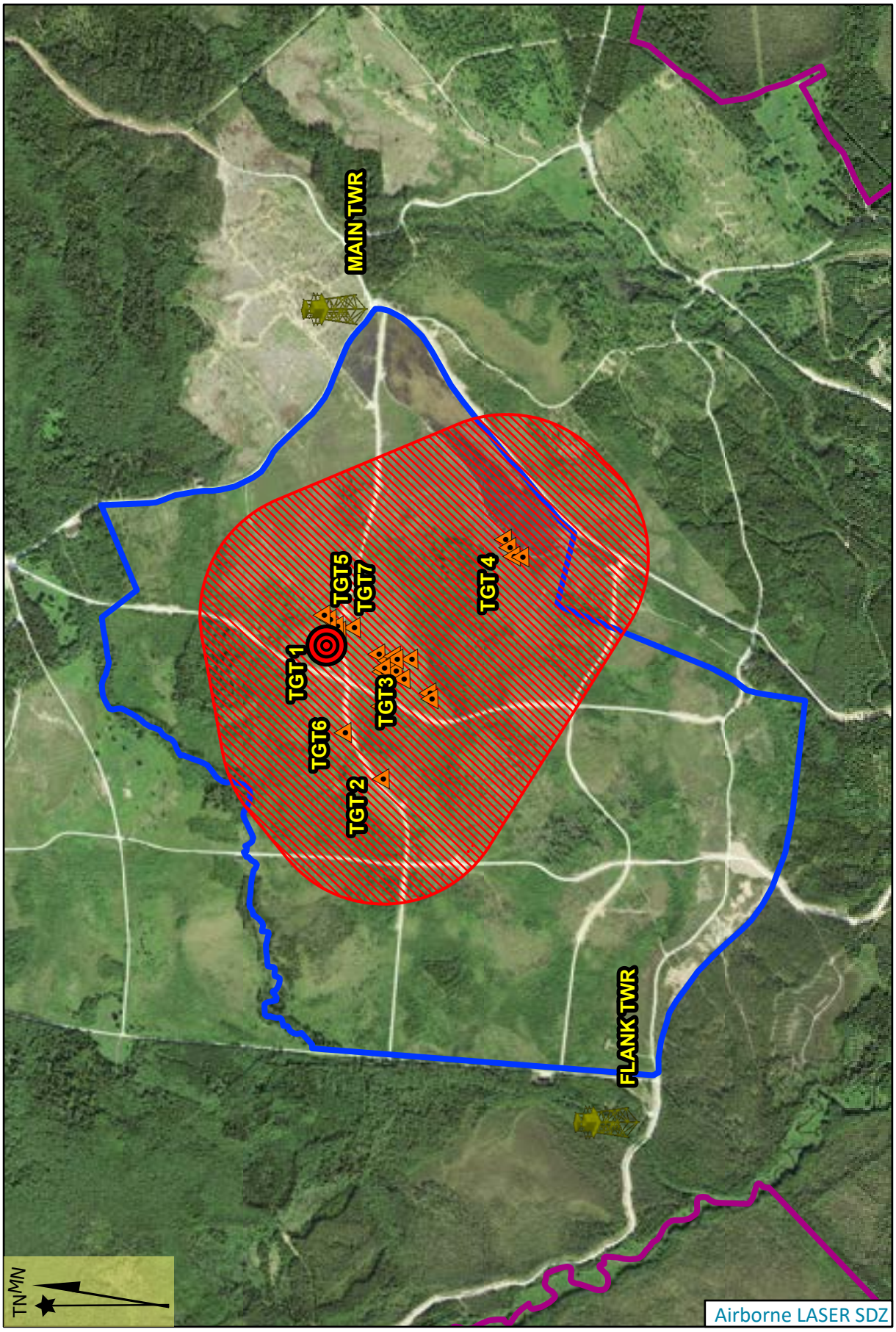
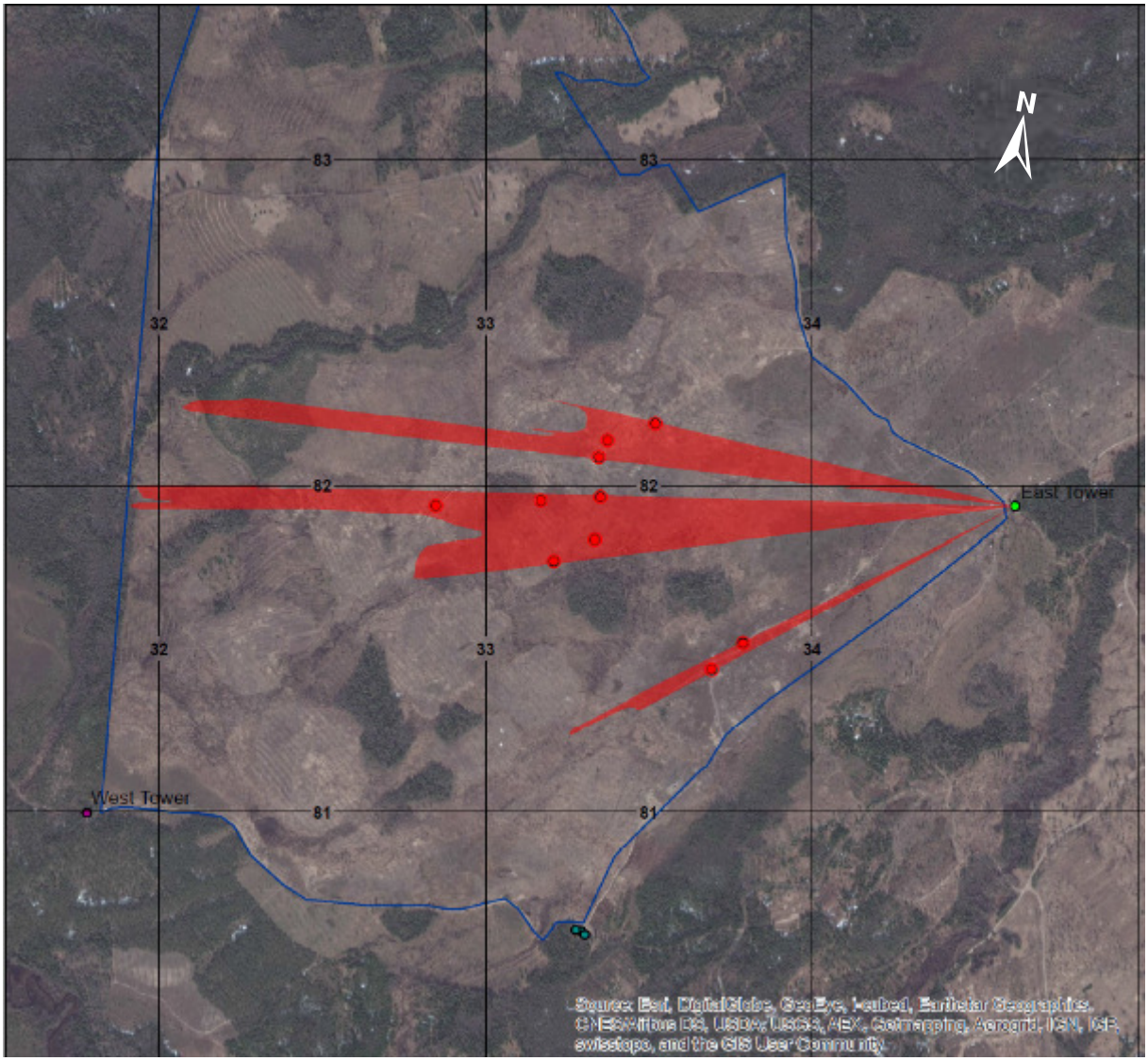
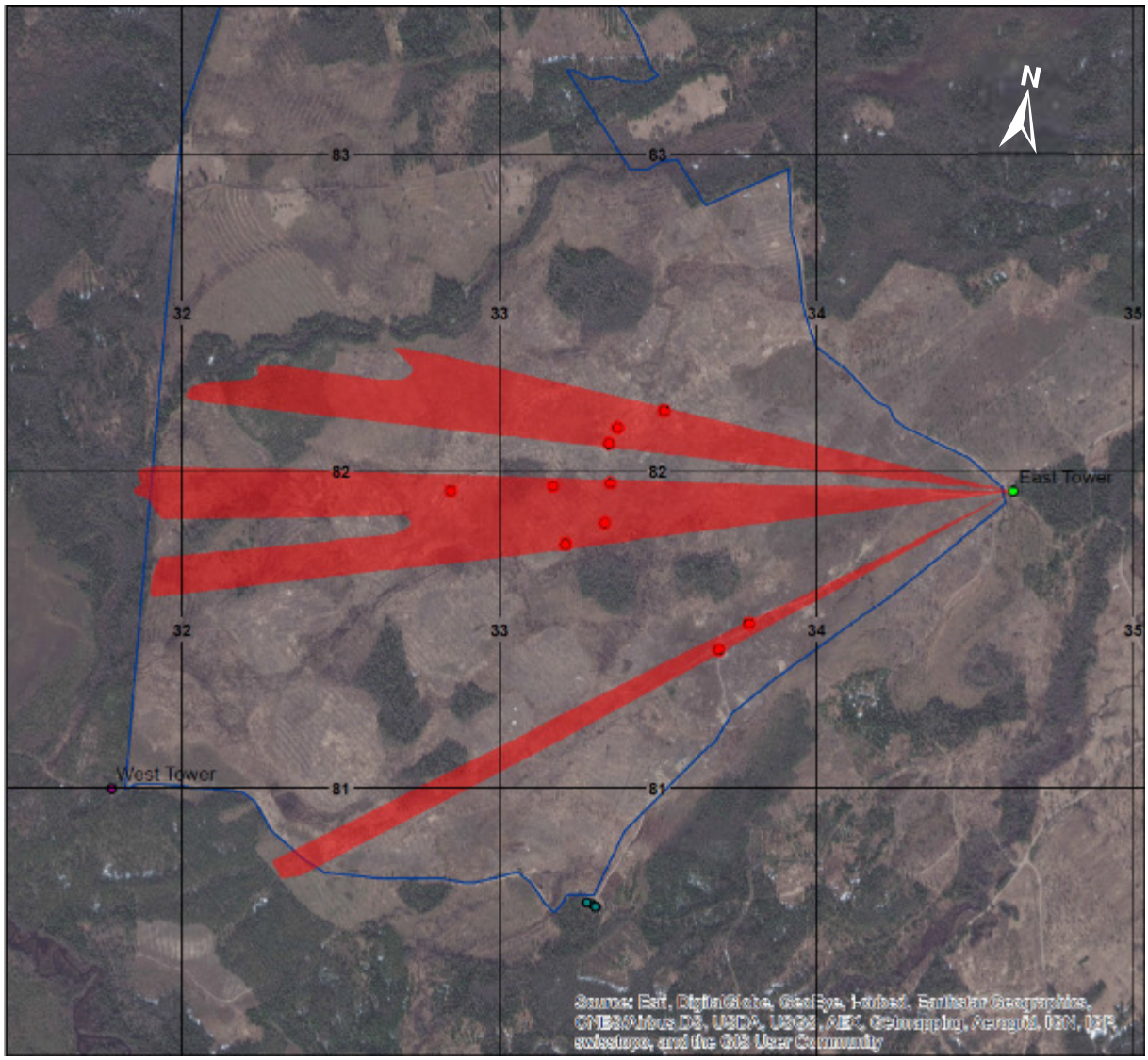
Annex G - LASER Safety Areas

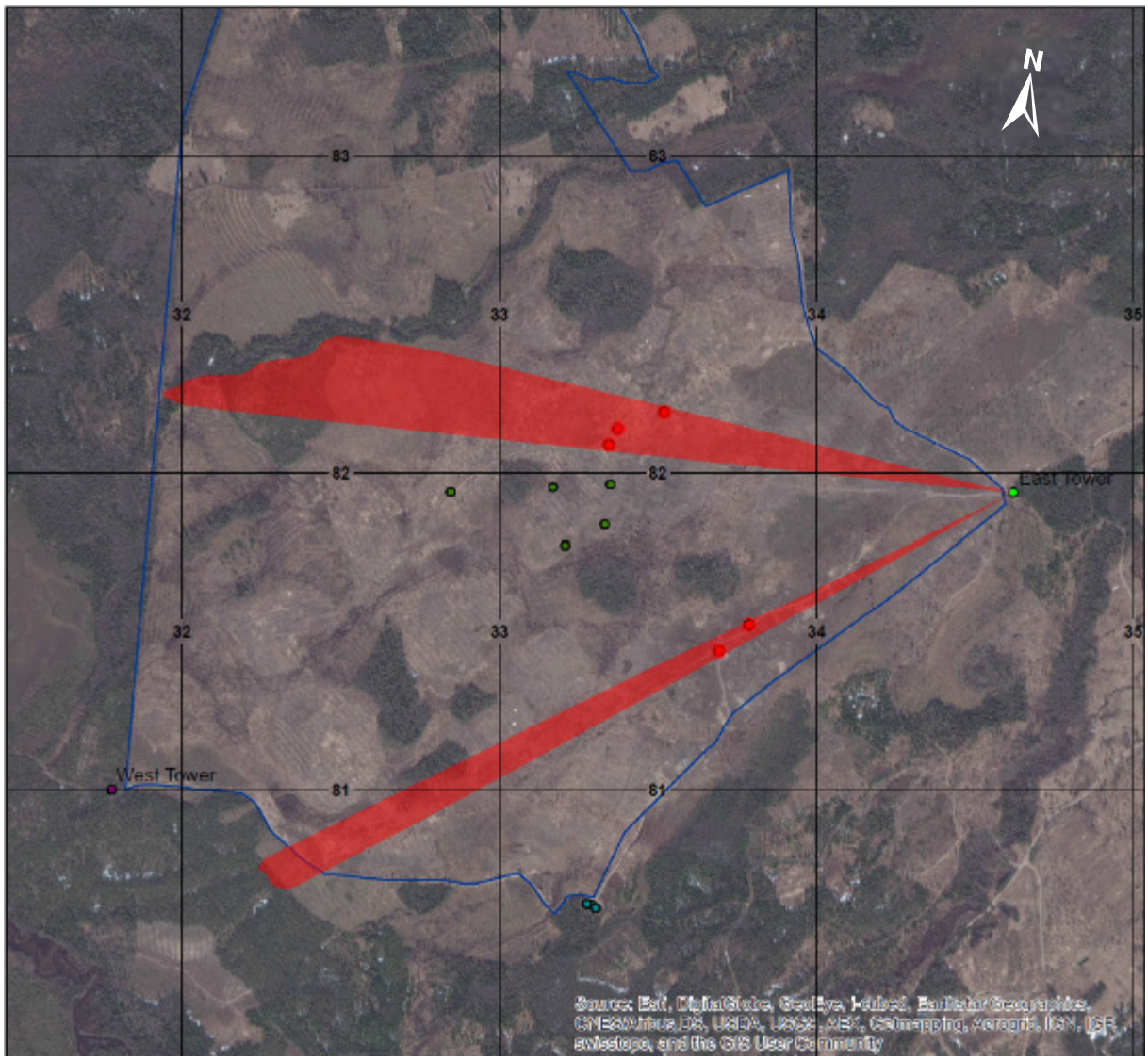




LASER SDZ for Daytime stabilized GLTDs from Main Tower



LASER SDZ for Daytime Handheld GLTDs from Main Tower



LASER SDZ for night time GLTDs from Main Tower

Annex H – Range Slots

1. The following table contains the slots in use in the AGR. The normal slot list is on column A. Deviations to the normal slots can be requested with timings according to variation B or C.
2. If a normal slot is used (var A), then only the number of the slot is used (e.g. Slot 22). If variations B or C are used, then the slot shall be referred by its number and variation. (e.g. Slot 22B)
3. The slots are in Local Time

SLOT	A		B		C	
	Start	End	Start	End	Start	End
1	0:00	0:45	0:15	1:00	0:30	1:15
2	0:45	1:30	1:00	1:45	1:15	2:00
3	1:30	2:15	1:45	2:30	2:00	2:45
4	2:15	3:00	2:30	3:15	2:45	3:30
5	3:00	3:45	3:15	4:00	3:30	4:15
6	3:45	4:30	4:00	4:45	4:15	5:00
7	4:30	5:15	4:45	5:30	5:00	5:45
8	5:15	6:00	5:30	6:15	5:45	6:30
9	6:00	6:45	6:15	7:00	6:30	7:15
10	6:45	7:30	7:00	7:45	7:15	8:00
11	7:30	8:15	7:45	8:30	8:00	8:45
12	8:15	9:00	8:30	9:15	8:45	9:30
13	9:00	9:45	9:15	10:00	9:30	10:15
14	9:45	10:30	10:00	10:45	10:15	11:00
15	10:30	11:15	10:45	11:30	11:00	11:45
16	11:15	12:00	11:30	12:15	11:45	12:30
17	12:00	12:45	12:15	13:00	12:30	13:15
18	12:45	13:30	13:00	13:45	13:15	14:00
19	13:30	14:15	13:45	14:30	14:00	14:45
20	14:15	15:00	14:30	15:15	14:45	15:30
21	15:00	15:45	15:15	16:00	15:30	16:15
22	15:45	16:30	16:00	16:45	16:15	17:00
23	16:30	17:15	16:45	17:30	17:00	17:45
24	17:15	18:00	17:30	18:15	17:45	18:30
25	18:00	18:45	18:15	19:00	18:30	19:15
26	18:45	19:30	19:00	19:45	19:15	20:00
27	19:30	20:15	19:45	20:30	20:00	20:45
28	20:15	21:00	20:30	21:15	20:45	21:30
29	21:00	21:45	21:15	22:00	21:30	22:15
30	21:45	22:30	22:00	22:45	22:15	23:00
31	22:30	23:15	22:45	23:30	23:00	23:45
32	23:15	0:00	23:30	0:15	23:45	0:30

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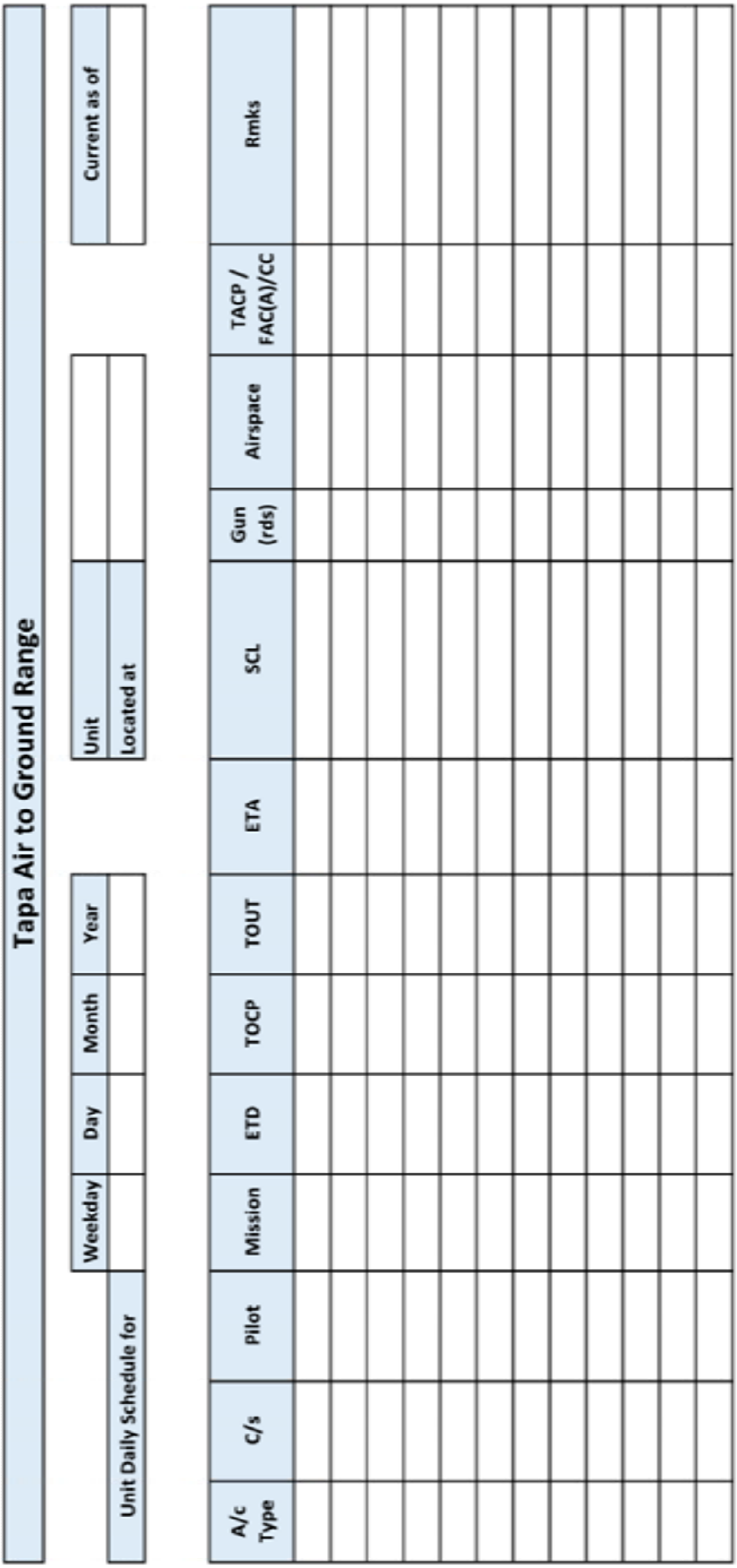
Annex I – Unit Schedule/UAS coordination Sheet



Tapa Air to Ground Range

	Weekday	Day	Month	Year
Unit Daily Schedule for	Thu	17	MAR	2016

Unit	Mixed Sqn
Located at	Ämari

Current as of
16MAR2016 12:30L

A/c Type	C/s	Pilot	Mission	ETD	TOCP	TOUT	ETA	SCL	Gun (rds)	Airspace	TACP / FAC(A)/CC	Rmks
A-10	Bear 11	Sid	BSA	10:00	10:15	11:00	11:45	6xB33	250	R/TSA15B		Out of Range Curr
	Bear 12	Dawg	BSA	10:00	10:15	11:00	11:45	6xB33, 12x Rs	250	R/TSA15B		
A-10	Bear 21	Mitre	CAS	11:30	11:45	13:15	13:30	DRY	0	R/TSA15C	EST TACP	AAR 12:15-12:30
	Bear 22	Cobra	CAS	11:30	11:45	13:15	13:30	DRY	0	R/TSA15C	UK TACP	AAR 12:15-12:30
C-130	Hercky 33	Mustang	Airdrop	11:30	11:45	12:30	12:45	4+3+3xBundles	N/A	R15B	Mudpit	T/o, Land at Nurmsi; 3 passes @ 1500ftc AGL,
HH-60	Blade 45	Maverick	CAS	12:15	12:30	13:00	13:15	12xRs, .50 Door	180	R15B	Blade46	T/o, Land at Tapa afld
	Blade 46	Iceman	FAC-A	12:15	12:30	13:00	13:15	12xRs, .50 FFG	180			T/o, Land at Tapa afld
B-52	Buff 11	Kong	CAS	TBD	13:15	13:30	TBD	DRY	N/A	TSA15BC	Dagger10	

Tapa Air to Ground Range

Current as of	

Unit	
Located at	

UAS coordination sheet for	Weekday	Day	Month	Year

POC	Name	Mobile	Freq	C/S

A/c Type	Cl	C/s	Launch		Route	Recovery		Airspace	Max Alt (ft AGL)	Lost Link	Rmks
			Time	Location		Time	Location				

Tapa Air to Ground Range

Unit	US Army Detachment
Located at	Tapa Barracks

Current as of
16MAR2016 12:30Z

UAS coordination sheet for	Weekday	Day	Month	Year
	Thu	17	MAR	2016

POC	Name	Capt John	Mobile	3 725 551 111	Freq	80.0MHz	C/S	R71

A/c Type	Cl	C/s	Launch		Route	Recovery		Airspace	Max Alt (ft AGL)	Lost Link	Rmks
			Time	Location		Time	Location				
RQ-7B Shadow	2	Bb610	10.00	MF 123 456	TD - MF1345 - MF1347 - MF1446 - Land	11:00	Tapa Afld	MF1144 - MF1544 - MF 1548 - MF 1148	500	Continue pre programmed route and altitude	Will operate in Range UHF Freq
Parrot 2.0	1	-	10.15	MF 100400	Within 400m radius	10.30	MF100400	500m radius from MF100400	250	Auto land in spot	POC 1Lt Smith, +372 555 1234

Annex J – Helicopter Routes

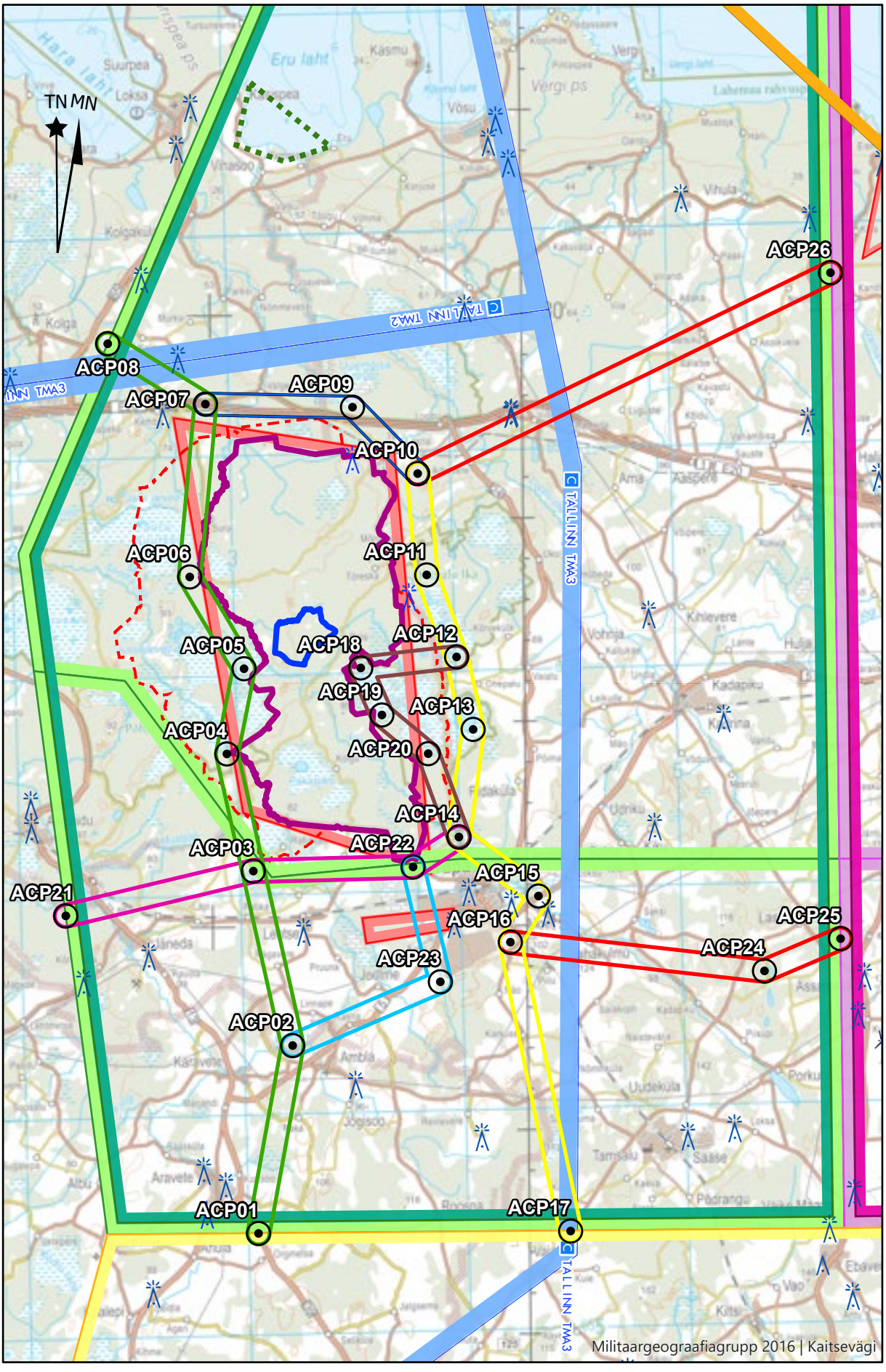
1. Routes
   a. The corridors are 1km wide (500m each side of centreline).
   b. Deconfliction and traffic avoidance inside the corridors is responsibility of the pilots. Coordination can be done on Range VHF frequency.
   c. Requests and reports will mention the corridor name and the direction.

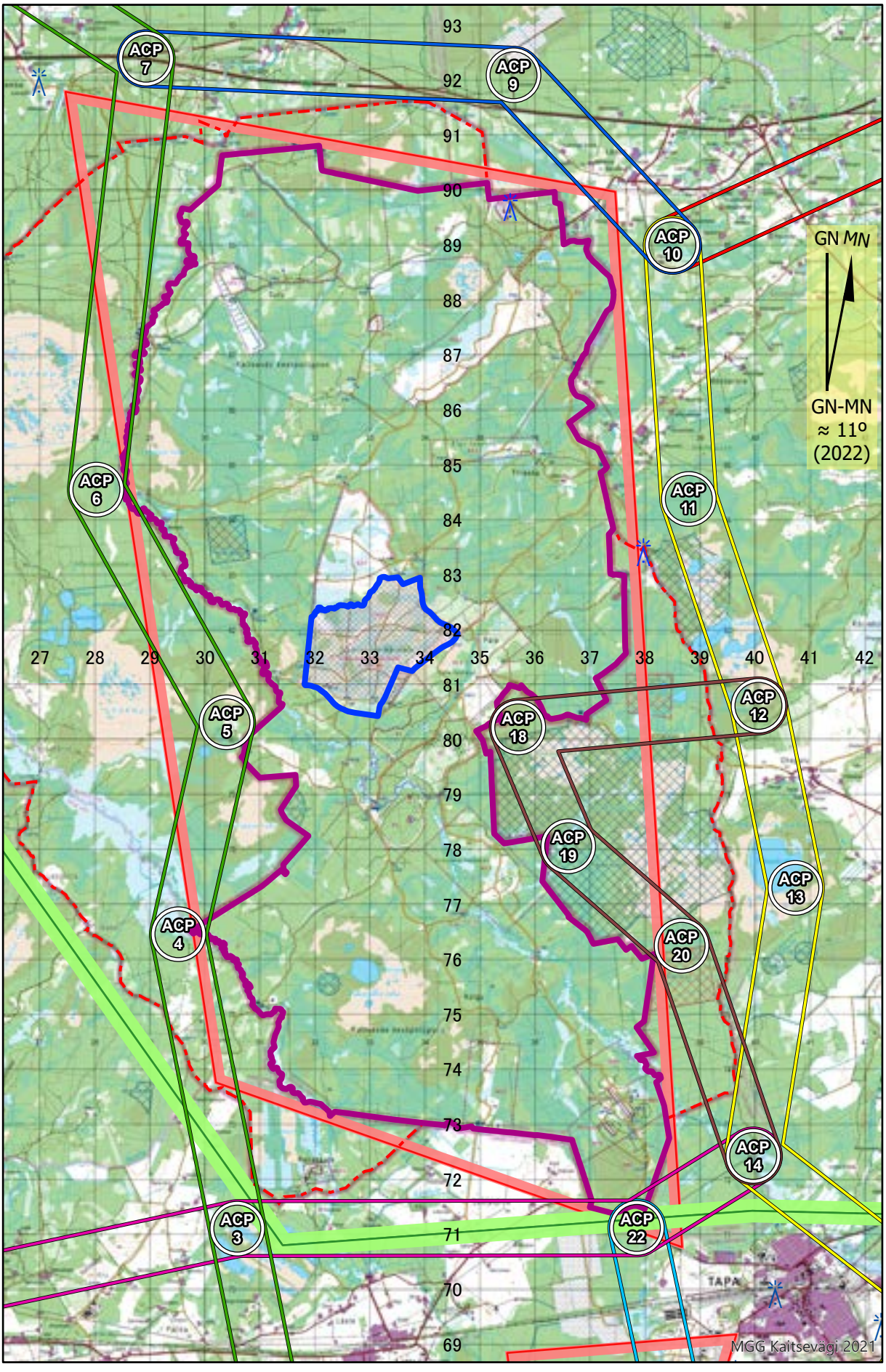
   E.g. "BLADE26 will proceed via Route Yellow Northbound and Red November Eastbound"

> CAUTION:
> All routes are safe to fly with normal CTA activity, even when an RCO is not in place.
> Routes GREEN and BROWN are inside an extended SDZ that sits outside of the boundaries of the CTA. Whenever there is ground activity that requires the activation of this extended SDZ, BLUE, GREEN and BROWN are not safe to fly.
>
> Route CYAN has a leg crossing EED13. When D13 is active, no traffic shall occur on CYAN between ACP22 and ACP23

   d. When the situation on the ground allows, the RCO can allow direct routing.

Route	Waypoints							
Green	ACP01	ACP02	ACP03	ACP04	ACP05	ACP06	ACP07	ACP08
Blue	ACP07	ACP09	ACP10					
Yellow	ACP10	ACP11	ACP12	ACP13	ACP14	ACP15	ACP16	ACP17
Magenta	ACP21	ACP03	ACP22	ACP14				
Cyan	ACP02	ACP23	ACP22					
Red Sierra	ACP16	ACP24	ACP25					
Red November	ACP10	ACP26						
Brown	ACP12	ACP18	ACP19	ACP20	ACP14			

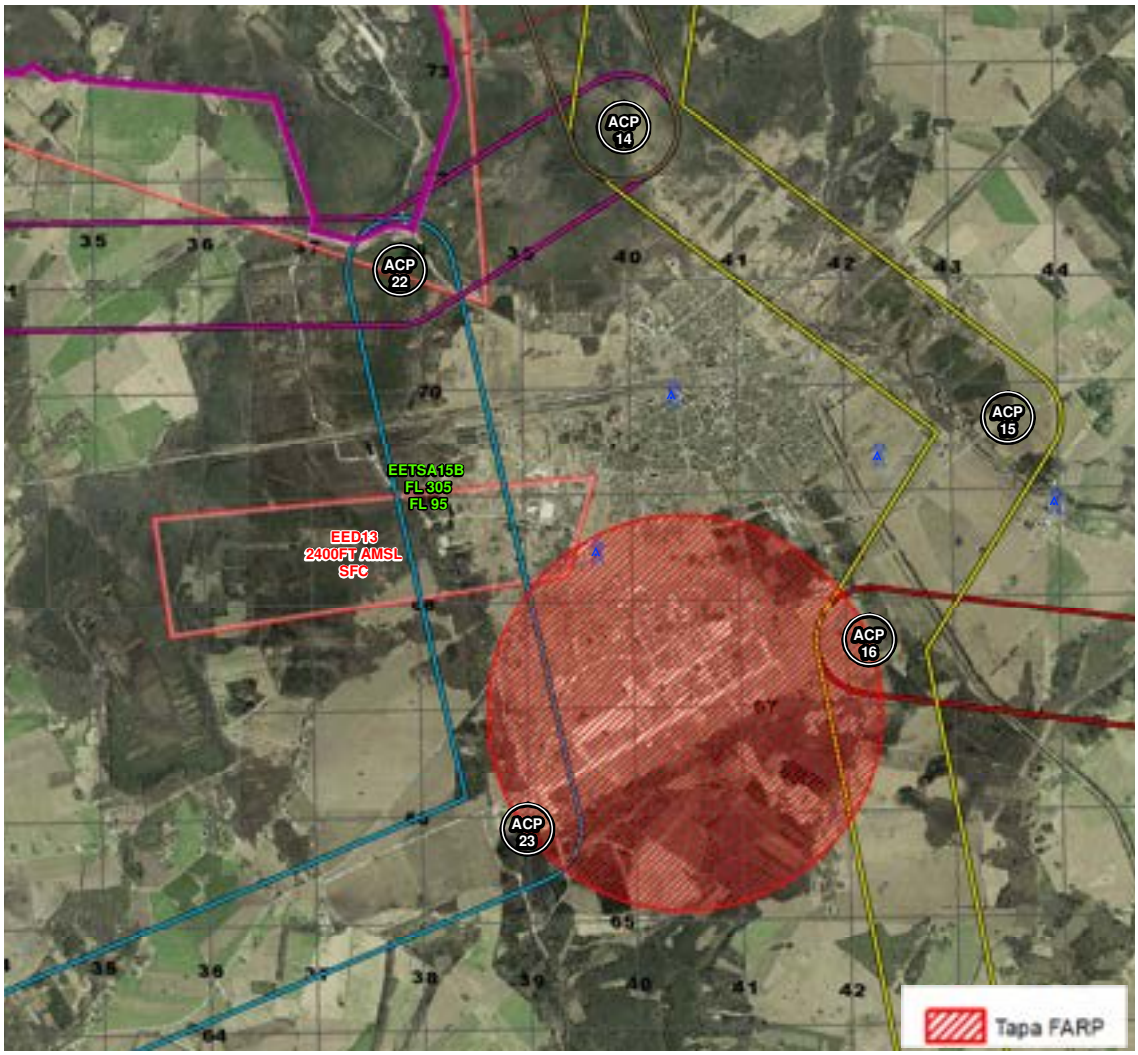

TN MN
ACP01
ACP02
ACP03
ACP04
ACP05
ACP06
ACP07
ACP08
ACP09
ACP10
ACP11
ACP12
ACP13
ACP14
ACP15
ACP16
ACP17
ACP18
ACP19
ACP20
ACP21
ACP22
ACP23
ACP24
ACP25
ACP26
TALLINN TMA3
TALLINN TMA2
Militaargeograafiagrupp 2016 | Kaitsevägi


ACP 7
ACP 9
ACP 10
ACP 11
ACP 12
ACP 13
ACP 14
ACP 18
ACP 19
ACP 20
ACP 22
ACP 6
ACP 5
ACP 4
ACP 3
GN MN
GN-MN
≈ 11°
(2022)
TAPA
MGG Kaitsevägi 2021

2. Waypoints

WPT	Coordinates (DD MM SS.dd)	
ACP1	N 59 07 30.41	E025 47 04.19
ACP2	N 59 12 06.43	E025 48 45.31
ACP3	N 59 16 23.31	E025 46 55.61
ACP4	N 59 19 15.84	E025 45 41.67
ACP5	N 59 21 20.99	E025 46 32.48
ACP6	N 59 23 36.40	E025 43 57.57
ACP7	N 59 27 50.41	E025 44 45.51
ACP8	N 59 29 19.96	E025 40 04.04
ACP9	N 59 27 44.53	E025 51 50.36
ACP10	N 59 26 06.18	E025 54 57.08
ACP11	N 59 23 37.03	E025 55 20.81
ACP12	N 59 21 36.03	E025 56 44.87
ACP13	N 59 19 49.28	E025 57 30.70
ACP14	N 59 17 11.22	E025 56 47.09
ACP15	N 59 15 43.36	E026 00 34.11
ACP16	N 59 14 35.90	E02559 12.17
ACP17	N 59 07 30.19	E026 01 56.89
ACP18	N 59 21 21.00	E025 52 08.64
ACP19	N 59 20 11.59	E025 53 08.46
ACP20	N 59 19 14.15	E025 55 20.83
ACP21	N 59 15 18.86	E025 37 56.46
ACP22	N 59 16 27.80	E025 54 34.67
ACP23	N 59 13 38.48	E025 55 50.21
ACP24	N 59 13 49.60	E026 11 20.48
ACP25	N 59 14 35.68	E026 14 59.97
ACP26	N 59 30 55.12	E026 14 56.18

3. TAPA FARP
   a. A “FARP Airspace”, 1NM r circle centred at N 59 14 14 E025 57 23, SFC to 500ft is established. ACPs 23 and 16 connect the network to this airspace.
   b. It is the user’s responsibility to coordinate the usage of Tapa airfield or helipads with the 1st Inf. Bde. The RCO is not liable for uncoordinated usage or its consequences.
   c. The RCO does not control Tapa FARP, and can delegate the FARP airspace to FARP Ops or PIC, when required.
   d. The RCO can, on request, provide wind information for Tapa (2min average).


ACP 14
ACP 22
ACP 15
EETSA15B
FL 305
FL 95
EED13
2400FT AMSL
SFC
ACP 16
ACP 23
Tapa FARP

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