

Chapter 6

GBAD WEAPON SYSTEMS USED IN THE GROUND TO GROUND ROLE

INTRODUCTION

0601. Many GBAD weapon systems have a secondary, ground to ground, self defence capability, although it is not current UK policy to use such systems in this role. Some foreign forces that use UK ranges for training do, however, practise this capability and may wish to use UK ranges for that purpose.

0602. Aim. The aim of this chapter is to give guidance on the operation of ranges for the use of GBAD weapon systems in the ground to ground role.

MISSILES

0603. Weapon Danger Area. The WDA for a ground target is likely to be similar to the full WDA for an air target since most of the hazards identified in the Safety Case will be unchanged. With guided missiles the maximum range of the WDA will remain the Total Energy (Range) (TEr) as the flight is non-ballistic. The key difference will be the increased likelihood of the missile grounding during flight and in particular during the gather phase at launch. An increase in launch elevations may be required to prevent ground strike. This is sometimes known as super-elevation and is applied by the user.

0604. Ranges. There are only a few land ranges that are large enough to absorb the WDA of a GBAD missile. There are two additional firing criteria that should be considered:

- a. **The minimum engagement range.** This is usually to allow the missile to arm and to achieve stable flight.
- b. **The warhead effects danger area.** This is to avoid the firer being endangered by the warhead event. It should also include debris from the target.

0605. Rear Danger Areas. For most missiles there will be no change.

0606. Moving Targets. See Chapter 7.

GUNS

0607. Weapon Danger Area. There is considerable scope to re-draw the WDA for a GBAD gun being used in the ground role. The QE of the gun is reduced to the lower elevations with a considerable reduction in maximum range. However, there will be the addition of ricochet and thus the WDA must be re-modelled. DOSG advice should be sought through the Chain of Command well in advance of the proposed firing.

0608. Firing Platform. GBAD guns, because of their design, put most of the recoil energy produced by firing into the ground. If the elevation is bought close to the horizontal then these forces must be absorbed by the recoil mechanism. This may well require additional anchorage to the firing platforms to provide a stable base for firing.

0609. Effects. The effects of blast, debris, flash, toxicity and noise from a GBAD gun system may well be changed by the muzzle being in close proximity to the ground than when firing in the primary surface to air role. All of these factors and their possible effects on structures and people in the area will need to be assessed before firing takes place.

0610. Moving Targets. See Chapter 7.