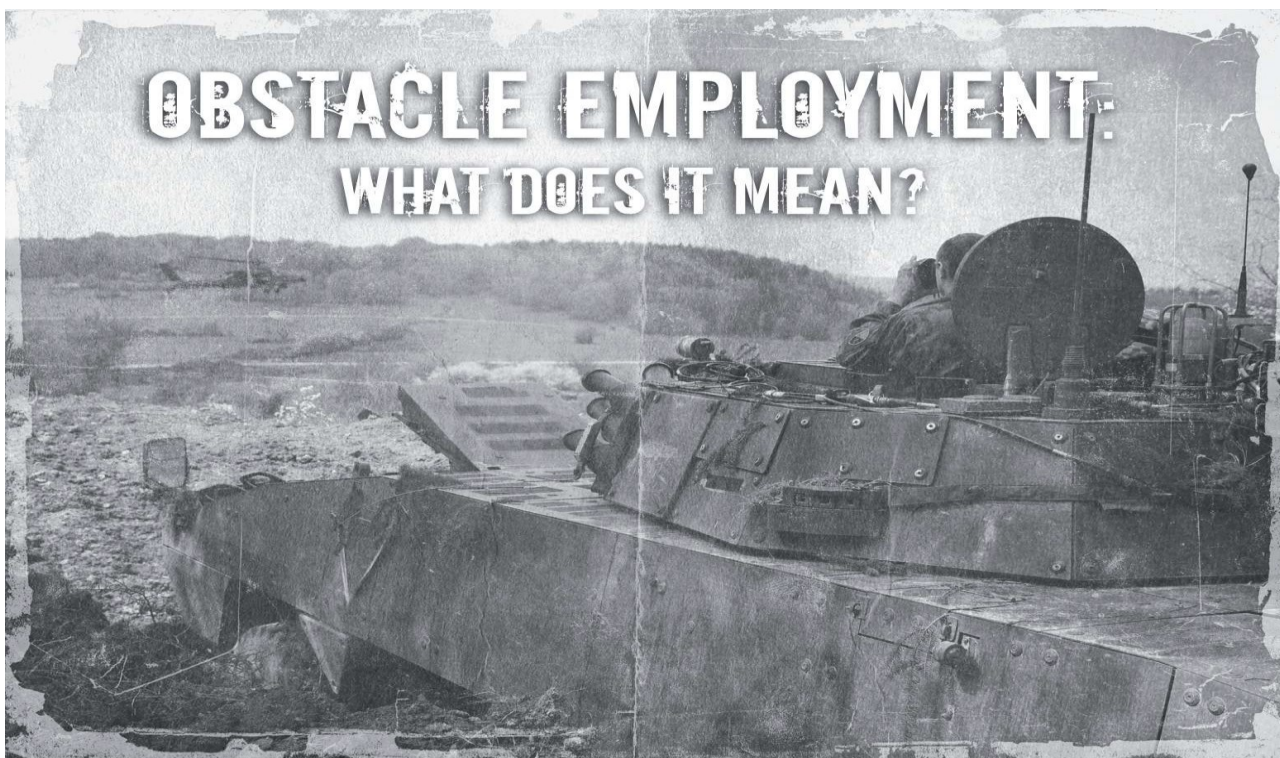




OBSTACLE EMPLOYMENT : WHAT DOES IT MEAN(1)

阻絕部署之要義(上)

作者：約翰·米勒少校

翻譯：湯恩魁少校

North Atlantic Treaty Organization (NATO) Allied Joint Publication 3.12, Allied Joint Doctrine for Military Engineering, defines military engineering as those activities that physically shape the operating environment. Over the past 11 years, U.S. military commanders have lost significant capability to shape terrain using the full range of persistent antivehicle and antipersonnel landmine systems without a reciprocal increase in a persistent land mine-alternative capability (except in the Korean Peninsula). Remote antiarmor mines and select Volcano munitions make up the remaining land mine terrain-shaping capability following U.S. policy changes. Between February 2004 and September 2014, the only significant addition to the terrain-shaping capability of commanders was the XM-7 Spider network

command munition. The remaining U.S. Army terrain-shaping capabilities are similar to methods and obstacles meant to deny movement or maneuver to the enemy—such as ditches, earthworks, and abatis—used by armies for more than 2,000 years. The only difference is the terrain-shaping technology used to deny the enemy access to, or use of, advantageous terrain.

北大西洋公約組織之聯軍聯戰準則3.12為《聯軍工兵聯戰準則》，內容提及在遂行防禦任務時，工兵部隊主要任務為形塑戰場環境，以創造有利態勢。在過去11年間，美軍指揮官逐漸喪失了形塑戰場之重要能力，重視運用替代性地雷之能力，而不再採用戰防雷及人員殺傷雷系統(除了朝鮮半島以外)。依據美軍政策調整，運用遙控戰防雷及火山布雷系統，以補足地雷形塑戰場能力之缺口。在2004年2月至2014年9月之間，指揮官獲得唯一明顯提升形塑戰場能力的裝備，只有XM-7蜘蛛網路遙控爆材。美軍形塑戰場之能力，與阻礙敵軍機動方法類似，例如陸軍已經運用超過2,000年的壕溝、防禦工事及刺絲網。唯一的不同的是，如何運用形塑戰場之技術，以避免敵軍接近並運用有利地形。

Engineers must understand the methods, theory, and employment of obstacles in shaping terrain to meet the intent of commanders. A knowledge of U.S. Army obstacle doctrine is no longer sufficient to effectively shape terrain against a near-peer threat. Effective obstacle application demands that engineers apply the five obstacle employment principles; possess a military sense of terrain; understand obstacle methods, capabilities, and effects; exercise adaptive, experience-based obstacle design; and use available, commercial, off-the-shelf, terrain-shaping technologies.

工兵必須瞭解阻絕設置的方法及理論以形塑戰場，達成指揮官作戰企圖。美軍阻絕準則已不再足以有效形塑戰場，以滿足對抗鄰近之威脅。工兵運用阻絕設置的五項原則，以達到有效運用阻絕之需求、掌握地形軍事概念、瞭解阻絕方式、能力及影響，適應演習及經驗豐富之阻絕設計、運用現有形塑戰場之技術。

The five obstacle employment principles are—

- Support the maneuver commander's plan.
- Integrate with observation and fires.
- Integrate with other obstacles.
- Employ in depth.
- Employ for surprise.

阻絕設置五項原則：

- 支持戰鬥部隊指揮官作戰計畫
- 整合觀測及射擊
- 整合其他阻絕
- 縱深配置
- 奇襲設置

This article focuses on these five principles and the ways a successful engineer planner can use obstacle employment planning to mitigate the loss of obstacle capabilities.

這篇文章將著重於這五項原則，工兵計畫官如何成功地運用阻絕設置方式，減緩敵軍削弱阻絕之能力。

Combined arms obstacle integration operations commonly involve the defense, but obstacles are used throughout the spectrum of unified land operations. For example, commanders might use situational obstacles during an attack to protect a flank from an enemy spoiling attack or strike force in a mobile defense. Planning obstacle employment is generally left to engineers. They are introduced to the steps of engagement area development as a guide to planning obstacles, but these steps are primarily designed for the maneuver commander and staff as a planning checklist during the defense. The seven steps of engagement area development are—

兵種協同作戰中，阻絕整合作業的良窳將攸關防禦作戰，但阻絕運用將涵蓋全方位地面聯合作戰。例如，指揮官可能在攻擊時，運用狀況性阻絕保護側翼，或配合打擊部隊實施機動防禦，以避免遭受敵軍襲擊。阻絕設置計畫通常都是由工兵負責，他們運用研擬接戰地區步驟，以作為計畫阻絕之指導。在防禦時，這些程序之設計主要是供戰鬥部隊指揮官及參謀運用之計畫檢視清單，研擬接戰地區7步驟概述如下：

- Step 1. Identify likely enemy avenues of approach.
- Step 2. Identify the enemy scheme of maneuver.
- Step 3. Determine where to kill the enemy.
- Step 4. Plan and integrate obstacles.
- Step 5. Emplace weapons systems.
- Step 6. Plan and integrate indirect fires.
- Step 7. Conduct an engagement area rehearsal.

- 步驟1.確認敵可能接近路線
- 步驟2.確認敵機動計畫
- 步驟3.決定殲滅敵軍之區域
- 步驟4.計畫並整合阻絕
- 步驟5.設置武器系統
- 步驟6.計畫及整合曲射武器
- 步驟7.於接戰地區實施預演

During offensive operations, these steps do not always apply. The five obstacle employment principles provide guidance on obstacle planning for any operation type and complement Step 4, plan and integrate obstacles.

防禦作戰時，這些步驟並不總是適用，阻絕設置5項原則可對任何作戰型態提供阻絕計畫指導，並完成步驟4之計畫並整合阻絕。

Support the maneuver commander's plan

Supporting the maneuver commander's plan is arguably the most important of the five obstacle employment principles. Considering the maneuver commander's intent and operational concept during planning ensures that obstacles increase the probability of hits by direct and indirect fire systems and negatively affect the ability of the enemy to gain access to favorable terrain. The engineer planner must understand where the maneuver commander wants to mass effects on the enemy force and then plan terrain-shaping operations to the enemy force to that point. Engineers are susceptible to a few common pitfalls with this principle because they tend to—

支持戰鬥部隊指揮官作戰計畫

支持戰鬥部隊指揮官作戰計畫，無疑是五大阻絕設置原則中最為重要的一項。考量戰鬥部隊指揮官企圖及作戰構想，研擬計畫需確認阻絕可有效增加直射及曲射武器系統之命中率，並對敵軍奪取所望地形能力產生負面影響。工兵計畫官必須瞭解戰鬥部隊指揮官要對敵軍集火攻擊之區域，藉由戰場形塑作業，使敵軍部隊機動至我所望之位置。工兵部隊運用這項原則通常會產生些一般性缺失，因為他們傾向於：

- Overthink the maneuver commander's intent.
- Do not completely understand the commander's intent and/or operational concept.
- Develop unsupportable obstacle plans.
- Do not fully understand enemy mobility and counter obstacle capabilities or how the enemy maneuvers through the existing terrain.
- 揣摩戰鬥部隊指揮官企圖
- 無法完全瞭解指揮官企圖及作戰構想
- 發展無法支援之阻絕計畫
- 無法完全瞭解敵軍機動力及障礙排除能力，敵軍如何通過現有地形？

Overthinking the commander's intent and operational concept during obstacle planning usually leads to an obstacle plan that does not support the commander's intent, is overly complicated, and commits more engineer effort than is required. Engineer planners participating in rotations at the Joint Multinational Readiness Center (JMRC), Hohenfels, Germany, tend to develop obstacle plans to independently block enemy maneuver instead of developing plans that conform to the friendly maneuver plan.

在阻絕計畫時，揣摩指揮官企圖及作戰構想，通常造成阻絕計畫無法支持指揮官企圖，阻絕過於複雜，或投入過多不需要的工兵作業。在德國霍漢菲爾斯聯合多國戰備中心服役的工兵計畫官，想要發展阻絕計畫，以獨立地阻止敵軍機動，而不是去發展一套配合友軍機動之阻絕計畫。

In a recent rotation at JMRC, one maneuver commander's intent was to delay the opposing force (OPFOR) along two mobility corridors, attrit the enemy, and trade space for time to develop a substantive engagement area. The brigade engineer planned block obstacle groups in the mobility corridors instead of the fix effect the commander desired. Ultimately, the block obstacle groups were not emplaced, but significant time and resources that could have been used elsewhere were expended in preparation.

在最近聯合多國戰備中心中，一個戰鬥部隊指揮官企圖沿著兩條機動走廊遲滯敵軍，削弱敵軍戰力，以空間換取時間，發展獨立之接戰地區，旅級工兵官計畫在機動走廊上設置阻止性阻絕群，而不是指揮官所想要的遲滯性阻絕群，最後，阻止性阻絕群並沒有設置完成，但耗費大量時間與資源，這些資源是可以準備運用在其他更有需要的地方。

The three remaining pitfalls are usually attributed to the engineer planner's lack of knowledge, education, and experience. Engineers should not be embarrassed to ask questions during the planning process to clarify misunderstandings of the operational concept. Engineer planners are expected to perform as the master craftsmen of all things related to countermobility. Inability or incompetence in the development of a supportable obstacle plan is inexcusable. Obstacle plans must consider all materiel, personnel, equipment, and time resources required and available to meet the operational concept. If a resource gap exists in the obstacle plan, then the plan is not supportable and must be modified until the resource gap is diminished. Unfamiliarity with enemy mobility and counter obstacle capabilities is normally rectified by close coordination with the intelligence section.

缺乏知識、教育及經驗的工兵計畫官經常會犯以下三個容易犯的錯誤。在計畫過程中，工兵不應該不好意思提出疑問，應釐清對於作戰構想之誤解。工兵計畫官被期許對於所有有關反機動之作為，表現得像工藝大師一樣。無法有效發展阻絕支援計畫是不可原諒的。阻絕計畫必須考量所需之資材、人員、裝備及時間資源，亦必須符合作戰構想。倘若資源缺口無法滿足阻絕計畫，這項計畫將無法有效支援，必須修訂計畫直到減少資源缺口。不熟悉敵軍機動及排除阻絕之能力，通常需與情報組密切協調後進行調整。

Through a lack of knowledge and experience, engineer planners habitually fail to develop obstacle plans that meet the maneuver commander's intent. At JMRC, this is usually highlighted in a mobility corridor referred to as the 15T. Engineer planners constantly develop obstacle groups in the 15T open space and do not tie the obstacle groups into the surrounding terrain. Normally, maneuver commanders want to canalize the OPFOR into the center of the 15T to mass effects on them. However, placing obstacles in the center of the 15T does not affect the OPFOR maneuver tactics, techniques, and procedures of using the terrain to the north and south of the open area. Instead, the OPFOR just diffuses around the obstacle groups with little or no effect on their maneuver. Engineer planners must understand how the enemy uses the existing terrain and then how to shape the existing terrain to change the enemy maneuver.

當工兵計畫官缺乏知識與經驗，將習慣地不配合戰鬥部隊指揮官企圖發展阻絕計畫。在聯合多國戰備中心，機動走廊中時常被關注的是15T這個區域。工兵計畫官通常在15T開放空間發展阻絕群，並未將阻絕群與周邊地形鏈結在一起。一般來說，戰鬥部隊指揮官希望導引敵軍部隊進入15T之核心區域，藉以集火攻擊敵軍。但是，在15T核心區域設置阻絕，不會影響敵軍戰鬥部隊運用南北開闊地形之戰術作為，相反地，敵軍部隊僅僅運用少許破障作為，甚至無須遂行任何破障作為，即可在阻絕群周邊滲透。工兵計畫官必須瞭解敵軍如何運用既有障礙物，以及如何運用既有障礙物形塑戰場，以改變敵軍之機動。

Integrate With Observation and Fire

The principles of integrating obstacles with observation, fires, and other obstacles are accomplished in concept and action. Conceptually, the engineer planner integrates obstacles in the planning and preparation phases and then the responsibility shifts to the emplacing engineer leader to actively integrate the obstacles on the ground with the covering unit. NATO Standardization Agreement 2036, Land Mine Laying, Marking, Recording and Reporting Procedures, states that obstacles cannot achieve the desired obstacle effect unless they are used in combination with observed fires. Only then can the obstacle achieve its desired effect on the enemy. Unless obstacles and fires are properly integrated, the OPFOR can quickly negate any obstacle effect given enough time and adequate resources. Failure to integrate observation and fires with obstacles gives the OPFOR time and reduces the resources they need to breach or bypass an obstacle.

整合觀測與射擊

整合觀測、射擊及其他阻絕的阻絕整合原則，必須概念與現況配合完成。

理論上，在計畫及整備階段，工兵計畫官整合阻絕系統，然後責任轉移至設置部隊工兵幹部，在掩護部隊陪同下，在現地動態整合阻絕。北約標準協定2036《地雷設置、標記、記錄及報告程序》說明，除非部隊整合觀測與射擊，否則阻絕將無法達到阻絕預期之效果，唯有密切整合，才能對敵軍達到阻絕之效果。除非阻絕及火力適切整合，否則敵軍部隊將可在足夠的時間與適當的資源下，快速排除阻絕所造成之影響。

Engineer planners integrate obstacles with observation and fires through coordination with the maneuver, intelligence, and fires functional staff chiefs. Integrating observation and obstacles during planning is achieved by assigning unit responsibility and allocating assets. The maneuver and fires functional chiefs assign obstacle responsibilities to subordinate units and advise on observation system capabilities. The intelligence functional chief assists in synchronizing intelligence, surveillance, and reconnaissance (ISR) assets through the ISR collection manager, providing the observation of obstacles that are not directly overwatched by ground forces. Items to be considered when integrating obstacle observation include—

工兵計畫官與戰鬥部隊、情報及火協組長協調整合阻絕及觀測與射擊。在計畫期間，透過被賦予任務之部隊與裝備，遂行觀測與阻絕之整合。戰鬥部隊指揮官及火協組長賦予所屬下級阻絕責任區域，並告知其觀測系統之能力。情報組長透過情監偵收集管理官同步整合情報、監視及偵查，提供沒有被地面部隊直接掌控之阻絕觀測成果。整合觀測及阻絕時需考慮事項包含：

- Assignment of an owning unit to overwatch.
- Use of ground reconnaissance assets.
- Use of forward observers and joint terminal attack controllers.
- Capabilities of optical systems, limitations on range, and limited visibility operations.
- Use of rotary wing aircraft.
- Use of unmanned aerial surveillance assets.
- 所屬單位監視任務
- 運用地面偵蒐裝備
- 前進觀測官及聯合終端攻擊管制員之運用
- 觀測系統之能力、觀測距離及能見度之限制
- 旋翼機之運用
- 無人飛行偵查載具之運用

Direct- and indirect-fire effects are amplified when properly integrated with obstacles. The engineer planner coordinates directly with the maneuver and fires functional chiefs to ensure that all obstacles are effectively integrated with fires. Considerations when integrating obstacles with fires include—

當適切整合阻絕時，直射及曲射火力可獲得加乘之效果。工兵計畫官直接協調戰鬥部隊指揮官與火協組長，以確認所有阻絕有效與火力進行整合。當整合火力及阻絕所需考慮事項為—

- Assignment of engagement responsibilities and criteria.
- Weapons system and effects desired.
- Use of direct versus indirect fires.
- Use of echelon fires using maximum-range weapons at maximum-range obstacles.
- Integration at seams, transitions, and endpoints.
- Orientation of obstacles to achieve the desired direct-fire engagement method (enfilade, oblique, flanking, or frontal).
- Determination of priority targets and target protection/hardness.
- 接戰責任與要項之賦予
- 所望之武器系統及其影響
- 直射及曲射火力之運用
- 在最遠之阻絕地區使用最大射程部隊火力之運用
- 在阻絕間隙、過渡區及終止點之整合。
- 阻絕方針以達到所望之直射武器接戰方式(縱射、斜射、側方火力及正面攻擊)
- 決定目標及目標防護難易度之優先順序

At the JMRC, rotation unit obstacle plans seldom effectively integrate observations and fires, resulting in the OPFOR easily maneuvering around or through planned engagement areas with minimal negative effects. However, the OPFOR regularly integrates effective observed fires on existing and reinforcing obstacles with devastating effects on rotation unit maneuver. There are many reasons for the failure to integrate obstacles with fires, but the primary reason is that obstacle plans are developed in isolation from the rest of the maneuver plan. Engineer planners must develop effective working relationships with the maneuver, fires, and intelligence planners and must attain a working knowledge of maneuver, fires, and intelligence to better facilitate integration.

在聯合多國戰備中心，輪值部隊阻絕計畫很少有效整合射擊與觀測，造成敵軍部隊僅用最少的阻絕破壞，即可輕易通過或繞越所計畫之接戰地區。然而，敵軍部隊定期在既有障礙物及補強障礙物整合有效觀測火力，對部隊機動產生毀滅性之影響。整合阻絕及火力的失敗有很多理由，但最主要的理由是阻絕計畫與機動計畫各別發展。工兵計畫官必須與戰鬥部隊、火協及情報計畫官建立有效之工作關係，以促進機動、火力及情報知識之整合。

Integrate With Other Obstacle

While integrating observation and fires, the engineer planner should integrate obstacles with other reinforcing obstacles. The engineer planner makes every effort to maximize the use of existing obstacles and complement them with the minimum required reinforcing obstacles to achieve the desired obstacle intent. NATO Allied Tactical Publication 3.2.1, Allied Land Tactics, 5 points out that the engineer effort required to meet the commander's intent is rarely adequate, requiring engineer planners to maximize the use of existing obstacles. Reinforcing obstacles are planned to minimize the transition or gap between existing obstacles or to link existing obstacles together. This strengthens an obstacle group and increases the probability that the enemy will follow the planned script. Engineer planners ensure that the combined effect of integrated obstacles does not deviate from the desired obstacle group intent. Common pitfalls observed at the JMRC when planning obstacle integration with other obstacles are—

與其他阻絕進行整合

當整合觀測與射擊時，工兵計畫官應該將阻絕與其他補強障礙物進行整合。工兵計畫官應該盡量將既有障礙物運用最大化，補強障礙物運用最小化，以達到所望之阻絕企圖。北約組織聯軍戰術準則3.2.1之《聯軍地面戰術》在5項阻絕設置原則中，工兵作業很少可以滿足指揮官作戰企圖，需要工兵計畫官將既有障礙物運用最大化。補強障礙物之計畫應將與既有障礙物之過渡區與間隙最小化，將既有障礙物鏈結在一起。如此，阻絕群之規劃與設計，可增加敵軍按照我軍規劃之想定腳本機動之機率。工兵計畫官需確實整合阻絕之影響，而不會削弱所望阻絕群之企圖。當計畫與其他阻絕進行整合時，在聯合多國戰備中心常發生之普遍缺失為：

- Obstacles are not completely tied in; there are weak seams and transitions.
 - Obstacle design strength is too little or too great; the desired intent/effect is diminished.
 - Obstacles interfere with other obstacles.
 - Obstacles are not emplaced to take advantage of existing terrain, or they are too dependent on existing terrain countermobility properties.
- 阻絕無法完全整鏈結在一起，有許多弱點間隙及過渡區域
 - 阻絕設置強度過大或過小，削弱所望之企圖及影響。
 - 阻絕之間相互干擾與影響。
 - 阻絕沒有設置在既有有利之地形，或太依賴既有地形反機動之特性。