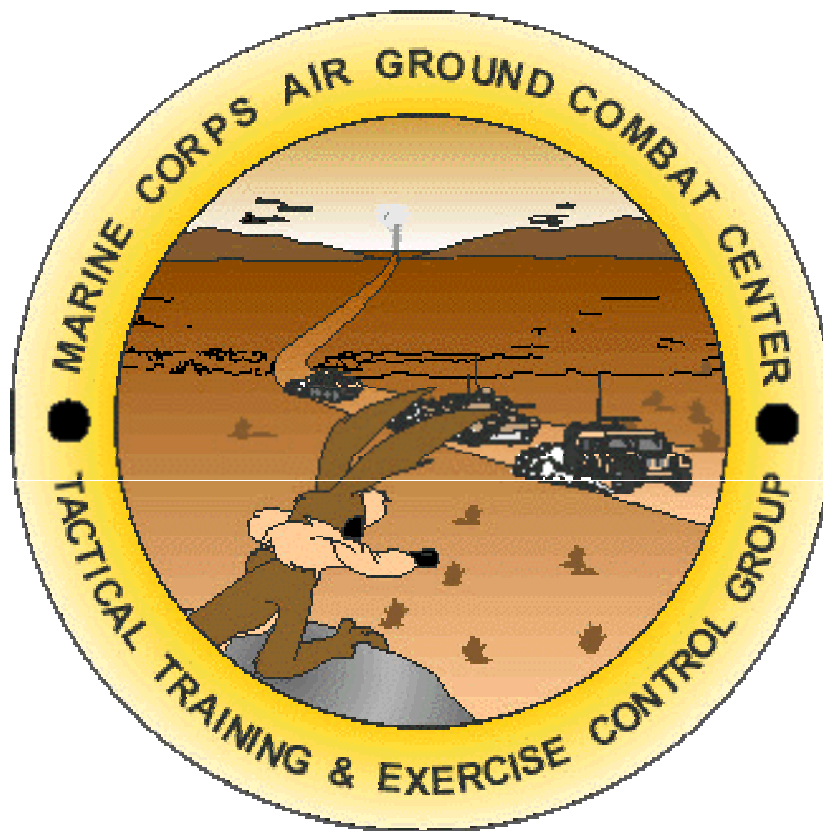


---

# **Fire Support Team (FiST) Techniques and Procedures HANDBOOK**

---



**Dec 2003**

**Tactical Training and Exercise Control Group  
MAGTF Training Command  
Marine Corps Air Ground Combat Center  
Twentynine Palms, California 92278-8200**

# **Fire Support Team (FiST) Techniques and Procedures**

The purpose of this handbook is to provide information to current and future Fire Support Team Leaders and Company Commanders concerning techniques and procedures used to plan and execute effective combined arms fire support plans.

Effective combined arms is dependent on the ability to integrate all available assets in the destruction of a given target. To combine mortars, artillery, naval gunfire, aviation and direct fire and maneuver to overcome the enemy.

In future real world conflicts commanders will be confronted with an enemy that will require the proficient application of effective combined arms techniques and procedures. Many of the TTPs commanders will use can be trained at the Combined Arms Exercise.

This handbook provides instruction of valid techniques and procedures for combining arms. The CAX program provides an opportunity to introduce, experiment, tailor, and train, these techniques to suit the needs of the commander.

The information contained in the handbook is derived from doctrinal publications, CAX Trends and Lessons Learned, and TTECG personnel combined practical experience. This handbook is a tool proven to enhance unit proficiency in the planning and execution of combined arms.

## Table of Contents

Chapter 1: <b>The Combined Arms Concept</b>	<b>3</b>
Chapter 2: <b>FiST Organization and Responsibilities</b>	<b>11</b>
Chapter 3: <b>The FiST Leader</b>	<b>12</b>
Chapter 4: <b>The Forward Air Controller and Aviation Employment</b>	<b>24</b>
Chapter 5: <b>Forward Observers and Indirect Fire Procedures</b>	<b>36</b>
Chapter 6: <b>The Company Commander, the FiST and Lateral Coordination</b>	<b>43</b>
Chapter 7: <b>Integration: Coordination and Deconfliction</b>	<b>47</b>
Chapter 8: <b>Types of SEAD</b>	<b>73</b>
Chapter 9: <b>Constructing a Fire Plan</b>	<b>76</b>
Chapter 10: <b>Execution of a Fire Plan</b>	<b>87</b>
Chapter 11: <b>Lateral Coordination Examples</b>	<b>99</b>
Chapter 12: <b>The FiST Battle Drill</b>	<b>109</b>

# Chapter 1:

## THE CONCEPT OF COMBINED ARMS

---

### In This Chapter

- Explanation of Combined Arms
  - An example Combined Arms mission
  - Combat procedures
- 

### Definition

Combined arms is the synchronized or simultaneous applications of several arms, such as infantry, armor, artillery, engineers, air defense, and aviation, to achieve an effect on the enemy that is greater than if each arm was used against the enemy in sequence.

FM101-5-1

### Goal

The goal of combined arms is to take all assets available and put them together in such a way as to inflict the maximum amount of damage and destruction on the enemy in the minimum amount of time. The purpose of the combined arms fire plan is to support a maneuver element's closing with and killing the enemy.

### Key Considerations

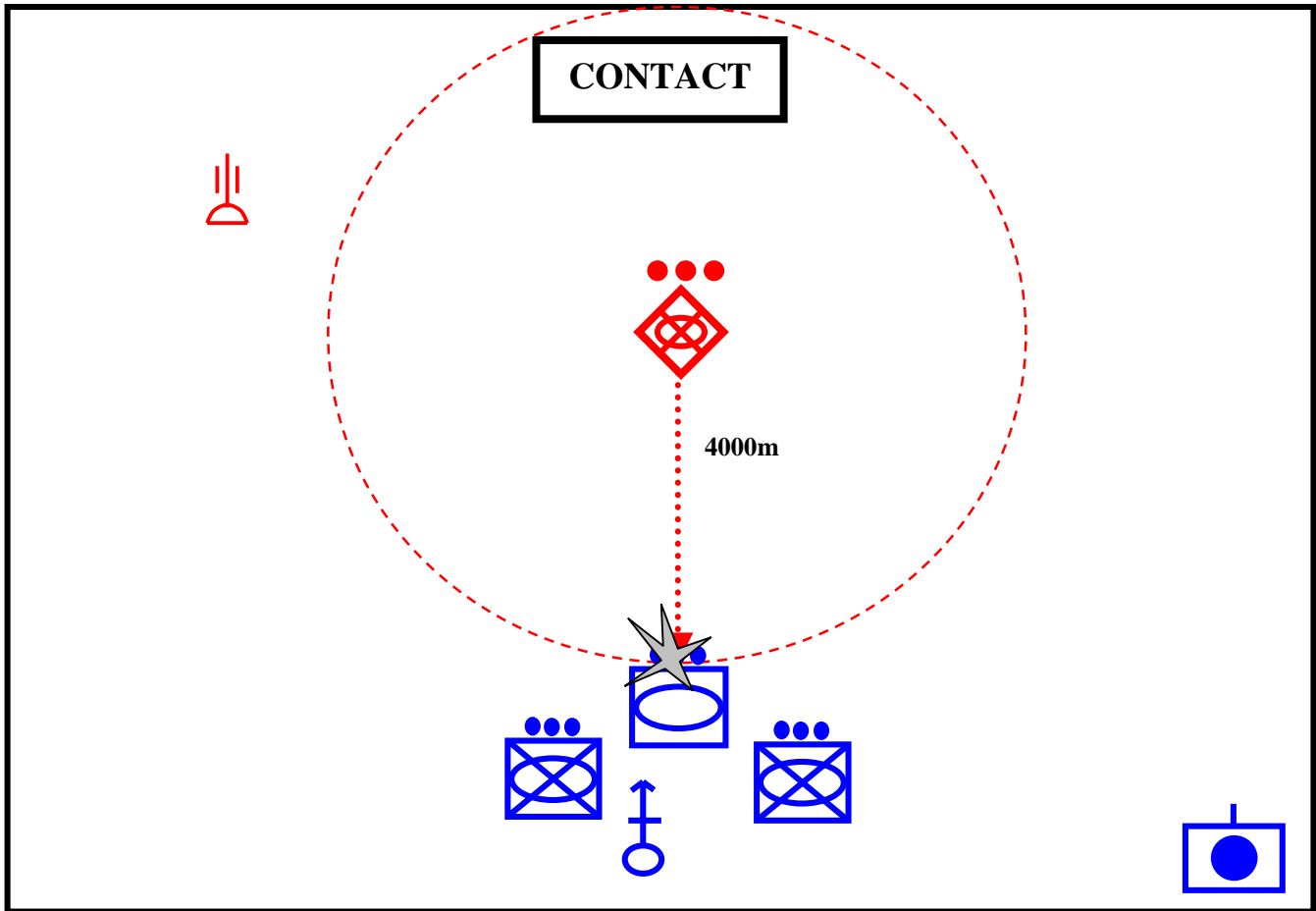
Some key considerations to effectively combining arms include:

- Mission
- Enemy Situation
- Assets Available
- Ordnance minimum safe distances / Fratricide risks

Combined Arms come from effective fire support planning. Fire support planning is the continual process of analyzing, allocating and scheduling fire support. Effective combined arms planning helps the maneuver commanders achieve maximum combat power through synchronization.

### Example

The following example demonstrates a technique for combining arms that maximizes effects on the enemy while minimizing risks to friendly forces.

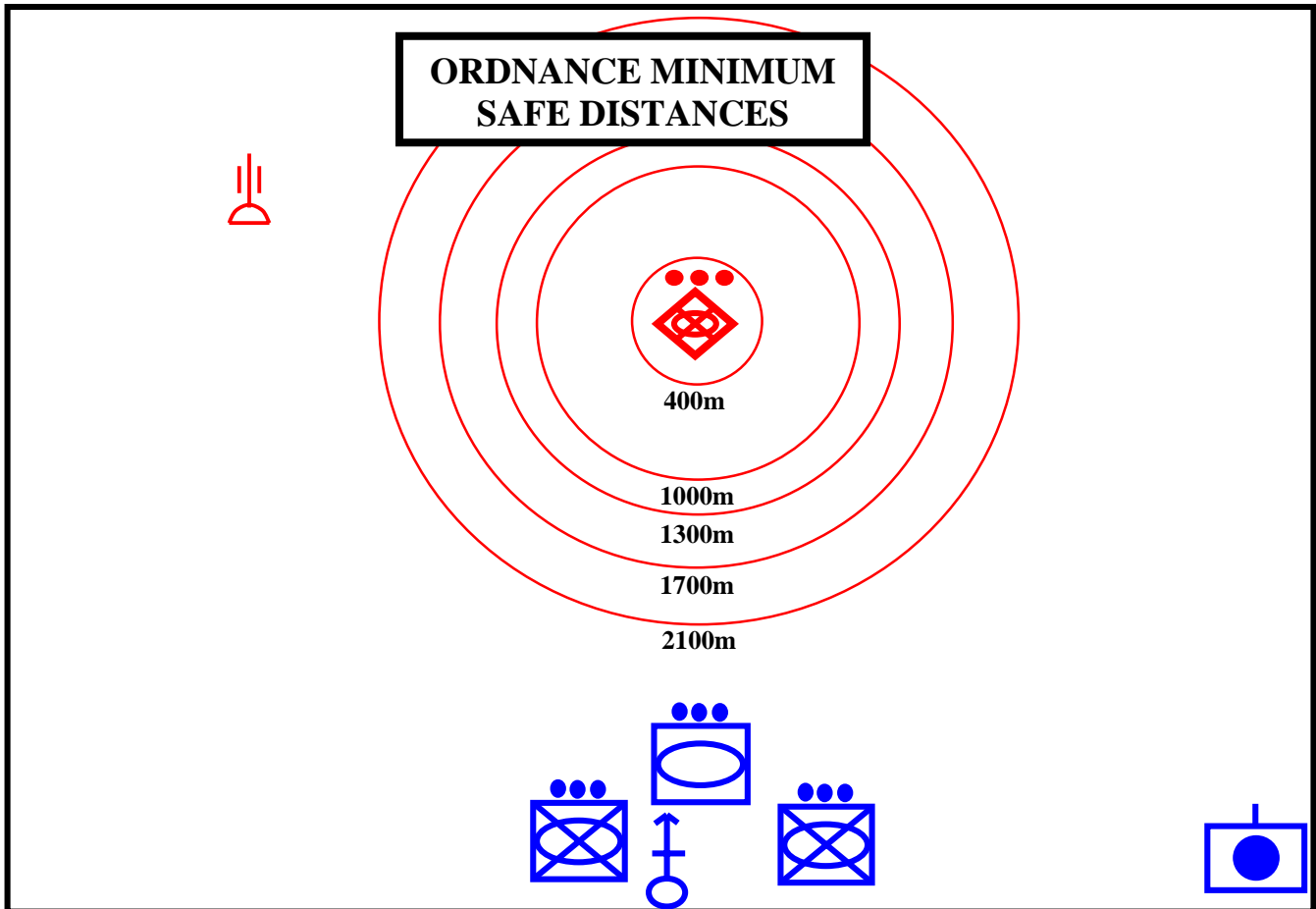


**Situation: Initial Contact**

- **Company/ Team with two mechanized infantry platoons and a tank platoon.**
- **Battalion 81mm mortars are attached to the company and an artillery battery is in direct support of the company.**
- **Co/Tm has priority of both fixed wing (FW) and rotary wing (RW) support.**
- **Co/Tm makes contact with an enemy platoon.**
- **Enemy consists of dug in infantry and 3 BMP 2s with an air defense asset in support.**

**Action: Assess the situation and formulate a plan**

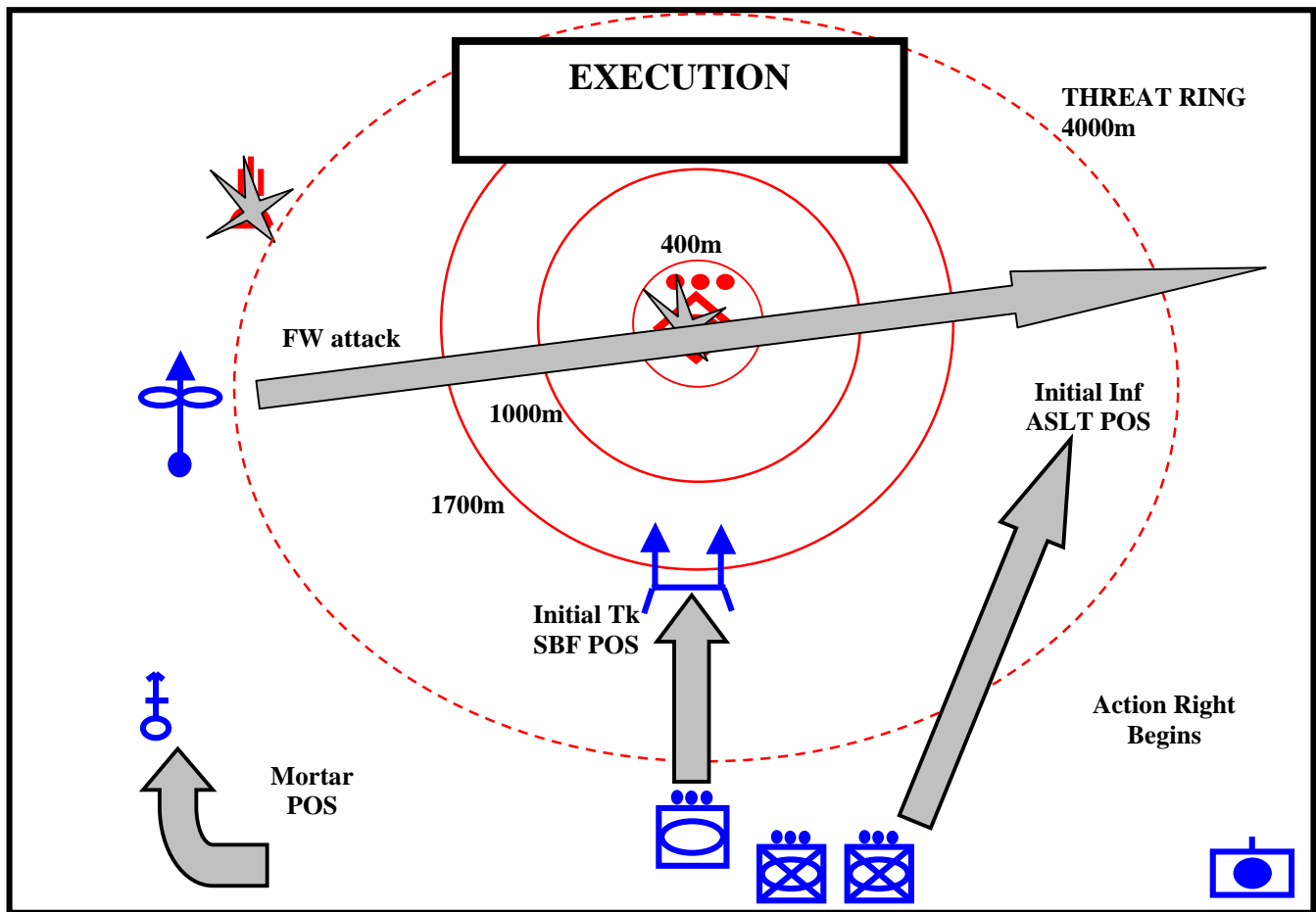
- The company makes contact with the enemy at the edge of the 4000 m threat ring (given BMP 2s with AT-5s).
- The company commander assesses the situation and formulates a plan, understanding that any exposed maneuver within the threat ring risks enemy fire.
- In order to close with the enemy, the company must suppress the threats.



**Action: Conduct Fratricide Risk Assessment and Building the Plan**

As part of a hasty fratricide risk assessment the company commander and FiST leader must consider ordnance minimum safe distances.

- The company commander uses MSDs as a guideline to deconflict maneuver from the effects of fires that will be delivered in support of the attack.
- Using only those minimum safe distances of the weapon systems to be employed.
- This example shows minimum safe distances for 81mm mortars, artillery, RW rockets and guns and FW MK 80 series bombs. *note: the accuracy and size of the 81mm mortar sheaf determines the hazard for closing with mortar impacts.*
- The minimum safe distances used in this example and throughout this handbook represent CAX safety standards. In combat, as part of a fratricide risk assessment, the commander must balance the effect of enemy fires with the risk of closing inside friendly ordnance minimum safe distances.



**Action: Execute the Plan**

The company commander has decided to execute an action right.

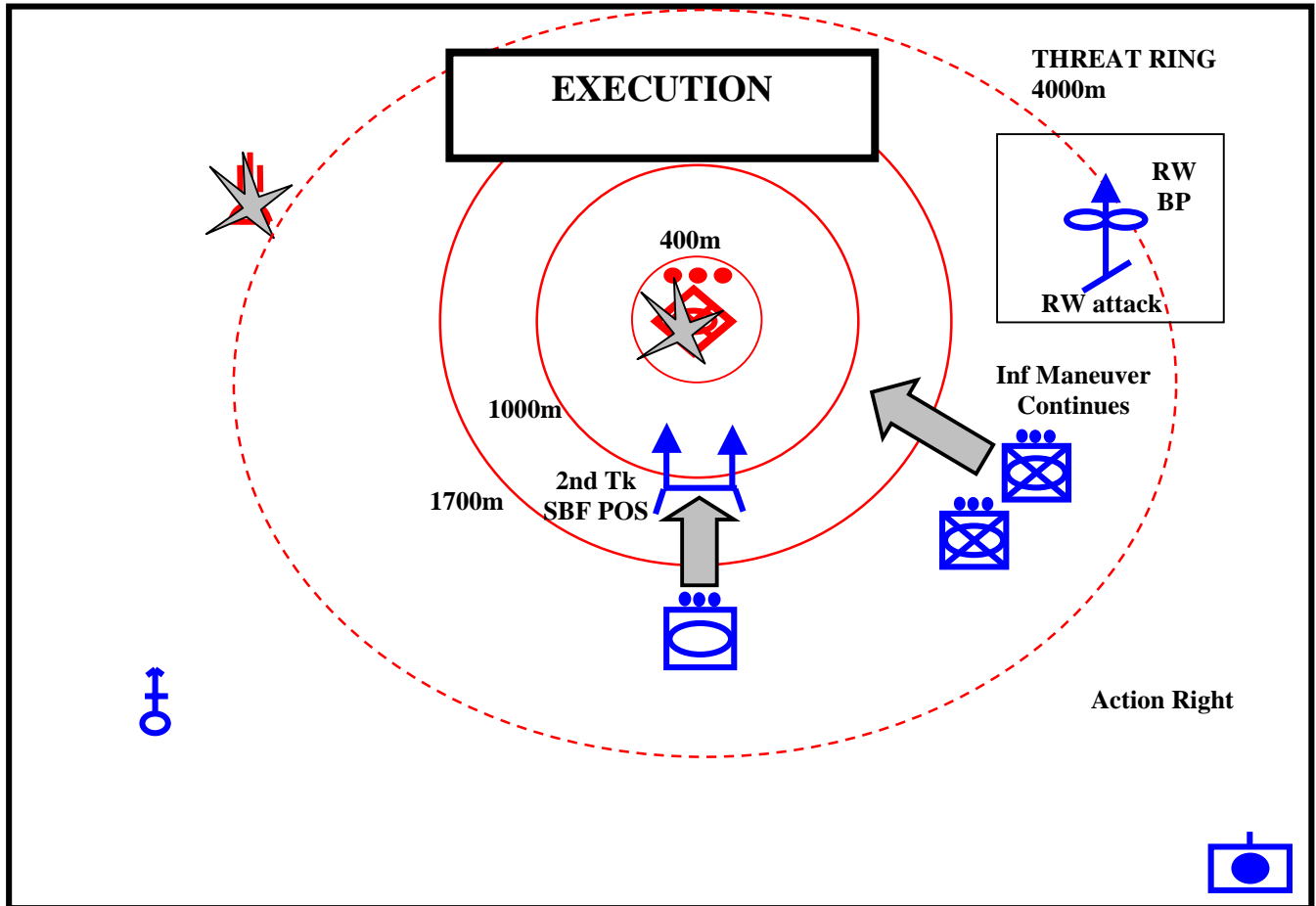
- CO instructs the mortars to position on the left flank.
- The FiST leader informs the CO that FW will deliver MK 83s and RW has both rockets and guns.
- The fire support plan will suppress the enemy positions as the company closes inside the enemy's threat ring.

The company commander issues subordinate elements a frag order.

- CO gives the platoons specific instructions placing all support by fire positions (SBF) and assault positions to deconflict the maneuver elements from fires and aid in timing movement with the fire plan.

The combined arms fire plan begins.

- The first fires fall on the enemy.
- The tank platoon moves to an initial SBF position outside the 1700m MK 83 minimum safe distance shooting as they move in to position.
- The FW strike the target in conjunction with artillery suppression on the ADA and mortars and tank main gun on the objective.
- The suppressive effect of these fires is significant enough to move the infantry in AAVs within the enemy's threat ring. The infantry platoons move to an initial assault position that deconflicts them from the FW ordnance.



**Action: Execute the Action Right**

The FW strikes are complete.

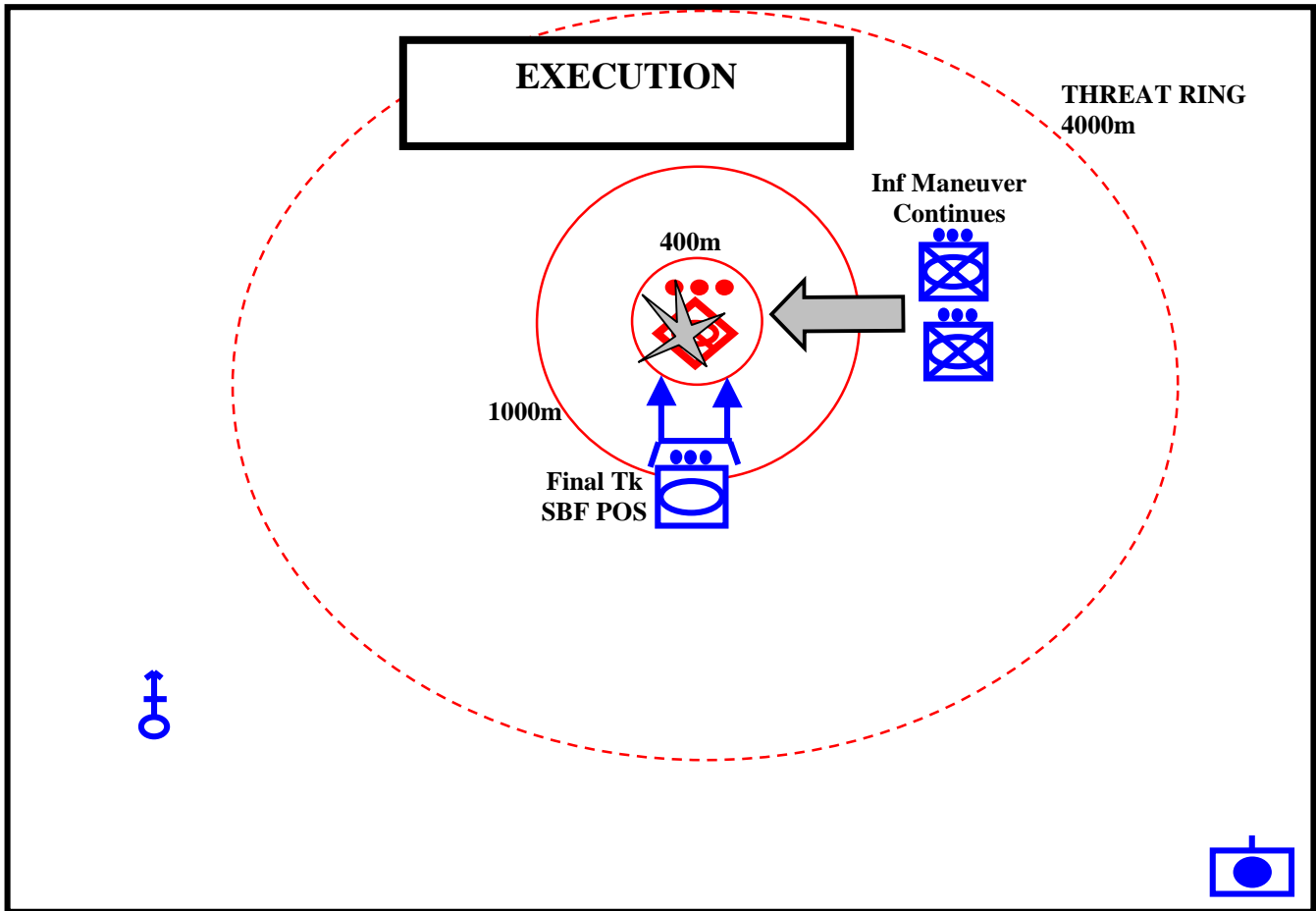
- The tank platoon moves to a second SBF position 1000m from the enemy, continuing main gun suppression destroying hard targets and bunkers, then transitioning to cal. 50. Maintaining 1000m separation from the enemy allows artillery and mortars to continue.
- The infantry platoons close inside of 1700m and maintain movement deconflicted from the RW Battle Position and attack heading. They also maintain the 1000m separation from the enemy position.
- RW strikes with rockets and guns.

The enemy is simultaneously hit with artillery, mortars, RW rockets and gun, tank main gun and tank cal. 50.

The RW strike is complete.

- The FiST leader ceases artillery fires.
- Maneuver units press inside 1000m of the enemy position.

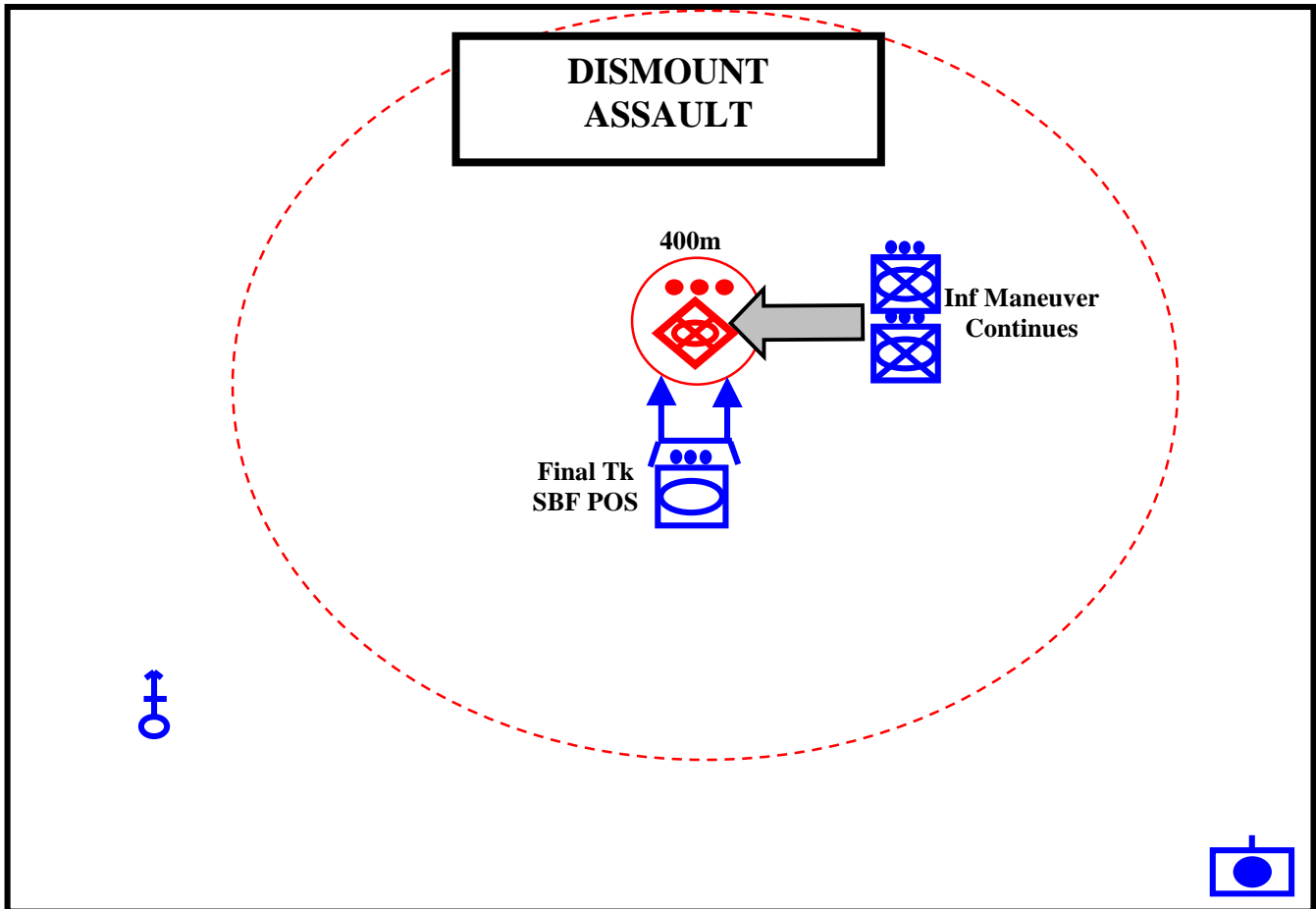




**Action: Execute the Direct Fire Fight**

The RW strike is complete and artillery has ceased.

- The tank platoon moves to a final SBF position and picks up suppression with 7.62 COAX machineguns and cal. 50. This position is deconflicted from the active mortar fires and the mortar gun target line (GTL).
- The infantry platoon begins their assault and move inside of the 1000m ring. Closing under the suppressive effects of mortars, tank cal. 50 and 7.62 COAX.



**Action: Execute the Dismounted Assault**

The infantry platoons reach the 400m MSD for 81s.

- The FiST leader ceases mortar fires. The infantry assault continues.
- The tank platoon continues cal. 50 and 7.62 COAX suppression.
- The AAVs begin bounding and pick up suppression with upguns.
- The AAVs move to 100m of tank 50 cal impacts and the tank 50 cal shifts and ceases.
- The AAVs move to 50m of tank COAX impacts and the tank 7.62 COAX shifts and ceases.
- The AAVs stop and drop ramps while continuing upgun suppression.
- The dismounted infantry assault commences.

**Result: The enemy is destroyed.**

Fire support delivered in consonance with ground maneuver. This is the goal of combined arms. In order to achieve success with combined arms, supporting arms need to be coordinated and deconflicted with maneuver.

## **Fratricide**

Tactics for combining arms in training should reflect those that will be applied in combat, with one probable exception; the proximity of troops to the effects of friendly munitions and fires. The Commander decides the level of risk he is willing to accept in mission accomplishment. Whether ceasing artillery at 1000m in CAX, or at 90m in combat against a determined foe, the techniques and procedures contained in this publication are equally applicable. Regardless of the situation, troops should never be hazarded unnecessarily.

## **Minimum Safe Distances**

<b>Ordnance</b>	<b>CAX Min Safe Distance</b>	<b>Combat MSD 0.1% P<sub>i</sub></b>	<b>Combat MSD 10% P<sub>i</sub></b>
<b>Mk-82 500 lb Bomb</b>	<b>1300m</b>	<b>475m</b>	<b>275m</b>
<b>2.75" FFAR Rocket</b>	<b>1000m</b>	<b>175m</b>	<b>100m</b>
<b>155m Artillery HE PD/VT</b>	<b>1000m</b>	<b>175-275m</b>	<b>85-90m</b>
<b>60/81mm Mortar HE PD/VT</b>	<b>250/400m</b>	<b>100-175m</b>	<b>60-65m</b>

**\* P<sub>i</sub>: The Probability of Incapacitation is the probability a soldier in the prone wearing winter clothing and a helmet, will be physically unable to function in an assault within a five minute period after an attack. MCO 3570, FMFRP 2-72, JP3-09.3, FM**

**71-123**

# Chapter 2:

## FiST Organization and Responsibilities

---

### In This Chapter

- Organization and Responsibilities of the Fire Support Team
- 

### **The Fire Support Team or FiST**

The Fire Support Team is the company commanders' means for coordinating and executing fire support in combined arms. The FiST Leader is directly responsible to the company commander for facilitating the execution of preplanned fires, and construction/execution of hasty plans for fires, that support the commander's intent for fires and SOM.

### **FiST Leader**

- Works for the company commander
- Runs the FiST
- Serves as the Company Fire Support Coordinator
- Approves all indirect missions and CAS 9-lines
- Ensures all team members are oriented on the correct targets
- Maintains the Battle Board
- Plots all information on his map
- Ensures coordination and deconfliction of maneuver and supporting arms

### **Forward Air Controller**

- Controls the employment of all aviation
- Orients the pilots to the enemy situation and disposition of friendly forces
- Provides the company commander and FiST leader with all pertinent information regarding employment of aviation assets

### **Artillery Forward Observer**

- Fires and adjusts artillery on targets
- Provides the company commander and FiST leader with all pertinent information regarding artillery employment

### **Mortar Forward Observer**

- Fires and adjusts mortars on targets
- Provides the company commander and FiST leader with all pertinent information regarding mortar employment

### **Naval Gun Fire Spotter**

- Spots and adjusts naval surface fire support
- Provides the company commander and FiST leader with all pertinent information regarding the employment of naval surface fire support

# Chapter 3:

## Guidelines for the FiST Leader

---

### In This Chapter

- Fire Support Team Leader Responsibilities
  - Managing Fire Support
  - Fire Support Tasks
  - Fire Support Planning
  - Fire Support Integration and Execution
  - Effective Integration
  - Attack Geometry
  - Operation of the FiST
  - An Effective FiST Leader
- 

### The FiST Leader

The FiST leader constructs fire support plans that support the company commander's scheme of maneuver and intent for fires and coordinates the activities of the FiST during operations. The FiST leader has two responsibilities:

1. Manage Fire Support
2. Operate the FiST

### Managing Fire Support

In order to integrate fire support into the scheme of maneuver, the FiST leader takes part in fire support planning, conducts fire support integration and executes the fire support plan.

### -Fire Support Planning

Fire support planning is the continual process of analyzing, allocating and scheduling fire support. The goal is to effectively integrate fire support into planning to optimize combat power. Taking part in fire support planning, the FiST leader initially determines the commander's intent for fire support. He keeps the commander informed of the capabilities and limitations of all fire support systems that may be made available to the company. The FiST leader uses the members of the FiST to help provide this information to the commander. The FiST leader should also provide an estimate of fire support to the company commander. In doing so, he assists the commander in estimating the situation and developing his concept of operation. The FiST leader does not wait for the company commander to complete the scheme of maneuver, but aggressively inputs fire support planning as the scheme of maneuver is being developed to help achieve integration. Additionally, the FiST leader keeps the commander informed of the status, location and availability of fire support. Finally, based on the planned scheme of

maneuver the FiST leader determines the task requirements for all available fire support systems and tasks each of the FiST members accordingly.

### **-Fire Support Integration and Execution**

Fire support integration is the coordination and deconfliction of the elements of an attack in order to safely and effectively achieve the maximum combat power. Integration and execution of fire support is the most challenging task the FiST leader must accomplish. This task has three components:

1. Construction of a fire plan (detailed in Chapter 9)
2. Integration (Coordination and Deconfliction) of a fire plan (detailed in Chapter 10)
3. Execution of a fire plan (detailed in Chapter 8 and 11)

### **-Construction**

Conducting this task is initiated by the receipt or development of a fire support plan based on the company commander's scheme of maneuver. This requires the FiST leader build a fire plan utilizing the best combination of fire support available, that supports that scheme. The FiST leader must have a means to display, in an orderly manner, the elements of an attack, so that the FiST can track the execution of the fire plan. A Battle Board is the tool for displaying a fire plan. It will be discussed later in this chapter. (Information on the details of construction of a fire plan is covered in Chapter 9)

### **-Integration**

The next step is the integration of a fire plan. This entails the construction of a timeline of events that synchronizes in time, the elements of combined arms. Additionally, the FiST leader must deconflict the elements of the attack to ensure the safety of friendly forces. (The details of integration of a fire plan are covered in Chapter 10) Developing an understanding for the requirements of effective integration starts with understanding the concepts of Battlespace Geometry.

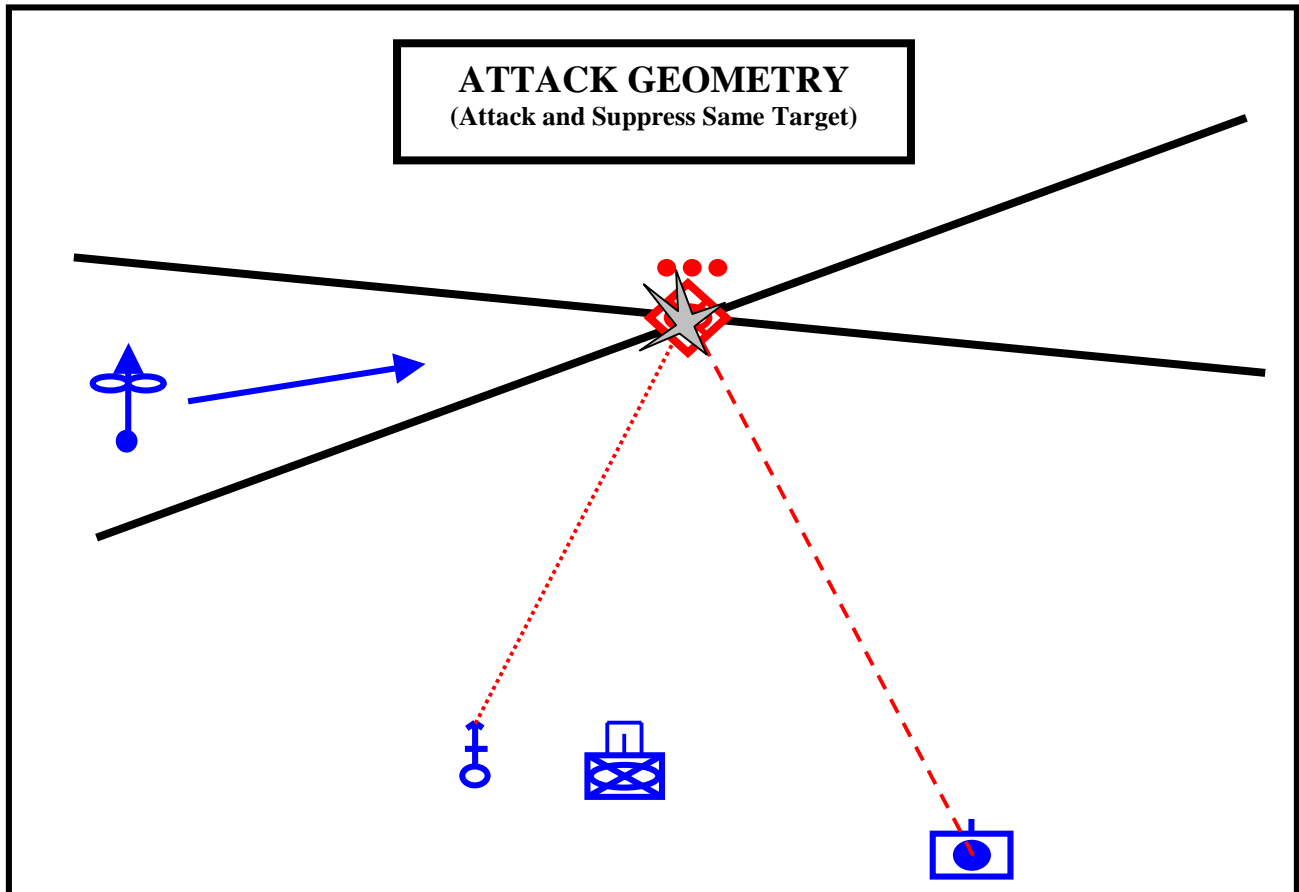
**Battlespace geometry** includes friendly air and ground positions, fires and maneuver, enemy positions and threat rings, SDZs, MSDs, GTLs, and terrain. Graphically representing battlespace geometry on the map assists the commander in visualizing and developing the SOM and the fist leader in planning (coordination and deconfliction) and executing fire plans to support the commanders intent Each of the FiST members aids the FiST leader in this integration of supporting arms with maneuver.

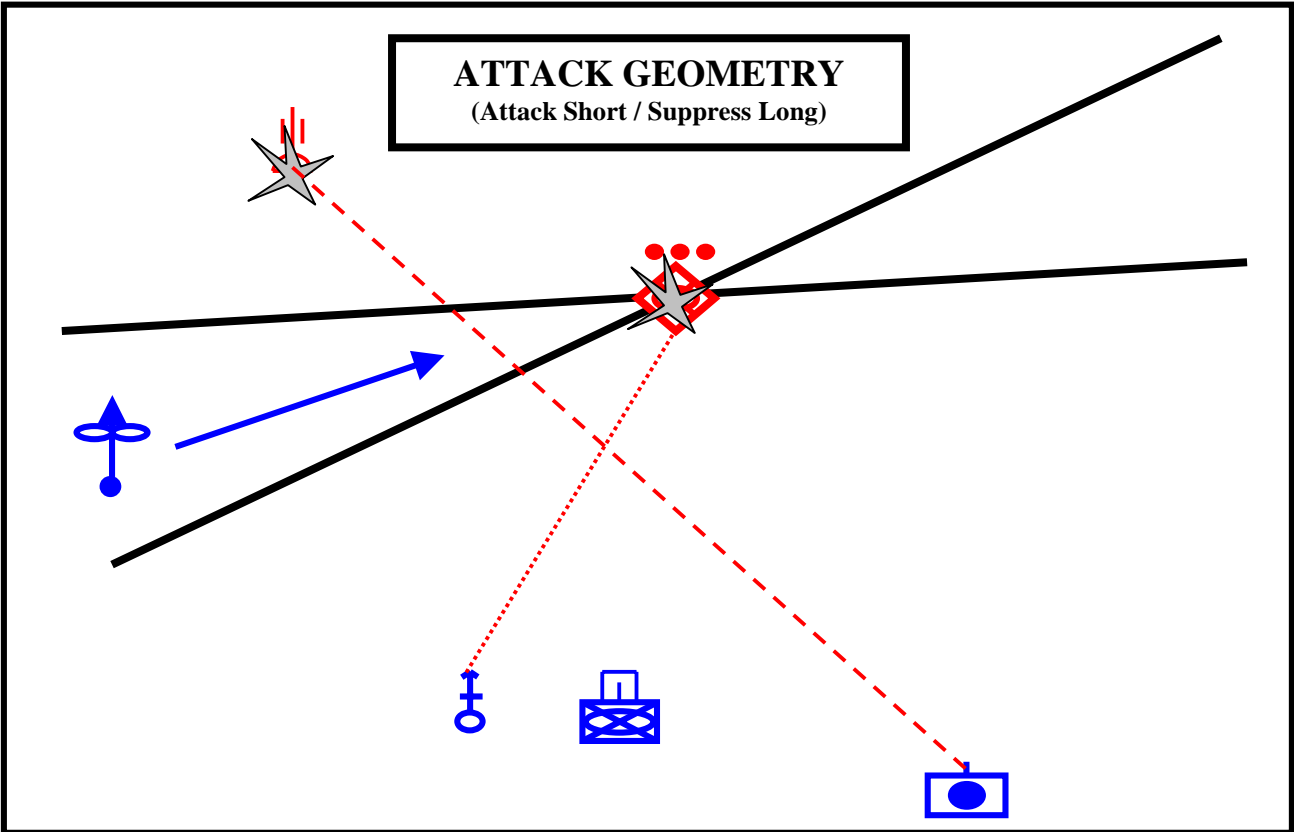
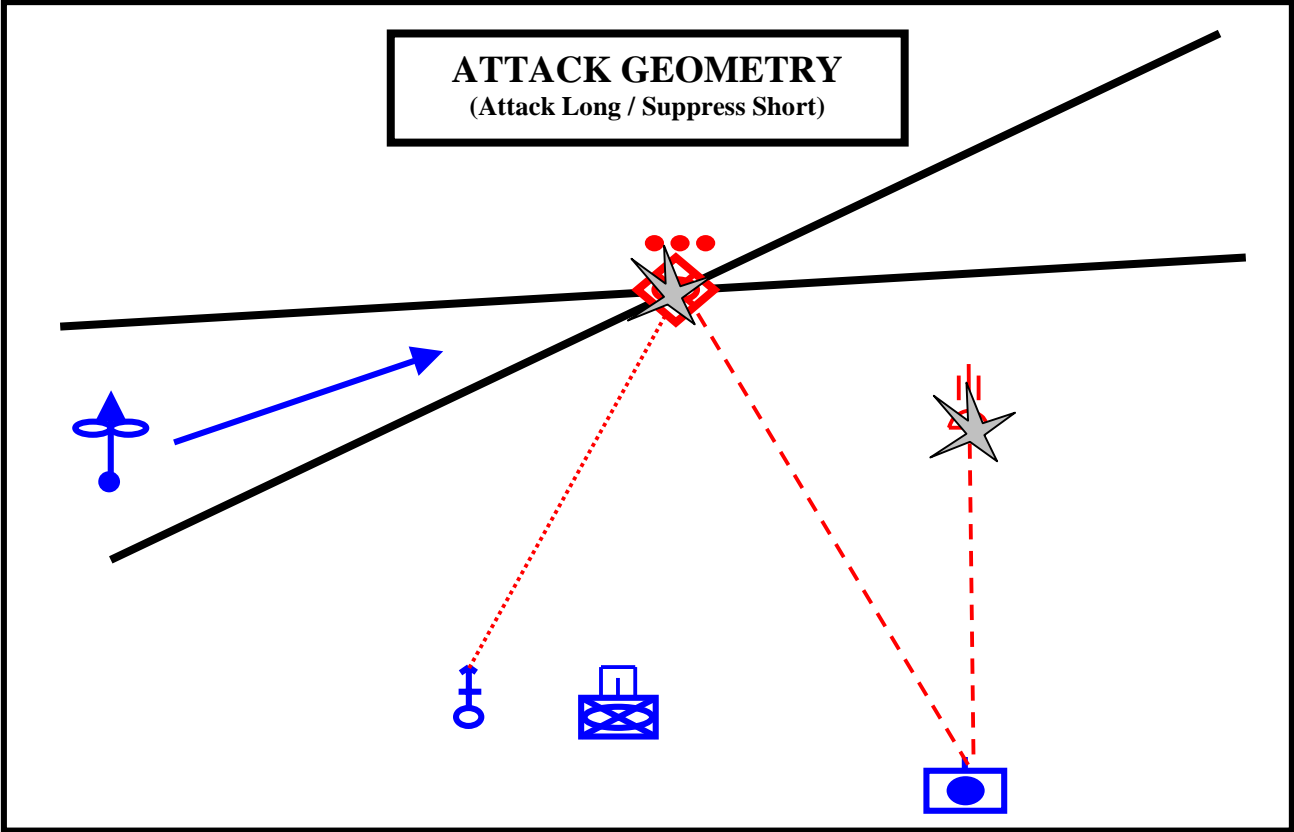
1. The CO with the scheme of maneuver helps the FiST leader plan the duration of fires based on the appropriate ordnance minimum safe lines of each type of ordnance active on a target.
2. The FAC with an aircraft separation plan helps the FiST leader deconflict aircraft from active friendly Gun Target Lines (GTL) and over flight of unsuppressed enemy positions.
3. The FO with "Stay Above / Stay Below" calculations helps the FiST leader deconflict aircraft from active indirect fires protecting maneuver and aircraft.

### Attack Geometry

Attack geometry references the target or enemy position that is the focus of the supporting arms effort. The terminology used when dealing with attack geometry is “attack” and “suppress.” “Attack” refers to the target the aircraft will engage. “Suppress” refers to the position artillery will engage. The distance terms “long” and “short” refer to the position of the targets relative to the artillery battery position. There are three basic attack geometry relationships.

1. **Attack and Suppress same target.** Artillery and aviation will engage the same target.
2. **Attack long, Suppress short.** Aircraft engage the far target, artillery engages close target.
3. **Attack short, Suppress long.** Aircraft engages close target, artillery on far target.







## Operating the FiST

The FiST leader manages and coordinates the efforts of the team to execute the commander's intent for fire support. To accomplish this, the FiST leader must establish a deliberate methodical approach to operations in the form of an SOP for FiST member actions. Additionally, effective communication in the form of top-down intent and direction, bottom-up availability and status input, and crosstalk within the team is essential. These measures facilitate successful FiST integration of combined arms.

## The Effective FiST

- Leader has clear understanding of the commanders intent and the specific purpose of all planned fires.
- Leader has working knowledge of the capabilities and limitations of the supporting agencies.
- Leader has the ability give rapid, concise direction to multiple agencies.
- Members cross-talk, and push information to leader.
- Leader maintains awareness of changing friendly and enemy situation and adjusts.

## Techniques and Procedures for Effective Operation of the FiST:

Required Information	Required Information
<b>The Enemy</b> (targets / positions)	<b>Integration of the Fire Plan</b>
• Grid(s) to enemy positions	• Scheme deconflicted from indirect fires
• Direction to enemy positions	• Scheme deconflicted from RW BPs
• Elevation of enemy positions	• RW BPs deconflicted from indirect fires
<b>Information to be Plotted on a Map</b>	• RW BPs deconflicted from FW cones
• Artillery position	• FW deconflicted from indirect fires
• Artillery GTL to enemy positions	• FW deconflicted from Scheme
• Mortar position	<b>Verify Effects of Fires</b>
• Mortar GTL to enemy positions	• Artillery has effect on target
• CAS 9-Lines (Final Attack Cones)	• Mortars have effect on target
• RW Battle Positions	<b>Pass Corrected Grids</b>
• Company Lead Trace	• Artillery FO passed corrected grid to FAC
• Adjacent unit positions	<b>Pass the Fire Plan to:</b>
<b>Information Provided by the CO</b>	• The Company Commander
• Scheme of maneuver	• The FiST Members
• Action left or right	• Higher Headquarters (CO)
• SBF position	• Subordinate units (CO)

• Duration of suppression required	<b>FiST Members Pass Timelines</b>
<b>Constructing the Timeline</b>	• Arty FO to battery or FDC
• Separation between FW attacks	• Mortar FO to the gun line
• Mark types from FAC	• FAC to FW and RW aircraft
• PGM attack time	<b>Recheck Fire Plan</b>
• R&G attack time	• Accuracy of timeline
• Duration of RW attacks from FAC	• Deconfliction all assets
• Maneuver time / space estimation	• With the Company Commander
• Duration of suppression on enemy	***** <b>SET TOT</b> *****
• Time when direct fire is active	• Verify with Company Commander

✓ **Develop a FiST SOP**

Actions prior to contact.

- The FiST leader announces when a priority target changes.
- The FO's monitor and pass significant actions of adjacent units.
- The FO's and FAC pass changes in asset availability.

Actions on contact (priority of work)

- The arty FO gets grids to and elevation of enemy positions.
- The mortar FO gets direction and distance to enemy positions.
- The FiST leader makes target assignments.
- FAC requests aviation and constructs 9-lines.
- FOs adjust indirect fires.
- This creates time for the FiST leader to work on construction and integration of a fire plan for the company commander.

✓ **Develop FiST Battle drill**

Execution of the fire plan:

- One person, usually the arty FO spots and determines corrections from the mark. (the WERM rule applies to CAS corrections)
- The FAC watches for the aircraft.
- One-person watches aircraft egress. (to ensure they follow the FAC's egress instructions)
- Any additional personnel aid in spotting the aircraft.

✓ **Be flexible and act quickly to employ air assets**

- When an aircraft checks in with the FAC, get the aircraft's available time on station.
- Determine a "drop dead" TOT for your fire plan based on the aircraft time on station. (a good guideline is having a fire plan TOT that is at least 15 minutes prior to the end of the aircraft's time on station)
- Do not let an aircraft leave with ordnance.
- If necessary run a standard SEAD fire plan. (use this technique if your fire plan is not ready for a TOT)

- Use an adjusting round as a simple mark. Put the adjust round “at my command”, fire the round and run the aircraft attack 30 seconds after it hits the target. (Use this technique if a standard SEAD cannot be set up in time for the aircraft)
- Anticipate doing a “talk on”. (Use this technique as a last resort, as the aircraft will be unprotected from enemy fire)

✓ **Pass Information to the FiST Leader**

Team members keep the FiST leader informed of actions taken and the status of supporting agencies and current missions.

- Facilitates Leader SA and allows for flexibility in fire planning and execution

✓ **Positioning the FiST**

Position the FiST, tactically, where it can see the battlefield and-

- Work closely with the company commander.
- See all targets.
- See friendly lead trace.

✓ **Use All Available Assets**

Attack targets with all available assets

- Provides insurance against the loss of an agency, allows commander to retain flexibility, and allows for redundancy in hasty and planned fires.

✓ **Setting TOTs**

Do not set TOTs that are less than 10 min out from the first indirect fire support action in a timeline

- Many actions have to occur before a fire plan can be executed.
  1. The arty FO, 81s FO and FAC must send the timeline to their respective agencies.
  2. The FSCC has to approve it. This means the AirO, Arty Rep and FSC must each review the fire plan.
  3. Then FDC must process the mission.
  4. The battery will then get the mission and apply the data to the guns.
  5. The mortars must also apply the mission on their gun line.

## **Techniques and Procedures for Maintaining a Map**

The FiST leader's map is a very important tool in must be maintained continuously. The map is where the FiST leader deconflicts the elements of the fire plan.

### ✓ **Plot all information on your map**

- Indirect fire agencies
- CAS 9-lines
- Subordinate and adjacent units
- Adjacent unit fire missions and 9-lines
- Fire supports coordination measures
- Friendly unit positions forward of the FLOT (forward line of troops)
- Safety restrictions (Ordnance Minimum Safe Lines)
- This will help you see battlefield and attack geometry.
- This will also help determine where deconfliction is needed.

### ✓ **Draw enemy threat rings**

- This identifies enemy capability to engage friendly forces.
- This will aid in timing of fires. In order for you to maneuver without cover into a threat ring fires must be planned to support exposed maneuver. (Start suppression)
- Additionally, this will indicate requirements to coordinate maneuver and fires with adjacent units.

### ✓ **Draw Ordnance Minimum Safe Distances**

- This will aid in timing of fires. When your maneuver elements reach the edge of the ordnance minimum safe line your indirect fires must stop. (During CAX exercise)(End suppression)
- Use pre-built templates or a compass to quickly plot minimum safe lines.

## **Techniques and Procedures for Effective Communication on the FiST:**

### ✓ **Maintain information flow**

Everyone keeps the team informed of actions taken and adjacent unit actions.

- This allows the FiST leader to efficiently track each of the FiST members' actions without always having to question them directly.

### ✓ **A method for communicating on the FiST**

Everyone "rogers up" to information and "sounds off" when passing information

- This ensures all team members hear the information being passed and if a member does not respond the team leader knows he did not get the information passed.
- An example of this communication might sound like this:
  - The 81s FO has just found the direction to a target
  - He yells out "3 BMPs direction 6120"
  - The rest of the team responds "roger direction 6120"
  - The FiST leader then updates the Battle Board

- This also allows the FiST leader to plot or update information on the map or the Battle Board.
- The following is list of items that require this type of communication:
  1. Grid to target
  2. Distance to target
  3. Mortar “FIRECAP” grid
  4. Target elevation
  5. Aviation “Stay Above”
  6. RW Attack Positions
  7. “Shot” for indirect assets
  8. “Splash” for indirect assets
  9. Corrections from marks for aviation
  10. TOTs
- ✓ **Everyone stays on the same “sheet of music”**
  - FOs should use the same grid and direction to target(s). This aids clearance in the Fire Support Coordination Center (FSCC). If each FO uses a separate grid to a target then the Fire Support Coordinator (FSC) sees multiple targets where only one actually exists. Resulting in an incorrect enemy situation in the FSCC. This can also cause the mission being planned by the FiST to be denied.
- ✓ **The Battle Board**

Use a Battle Board to display critical information

  - The board belongs to the FiST leader and serves to focus the efforts of the team.
  - It is a communication tool.
  - In order to be an effective tool for the FiST the Battle Board must be updated continuously to ensure only current, accurate information is being referenced by the FiST.
  - Written information eliminates misunderstandings that can occur with verbal communication or trying to remember what information was passed 5 minutes ago.
  - Additionally a Battle Board provides an accurate and detailed reference for the FiST members and company commander with respect to time lines, deconfliction of fires from maneuver and aviation.
  - This is where construction and coordination of a fire plan will occur.
  - An example Battle Board follows on the next page.

FRIENDLY LOCATION	ENEMY GRID	DESCRIPTION	DIR	DIST/OT	TGT # / ADJ GRID
	(1)				
MORTAR POSITION	(2)				
	(3)				
BATTERY LOCATIONS	RWCAS:	R&G BP		FWCAS: #1	FWCAS: #2
(1)	PGM BP			IP	IP
(2)				DIR	DIR
(3)	DIR	DIR		OFFSET	OFFSET
				FAC/H	FAC/H
				SA	SA
<b>TOT</b> _____					
RW					
FW					
TGT # / DESC					
ARTY					
ARTY					
81s					
MANEUVER					
	SBF				
	ASLT				

✓ **Everyone keeps records of their missions**

- This allows the FiST leader to track the progress of the team. (i.e. the FiST leader knows that once an FO establishes the 100m bracket on a target, he is almost adjusted on the target)
- This also allows for a review of FiST actions during a debrief after a fire plan has been executed.

✓ **Priority of communications**

Priority of fires requires priority of communications on supporting arms nets

- If you have priority of fire then clear others off the net. If you do not have priority of fires and another FO, who does have priority, starts to call a mission get off the net so he can get his mission called. Remember the commander has a reason for assigning priority of fires.
- If the indirect nets are crowded by all FOs then all missions will be delivered slower than if FOs cooperate on the nets.

✓ **Communication Problems**

Make use of alternate communications nets

- There are numerous ways to work around communication problems.
- Many nets are monitored in the battalion COC. If a primary net is down, use an alternate net as a means of communication.

✓ **Other sources of information for the FiST**

Make use of artillery nets as an alternate source of information

- Adjacent unit fire missions and CAS 9-lines provide enemy locations and descriptions.
- Track these missions to find out where the enemy is in adjacent sectors. Plot their threat and verify if they can affect your unit.
- This gives you an alternate source of information that is near real-time versus waiting for battalion to pass an intelligence update.
- FiST members should monitor their nets and pass information as they get it.

# Chapter 4:

## Guidelines for the Forward Air Controllers and Aviation Employment

---

### In This Chapter

- Goals of Employing CAS
  - Guiding Aircraft So Ordnance Hits the Target
  - Ensuring Aircraft Safety during an Attack
  - Understanding Separation Plans
  - Controlling Aircraft Using a 9-Line Brief
  - Techniques and Procedures for Employing CAS for the FiST Leader
  - Aviation Weapon Considerations for the FiST Leader
- 

### CAS Employment

When employing CAS the FiST leader and FAC should focus on two goals.

- Ensuring the aircraft's bombs have an effect on the target.
- Ensuring that the aircraft are reasonably safe from enemy and friendly surface fires.

### Goal 1: Getting Bombs on Target

To get an aircraft's ordnance onto a target you must accomplish three tasks:

- Acquire the aircraft
- Accurately mark the target for the aircraft
- Make a good correction from the mark for the pilot

### Task 1: Acquire the Target

The first step in getting a plane's bombs on target is having the FAC clear the aircraft "HOT." In order to clear an aircraft to release its ordnance the FAC must visually acquire it. There are several techniques to accomplish this task. They include flares, fuel dump (also know as a "squirt") and wing flash (or wing tip). Keep in mind that these methods also make the aircraft visible to the enemy so always use caution when employing these methods to acquire aircraft.

Additional methods you can use to acquire aircraft include drawing the final attack cone on a map and having the FAC explain the aircraft tactics (i.e.. Roll in altitude). By drawing out the final attack cone you can narrow down the sector of sky to search for the aircraft. Aircraft tactics will further narrow the search for aircraft.



## **Task 2: Mark the Target**

The second step in getting a plane's bombs on target is to orient the pilot to the target by marking the target. Obviously, accurate marking is critical to success. Use both artillery (WP or Illumination) and mortar rounds (RP and Illum) to mark the target. The accuracy with these marks will depend on your adjust fire procedures.

Consider using laser designators. This type of mark will increase first round hit probability. However, consider the possibility of the laser spot tracker (LST) picking up backscatter at the designator, which may cause the aircraft to release, toward the designator. Proper construction of a final attack cone with respect to the designator position can eliminate this problem.

The key to marking a target is redundancy in marks. Always, plan for a second, backup mark. This provides insurance against an abort of the mission due to the loss of the mark.

## **Task 3: Making Accurate Corrections**

The third and final step in the process is to make an accurate correction from the mark for the aircraft. The basic correction contains three elements; the reference point (usually the mark), a cardinal direction, and distance in meters (from the mark to the target).

## **Goal 2: Protecting Aircraft from Enemy and Friendly Fires**

By using a SEAD that suppresses enemy targets, that can endanger the aircraft, you protect the aircraft from potential enemy fires. In order to protect aircraft from friendly fires active during your SEAD, you can create safety measures or fratricide avoidance measures for the aircraft. The purpose of these measures is to separate the aircraft from the affects of your fires. These measures will help determine the construction of your timelines and affect the FACs' 9 lines. By building safety measures for aircraft into your timeline and 9 lines you will allow other supporting arms to continue to fire in support of ground maneuver and aircraft protection (the fires of your SEAD). Additionally, you achieve the overall goal of combining all assets for maximum effect on the enemy. A separation plan is the technique you will use as your safety measure.

## **Separation Plans**

A Separation Plan is an informal Airspace Coordination Area (ACA). It is established by the maneuver commander to deconflict aviation from other supporting arms in order to protect them from the unintended effects of those fires. The separation plan allows supporting fires to continue which aid the protect aircraft from enemy surface fires. Suppression of a target or enemy position during an aircraft's attack will affect the type of separation plan that can be use to protect the aircraft. Ideally, the FiST leader should use the separation technique that requires the least coordination without adversely affecting the pilot's ability to complete the mission safely.

There are four types of separation plans.

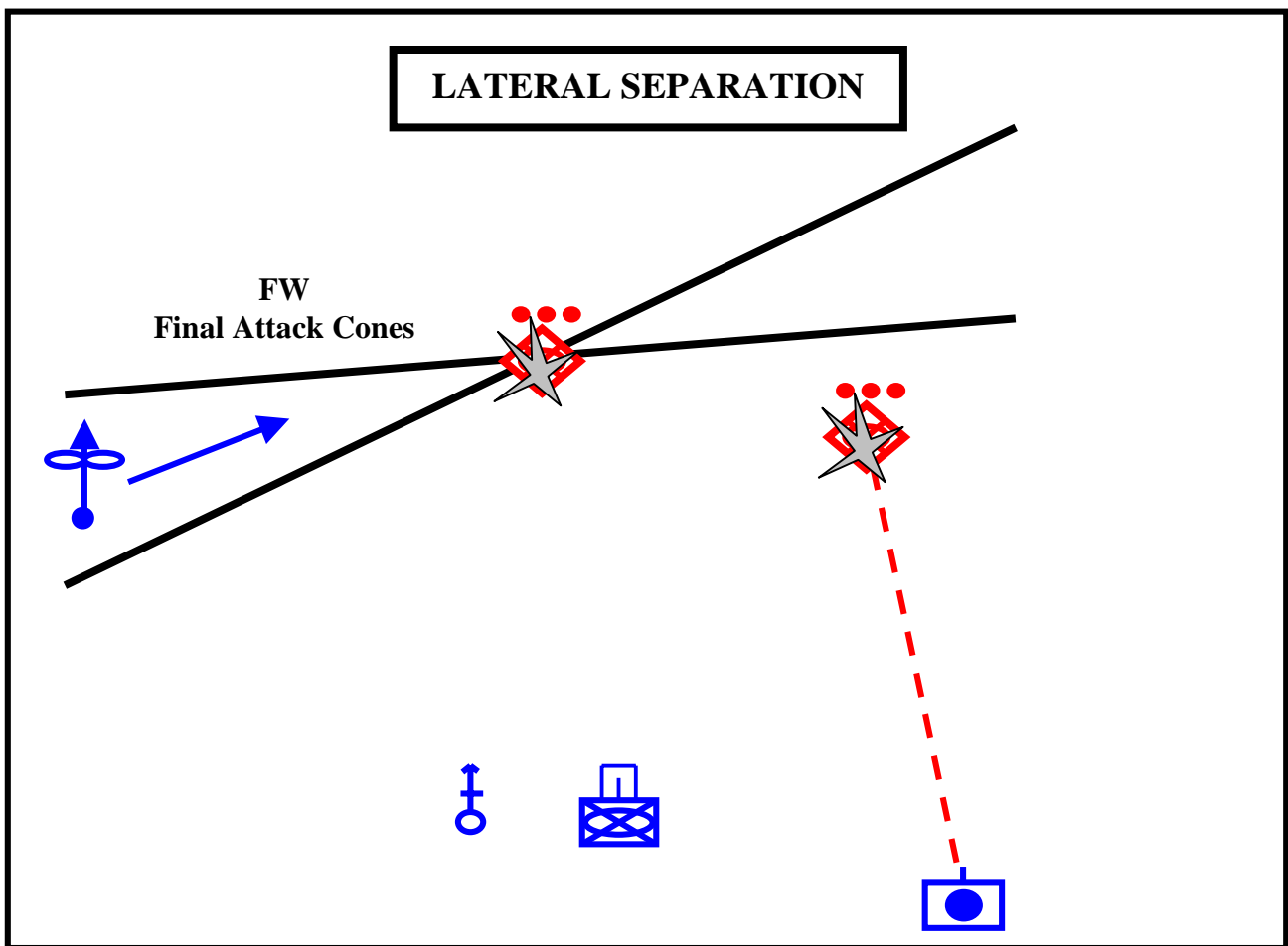
1. Lateral separation
2. Altitude separation
3. Time separation

#### 4. Altitude and lateral separation

The following pages provide examples of the various types of separation plans.

##### **Lateral Separation**

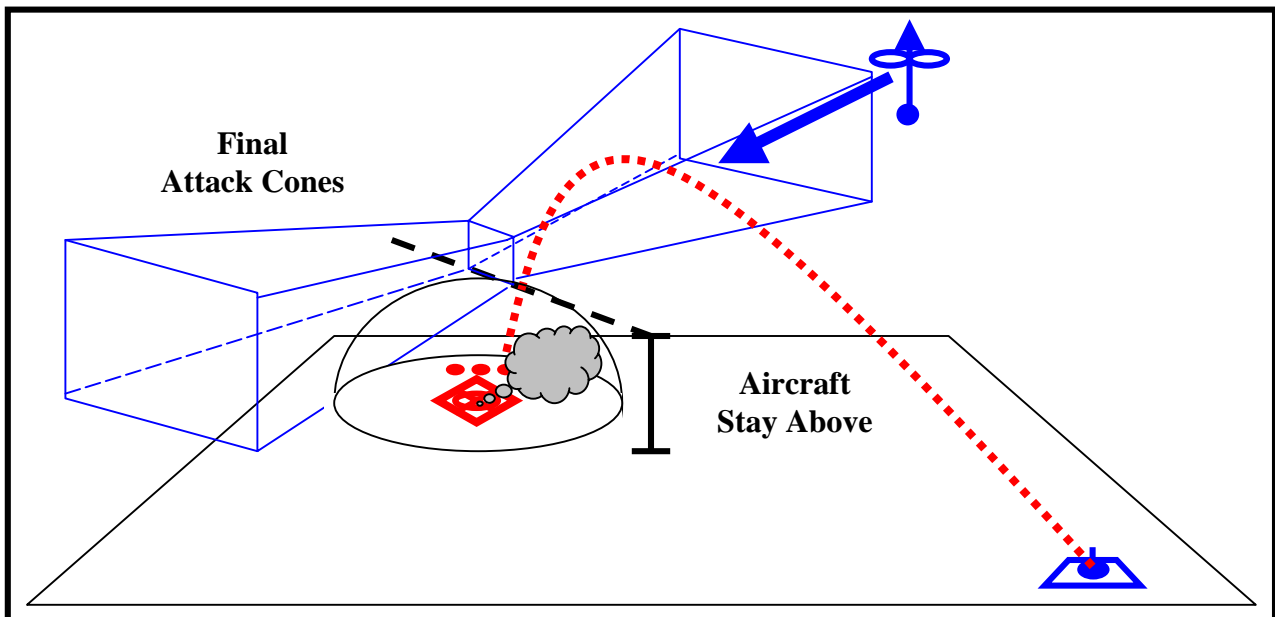
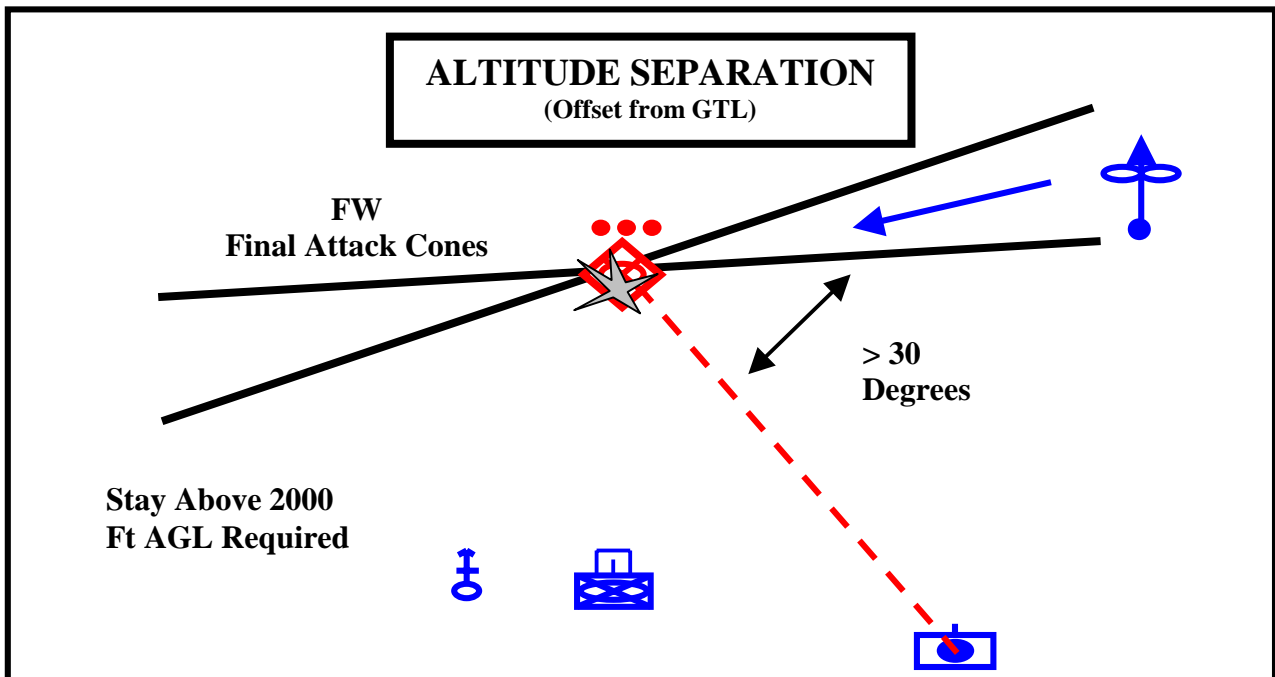
Lateral separation can be used for attacks against two adjacent targets. The technique involves indirect fires attacking one target while the CAS attacks the other target. In order to achieve this technique the aircraft flightpath must be restricted to deconflict it with active gun target lines (both artillery and mortars). Aircraft flight restrictions are stated in lines 1 (IP selection), 2 (offset direction and final attack heading / cone) and 9 (egress instructions) of the CAS 9 Line Brief. Additionally, RW are normally separated with this technique by the construction of offset battle positions.



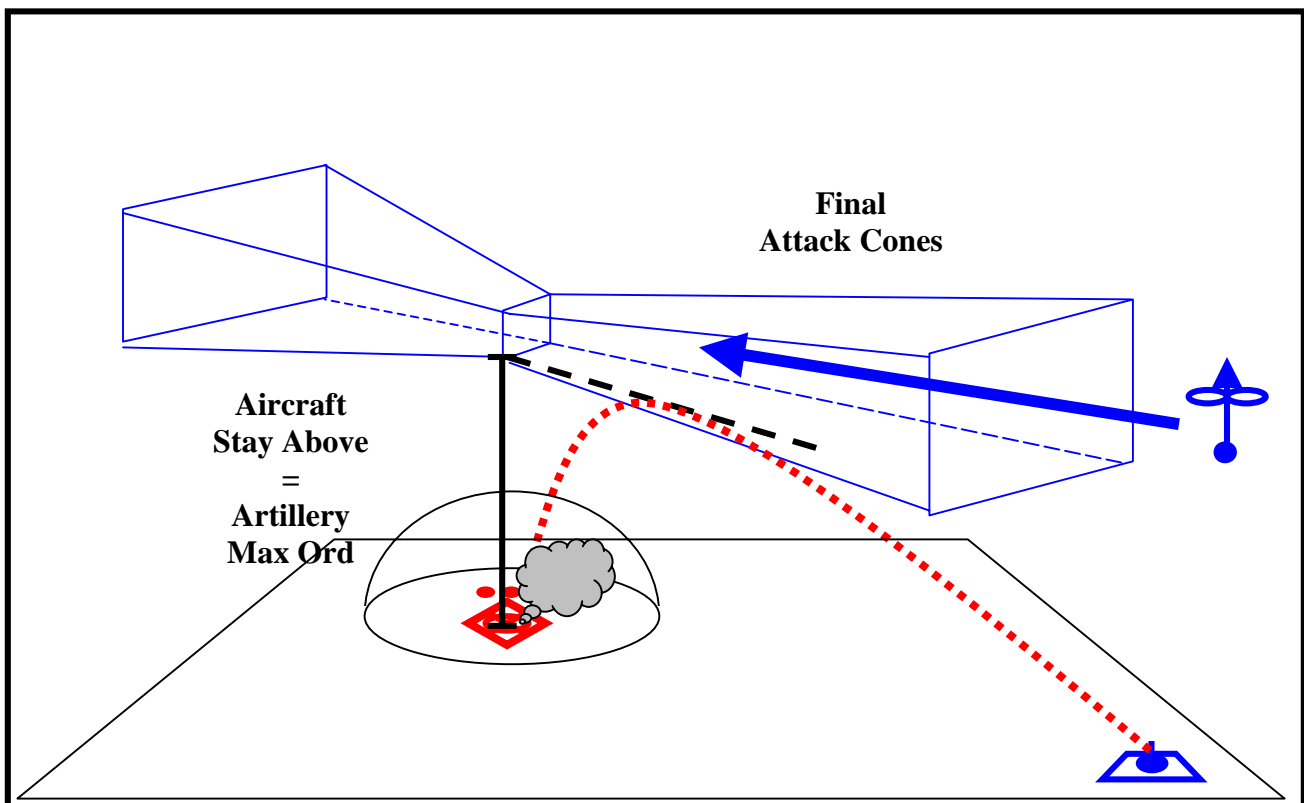
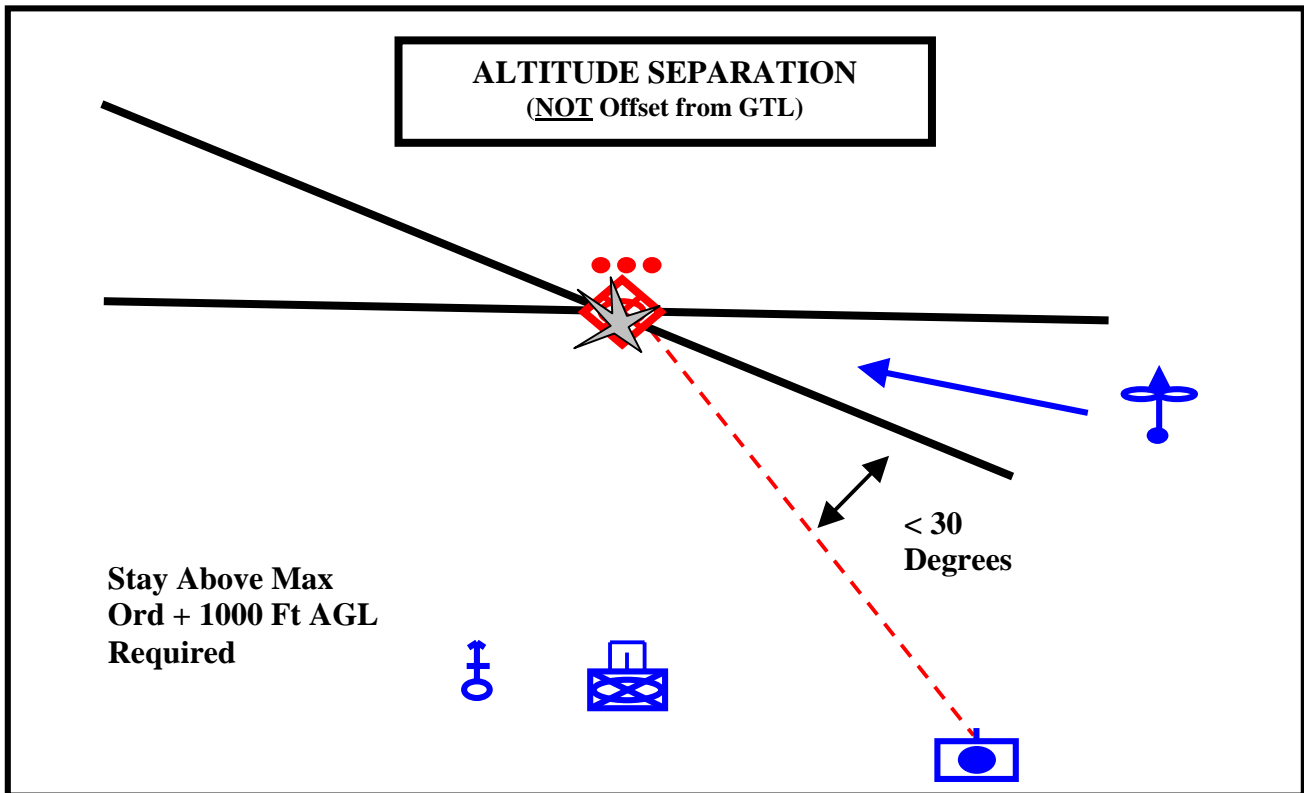
### Altitude Separation

CAS and indirect fire weapons against the same target use Altitude Separation for simultaneous attacks. To do this, the aircraft are given altitude restrictions during portions of their flight profile. This restriction is stated in the amplifying remarks section of the CAS 9 Line Brief. There are two techniques for altitude separation.

First, the aircraft must be laterally offset from active artillery gun-target-lines and mortars must be interrupted. In order for the aircraft to be considered laterally offset from a gun target line the final attack cone must be a minimum of 30 degrees off of the gun target line. If these conditions are met then the aircraft are given altitude restrictions to deconflict it from the artillery fragmentation pattern.

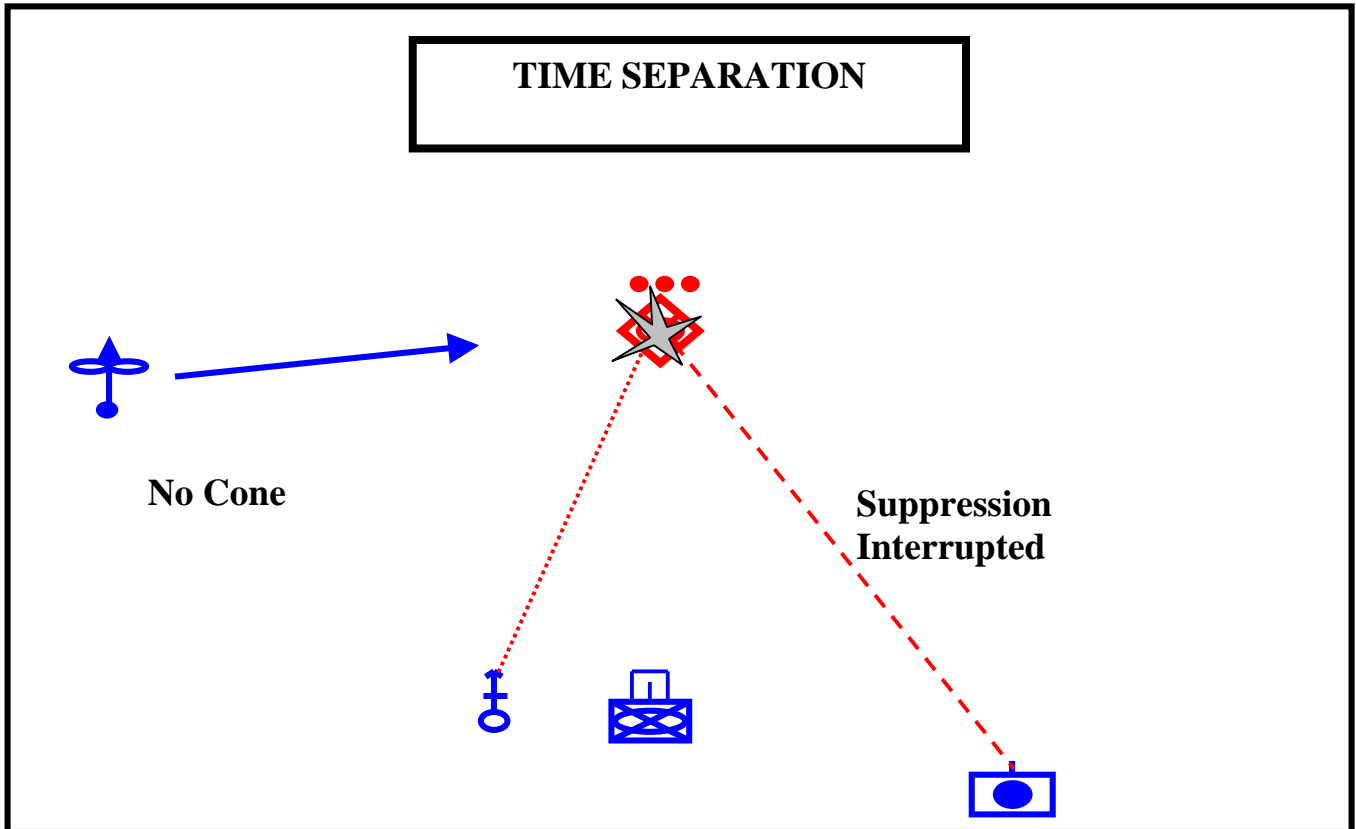


Second, when the aircraft are not laterally offset from the artillery gun target line or mortars are being fired continuous then the aircraft are required to remain above the maximum ordinate of the indirect projectile plus a 1000 ft AGL buffer.



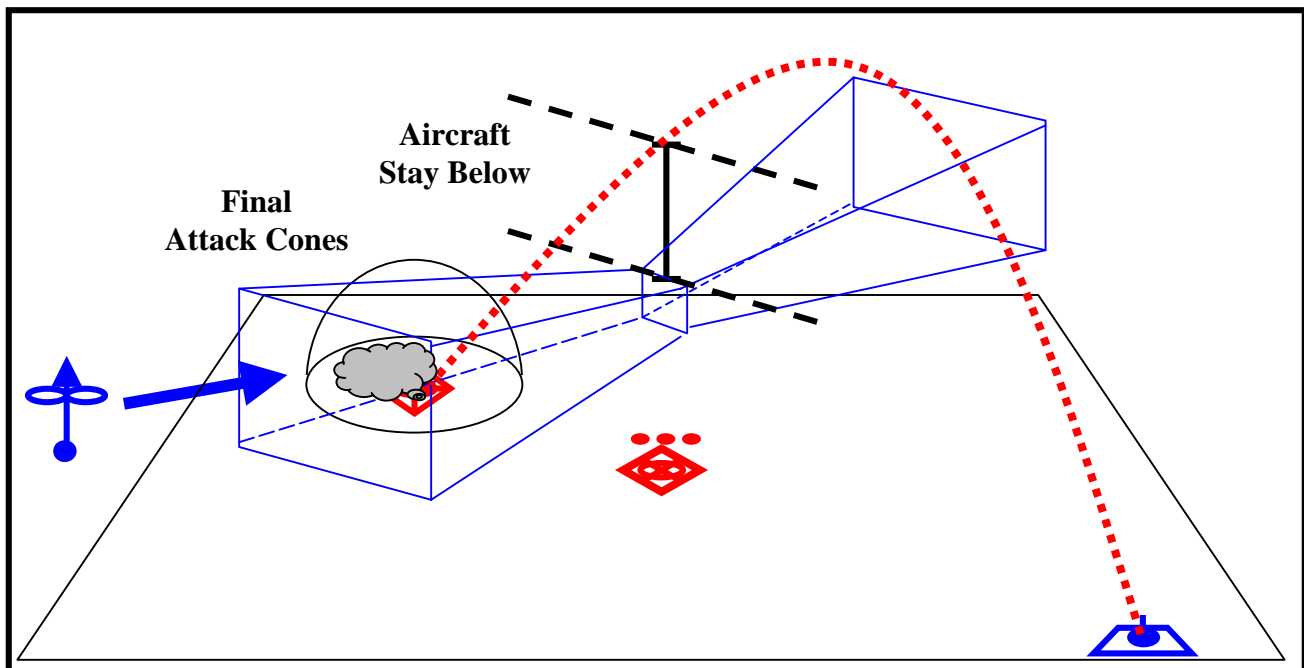
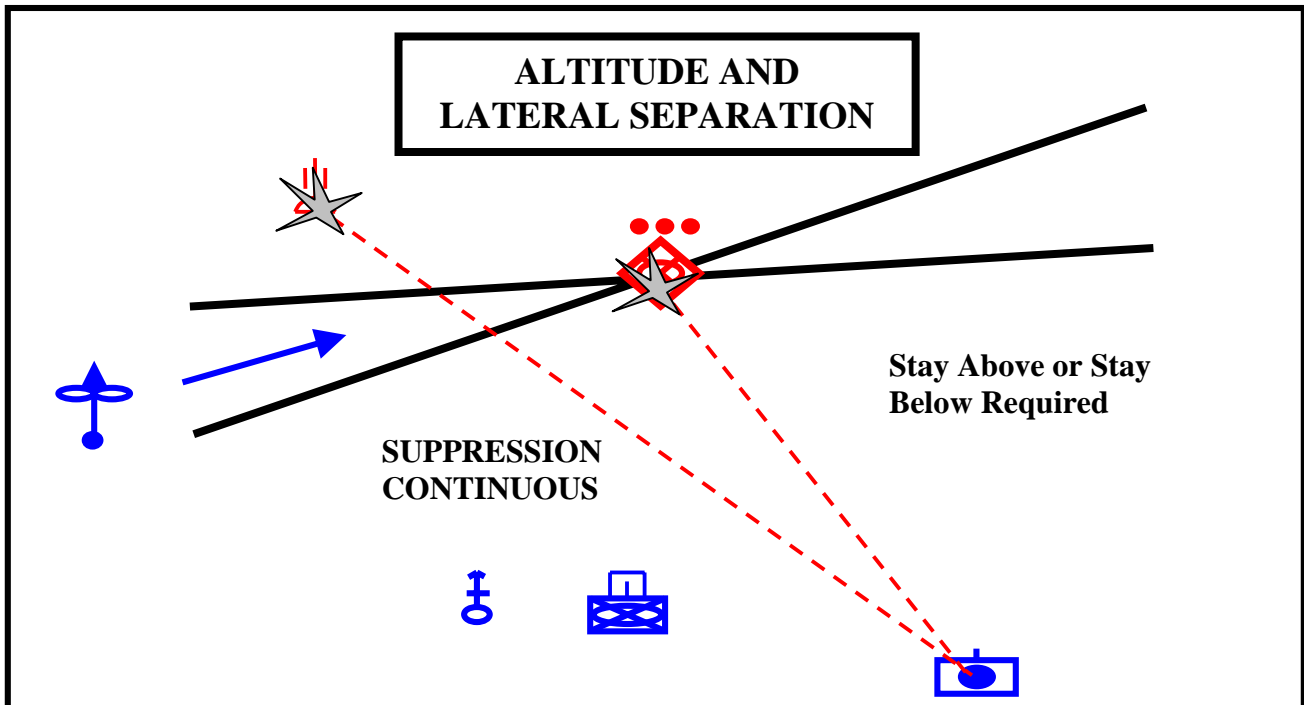
### Time Separation

Time separation is in effect when indirect weapons are not active during the CAS attack. Interrupted SEAD is an example of time separation. This is the least preferred separation plan because it does not protect the aircraft from ADA threats. It may be required when mortars are used or when ordnance type requires a low delivery and you are suppressing a deep ADA threat (attack short, suppressing long).



### Altitude and Lateral Separation

Altitude and lateral separation is used when multiple indirect gun target lines and direct fires are active during an aircraft's attack. Both altitude and flightpath restrictions are placed on the aircraft. Aircraft and indirect fire weapons that are attacking the same target are deconflicted in space by a stay above altitude restriction. IP selection, offset, final attack cones and egress instructions restrict aircraft overflight of active gun target lines. Additionally, aircraft may be given a stay above or stay below to deconflict it from deep artillery fires.



### **Selection of a Separation Plan**

The choice of a separation plan is based on several factors:

1. Ground scheme of maneuver
2. Suppression requirements to support maneuver
3. Indirect fire weapons available
4. Air defense threats
5. Weather conditions
6. Aircraft ordnance (high or low drag)
7. Adjacent unit boundaries

Once these factors are determined you can decide how to deliver aviation ordnance for maximum affect on an enemy while protecting the aircraft.

### **Aircraft Control and 9-Lines**

In order to realize these separation techniques the FAC will use CAS 9 Line Briefs to pass information to the pilots of the aircraft. These briefs are used to control the aircraft and ensure pilots have specific instructions to achieve the results required by the FiST and company commander.

The basic CAS 9 Line Briefs contain the following information:

#### **Fixed Wing**

1. Initial Point (IP) – the position the aircraft starts his run into the attack.
  2. Heading / Offset
  3. Distance (nautical miles)
  4. Target elevation
  5. Target description
  6. Target location
  7. Mark type (laser code if applicable)
  8. Friendly position
  9. Egress instruction
- Amplifying remarks  
TOT

#### **Rotary Wing**

1. Battle Position – the maneuver area that contains the RW CAS firing point.
  2. Heading
  3. Distance (meters)
  4. Target elevation
  5. Target description
  6. Target location
  7. Mark Type (laser code)
  8. Friendly positions
  9. Egress instructions
- Amplifying remarks  
TOT

## **Techniques and Procedures for Effective Employment of CAS for the FiST leader**

One of the most difficult functions performed by the FiST Leader is integrating air support with surface fires. This section presents techniques and procedures, which can be used in situations that require integration of aviation with other supporting arms.

✓ **Plotting Guidelines**

The FAC should plot indirect fire agencies and friendly unit positions on his map and understand the ground scheme of maneuver

- This will aid in choosing a separation plan, deconfliction of aircraft routing, placement of RW attack positions and positioning of FW attack cones.

✓ **Maintain Flexibility in the Fire Plan**

Always plan for employing both RW and FW CAS in the fire plan

- Planning for only one asset, when both may show up will cause time delays in order for you make changes to your plan to accommodate both RW and FW.
- It is easier to plan for both RW and FW in your SEAD, because even if only one asset shows your SEAD can accommodate it without changes. Thus, saving time and allowing you maintain flexibility.

✓ **Managing the “Time Crunch”**

Aviation assets, because of their limited time on station, will often put pressure on the FiST to work quickly. Be prepared for this “time crunch.”

- When an aircraft checks in with the FAC get its time on station and write it down with the current time. This will help in determining a drop-dead time when you must use the ordnance that the aircraft has available.
- Know the aircraft’s time on station.
- Plan “drop dead” times for a TOT, Talk On or sending the aircraft to the Tanker.
- Generally, plan on using an aircraft at least 15 minutes prior to their need to return to base. This means you should have a TOT 15 minutes prior to the drop-dead time.
- Don’t let aircraft go home with ordnance.
- If time is running short and only one agency is adjusted on target set a TOT for a standard SEAD (interrupted or continuous) to deliver the ordnance.
- Any mark is better than no mark (use suppression as a mark if necessary).
- Use an adjust round “at my command” as a mark. Request time of flight for the round from the artillery FO. Then trigger the “at my command” round so it land 30 seconds prior to the aircraft TOT.
- The FAC should mentally rehearse talk-ons.
- Have the FAC do a talk-on for the aircraft. (this technique should only be used as a last resort as it offers no protection for the aircraft from enemy fires)
- Do not talk on with an adjustment from your position or a lead trace position.

✓ **Build and Maintain the Pilots Situational Awareness**

The FAC should always be building the pilot’s situational awareness

- Use adjust rounds as a reference for building a pilots situational awareness.
- Use terrain features that are highly identifiable from the air to build situational awareness (i.e. roads, intersections, large hilltops, etc...).
- Use descriptive and directive terminology when talking to the pilot (i.e. “follow the main road running down the middle of the corridor north to the road junction by the large hilltop”).

✓ **Visual Acquisition of Aircraft**

FiST members must aid the FAC in visual acquisition of the aircraft

- A clear sky can make acquisition a very difficult task.



- Anticipate the need for a flare, wing tip or a “squirt” (the AV-8B is not allowed to give a “squirt”).
- The FAC should lay out very specific sectors of the sky for the team members to scan for aircraft based on the final attack cone.
- The FAC should reference terrain features to help orient the team to the appropriate sector of the sky.
- The FAC should state the aircraft’s roll in altitude and tactics (high, medium or low) to further narrow the search for team members.

✓ **Decisive Corrections from Marks**

Corrections from marks must be clear, concise and quick

- Differentiate between marks, when there is more than one mark.
- Reference the specific mark (i.e. “from the RP”, “from the illum on the deck”).
- Make corrections in cardinal directions only. (Drop or add does not make sense to the pilots).
- Give a direction correction first, then a distance correction.
- Make corrections using cardinal directions.
- Make distance corrections in meters.
- Generally make distance corrections in increments of 50 meters. (i.e. “from the illum mark southeast 250”)
- Make Dash 2’s correction from leads hits if his hit was close to the target, otherwise tell Dash 2 to disregard leads hits and reference the mark for a correction. (i.e. “from LEADS hits west 100”)

✓ **Choosing a Mark**

The mark is your means for controlling where the aircraft places its ordnance. Consider the type of mark you use for the aircraft

- For RP or WP consider the effect of the wind on the smoke.
- If using precision guided missiles consider a marks obscuration effects.
- For illumination on the deck, consider micro terrain in the vicinity of the target. The aircraft may see the mark but the FAC can not. If you can not see the mark then you will not be able to get the bombs on target.

✓ **LASER Markers**

Use a LASER marker when available

- Laser pointers can include the MULE, the Night Target System (NTS) on the cobra and the handheld ISLT and LPL-30.
- Laser marking can increase the probability of first round hit.
- The maximum effective range for most Laser designators is 3 to 5 km. At ranges beyond this the beam becomes too diffuse to for the Laser Spot Tracker (LST) to pick up the energy.
- Consider environmental factors when employing a laser mark as conditions can affect designators and seeker performance.
- Remember, not all aircraft are (LST) equipped.
- The LST should not be used as the sole source for target verification. An additional mark (i.e. illum on the deck during the day or RP during night attacks) should also be used because of the possibility of the LST picking up backscatter at the designator, which may cause the aircraft to release toward the designator.

- When using a laser spot for a mark, build the FWCAS final attack cone or RWCAS BPs around the laser designator to target line.
- In order to construct final attack cones for the FWCAS the FAC must build a “basket” around the designator. The final attack cone must be 10 degrees off of either side of the designator to target line and no further than 60 degrees from the designator to target line. Thus creating a 50 degree “basket” on either side to the designator to target line for the aircraft final attack cone.
- Standard Laser Brevity Terms:
  1. “Ten Seconds” – prepare to start Laser designation in 10 seconds.
  2. “Laser On” – turn the Laser designator on.
  3. “SPOT” – Aircraft has acquired Laser energy.
  4. “SHIFT” – Shift Laser energy from offset position to the target”
  5. “TERMINATE” – Turn the Laser designator off.

✓ **Aviation Ordnance and Maneuver**

Evaluate the effects of ordnance on maneuver

- Ordnance minimum safe separation may affect when maneuver can begin and may affect the length of indirect suppression required to support maneuver.
- The company commander must deconflict ground maneuver from the effects of air delivered ordnance.
- This will ensure that ground forces are as safe as practically possible. This is your means of reducing the fratricide risk to friendly forces.

✓ **Aircraft Reconnaissance**

Use aircraft to look down range

- Aircraft can report enemy positions.
- Aircraft may be able to adjust fire and record as target in advance of maneuver.
- Do not let aircraft work on any targets the FiST can see.
- Once the FiST can see the target be sure to take the mission over from the pilot if they have not recorded as a target. (You will have better Situational Awareness of the situation and your fight than the pilot)

### **Aviation Weapon Considerations for the FiST Leader:**

Aviation weapons present the FiST with some specific considerations that can affect the construction of fire plans (timelines), 9 Lines and the selection of Separation Plans

✓ **Hellfire** (rotary wing LASER guided munition)

- Because the Hellfire is a laser guided munition it requires a clean battlefield in order for it to be employed.
- Hellfires do not have to be employed as part of a fire plan. However if you decide to tie them into a fire plan consider employing them up front before suppression starts.
- Hellfire allows up to 8 km standoff from a target, which is outside of the range of most ADA threats. Thus suppression to protect the aircraft is not necessary.

- Always account for the time of flight of the missile and provide a TOT firing window in the fire plan timeline. The missile should impact at TOT, not be fired at TOT.
- A mark for a Hellfire is often helpful for quickly orienting the pilot to the target. If a mark is used plan for it to occur at least 45 seconds prior to the start of the attack in the fire plan timeline.
- The preferred mark type for Hellfire is an illumination round placed on the deck. This will keep the battlefield relatively clean and not affect the laser.
- Always consider the position of friendlies relative to the Hellfire Surface Danger Zone as it is very large.
- ✓ **TOW** (rotary wing wire guided munition)
  - Because the TOW is a wire guided munition it does not require a clean battlefield in order for it to be employed.
  - The TOW offers a 3 to 5 km standoff from a target so suppression of ADA threats may or may not be required in order to protect aircraft.
  - Always account for the time of flight of the missile and provide a TOT firing window in the fire plan timeline. The missile should impact at TOT, not be fired at TOT.
  - The TOW can be employed during a fire plan with suppression on a target as long as the pilot can see the target.
- ✓ **RW direct fire ordnance** (2.75 and 5 in. rockets and 20 mm)
  - RW direct fire ordnance cannot be delivered toward friendly unit positions as this presents a fratricide risk.
  - To use direct fire ordnance to its maximum effectiveness the aircraft will have to get close to the intended target. In this situation the aircraft will be exposed to ADA threats and direct fire from the enemy position and the effects of friendly fire engaging the enemy position. In order to protect the aircraft you should provide suppression on the target and ADA threats.
- ✓ **High drag aviation ordnance and FW direct fire ordnance**
  - Plan gaps in suppression timelines for high drag or direct fire ordnance. This enables the aircraft to fly optimal delivery parameters (below 2000 ft AGL) required for better hits.
- ✓ **Napalm**
  - To use Napalm to its maximum effectiveness the aircraft will need to get close to the intended target.
  - Plan gaps in suppression timelines for Napalm. This enables the aircraft to fly optimal delivery parameters around 500 ft AGL required for the best hits.
  - This also improves the effectiveness of the hit of the canister and account for its lack of aerodynamics.

# Chapter 5:

## Guidelines for Forward Observers and Indirect Fires

---

### In This Chapter

- Using Indirect Fires
- Ensuring Accurate Fires
- Deconflicting Indirect Fires from Aircraft and Maneuver
- Ordinate Calculations
- Determining the Ordinate at a Point Along the Trajectory
- The elements of Integration
- Techniques and Procedures for Employment of Artillery for the FiST Leader
- Artillery Munition Considerations for the FiST Leader
- Techniques and Procedures for Engaging Mobile Enemy Air Defense Weapons

---

### Indirect Fires

The FiST leader uses indirect fire assets to engage enemy positions in support of ground maneuver and air attacks. Safely engaging targets requires the FiST leader to ensure the accuracy of fires and to effectively deconflict fires with aircraft and maneuver.

### Ensuring Accurate Fires

First and foremost, indirect assets will provide the FiST leader with a responsive capability. However, the FiST leader, in conjunction with the FO must ensure that these fires are accurate. In other words, ensure that they are actually landing on and suppressing the enemy.

At some point during an attack, fires will need to be adjusted. Ideally the adjustment process should be as quick as possible, because with each adjustment your lethality on the enemy decreases as he has time to improve his posture. Additionally, indirect agencies have a limited amount of ammunition. With these two concerns in mind your FOs should adjust as quickly and accurately as possible. The FiST leader can ensure this by first starting with accurate grids to all targets. Use all available means for target location. This includes: PLGRs, maps, compass, range fans, laser range finders, etc...

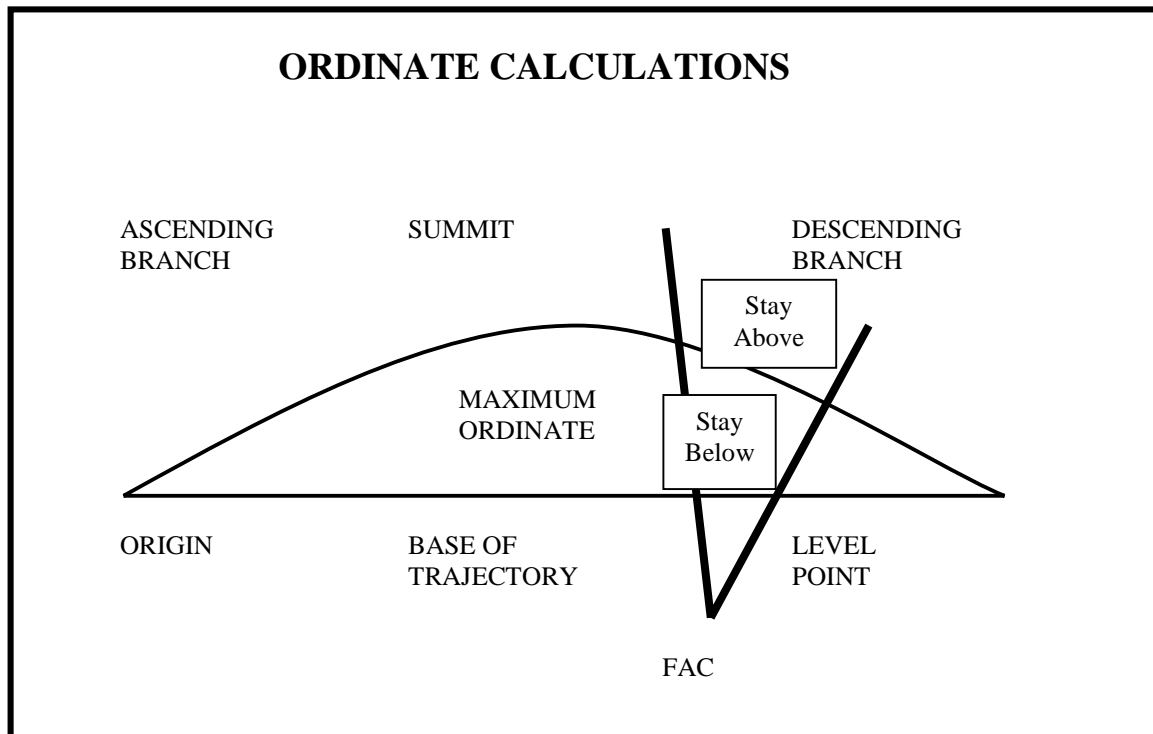
Once the target location is accurately determined, the next step should be the use of proper FO procedures. First, the FO should spot and correct the first adjust round to get it on line with the target. FOs should always spot and adjust rounds using binos. Second, he should use doctrinal bracketing procedures. Doctrinal bracketing procedures state that after a definite range spotting of over or short has been determined, the observer should select a range correction which is sufficiently large enough to ensure that the next round will impact on the opposite side of target. Once the bracket has been established,

corrections are made which successively split the bracket in half in multiples of 100m increments, always moving the next burst toward the target. The observer continues this process until a 100m bracket is established around the target. He then makes a 50 m range correction and enters the fire for effect phase. This is the only method that mathematically guarantees effects on the target. These procedures will be the quickest way to ensure suppression of the enemy. FiST leaders should ensure their FOs are using them.

### Deconflicting Indirect Fires from Aircraft and Maneuver

Second, but of equal importance for the FiST leader is the deconfliction of indirect fires from aircraft and ground maneuver. One of the most difficult tasks a FiST leader performs is deconflicting aircraft from indirect fires. The goal is to effectively use the aircraft without suspending the use of other supporting arms. This will aid in the additional goal of protecting the aircraft from enemy fires or the unintended effects of friendly fires.

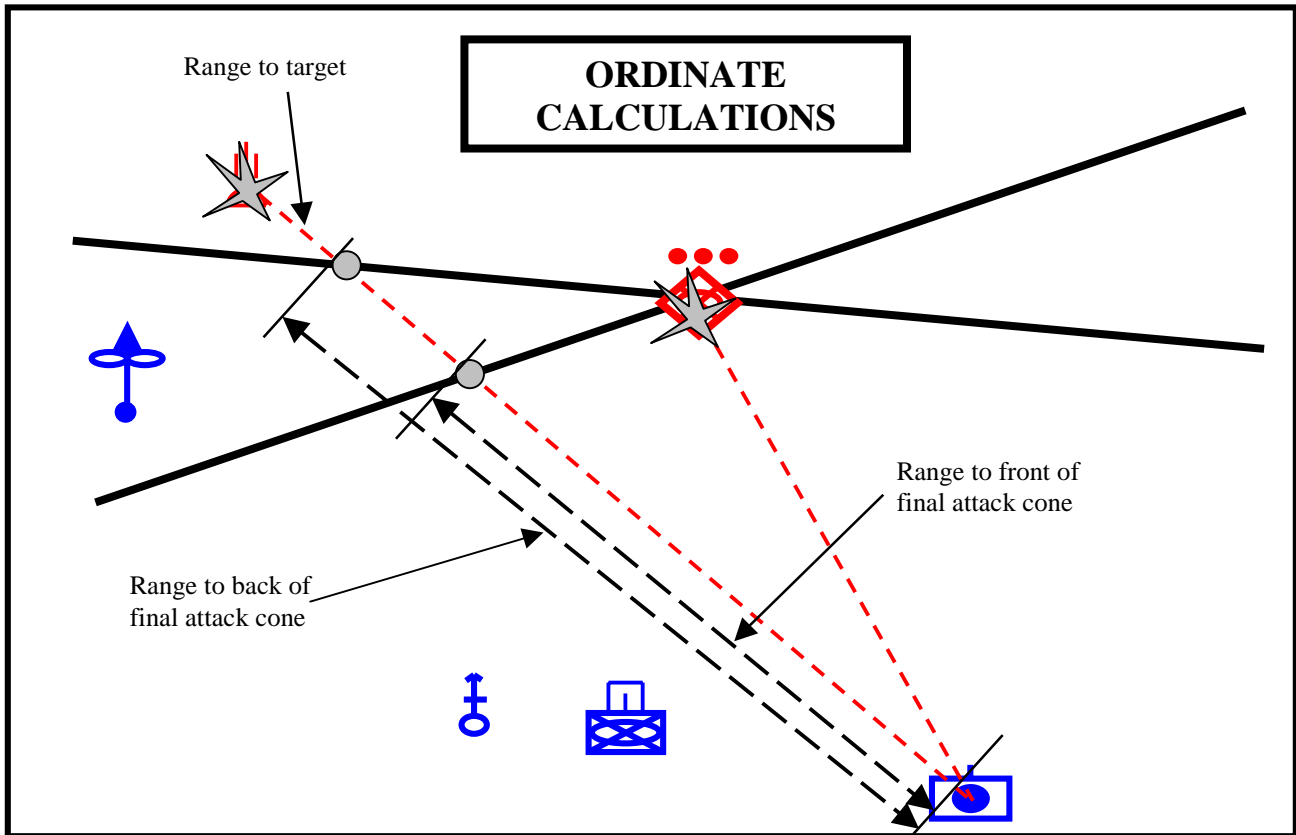
In order to do this, take into account the separation technique you have planned and determine if a “stay above/below” altitude is required. Anytime you route an aircraft across an active gun target line, you will need to make a “stay above/below” calculation. The FO will help you in making this calculation. The calculation is based on the ordinate and trajectory of the round, in relation to where the aircraft crosses the gun target line. When the FAC has determined the final attack cone the artillery FO should put this information on his map and determine the highest point in the trajectory that the cone crosses the gun target line. The FO will then determine the altitude (in feet MSL) at this point and adds 1000 ft MSL (for the aircraft safety buffer). This will be the “stay above” the FAC will give to the aircraft. A visual representation of an artillery projectile trajectory with a final attack cone and the method for determining the ordinate for a point along a trajectory follows:



- **ORIGIN** – The location of the center of gravity of the projectile when it leaves the tube.
- **ASCENDING BRANCH** – The part of the trajectory that is traced as the projectile rises from the origin.
- **SUMMIT** – The highest point of the trajectory.
- **MAXIMUM ORDINATE** – The difference in altitude between the origin and the summit.
- **LEVEL POINT** – The point on the descending branch that is at the same altitude as the origin.
- **BASE OF TRAJECTORY** – The straight line from the origin to the level point.

### **Determining the Ordinate at a Point Along the Trajectory**

- Draw the gun target line from the firing agency to the target being suppressed.
- Determine the range to the suppressed target.
- Determine the charge being fired.
- Determine the target altitude.
- Draw the final attack cone on the target being attack (and marked).
- Determine the ranges where the final attack cone crosses the gun target line of the target being suppressed.
- Go to the appropriate firing table (based on charge being fired).
- Draw the trajectory for the range to the suppressed target.
- Determine the chart ordinates for the ranges at which the final attack cone crosses the gun target line along this new trajectory.
- Convert the chart ordinates to feet (meters x 3.3), and add/subtract 1,000 feet.
- Add target altitude in feet MSL.
- Chart Ord (in feet) + 1000 ft + tgt alt = STAY ABOVE (expressed to the next highest 100 ft MSL).
- Chart Ord (in feet) - 1000 ft + tgt alt = STAY BELOW (expressed to the next lowest 100 ft MSL).



Deconfliction of indirect fires and maneuver is done by routing maneuver around the effects of indirect fires and the timing indirect fires. Mortars are of particular concern when working through deconfliction problems. Maneuver under mortar fires is not authorized during peacetime operations, so you must take the mortar gun target line into consideration. In order to help the company commander place mortars, get a detailed sketch of the company commander's scheme of maneuver. With this information and the aviation picture, you can make a good recommendation to the company commander for placement of the mortars.

Beyond this particular consideration, you should be concerned with the effects of your indirect fires. Remember fires are used to maneuver towards an enemy. In order to protect your maneuver elements you will need to route them around active indirect fires. Additionally, time the duration of your indirect fires to correspond with the maneuver element in relation to the Ordnance Minimum Safe Distance for the particular ordnance being use against an enemy position. As this element closes inside of the minimum safe distance, your fires should cease.

### Integration

You have achieved integration when:

- Your fires are accurate

- Your separation plan deconflicts aircraft from all fires
- Your scheme of maneuver separates the maneuver element from all fires

Integration is the basis of combined arms operations.

## **Techniques and Procedures for Employment of Artillery for the FiST Leader:**

This section presents techniques and procedures, which FiST leaders should ensure that their FOs are using.

### ✓ **Plotting Guidelines**

FOs should plot indirect fire agencies, friendly and enemy unit positions and FW cones and RW battle positions on their map

- This aids in deconfliction and will help when calculating aircraft “Stay Aboves.”

### ✓ **Adjust the Sheaf**

Apply an appropriate sheaf to fit the enemy position

- The standard circular artillery sheaf is 100 meter radius volley for a 6 gun battery.
- Make sure your sheaf fits the enemy position, as not all positions will be exactly this size and shape.

### ✓ **Use Standard Bracketing Procedures**

FOs should know and use the W=RM rule and standard bracketing procedures to make corrections

- $W = R * M$  (mil relation)  
W = width of lateral shift in meters  
R = distance to the known point divided by 1000 and rounded to the whole number.  
M = measure angle in mils from the known point to the target.
- Bring the impacts on line with the target first
- Use binos to get the mil separation from the target and the impact of a round and multiply by the OT factor (be precise, do not guess).
- Then bracket the range (do not bracket laterally).

### ✓ **Conduct Simultaneous Missions**

The FO should be able to conduct two or more simultaneous fire missions

- An artillery battery can accept two adjust fire missions at a time.
- Strive for concurrent actions, because this reduces the delay time from contact to maneuver and direct engagement.

### ✓ **Record all Targets**

Never end a mission on an enemy position without recording it as a target

- If you intend to use a target as part of SEAD always make sure it is recorded so the artillery battery can perform other missions and can refer to it again when you run your SEAD.
- This will allow you to come back to a target if something more pressing interrupts an adjustment mission.
- Additionally, record all targets from adjacent units.



✓ **Always fire for effect**

- This ensures your sheaf will have the desired effects on the position (if a position is unsuppressed it will affect your ability to maneuver on it and endanger the maneuver unit).

✓ **Special Considerations for SEAD non-standard**

When aircraft ordnance or weather considerations require you to bring aircraft in below 3000 ft AGL leave gaps in artillery timelines. (SEAD non-standard)

- Running SEAD non-standard while bringing aircraft in low because of ordnance (i.e. high drag ordnance, machine gun strafe runs) or weather concerns (i.e. low cloud ceiling) requires a gap in the suppression timeline for aircraft to fly through.
- Artillery cannot start suppression again until 1 minute and 30 seconds after TOT (thus, creating the gap for the aircraft to fly through). This creates a 2 minute total gap in artillery suppression.

**Artillery Munition Considerations for the FiST Leader:**

✓ **Smoke (M825) Placement**

Use doctrinal procedures to adjust M825 smoke rounds

- M825 is a base ejection projectile that uses felt wedges impregnated with WP to facilitate rapid dissemination.
- Shell HE is used to adjust the placement of the center of the smoke screen. Normal HE adjustment procedures are used during this phase. Once the desired position is determined, then the FO should request one round of M825 to confirm placement and observe the Height of Burst (HOB) of the round. The FO should make deviation, range and HOB corrections from the center of the smoke sheaf as required to screen the target.

**Techniques and Procedures for Engaging Mobile Enemy Air Defense Weapons:**

✓ **During CAX expect mobile enemy air defense weapons to move**

If you attempt to adjust fire onto Mobile Air Defense Weapons they will move. This is a real world consideration as ADA are very vulnerable assets.

- If the FiST attempts to adjust onto mobile ADA it will more than likely move in order to protect themselves.
- Do not adjust fire onto mobile ADA. Instead calculate the ADA position by polar plot. You already know your location and you can get a good direction from the artillery FO. Add to this a laser range from your tanks and you can get a precise position for the ADA. (Do this carefully and do not forget the GM angle) Do quick “sanity check” with a terrain and map study to verify the ADA location. This is the grid you will use in your timeline. This method gives you the greatest chance of achieving accurate suppression on the ADA position with out adjusting on to it.

- ✓ **Consider Mortar Weaponing**
  - Mortars will have a low probability of success on the ADA position without adjustments.
  - Give this position to the artillery FO and have the artillery fire on this target in your timeline. Artillery will be the agency most likely to hit a target the first time without adjusting onto that target, because of its bigger sheaf and inherent accuracy.

## **Techniques and Procedures for Mortar Employment for the FiST**

### **Leader:**

- ✓ **Position Mortars Quickly**  
Get mortars into position and adjusting quickly
  - This will provide redundancy and a backup if you lose your artillery support
  - Alert adjacent units when mortars are active.
- ✓ **Direct Lay / Direct Align company mortars when possible**
  - This will speed the adjustment phase as initial rounds can be put on target and adjusted faster.
- ✓ **Fire for effect to observe sheaf**
  - The width and spread of the sheaf will determine how close friendly forces can close under the suppression.
  - Make sure the sheaf is tight so friendly forces can close as close as possible to the suppression.
  - Adjust the sheaf if necessary (if one gun is out take the time to adjust it in).
  - Make sure the sheaf fits the target so the enemy is completely suppressed.
- ✓ **Consider SEAD types for mortars**
  - SEAD continuous will cause an extremely high “Stay Above” requirement for FW. This is usually prohibitive since an extreme “Stay Above” will make aircraft very difficult to acquire and “clear hot.”
  - SEAD interrupted works well for quickly achieving effects of aviation only against a position.
  - SEAD non-standard requires a “hole” in the timeline for aircraft to fly through, but allows for suppression to continue in order to support maneuver. Mortars cannot start suppression again until 2 minutes after TOT (thus, creating the “hole” for the aircraft to fly through). This creates a 2 minute and 30 second total gap in the mortar suppression timeline.

# Chapter 6:

## Guidelines for the Company Commander

---

### In This Chapter

- Tasking the FiST
  - FiST Responsibilities
  - Considerations for the Company Commander and the FiST Leader
  - Techniques and Procedures for Lateral Coordination for the Company Commander
- 

### Tasking the FiST

The company commander is an integral component to the success of his Fire Support Team. In order to maximize the capabilities of your FiST, you must provide them with specific tasks for fire support. The FiST leader will use this information to begin building a fire plan that supports your scheme of maneuver. Explain to the FiST leader your scheme of maneuver. Will the attack be an action right or left? Will tanks or infantry lead an assault? Will there be a dismounted assault? How many platoons will assault? Additionally you must provide your intent for fire support. Decide what effects fires must have on a particular enemy position. Are the fires intended to be destructive, neutralizing or suppressive? What duration of fires will be needed? (time / space calculations) He will use this information to ensure fires accomplish the task, are constructed to support the scheme of maneuver and maintain momentum. It is your responsibility to give your subordinate units specific instructions to prevent fratricide. Keep your FiST leader informed of adjacent unit positions, adjacent unit actions and enemy positions. The FiST leader will use this information to deconflict your fires and aviation from adjacent units and enemy positions. This is deconfliction at the lowest level. Deconfliction in this manner will increase the momentum of your attack. The FiST leader will also make recommendations to you to keep the adjacent unit deconflicted from your fires and aircraft.

### FiST Responsibilities

The FiST is also responsible to you for information regarding all aspects of fire support, executing your concept of combined arms and recommendations for deconfliction of maneuver, supporting arms and adjacent units. It is your responsibility to conduct lateral coordination. As a result you will need to have a continuous exchange of information with adjacent unit leaders. Additionally, because of your information requirements, you should have a continuous dialog with the FiST leader. The FiST leader will aid you in lateral coordination. The lateral coordination information you need will come from the FiST leader based on the fire plan he is developing to support your plan of attack.

## **Considerations for the Company Commander and the FiST Leader**

### ✓ **Use Contact Reports**

Report contact and unit positions to higher headquarters

- This warns the FSC that you may be making requests for air and artillery support.

### ✓ **Get mortars into position quickly**

- Give the mortar section leader a grid or a specific area to go and FIRECAP and provide an aim point to orient. Do not leave this to chance by just telling your mortars to move off to a flank and set up, because often they will move to a position that does not support your maneuver.
- Give specific instructions, explaining the scheme of maneuver.
- Give the mortar position consideration, take into account the scheme of maneuver and the series of ammunition when positioning your mortars.
- Overhead fire is not authorized for CAX events and maneuver elements must maintain separation off of the gun target line.
- Remember, even in combat overhead fire with mortars is a serious fratricide risk, because of the high potential for short rounds.

### ✓ **Specifically Task the FiST Leader**

Inform the FiST leader of fire support requirements and expected duration of fires required to support maneuver

- This will help the FiST determine the assets he will need to request.
- This will also allow the FiST leader to begin building a fire plan to support your concept of combined arms.

### ✓ **Be generous with suppression**

- Plan for more fires (suppression) than you need. This provides insurance against unforeseen problems with the maneuver elements. If things go well and friendly forces reach ordnance minimum safe distances early the FOs can send “cease loading” to indirect assets to stop fires.

### ✓ **Maneuver under fires**

- Shooting for durations longer than 30 seconds exposes friendly artillery to extreme risk of detection and prosecution by counter battery fires.
- Additionally, indirect assets have a limited amount of ammunition.
- If you are going to expose your indirect assets to these risks and use valuable ammunition supplies make sure you accomplish your mission with what you have planned.
- Always seek to minimize exposure and ammunition expenditures of artillery units.

❖ **Note** – It is the company commander’s responsibility to balance the conflict between the need for adequate suppression and the limited resources of indirect fire agencies.

### ✓ **Inform higher headquarters of the plan**

- This builds the situational awareness of the FSC.
- This will assist with timely mission clearance.

### ✓ **Draw Threat Rings**

- This combined with the effects of terrain identifies when enemy positions must be engaged in order for you to maneuver.

- This will aid in timing of fires. In order for you to maneuver into a threat ring you will have to start suppression.
- Additionally, this will indicate requirements to coordinate maneuver and fires with adjacent units.
- ✓ **Draw Surface Danger Zones**
  - This will aid in timing of fires. At CAX, when your maneuver elements reach the edge of the SDZ your fires must stop.
  - You are responsible for deconfliction of maneuver elements and fires.
  - Plot direct fire SDZs as part of your informal fratricide risk assessment.

### **Techniques and Procedures for Lateral Coordination for the Company Commander:**

- ✓ **Maintain Communication with Adjacent Units**
  - This is a continuous process that can affect your combined arms fire plan based on their actions.
- ✓ **Track Adjacent Unit Missions**
  - This will allow you to determine if their missions conflict with your actions (this is a way of keeping yourself safe).
  - Some items that may conflict with adjacent units include:
    1. FW attack cones with respect to the adjacent unit's location (i.e. Does your cone point at his position?)
    2. FW routes with respect to the adjacent enemy position (i.e. Does your aircraft fly over an adjacent enemy position)
    3. FW routes with respect to an adjacent unit's active indirect missions (i.e. Does he have an active mortar mission that your aircraft might fly through?)
    4. Maneuver routes with respect to the adjacent enemy position (i.e. Can he kill you as you close to your target? Do you require support from adjacent units to accomplish your task?)
  - Additionally, this will tell you what agencies are still available for you to use.
  - Always track targets that have been recorded, because you may need to use them as you advance.
  - You may also be able to assist as a communications link if a unit is having comm problems.
- ✓ **Coordinate actions with adjacent units**
  - This allows you to conserve effort and ensure both your actions and the actions of the adjacent unit both work to accomplish the mission.
  - Some items to coordinate include:
    1. Gun target lines and aircraft routes
    2. Attack cones and friendly positions including No Fire Areas that maybe located forward of your position
    3. If an adjacent enemy position can affect your maneuver arrange to have it suppressed

4. Adjacent unit schemes of maneuver (i.e. Avoid a double envelopment)
  - Always consider your actions with respect to friendly unit positions that may be located forward of the FLOT, for example, STA and Recon Teams.

# Chapter 7:

## INTEGRATION: Coordination and Deconfliction

---

### In This Chapter

- Explanation of the term “Integration”
  - Explanation of the term “Coordination”
  - Explanation of the term “Deconfliction”
  - Tools for Integration
  - Coordination of a Sample Fire Plan
  - Deconfliction of a Sample Fire Plan
- 

### Integration: Coordination and Deconfliction

Effective integration of all assets into a combined arms fire plan is the most challenging task assigned to a FiST leader. Through integration the FiST leader seeks to safely and effectively combine the individual elements of an attack. His goal is to combine the elements in such a way as to achieve effects greater than the sum of the individual components. The more familiar a FiST leader becomes with this process and the methods to accomplish this process the quicker he will be able to operate. This section will look at integration in depth.

#### Definitions:

**Integration** is defined as the **coordination** and **deconfliction** of fires and maneuver.

**Coordination** is the sequencing and timing of fires in relation to maneuver. Through coordination the FiST leader separates elements of an attack by time that could conflict. An example of a conflict is having mortars active during a FW attack on the same target. Additionally, he ensures the appropriate sequencing of the individual elements. An example of proper sequencing is ensuring indirect marks falling prior to a FW attack.

**Deconfliction** looks at the geometry and spacial relationships of fires and maneuver. Through deconfliction the FiST leader separates elements of an attack by space that could conflict. An example of deconfliction is ensuring aircraft have the appropriate “stay above” when various direct fire weapons are active.

The FiST leader uses two tools to achieve integration. The first tool is the Battle Board. It serves as a place to write information that will be needed in the integration of the elements of a fire plan. This is also the place where the fire plan will be constructed. The board is where coordination of the fire plan occurs. The second tool is a map. The map should have all information available plotted on it. This is where the FiST leader will conduct deconfliction. The map will allow the FiST leader to see the geometry of the fire plan.

### **Coordination – SEAD Non-Standard Example**

This section provides an example of a combined arms SEAD non-standard fire plan. This example focuses on the coordination of all the elements of an attack. Through coordination the FiST leader seeks to organize the sequence and timing of events in the fire plan being built. The events of the fire plan include all elements used in the attack including; FW aviation, RW aviation, artillery fires, mortars, the assault element and the support by fire element. This synchronization ensures that elements of the fire plan do not violate basic guidelines of fire plan construction. For example, mortars require a 2 minute and 30 second gap for a FW attack. Additionally, as the fire plan is coordinated indications for deconfliction can be seen.

### **Effective Coordination**

As you build your fire plan it is important to look at the relationships between the basic elements of your fire plan. The basic elements being aviation, indirect fires and maneuver. First, look at when and which target the aviation is engaging. This can indicate a need for deconfliction between FW aviation and indirect fires by the use of an altitude restriction. Or deconfliction of RW and indirect fire ordnance minimum safe line and RW battle positions. Additionally, deconfliction may be needed between aviation ordnance minimum safe lines and maneuver elements. Second, look at when and which target indirect fires are engaging. This can indicate a need for deconfliction of indirect fire ordnance minimum safe lines and maneuver. Maneuver can be deconflicted by routing or timing. Finally, look at when direct fire occurs in the fire plan. This will indicate a need for deconfliction of direct fires from FW aviation. This can be done by an altitude restriction for the aircraft or holding direct fires during the aviation attack.



## COORDINATING THE FIRE PLAN

The following example uses the situation presented at the beginning of the handbook. Now you must construct and coordinate a fire plan to conduct this attack.

### **Situation:**

**You are a company team with two mechanized infantry platoons and a tank platoon. Battalion 81mm mortars are attached to the company and you have priority of artillery fires. You also have priority of both FW and RW support. The FW is carrying 2 MK 83s per aircraft. The RW has 1 TOW, 1 HELLFIRE and both rockets and guns on each aircraft.**

### **Enemy:**

**The company makes contact with an enemy platoon. The enemy consists of dug in infantry and 3 BMP 2s with an air defense asset in support. Additionally, the BMPs have AT-5s and MANPADS.**

Reference Figure 8

**STEP 1** – Reference the maneuver of the SBF element and verify that your suppression on the target supports the maneuver of the SBF element. (remember you will need suppression on the target to maneuver inside the threat ring – you have mortar suppression on the BMPs during this time, but there is a gap in this suppression from +4:30 to +7 so the tanks will have to pick up main gun suppression)

**STEP 2** – Reference the maneuver of the assault element and verify that your suppression on the target supports the assault element's maneuver. (you have one gap in the suppression on the BMPs from +4:30 to +7, but the tanks are covering this gap with main gun suppression)

**STEP 3** – Reference your FW attack times and the artillery suppression timeline and check on your map if the FW cross an active artillery gun target line. (deconfliction is needed - calculate stay above or stay below)

**STEP 4** – Reference your mortar suppression times and FW attack times and check for mortars active 30 seconds prior to or 2 minutes after attack. (adjust suppression times if active in this period)

**STEP 5** – Reference your FW attack times and when direct fire suppression may occur. (you have tank main gun potentially active during the second

FW pass – this may indicate a need for deconfliction with a stay above for the aircraft or ceasing the tank main gun)

**STEP 6** – Reference the targets on which indirect fires are active and the maneuver times. (this can indicate a need for deconfliction between indirect fires and maneuver by rerouting maneuver, or coordination which can be handled by changing the start time of maneuver)

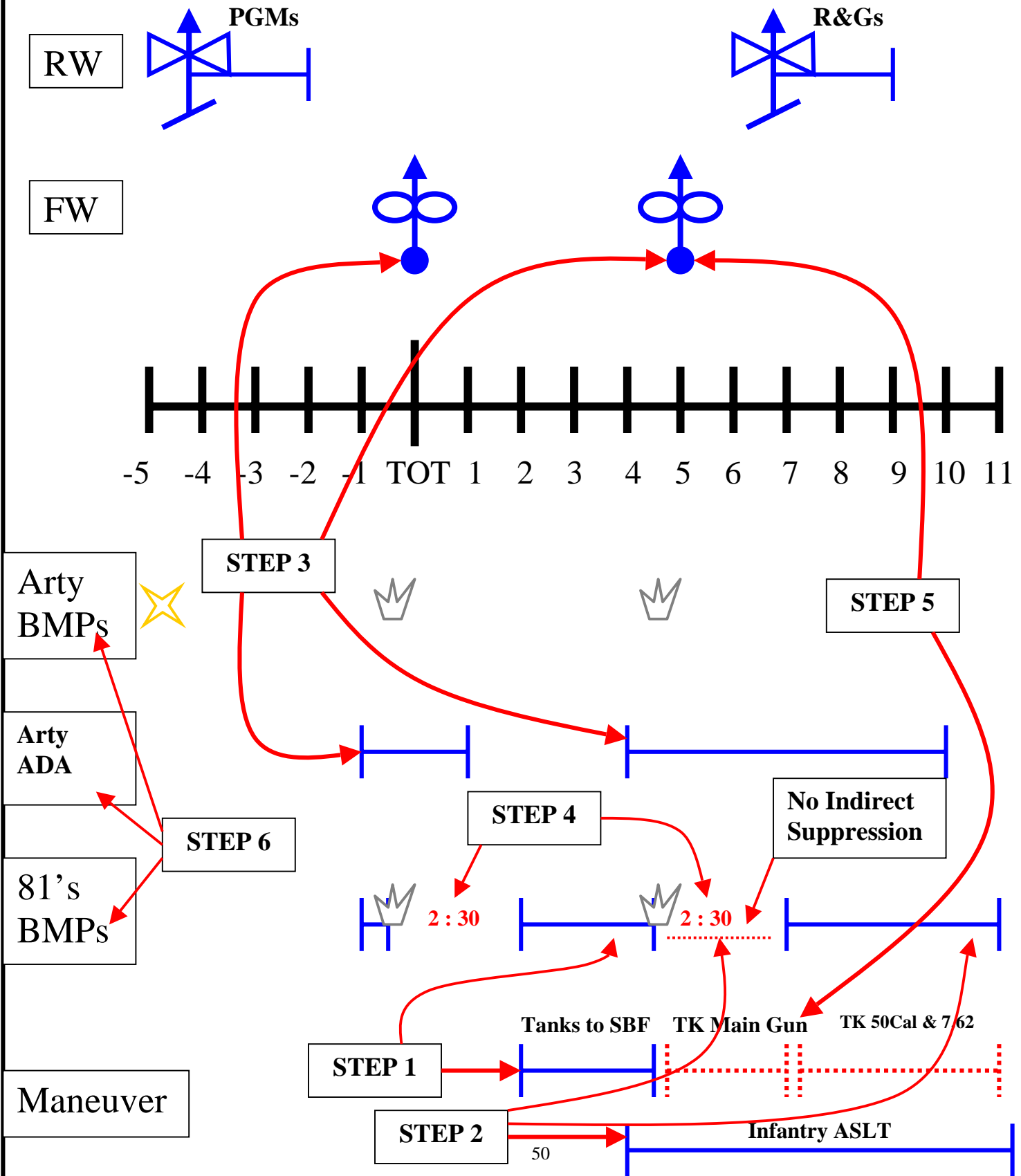
**STEP 7** – Re-check your fire plans for conflicts.

### **Possible Conflicts**

- ❑ FW attacks are too close together. (the quickest time you should run two FW attacks is 5 minutes apart – adjust as necessary)
- ❑ Not enough time between FW and RW attacks. (generally you should allow at least 2 minutes between the end of one attack to the start of the next – adjust as necessary)
- ❑ Wrong mark type for weather or attack. (consider wind, rain and terrain effects on marks and remember, HELLFIRE requires a clean battlefield – adjust as necessary)
- ❑ Artillery is tasked with too many missions. (an artillery battery can support two missions – a mark mission on one target and a suppression mission on another – adjust as required or give a one minute shift time to adjust to a third target)
- ❑ Artillery and mortar mark times do not match. (adjust as necessary)
- ❑ Artillery suppression on ADA asset does not support RW R&G attack. (remember the RW will push close to the target to be as accurate as possible and will be in danger to threat from ADA – adjust as necessary)
- ❑ Mortar suppression on a target does not support RW R&G attack. (RW will also be in danger to a threat from the BMP position – adjust as necessary)
- ❑ Mortar suppression does not support maneuver. (you need suppression on the target to close inside of its' threat ring – adjust as necessary or have direct fire cover gaps in suppression)
- ❑ A maneuver element closes inside of the aviation ordnance minimum safe line before the FW attacks are complete. (adjust start maneuver times)
- ❑ A maneuver element closes inside of the indirect ordnance minimum safe lines before suppression stops. (adjust maneuver start times or suppression end times)

Figure 8

# SEAD NON-STANDARD EXAMPLE



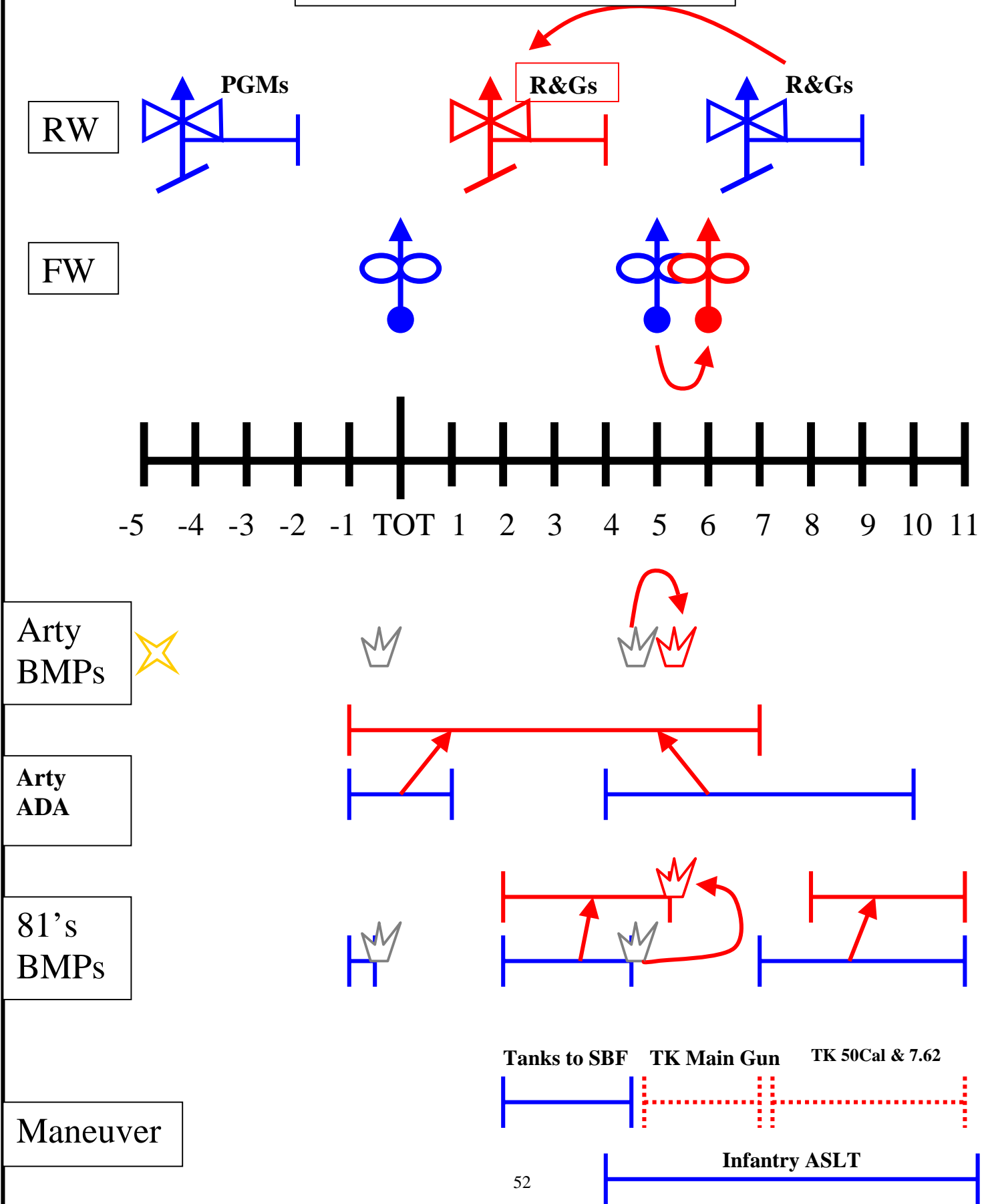
Reference: Figure 9

To further draw out how coordination works, this example shows how a change in one element can affect the sequence and timing of other elements in the fire plan. In this example, a decision is made to change the timing of the RW rockets and guns attack. This forces a change in the second FW attack time. Because of the change in the FW attack time, the mark times for artillery and mortars must change. Next the artillery suppression on the ADA asset change to support the new RW and FW attacks. Finally, a change to the mortar suppression on the BMPs is required to support the RW attack time.

Drawing your fire plan in this manner will facilitate coordination and allow you to track the execution of the fire plan minute by minute.

Figure 9

# SEAD NON-STANDARD EXAMPLE



### **Deconfliction – SEAD Non-Standard Example**

This section will present a step by step approach to deconfliction of your scheme of maneuver, RW battle positions, FW final attack cones and indirect gun target lines. The example builds on the fire plan constructed and coordinated in the previous two sections. Through deconfliction the FiST leader seeks to separate the elements of a fire plan in space or a combination of time and space. Therefore, the FiST leader needs to consider the geometry between supporting agencies, both indirect and aviation and maneuver elements. He must also consider the terrain and enemy location in this equation. A map is where deconfliction is accomplished.

### **Effective Deconfliction**

To begin deconfliction the FiST leader must plot all information on his map. As the information is plotted on the map, battlefield geometry and attack geometry will become apparent. Seeing the geometry of the elements of the fire plan is the beginning of deconfliction. The most effective way to deconflict a fire plan is to methodically look at each element of the fire plan relative to the other elements of the fire plan. First, separate the scheme of maneuver in space from indirect and aviation ordnance minimum safe distances. Second, separate aviation from the effects of indirect and direct fires in space by altitude (“stay above/below”) or lateral separation (FW final attack cones or RW battle positions) or a combination of these methods. The following figures present a step by step approach to the deconfliction of each element of the fire plan developed above.

## **DECONFLICTING THE FIRE PLAN**

### **Deconfliction of Scheme of Maneuver and Ordnance Minimum Safe Lines:**

Reference: Figure 10

**STEP 1** – Plot location of the artillery battery supporting company.

**STEP 2** – Plot location of your company's lead trace element. (include the mortar position)

**STEP 3** – Plot enemy unit locations.

**STEP 4** – Plot ordnance minimum safe lines around the enemy position for the ordnance you have available. (include artillery, mortar and aviation ordnance)

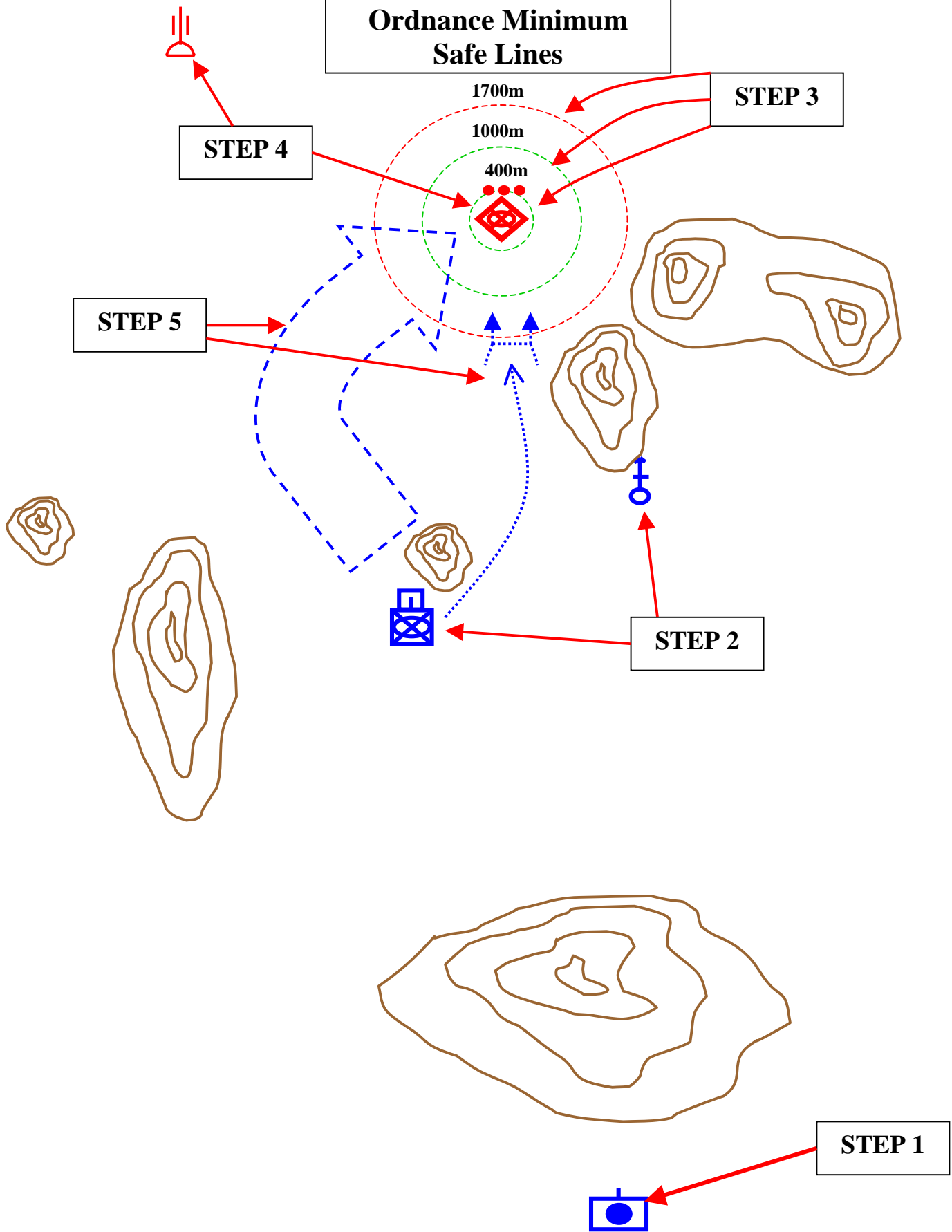
**STEP 5** – Draw out the rough scheme of maneuver. (include direction of attack and support by fire positions)

### **Possible Conflicts**

- ❑ Support by fire positions are inside of any ordnance minimum safe lines. (this can be a coordination issue and may not be a problem if you time the move to the SBF positions after the agency has stopped firing or the aviation attack is complete)
- ❑ The action or direction of attack points toward your mortar position.
- ❑ The action or direction of attack points toward your SBF position.
- ❑ The action or direction of attack cuts inside any ordnance minimum safe lines. (again this can be a coordination issue – simply time maneuver to occur after the agency is complete with its action)

**Figure 10**

**Deconfliction of Scheme  
of Maneuver from  
Ordnance Minimum  
Safe Lines**





**Deconfliction of Scheme of Maneuver and Indirect Gun Target Lines:**  
Reference: Figure 11

This approach builds on the previous plot of positions.

**STEP 1** – Draw a line from the artillery battery position to the enemy unit location.

**STEP 2** – Draw a line from the artillery battery position to the ADA position. (these are your artillery gun target lines)

**STEP 3** – Draw a line from the mortar position to the enemy unit position. (this is your mortar gun target line)

**STEP 4** – Draw lines 400 meters on each side of the mortar gun target line. (this is the zone in which there is potential for overhead fire – maneuver is not allowed)

**STEP 5** – Reference the scheme of maneuver. (look at the direction of attack and support by fire positions)

**Possible Conflicts**

- ❑ Support by fire positions that are inside the mortar gun target line. (shift the SBF position as required)
- ❑ The action or direction of attack maneuvers under the mortar gun target line. (adjust the the attack to the opposite side of the mortar position, or as appropriate, or adjust the mortar position)

**Deconfliction of Scheme of Maneuver:**

Figure 12 – compiles information from the previous two figures representing the deconfliction of the scheme of maneuver.

**Figure 11**

**Deconfliction of Scheme  
of Maneuver from  
Indirect Fires**

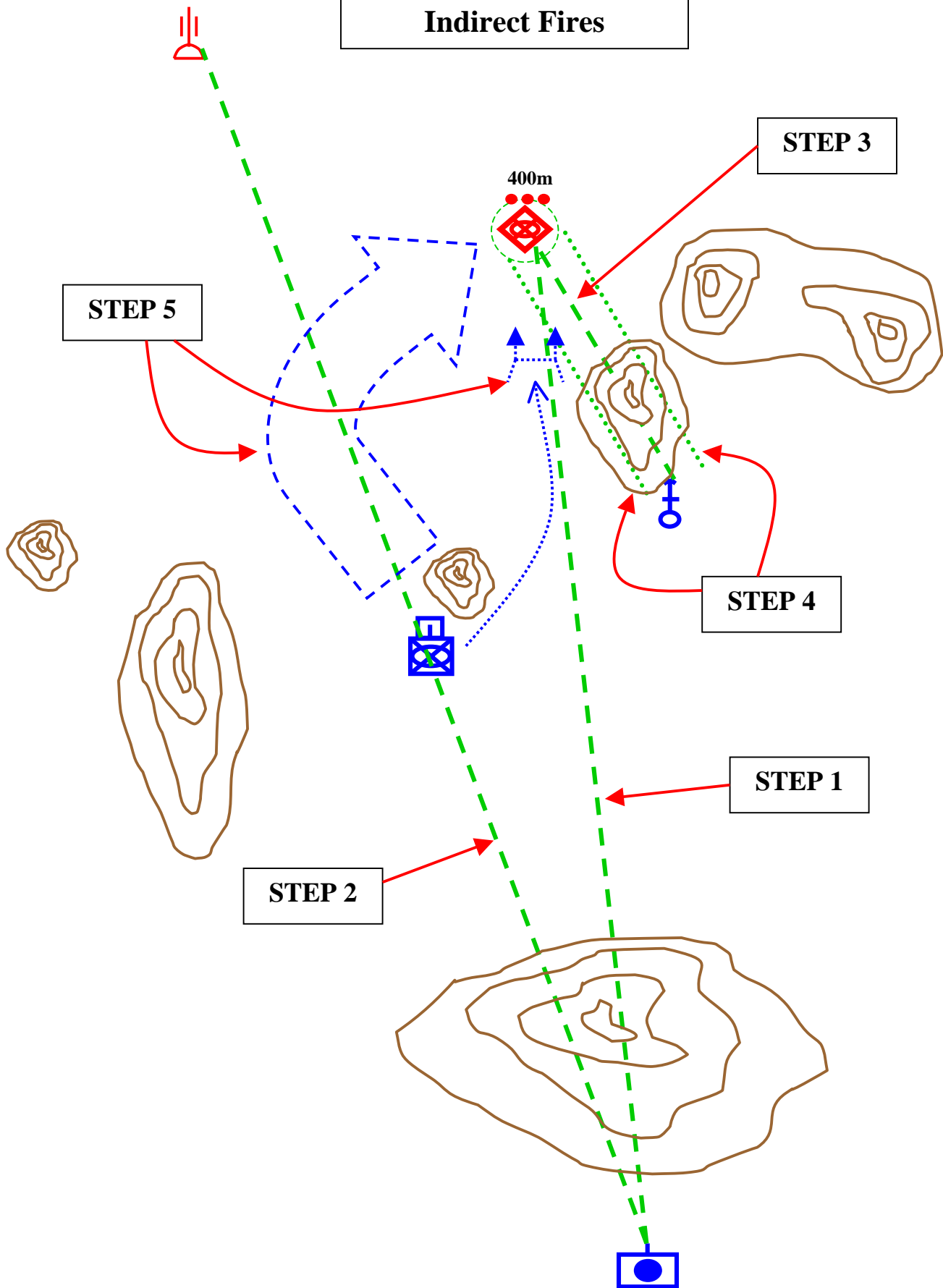
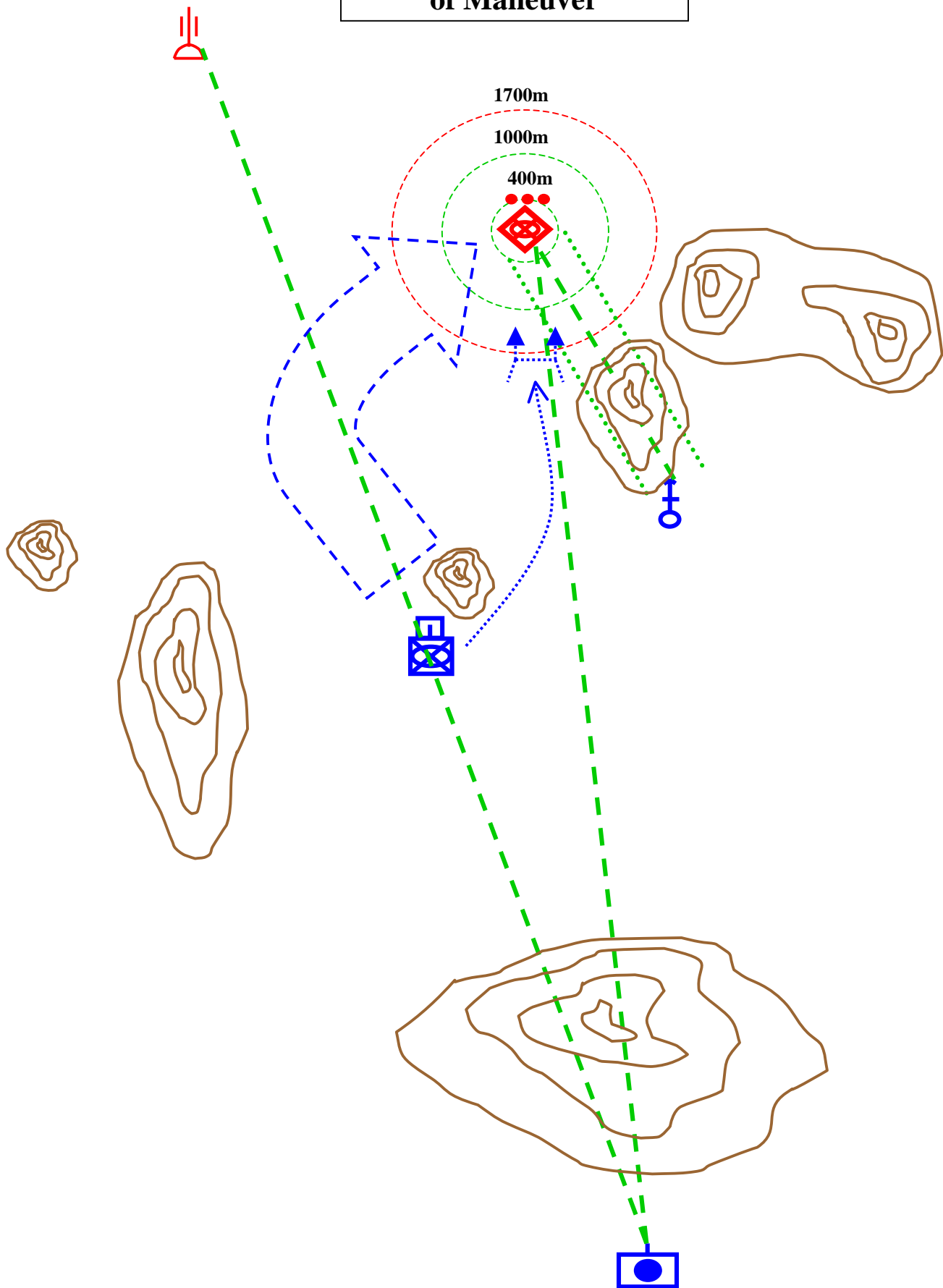


Figure 12

Deconfliction of Scheme of Maneuver



## **Deconfliction of RW Battle Positions and Scheme of Maneuver:**

Reference: Figure 13

This approach builds on the previous plot of positions.

**STEP 1** – Plot the Battle Position for the PGM attack.

**STEP 2** – Plot the Battle Position for the rockets and guns attack.

**STEP 3** – Draw the enemy's threat ring.

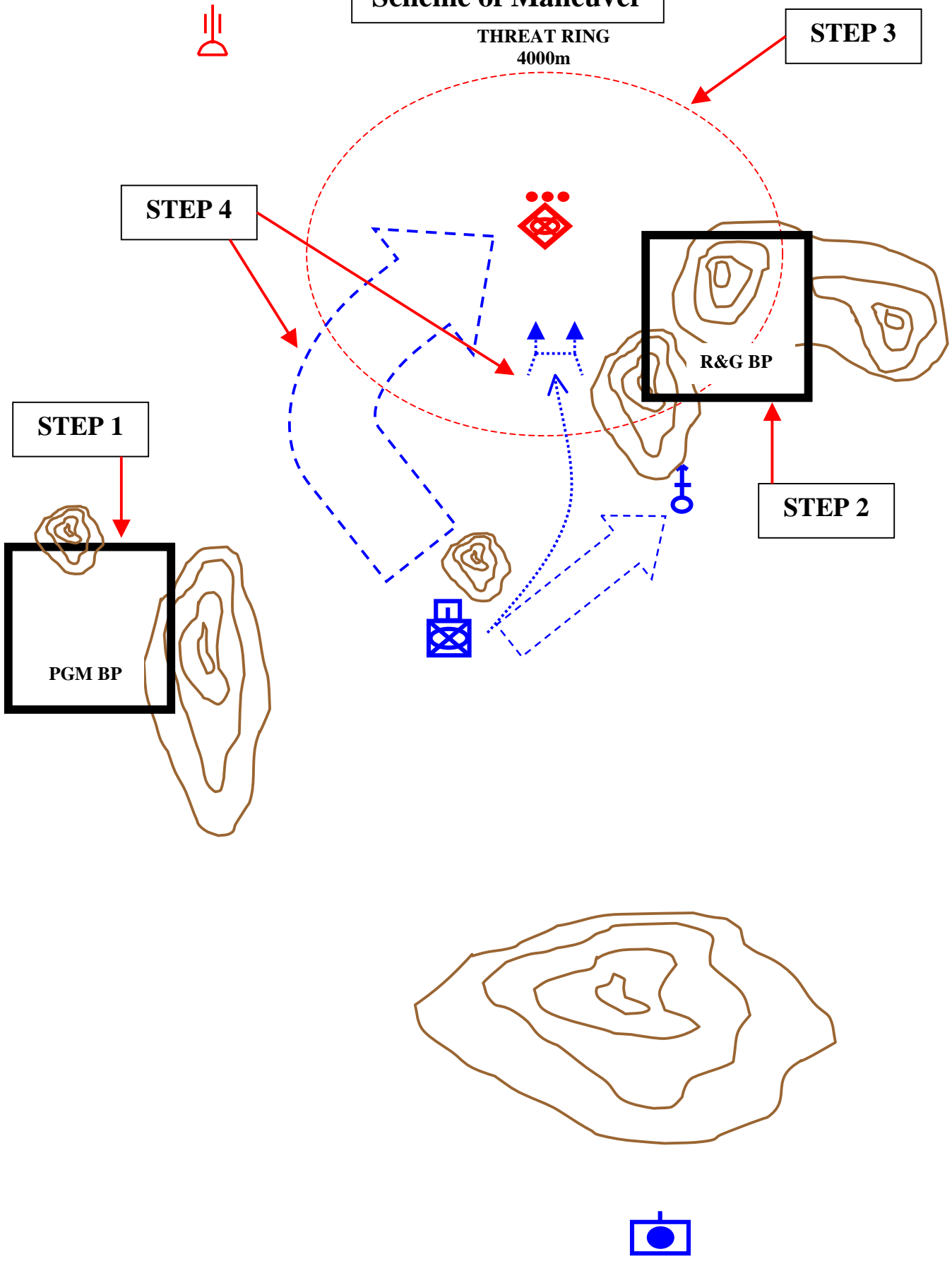
**STEP 4** – Reference the scheme of maneuver as drawn.

### **Possible Conflicts**

- ❑ RW Battle Positions that are inside of the enemy's threat ring. (ensure you have terrain masking or suppression on the enemy position or adjust the battle position)
- ❑ RW Battle Positions that are near an ADA asset. (ensure the ADA asset is suppressed or adjust the battle position – the PGM battle position should have stand-off from the ADA asset so you probably will not have to suppress it) (reference the specific air defense weapon's capabilities)
- ❑ RW Battle Positions that point toward the maneuver element. (this can be a coordination issue – time the shots from a given battle position before the maneuver or adjust the battle position or the scheme of maneuver)
- ❑ RW Battle Positions that point toward the SBF position. (adjust the battle position, the SBF position or time the maneuver to the SBF position to occur after the RW attack)

Figure 13

# Deconfliction of RW Battle Positions from Scheme of Maneuver



## **Deconfliction of RW Battle Positions and Indirect Gun Target Lines:** Reference: Figure 14

This approach builds on the previous plot of positions.

**STEP 1** – Draw out the potential routes between the battle positions.

**STEP 2** – Reference the RW Battle Positions.

**STEP 3** – Reference the artillery gun target lines and ordnance minimum safe line for artillery.

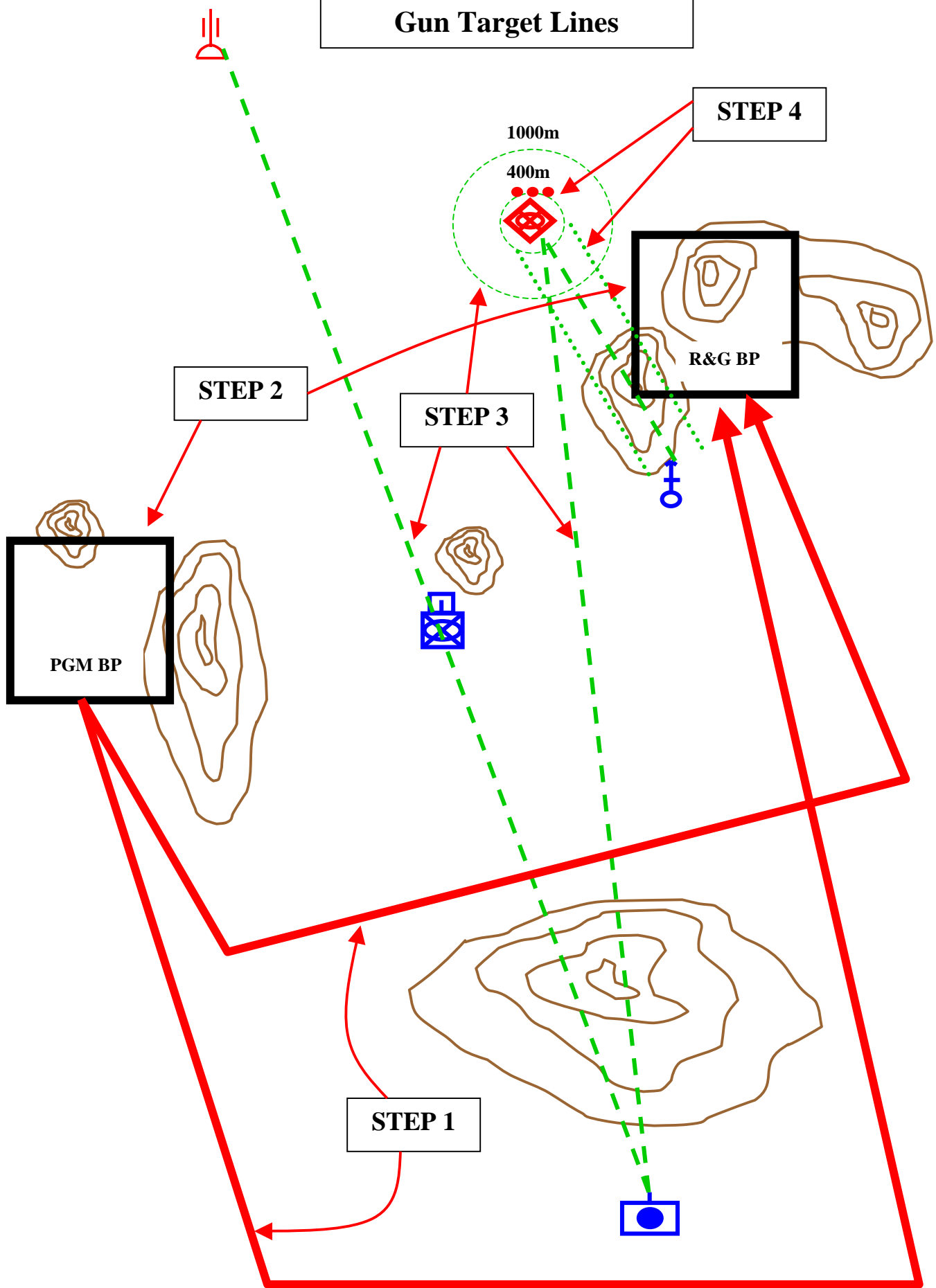
**STEP 4** – Reference the mortar gun target line and ordnance minimum safe line of the mortars.

### **Possible Conflicts**

- ❑ A RW Battle Position that is under an artillery gun target line. (ensure an appropriate stay below is given to the RW or adjust the battle position)
- ❑ A RW Battle Position that is in the ordnance minimum safe line for artillery. (adjust the battle position or deny the appropriate portion of the given battle position to the RW)
- ❑ RW Battle Positions overlap the mortar gun target line. (adjust the battle position or deny a portion of the given battle position to keep the RW off of the gun target line)
- ❑ The RW route between battle positions crosses under the artillery gun target line. (ensure the RW have an appropriate stay below or select another route)

Figure 14

### Deconfliction of RW Battle Positions from Indirect Gun Target Lines



## **Deconfliction of RW Battle Positions and FW Final Attack Cones:**

Reference: Figure 15

This approach builds on the previous plot of positions.

**STEP 1** – Draw the FW final attack cones on the enemy position

**STEP 2** – Draw the aviation ordnance minimum safe line for the given aviation ordnance.

**STEP 3** – Reference the RW Battle Positions.

### **Possible Conflicts**

- ❑ A RW Battle Position that is inside of the aviation ordnance minimum safe line. (adjust the battle position or deny the appropriate portion of the given battle position to the RW)
- ❑ RW Battle Positions that are in or under the final attack cones. (adjust the battle position or coordinate the timing of the RW attack to occur before or after the FW attack – remember it is not ideal to run two aviation elements toward each other)

## **Deconfliction of RW Battle Positions:**

Figure 16 – compiles information from the previous 3 figures to represent the deconfliction of RW battle positions.



Figure 15

Deconfliction of RW  
Battle Positions from  
FW Final Attack Cones

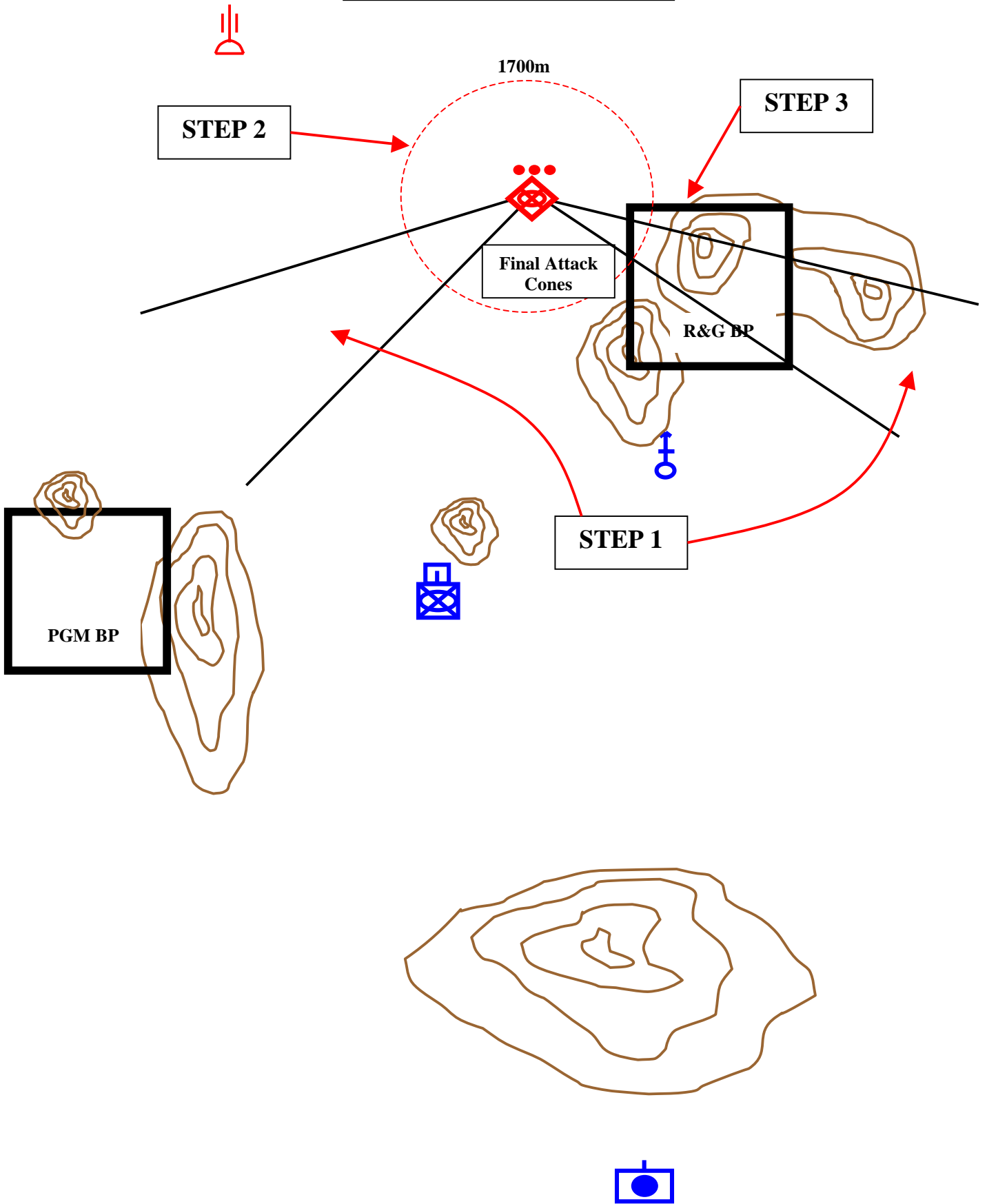
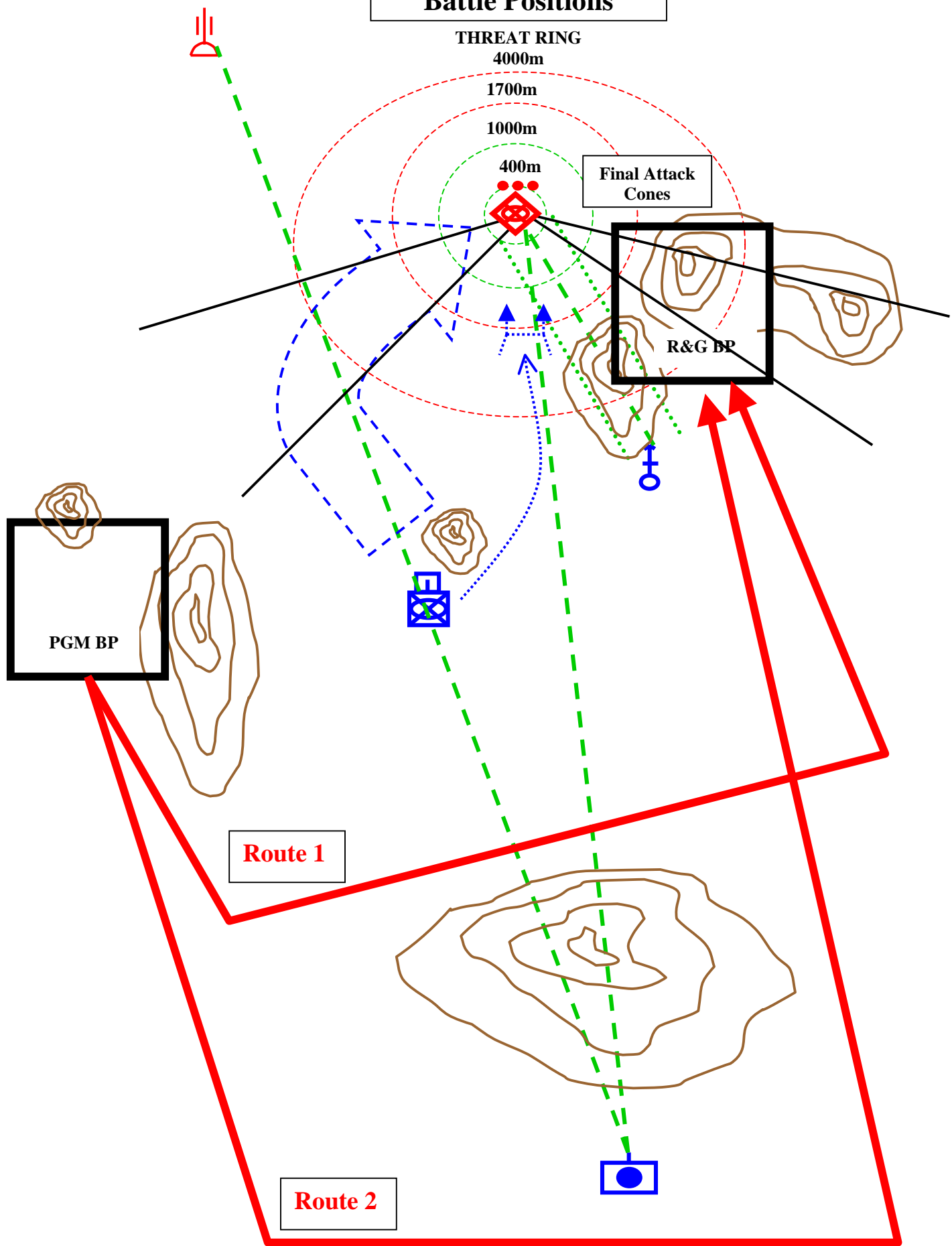


Figure 16

# Deconfliction of RW Battle Positions



## **Deconfliction of FW Final Attack Cones and Indirect Gun Target Lines:** Reference: Figure 17

This approach builds on the previous plot of positions.

**STEP 1** – Plot the aircraft Initial Points.

**STEP 2** – Reference the FW final attack cones.

**STEP 3** – Reference the artillery gun target line to the enemy position.

**STEP 4** – Reference the artillery gun target line to the ADA position.

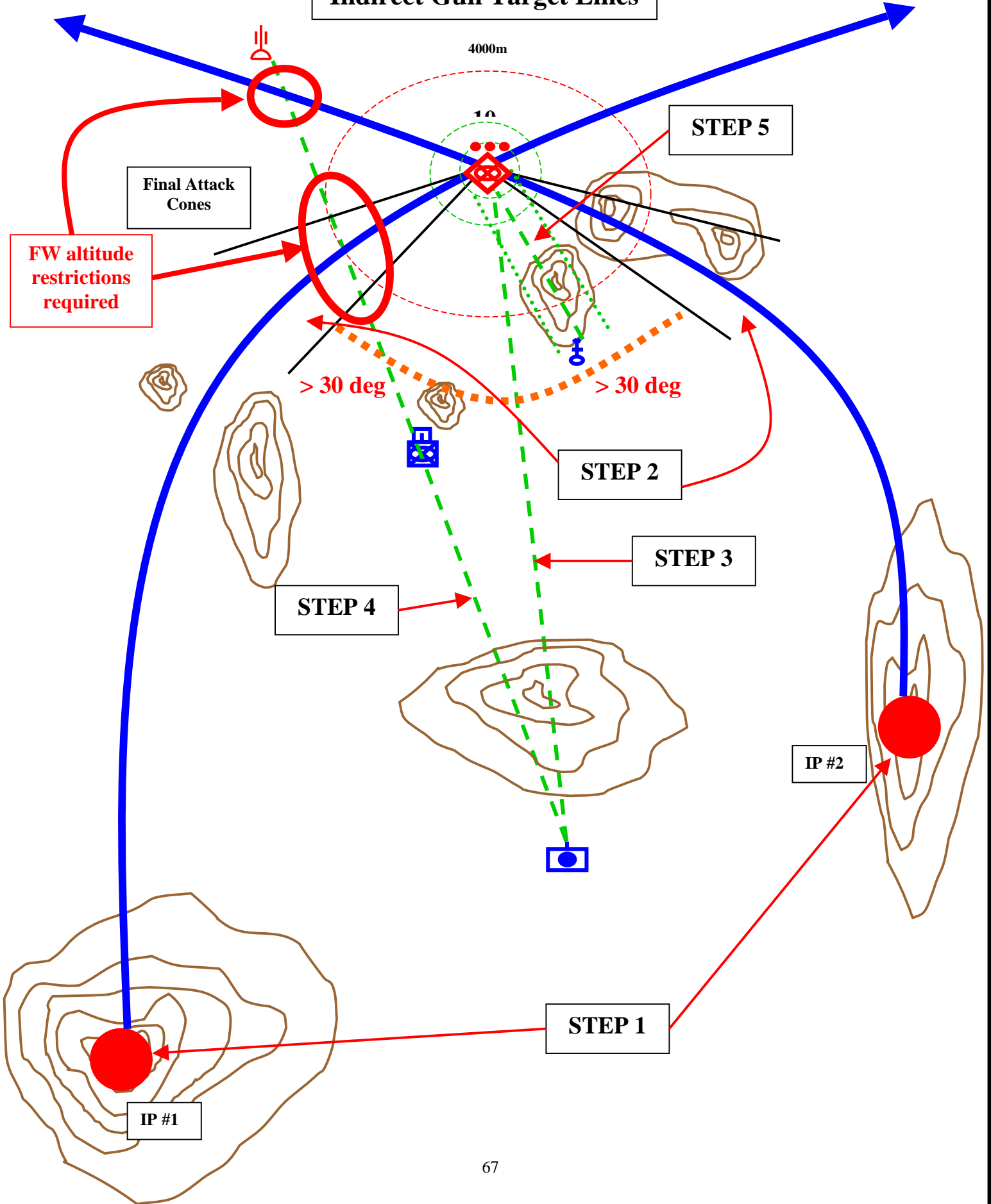
**STEP 5** – Reference the mortar gun target line.

### **Possible Conflicts**

- ❑ The FW final attack cones are not 30 degrees off of the artillery gun target lines. (adjust the FW final attack cones so they are at least 30 degrees off the gun target line otherwise the max ord for the artillery shell would be required as a stay above for the aircraft or interrupt the artillery if the cones cannot be adjusted)
- ❑ The trace of the FW path from the initial point to the final attack cones and egress instructions flies over a target on which the artillery is active. (give the appropriate stay above or shut the artillery off until after the FW pass)
- ❑ The trace of the FW path from the initial point to the final attack cones and the egress instructions crosses an active artillery gun target line. (shut the artillery fires off until after the FW attack or calculate the stay above / below for the aircraft as it crosses the gun target line)
- ❑ The trace of the FW path from the initial point to the final attack cones and the egress instructions cross an active mortar gun target line. (shut the mortars off until 2 minutes after the FW attack)

Figure 17

# Deconfliction of FW Final Attack Cones from Indirect Gun Target Lines



## **Deconfliction of FW Final Attack Cones and Scheme of Maneuver:**

Reference: Figure 18

This approach builds on the previous plot of positions.

**STEP 1** – Reference the FW final attack cones.

**STEP 2** – Reference the Scheme of maneuver.

### **Possible Conflicts**

- ❑ FW final attack cones pointed at the maneuver element. (adjust the final attack cone so it does not point at the maneuver element or time the maneuver so it occurs after the specific attack has been executed)
- ❑ FW final attack cones pointed at the SBF position. (adjust the final attack cone so it does not point at the SBF position or time the maneuver to the SBF position so it occurs after the specific attack has been executed)

## **Deconfliction of FW Final Attack Cones:**

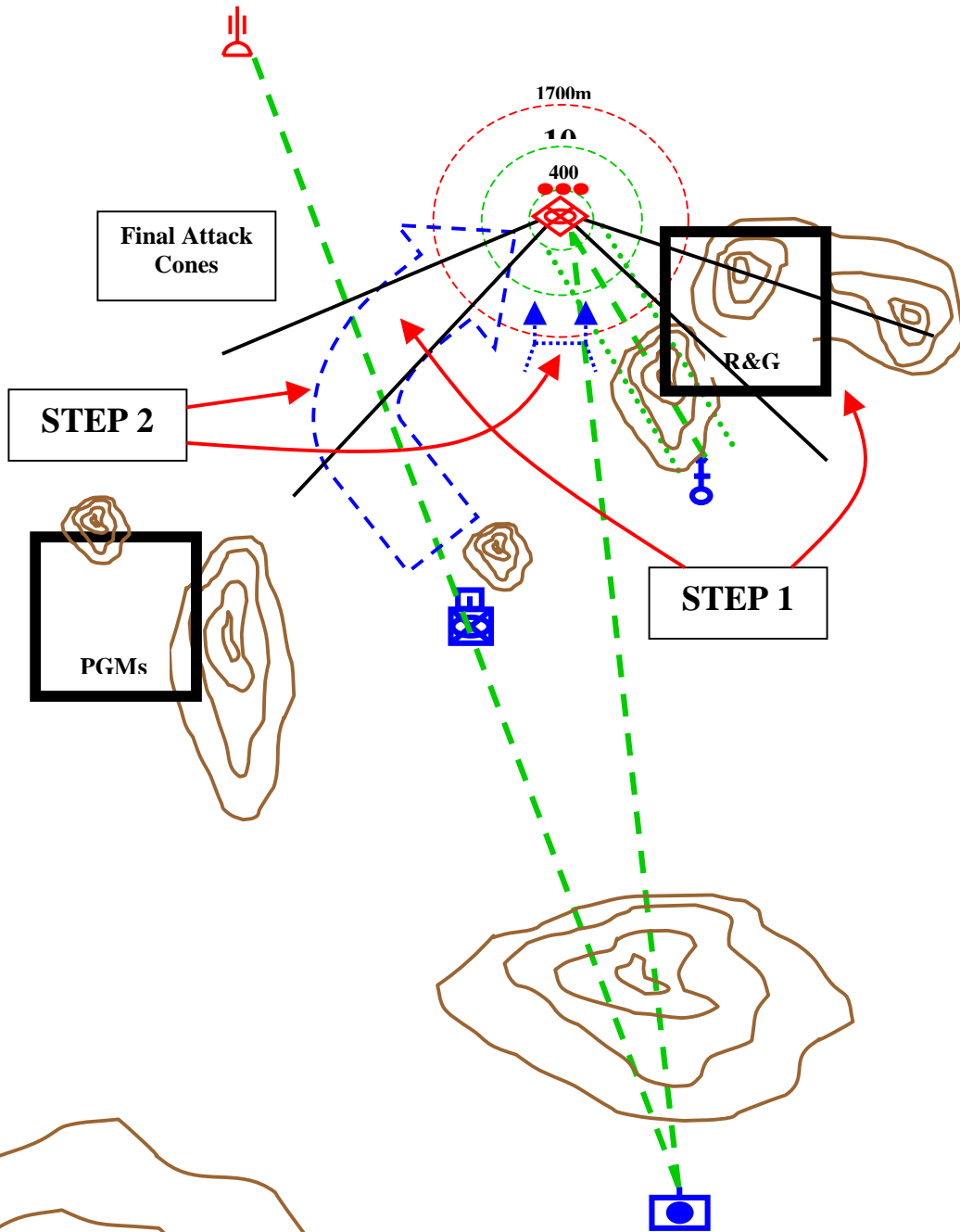
Figure 19 – compiles the information from the previous 2 figures to represent the issues for deconfliction of FW final attack cones.

## **Deconfliction of Scheme of Maneuver, FW, RW and Indirect Fires:**

Figure 20 – compiles the information from all of the previous figures to represent the information you will need to plot in order to deconflict all the elements of a combined arms fire plan.

Figure 18

Deconfliction of FW  
Final Attack Cones from  
Scheme of Maneuver



**Figure 19**

**Deconfliction of  
FW Final Attack  
Cones**

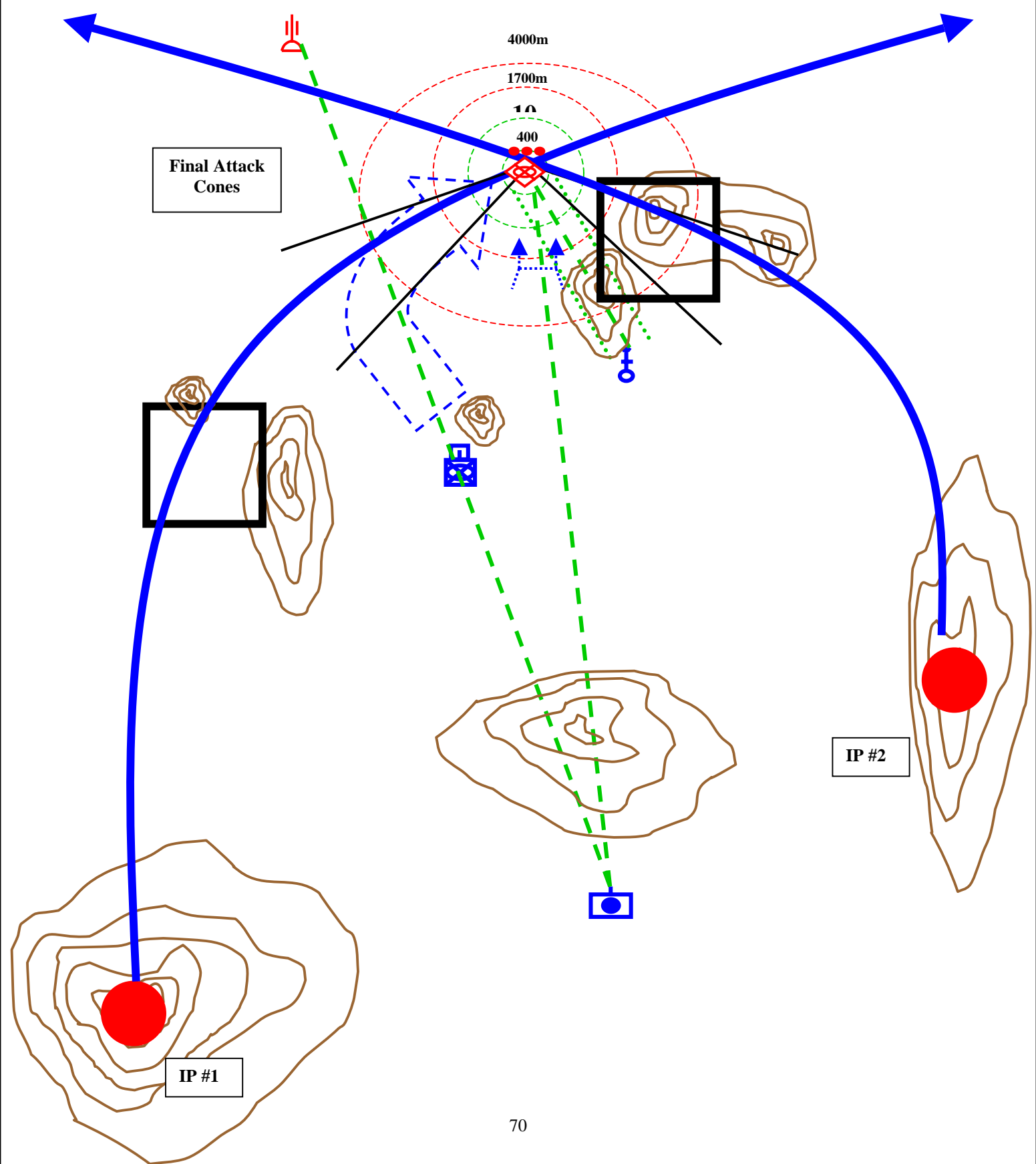
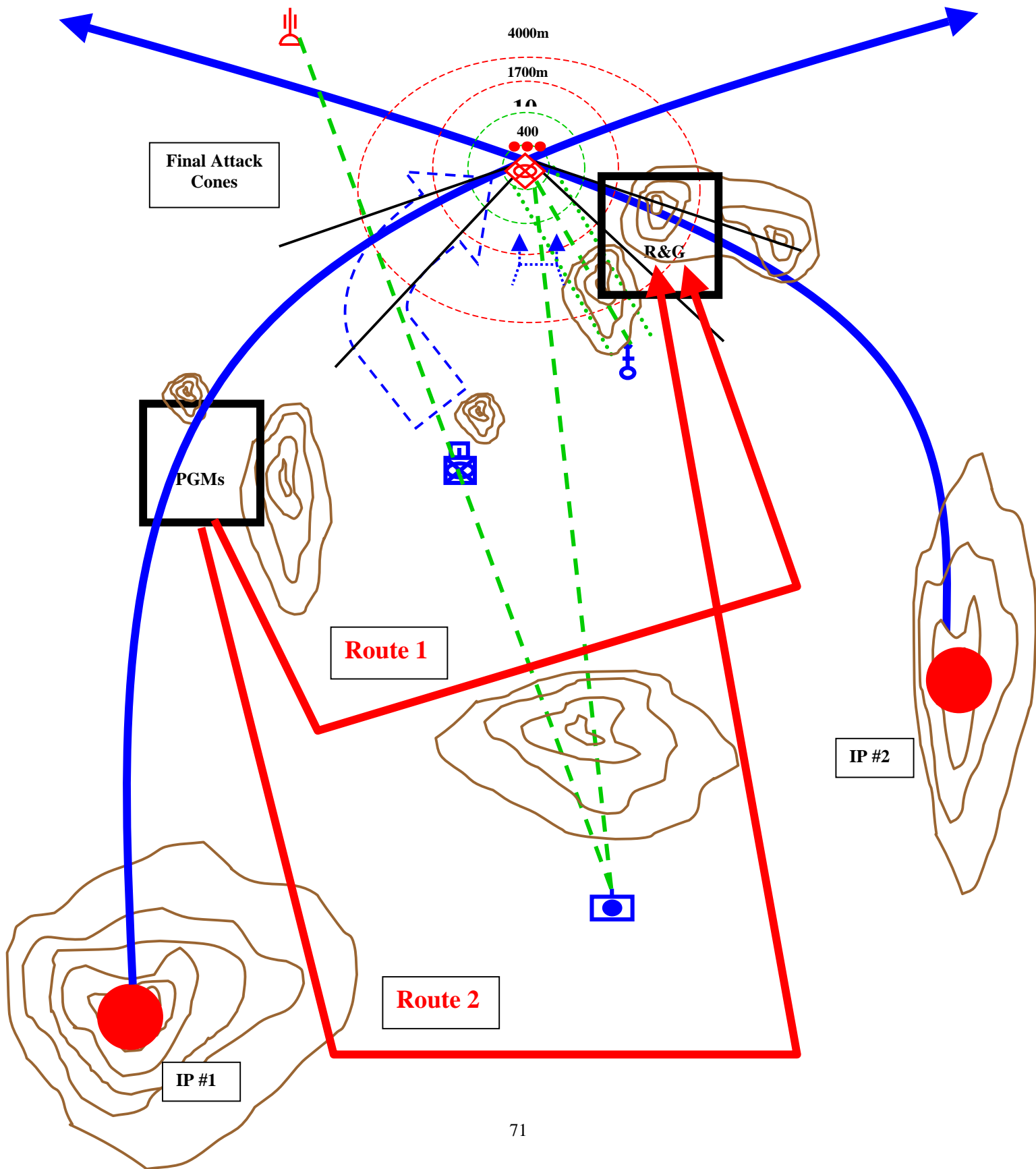


Figure 20

Deconfliction of Scheme of Maneuver, RW, FW and Indirect Fires





# Chapter 8:

## TYPES OF SEAD

---

### In This Chapter

- Description of standard and non-standard types of Suppression of Enemy Air Defenses (SEAD)
  - Explanation of the advantages of non-standard SEAD for combined arms attacks
- 

#### Suppression of Enemy Air Defense or SEAD

Suppression of enemy air defenses is that activity which destroys, neutralizes or temporarily degrades enemy air defenses in a specific area. The primary objective of SEAD is to increase air, land and naval operations by reducing enemy surface to air defense capabilities. SEAD is most frequently delivered in support of a specific air strike. This involves the suppression of air defense weapons which can threaten friendly aircraft during an air strike near the target or on ingress and egress routes.

There are two types of SEAD: standard and non-standard. The two types of SEAD are reviewed in this handbook based on their ability to support CAX training objectives.

#### Standard SEAD

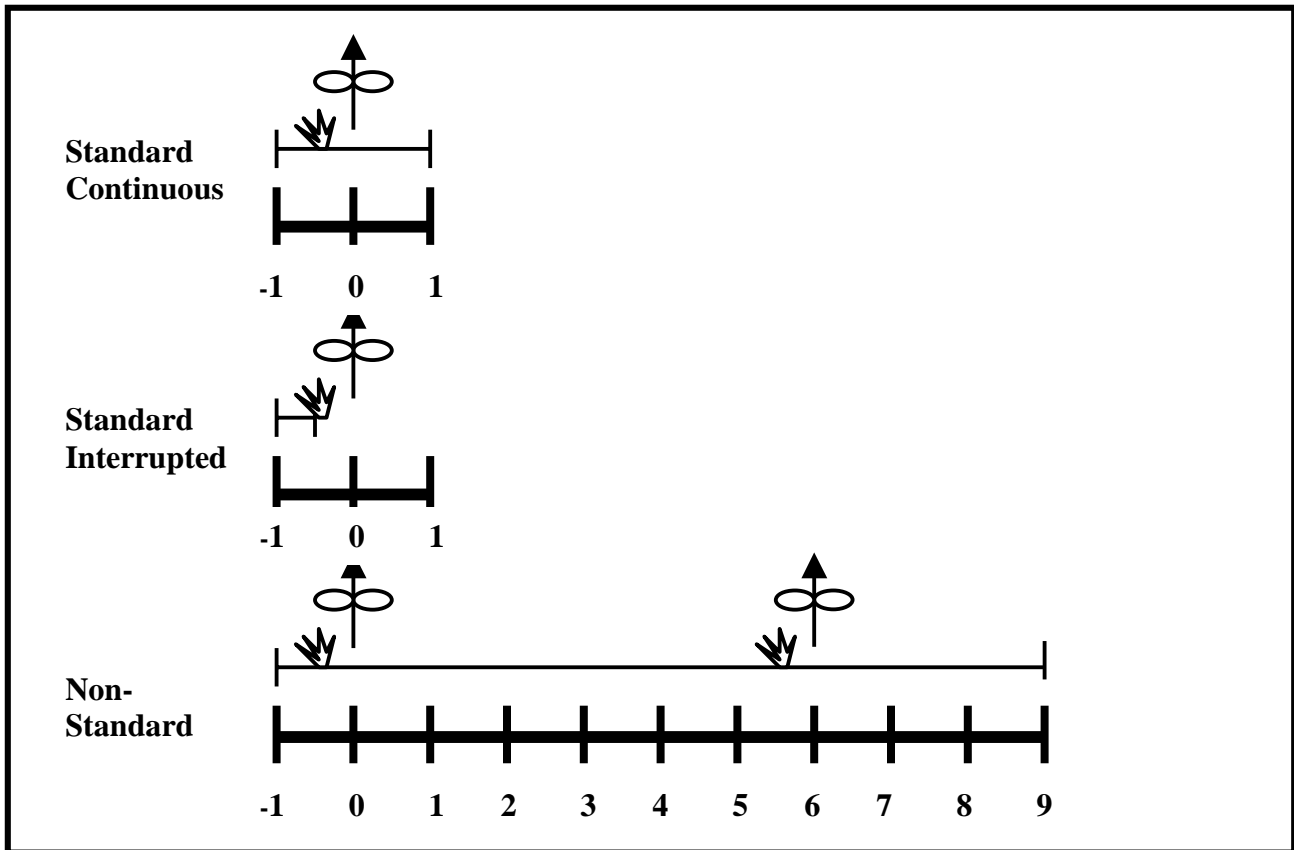
Standard SEAD is suppressive fires scheduled around an established Time on Target (TOT) for aircraft bombs, for a one-drop pass of aircraft. Two formats exist: continuous and interrupted. Continuous SEAD has suppression falling on the air defense asset before, during and after the aircraft TOT. Interrupted SEAD has suppression falling before the TOT, but incorporates a break in suppression just before the aircraft TOT and has no suppression after the TOT.

Standard SEAD can be used to support very hasty air attacks on targets of opportunity with a one-drop pass from the aircraft. However, standard SEAD does not support maneuver well since the suppression is designed to reduce the risk to the aircraft, not support ground maneuver. This forces the commander into dealing with the enemy in a sequential manner. An air attack is run first, followed by the ground attack.

#### Non-Standard SEAD

Non-Standard SEAD incorporates the elements of a standard SEAD mission with additional fires designed to support ground maneuver. The non-standard SEAD format can support aviation and maneuver simultaneously. It allows for flexibility in the course of an attack and is adaptable to fit the company commander's needs, while allowing for simultaneous actions. Non-standard SEAD has no set format; however, every item in the timeline is based on a single TOT that sets the attack in motion.

The following picture shows a timeline representation of the types of SEAD:



### SEAD and Additional Aircraft Attacks

When aircraft with ordnance are at your disposal, take maximum advantage of their capabilities. Therefore, always consider a plan to bring the CAS aircraft back to attack a target in case the first pass is unsuccessful.

When you use the standard SEAD format and the first mission fails, the traditional call is for an “immediate re-attack.” An immediate re-attack requires the CAS aircraft to remain in the target area and circle to attack the target a second time immediately following the first TOT. Generally, the second attack does not have a TOT. The problem with this is that the aircraft flightpath is predictable, which increases their exposure to air defense threats.

The non-standard SEAD format plans for additional “follow-on” attacks while still using the initial TOT as a plan to set everything in motion. Thus, the failure of the first attack is not significant because a plan is already in place to continue to use the aircraft.

**FOLLOW-ON ATTACK** - a non-doctrinal term. It states that the original CAS aircraft will execute a second 9-line from the same or different initial point having a separate TOT and the mission is integrated into the suppression timeline.

This type of attack has the advantage of being more tactical and survivable for aircraft to execute than a immediate re-attack mission.

### **The Advantage of Non-Standard SEAD**

The advantages presented by the non-standard SEAD integrating all available supporting arms into a single timeline of fires in support of ground maneuver are threefold:

- Advancing by fire and maneuver.
- Maintaining momentum through concurrent action.
- Taking maximum advantage of the effects of supporting arms.

**First Advantage: Force Protection.** Supporting arms provide the fires that enable ground maneuver to move into effective direct fire range of the enemy and to close within the enemy's threat ring. Without these fires, particularly with the increasing range and penetration capabilities of antitank weapons, ground units will suffer unnecessary losses before they are able to destroy the enemy with their weapons.

**Second Advantage: Momentum.** By integrating and concurrently executing indirect fires, Close Air Support (CAS) and ground maneuver, we achieve the mission simultaneously, vice sequentially. This produces a net reduction in time expended, thereby increasing momentum.

**Third Advantage: Disruptive Effects against the Opposing Force.** Maneuvering under the effects of supporting arms, we realize not only the benefits of any personnel and equipment destruction caused by air and artillery, but also the effects of the temporary incapacitation and shock inflicted on those remaining forces. Thus, we can take full advantage of the effects of our supporting arms and increase our chances of success, while decreasing the cost in Marines and equipment.

# Chapter 9:

## CONSTRUCTING A FIRE PLAN

### In This Chapter

- Basic Guidelines for Construction of a Fire Plan
- How to Construct a Fire Plan

**This section provides a way to graphically represent a fire plan on paper in order for the FiST to track and understand the elements of a fire plan. Drawing out a fire plan in this manner allows for coordination of the elements of a fire plan. The construction should take place on the FiST leader's Battle Board. If a Battle Board is not available a space to draw out a timeline is required.**

#### Basic Guidelines for Construction of a fire plan

There are a number of general rules to remember in the construction of a fire plan. These guidelines are recommendations designed to aid the coordination of a fire plan.

#### Aviation Rules

- ✓ Always plan for employing both RW and FW CAS in a fire plan.
  - It is easier to plan for both RW and FW, because if both check in with the FAC your fire plan will accommodate both and give you greater flexibility.
  - Planning for only one asset, when both may show up will cause time delays in order for you make changes to your plan to accommodate both RW and FW.
- ✓ Employment of Hellfire (rotary wing LASER guided munition)
  - Because the Hellfire is a laser guided munition it requires a clean battlefield in order for it to be employed.
  - Hellfires do not have to be employed as part of a fire plan. However, if you decide to tie it into a fire plan, consider employing it at the beginning of the fire plan before suppression starts.
  - Hellfire allows up to 8 km standoff from a target, which is outside of the range of most ADA threats. Thus, suppression to protect the aircraft is not necessary.

- Always account for the time of flight of the missile and provide a TOT firing window in the fire plan timeline. The missiles should impact at TOT, not be fired at TOT.
- The preferred mark type, when RW are firing Hellfire missiles, is an illumination round placed on the deck. This will keep the battlefield relatively clean and not affect the laser tracker.
- A mark is helpful for quickly orienting the pilot to the target. If an illumination mark is used plan for it to occur at least 45 seconds prior to the start of the attack in the fire plan timeline.

### **Indirect Fire Rules**

- ✓ Attack all targets with all available assets.
  - This is a means to provide redundancy in a fire plan. (When possible use redundant marks, suppression and illumination from all agencies)
- ✓ When weather or aircraft ordnance considerations prohibit the use of a “stay above” leave gaps in artillery timelines for the aircraft to fly through.
  - SEAD non-standard requires a two-minute gap in the artillery suppression timeline. (30 seconds prior to a TOT and 1 minute and 30 seconds after the TOT)

### **Maneuver and Direct Fire Rules**

- ✓ Account for maneuver times in a fire plan.
  - The start time for maneuver does not have to start at TOT or zero.
  - Time space calculations are necessary to plan the duration of maneuver during a fire plan. (Represent maneuver as a solid line in a fire plan)
  - Plan the start time of maneuver. (This will indicate when suppression on the target is necessary)
  - Suppression should start when a maneuver element enters an enemy threat ring and cease as it enters the ordnance minimum safe line. (unless the maneuver unit is terrain masked)
- ✓ Account for times when direct fires are active in a fire plan.
  - This will indicate a need for deconfliction of direct fires from aviation. (either with “stay aboves” for the aircraft or ceasing direct fires) (represent direct fire as a dashed line in a fire plan)
  - ❖ These are techniques that can be used to conceptualize when maneuver and direct fire occur in a fire plan. They should not be used when submitting a fire plan.

## CONSTRUCTING THE FIRE PLAN

The easiest way to construct a fire plan is to start by drawing out the aviation picture. Then draw the indirect suppression and marks to support the aviation attacks. Finally, figure the maneuver suppression requirements and adjust the suppression as necessary to support it and the aviation attack.

Reference Figures 1 - 7

Note: All times will be given as if this were a SEAD non-standard fire plan. Naturally Quick Fire Plans, and Series all start at zero.

**STEP 1** – Draw a generic timeline. (The timeline should run at least from – 5 to +11) Label lines on the left side of the board running from top to bottom for RW, FW, Artillery, 81's, and Maneuver. Place the FW and RW lines above the timeline and the rest of the elements below. Give artillery two lines, because they can fire two separate missions. (Figure 1)

**STEP 2** – Draw in the FW attack times. (in this example you will have two attacks: an initial attack at TOT and a follow on attack at +5, the entire SEAD TOT, is based on the first FW attack bombs on target time) (Figure 2)

**STEP 3** – Draw in the RW PGM attack window. (you should put the PGM shots at the beginning of your fire plan when you have a clean battlefield – in this case we placed it from –4 to –2) (Figure 2)

**STEP 4** – Draw in the RW R&G attack window. (you can place this either in between or after the FW attacks – in this case we have placed it after the FW attacks from +7 to +9, this helps support the assault element's attack) (Figure 2)

**STEP 5** – Draw in the artillery marks on the target to support the RW and FW attacks. (you know that at least you must mark for the two FW attacks and the RW PGM attack – on the BMPs we placed one mark, illumination on the deck at -4:45 for the RW and WP marks at -:30 and +4:30 for the FW) (Figure 3)

**STEP 6** – Draw in the artillery suppression time on the ADA asset to support the FW and RW attacks. (remember that you at least need suppression during the two FW attacks and probably for the RW R&G attack, because the RW will need to get close to the target to be effective, the RW PGM battle position has stand-off so it does not need suppression – you have suppression on the ADA from –1 to +1 and from +4 to +10) (Figure 4)

**STEP 7** – Draw in the 81mm mortar marks on the target to support the FW attacks. (remember this provides redundancy in your fire plan – you have RP marks on the BMPs at -:30 and +4:30) (Figure 5)

**STEP 8** – Draw in the 81mm mortar suppression on the target to support the FW and RW attacks. (this provides suppression on the target to protect the aircraft from a threat at this position – you have suppression on the BMPs from –1 to -:30 and +2 to +4:30 and +7 to +11, notice the 81’s suppression ceases before each FW attack) (Figure 5)

**STEP 9** – Draw the maneuver time for the SBF element. (this was determined by the company commander to be two minutes from current position to the initial SBF – planning for MK 83s you recommend maneuver for this element to start at +2 and go to +4) (Figure 6)

**STEP 10** – Draw the maneuver time for the assault element. (the company commander determined maneuver from your current position to dismounted assault will take 7 minutes – you recommend that assault maneuver start at +4, putting the maneuver elements 400 meters from the enemy position at +11, you plan to have mortar suppression end at +11 so the infantry assault can take the position) (Figure 6)

**STEP 11** – Draw the times when direct fires might be active. (in this case tank main gun is active from around +4 to +7 and 50 cal is active from +7 to +11) (Figure 7)

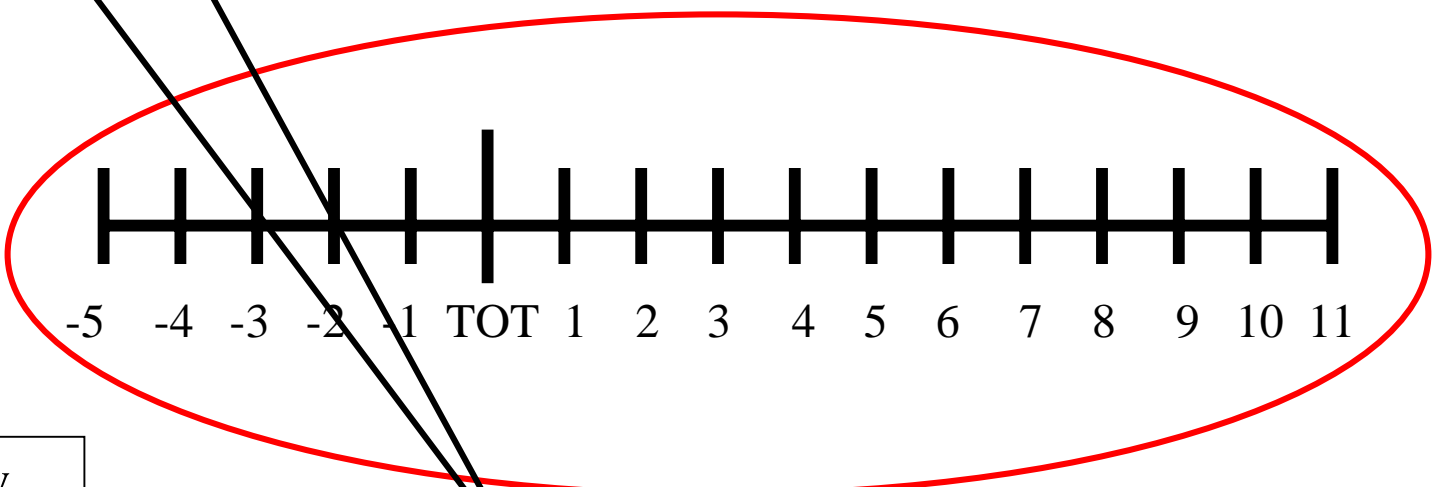
Figure 7 represents a completed fire plan.

Figure 1

# SEAD NON-STANDARD EXAMPLE

RW

FW



-5 -4 -3 -2 -1 TOT 1 2 3 4 5 6 7 8 9 10 11

Arty

Arty

81's

Maneuver

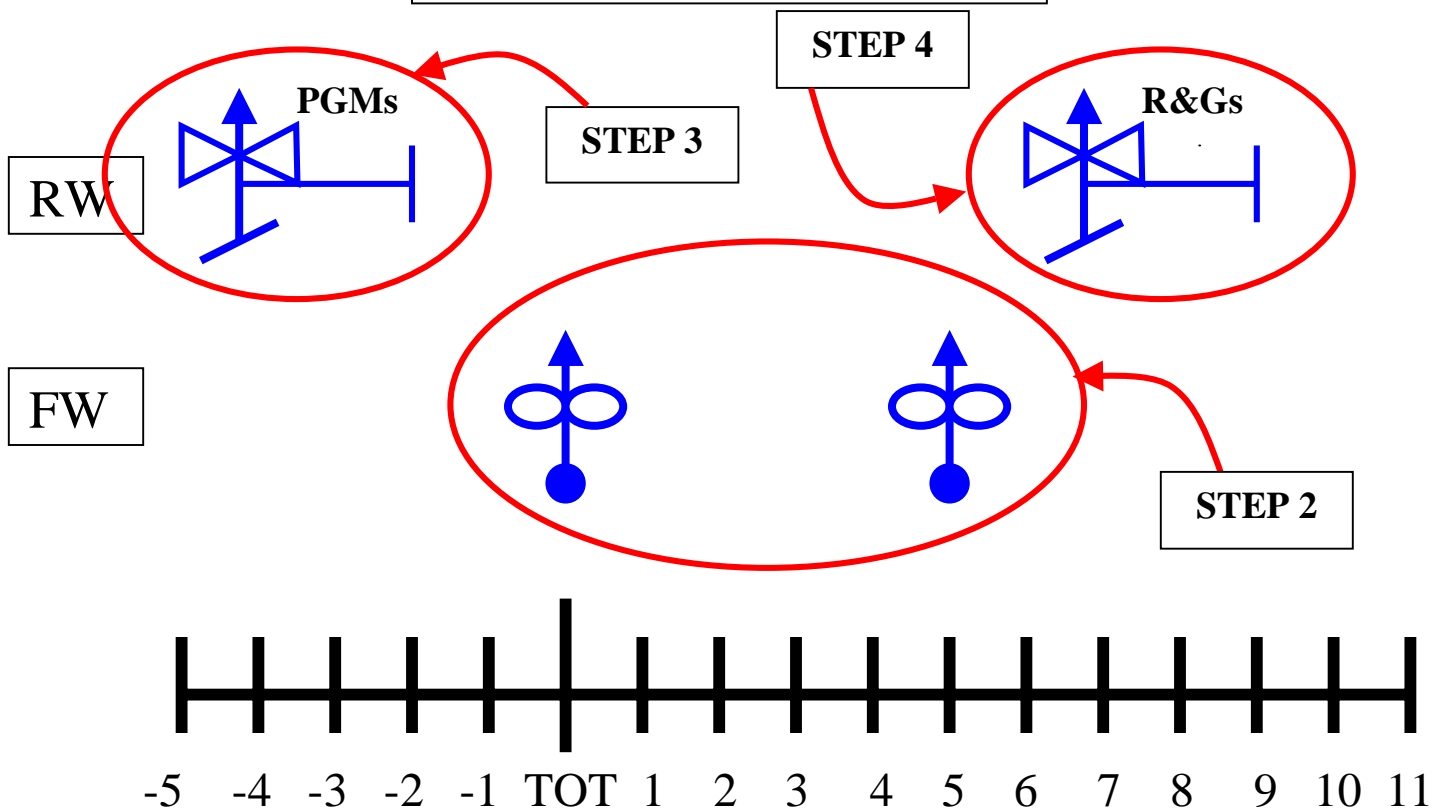
STEP 1

STEP 1



Figure 2

# SEAD NON-STANDARD EXAMPLE



Arty

Arty

81's

Maneuver

Figure 3

# SEAD NON-STANDARD EXAMPLE

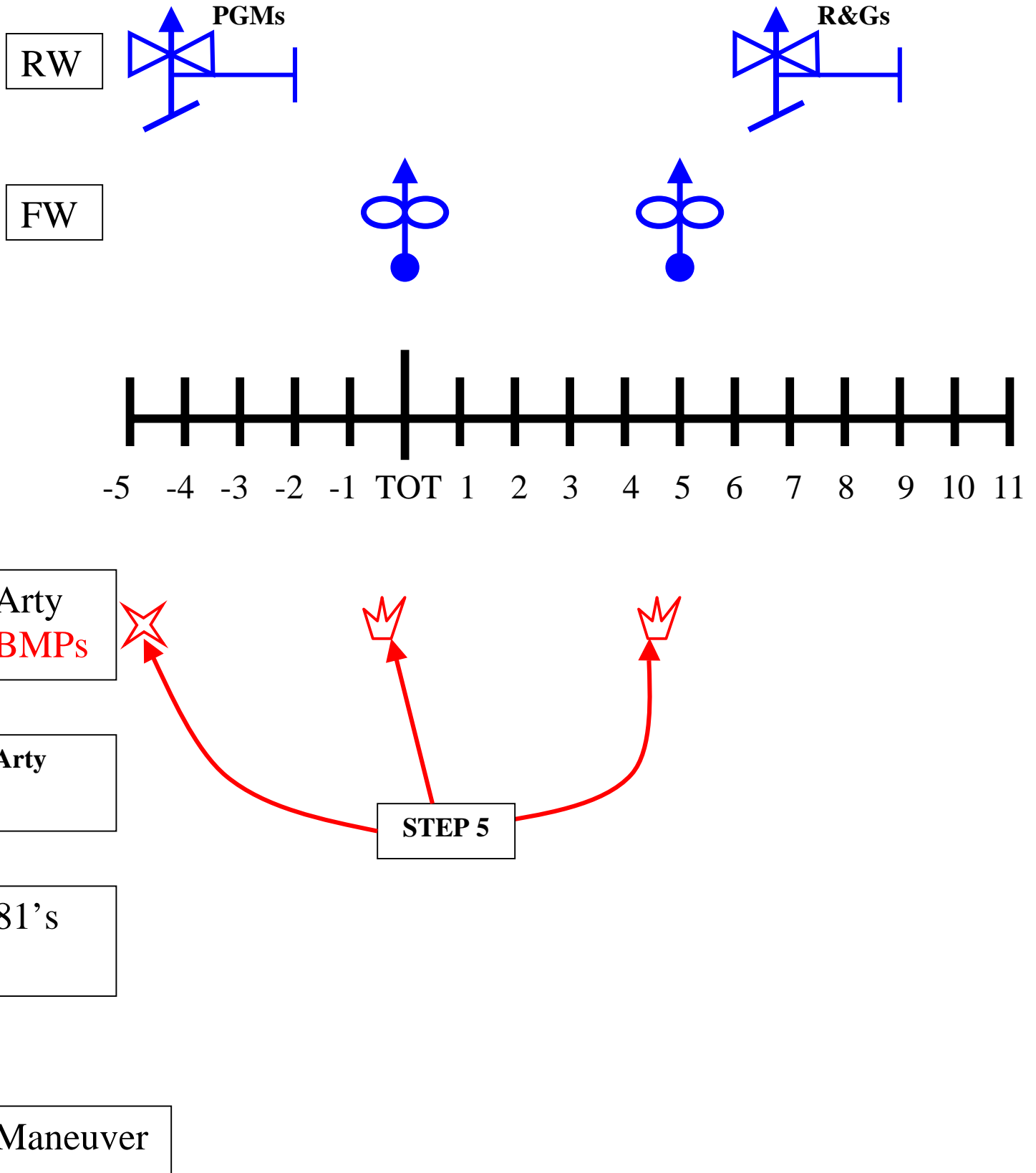


Figure 4

# SEAD NON-STANDARD EXAMPLE

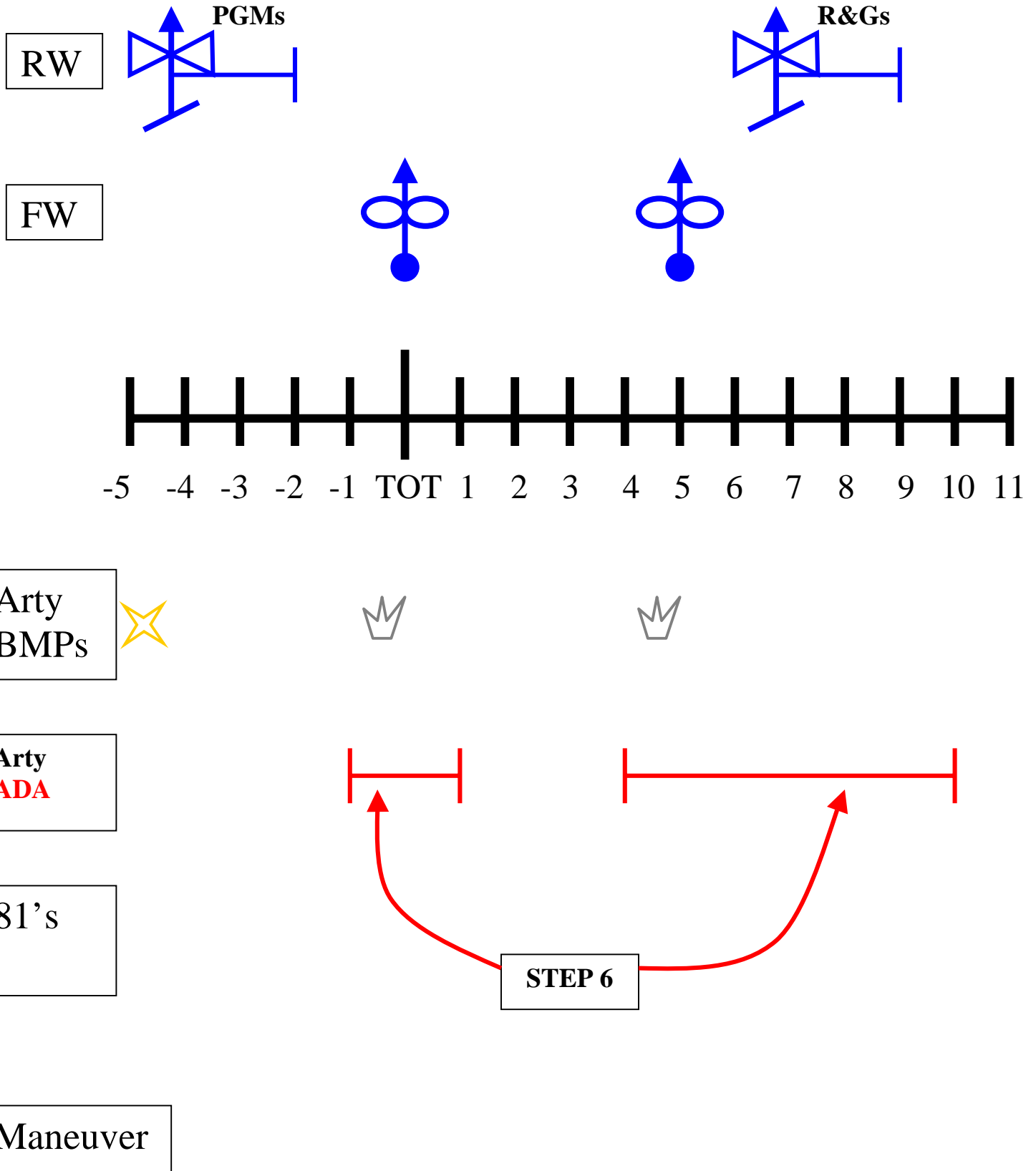


Figure 5

# SEAD NON-STANDARD EXAMPLE

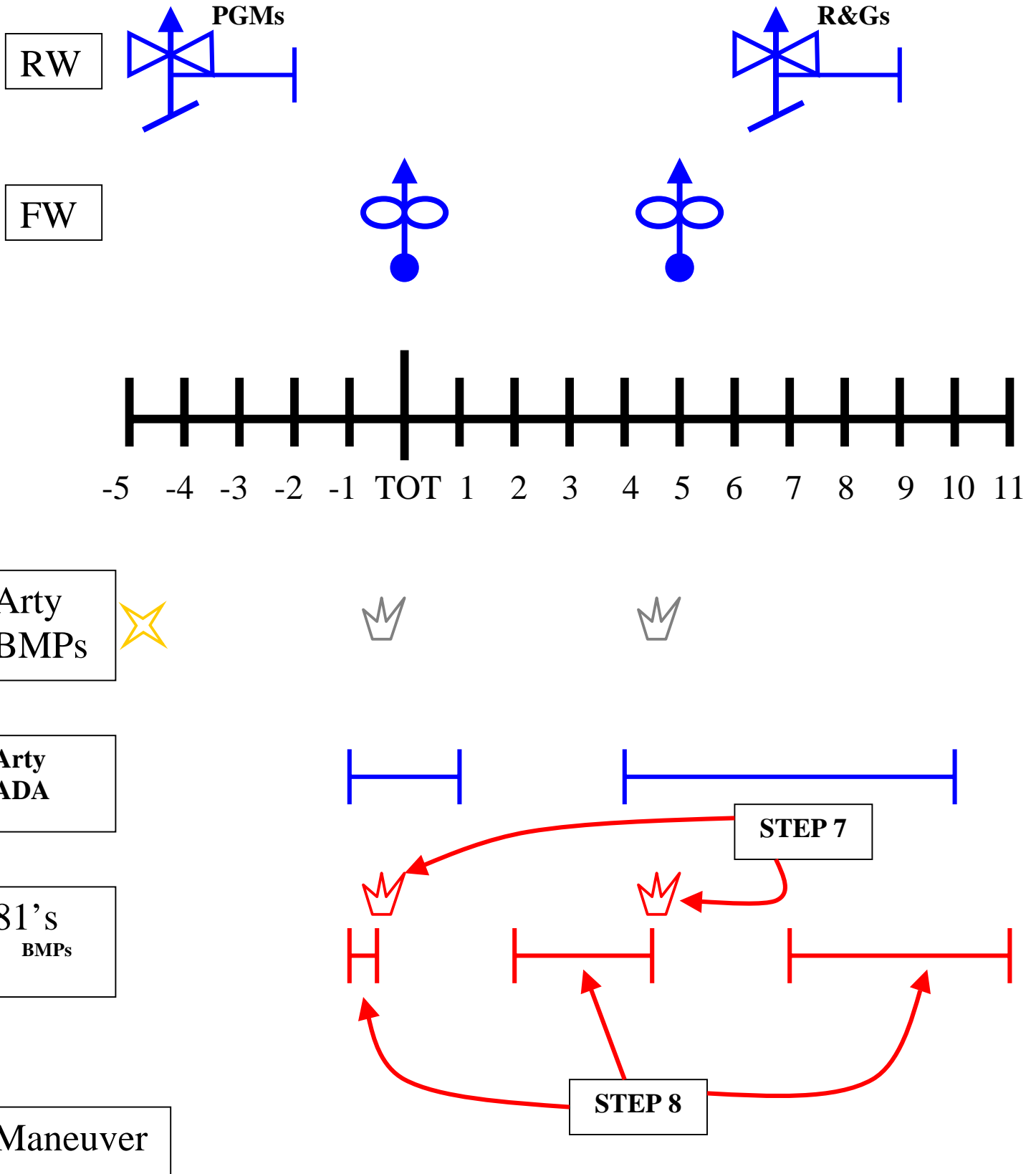


Figure 6

# SEAD NON-STANDARD EXAMPLE

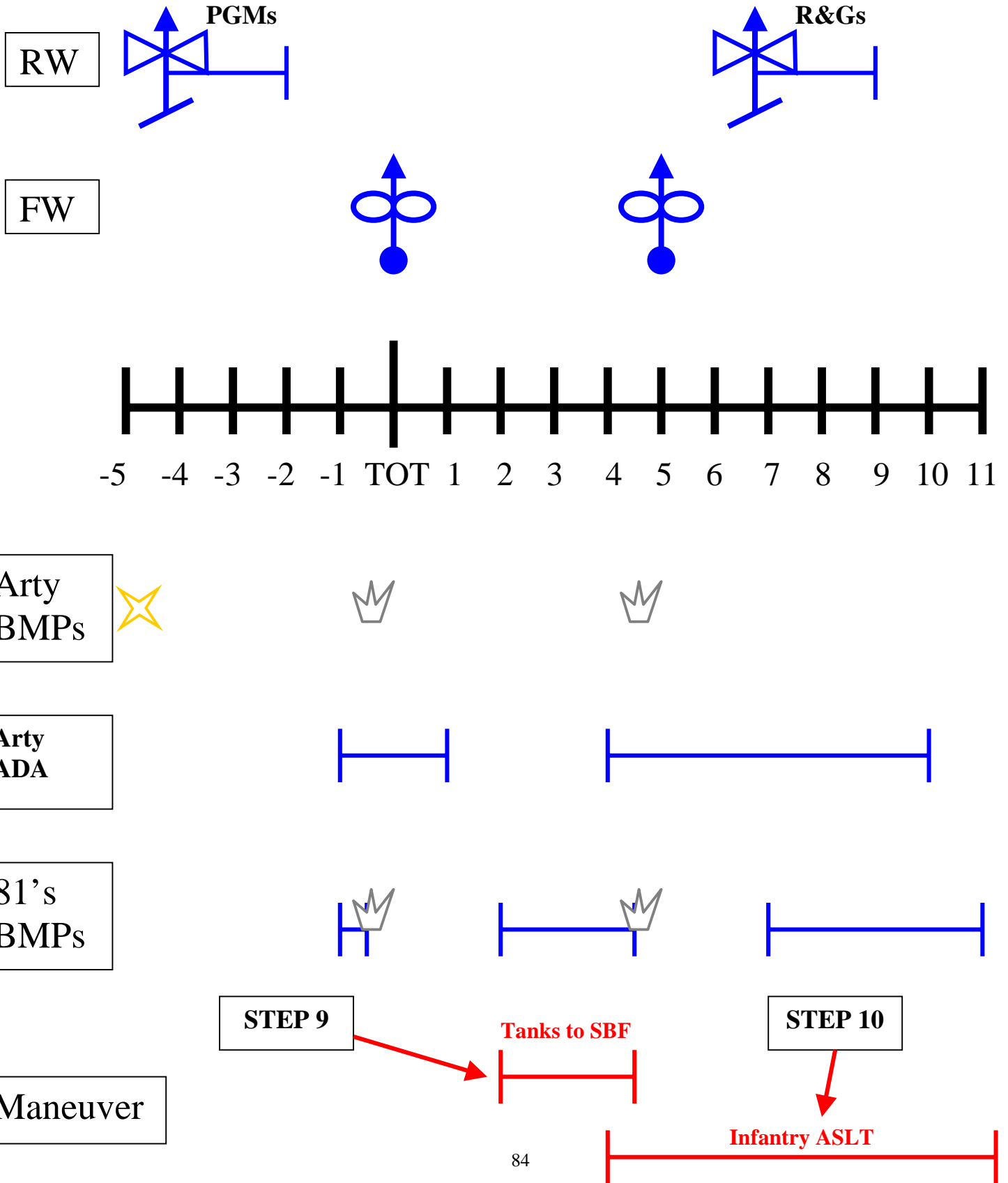
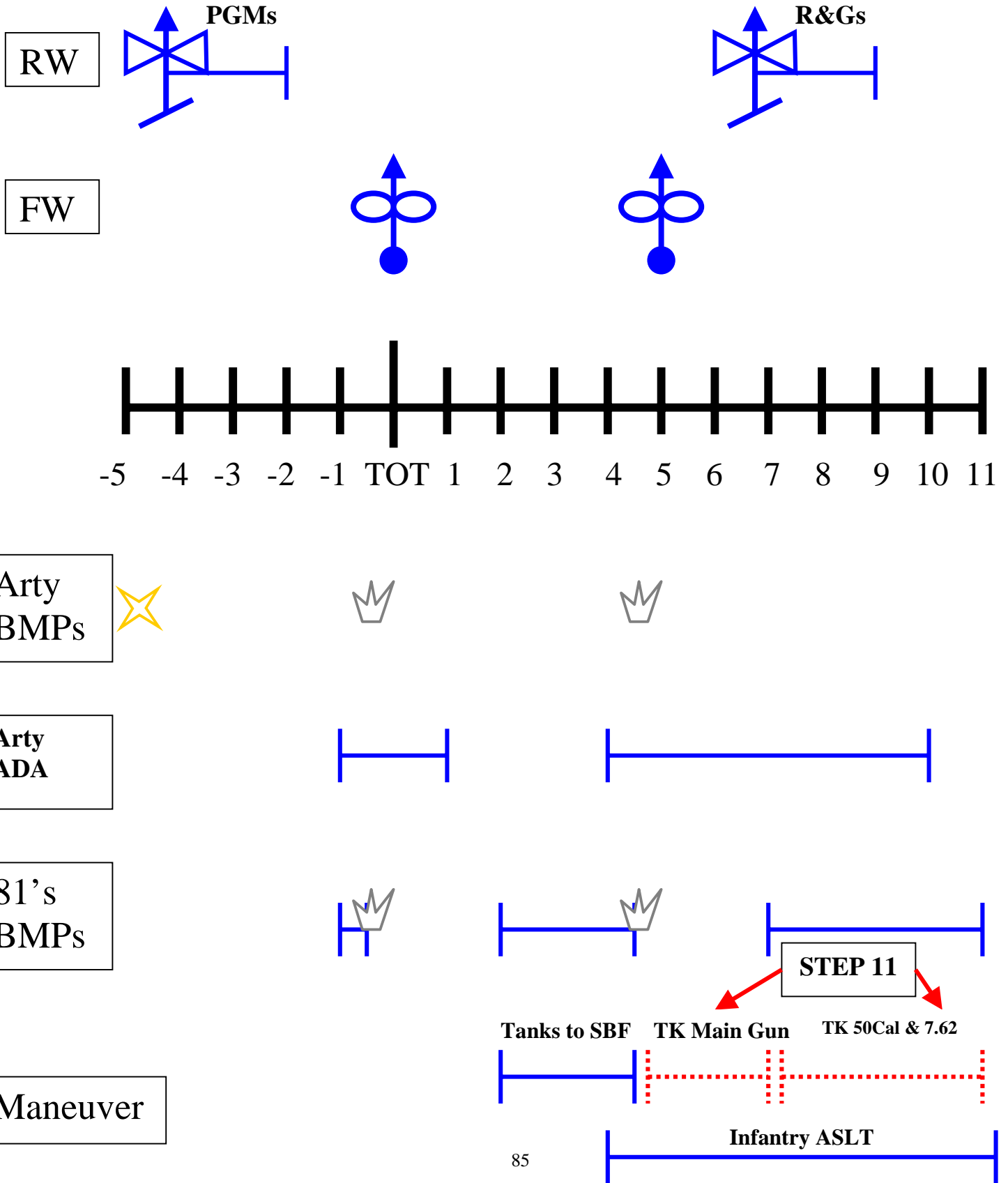


Figure 7

# SEAD NON-STANDARD EXAMPLE



# Chapter 10:

## EXECUTION OF THE FIRE PLAN

---

### In This Chapter

- A minute by minute execution of the fire plan constructed in the last section

---

This section looks at the execution of the fire plan constructed in the last two sections. In the last section you went through the coordination and deconfliction of this fire plan. The fire plan has been fully integrated.

### TIME: -5 TO -1

Reference: Figure 21

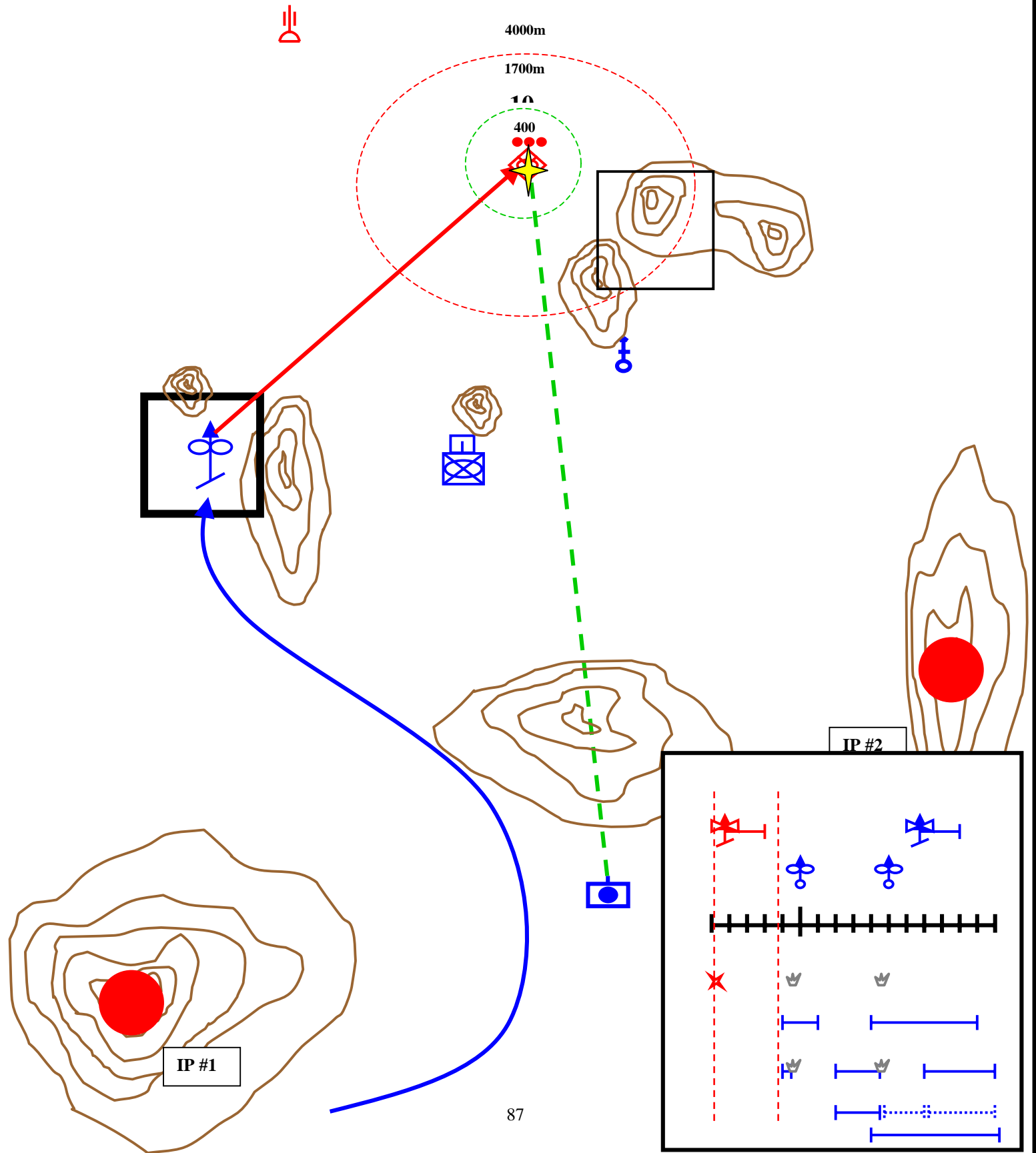
1. At time -5 the RW move into the PGM battle position using the terrain.
2. At time -4:45 the artillery shoots an illumination mark on the deck.
3. As soon as the RW acquire the mark and target, the FAC clears them to engage the BMPs.
4. At time -4 the first PGMs impact on the BMP position.
5. At time -2 the RW complete the PGM shots and begin to move out of the PGM battle position to eliminate the fratricide risk from the FW attack.

Figure 21

# SEAD NON-STANDARD EXAMPLE

Coordination of FW / RW / Indirect Fires and Maneuver

Time: -5 to -1





**TIME: -1 TO +2**

Reference: Figure 22

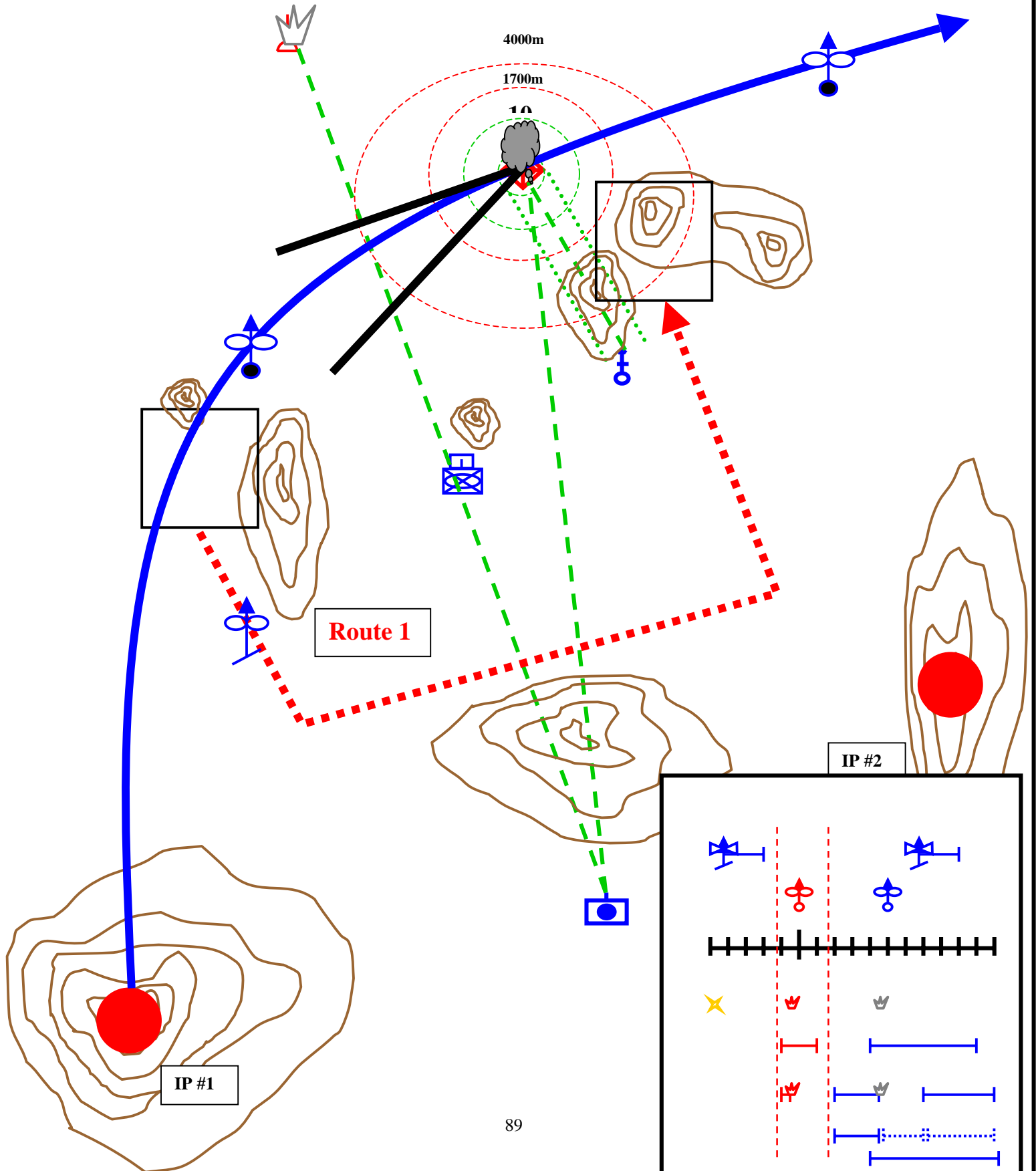
6. At time -1 artillery suppression lands on the ADA asset and mortar suppression lands on the BMP position.
7. At time -:30 artillery suppression continues on the ADA position and artillery and mortar marks land on the BMP position. Mortars then cease firing on the BMP position.
8. At TOT the first FW attack occurs and bombs impact on the BMP position.
9. At +1 the last round of artillery suppression lands on the ADA position and artillery ceases.
10. At +2 the RW continues to move along route 1 to the R&Gs battle position with a stay below 200 ft AGL for the artillery gun target line.

Figure 22

# SEAD NON-STANDARD EXAMPLE

Coordination of FW / RW / Indirect Fires and Maneuver

Time: -1 to 2



**TIME: +2 TO +4**

Reference: Figure 23

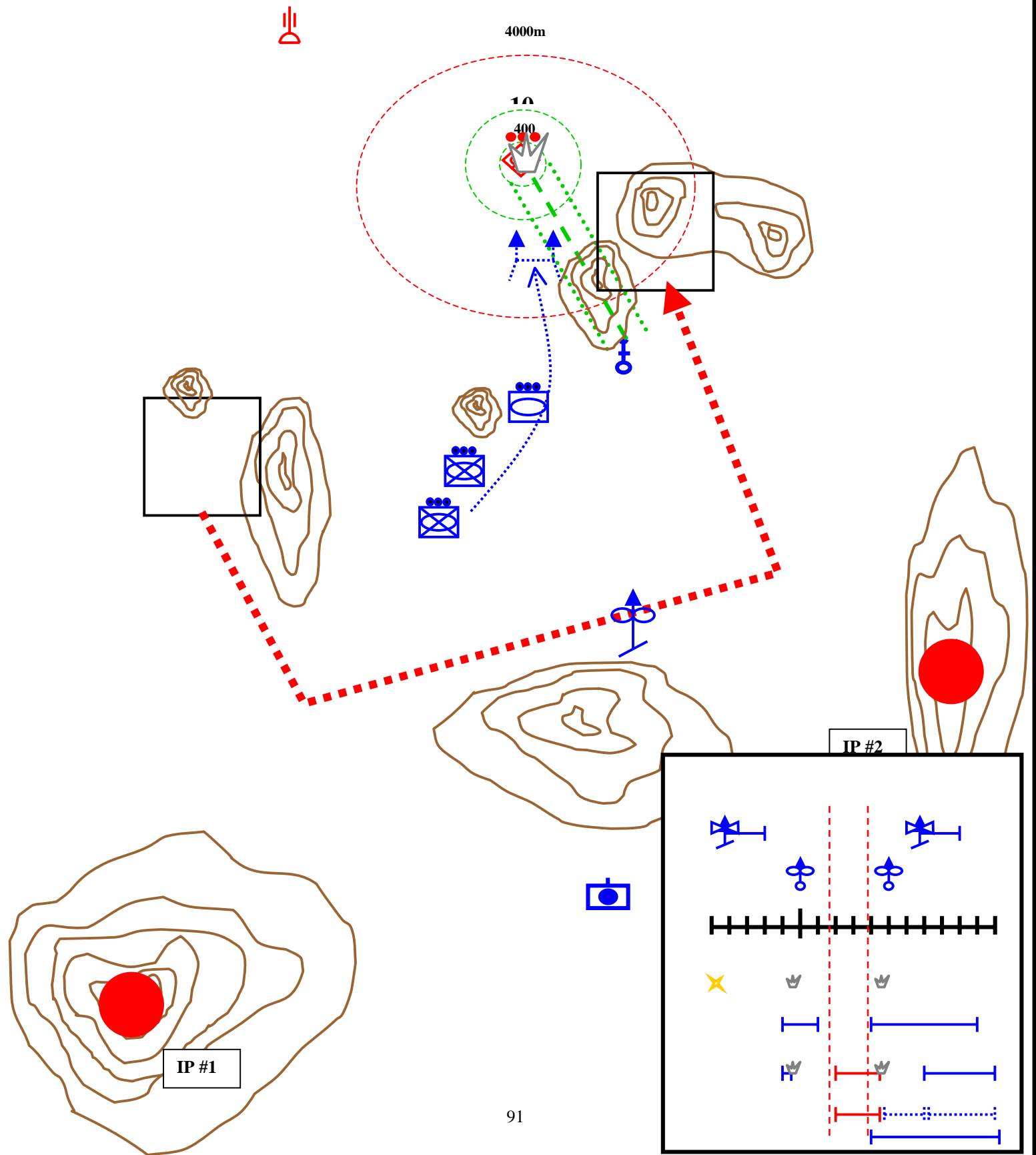
11. At time +2 mortar suppression lands on the BMP position and the tank platoon begins to move toward the initial SBF position.
12. At time +3 the RW continues to move along its route to the R&Gs battle position.

Figure 23

# SEAD NON-STANDARD EXAMPLE

Coordination of FW / RW /  
Indirect Fires and Maneuver

Time: 2 to 4



**TIME: +4 TO +6**

Reference: Figure 24

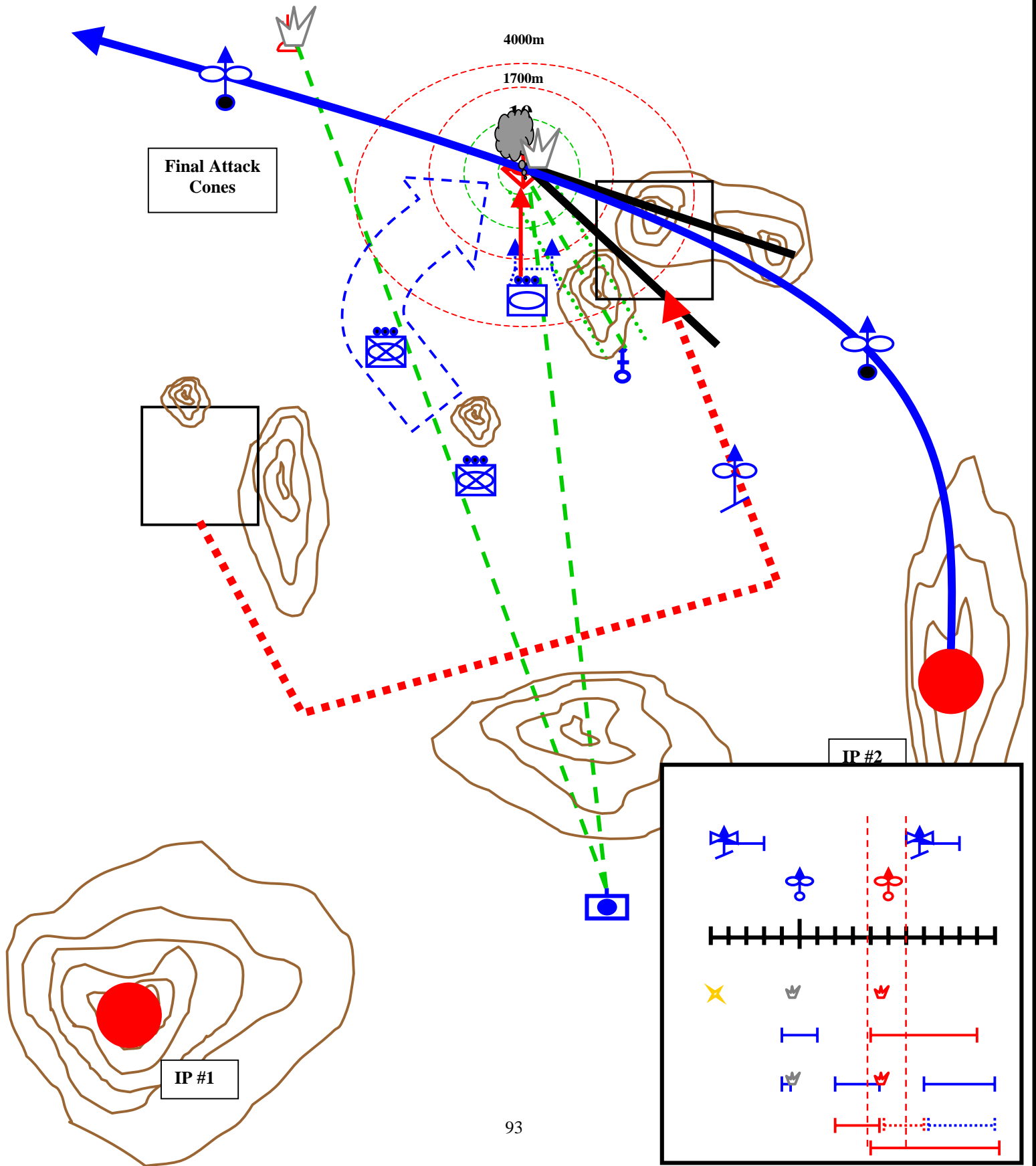
13. At time +4 mortar suppression continues on the BMP position and artillery suppression lands on the ADA position. The assault element begins its movement.
14. At time +4:15 the tank platoon arrives at the initial support by fire position and begins main gun suppression.
15. At time +4:30 artillery and mortar marks land on the BMP position and mortars cease firing. Artillery continues on the ADA position.
16. At time +5 the second FW attack occurs and bombs land on the BMP position.
17. At time +6 the RW continue to move to the R&G battle position.

Figure 24

# SEAD NON-STANDARD EXAMPLE

Coordination of FW / RW / Indirect Fires and Maneuver

Time: 4 to 6



**TIME: +6 TO +9**

Reference: Figure 25

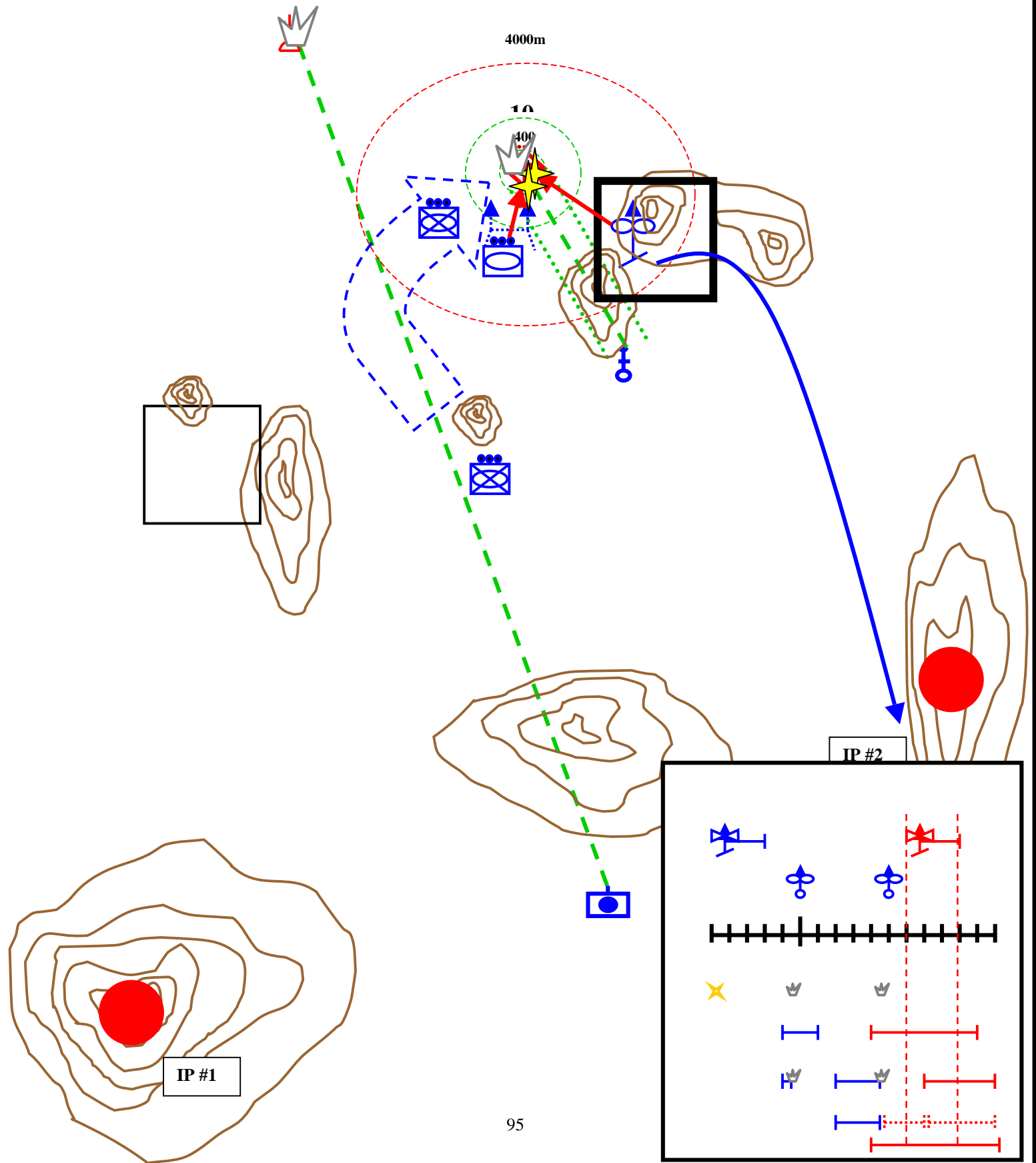
18. At time +6 artillery suppression on the ADA position, tank main gun suppression on the BMPs and infantry maneuver continue.
19. At time +7 artillery suppression on the ADA continues and mortar suppression lands on the BMP position. Tank main gun ceases (tank SDZ), tanks move to second support by fire position. RW arrives in BP and begins rockets and guns attack on the BMP position.
20. At time +9 the RW attack ceases and the RW return to base. The infantry maneuver continues. The tanks pick up fires with 50 cal. Artillery suppression continues on the ADA and mortar suppression continues on the BMPs.

Figure 25

# SEAD NON-STANDARD EXAMPLE

Coordination of FW / RW / Indirect Fires and Maneuver

Time: 6 to 9





## **TIME: +9 TO +11**

Reference: Figure 26

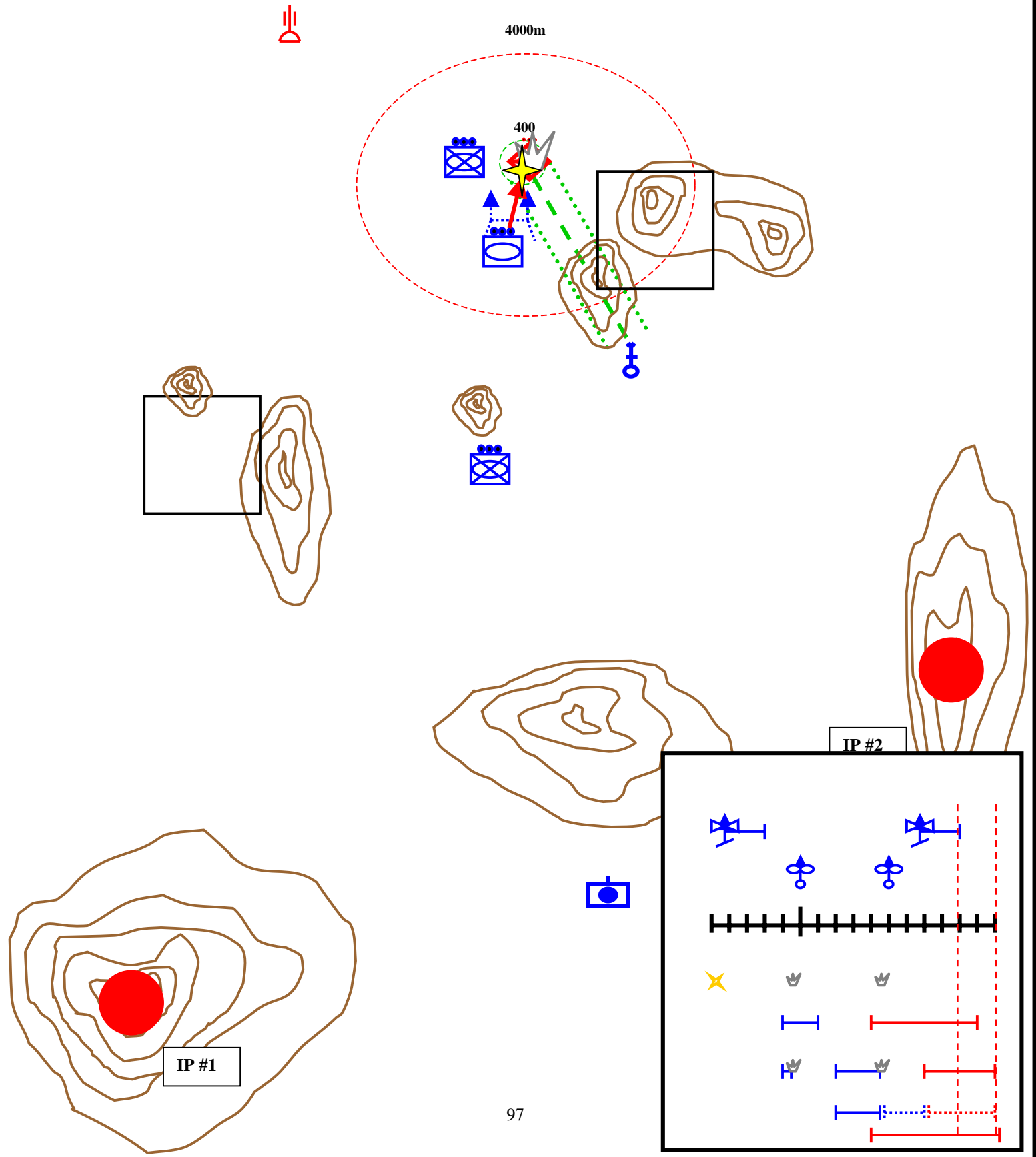
21. At time +9 the infantry begin to bound in the AAVs.
22. At time +10 the tanks cease 50 cal fires and close toward the BMP position firing 7.62 coax. Artillery suppression on the ADA asset ceases. Mortar suppression on the BMPs continues.
23. At time +11 the maneuver elements (tanks and AAVs) close inside 400m from the BMP position and mortar suppression ceases.
24. Beyond time +11 the infantry dismount 50 meters from the position under small arms fire and until complete take the position.

Figure 26

# SEAD NON-STANDARD EXAMPLE

Coordination of FW / RW / Indirect Fires and Maneuver

Time: 9 to 11



# Chapter 11:

## LATERAL COORDINATION

### In This Chapter

- Lateral Coordination between two companies

Lateral coordination is the primary responsibility of the company commander. This section will present a step by step approach to lateral coordination of the simultaneous attack of two companies. It coordinates and deconflicts schemes of maneuver, RW battle positions, FW final attack cones and timing of attack. The process involves looking at the geometry between the company's supporting agencies and adjacent friendly forces. Terrain and enemy location must also be considered. The FiST leader will continue to integrate the company's attack. However, there will be additional concerns with an adjacent unit in contact. Much of the adjacent units' information will be needed by the FiST leader so he can integrate it with the company's attack. Thus, the company commander must have a continuous dialog with the adjacent unit and FiST leader to exchange information.

### Lateral Coordination of Schemes of Maneuver

Reference: Figure 27

This example assumes the battalion 81mm mortars are split with one section in Direct Support (DS) to each company team. An issue remains if battalion retains the 81mm mortars in General Support (GS) with priority of fire assignment and positioning considerations.

**STEP 1** – Plot the location of artillery batteries supporting the battalion.

**STEP 2** – Plot the location of your company's lead trace element. (include mortar position)

**STEP 3** – Plot enemy unit locations.

**STEP 4** – Draw out the rough scheme of maneuver. (include direction of attack and support by fire positions)

**STEP 5** – Plot fire support coordination measures (this can include NFAs, RFAs and CFLs)

**STEP 6** – Plot adjacent unit lead trace positions.

**STEP 7** – Plot adjacent enemy positions.

**STEP 8** – Plot enemy threat rings

**STEP 9** – Plot adjacent unit scheme of maneuver. (include mortar position)

**STEP 10** – Plot friendly unit positions that may be forward of your lead trace element. (this can include R&S teams and RTX teams)

### **Possible Conflicts**

- ❑ Your maneuver (direction of attack or action) orients toward adjacent friendly units. (this can include mortar positions, STA/recon locations or an adjacent FLOT) (change direction of attack so this does not occur or use opposite scheme of maneuver or attack the two positions sequentially)
- ❑ A maneuver element cuts inside any ordnance minimum safe lines of the adjacent unit's enemy position. (adjust your scheme of maneuver or attack the positions sequentially)
- ❑ Your scheme of maneuver moves through the adjacent enemy position's threat ring. (request suppression on the adjacent enemy position for the duration of your exposure)
- ❑ Your direct fire SDZs from your SBF position hazard friendly unit positions forward of your lead trace. (adjust the position of the SBF)
- ❖ Figure 27 shows a situation with some lateral coordination problems with the schemes of maneuver.

Reference: Figure 28

Figure 28 represents a simultaneous attack by two companies on two adjacent enemy positions. The companies' schemes of maneuver (mortar position, SBF position, action or direction of attack) are deconflicted from each other and friendly units forward of the battalion's lead trace. (compare this figure with figure 27)

Figure 27

Lateral  
Coordination:  
Schemes of Maneuver

NFA

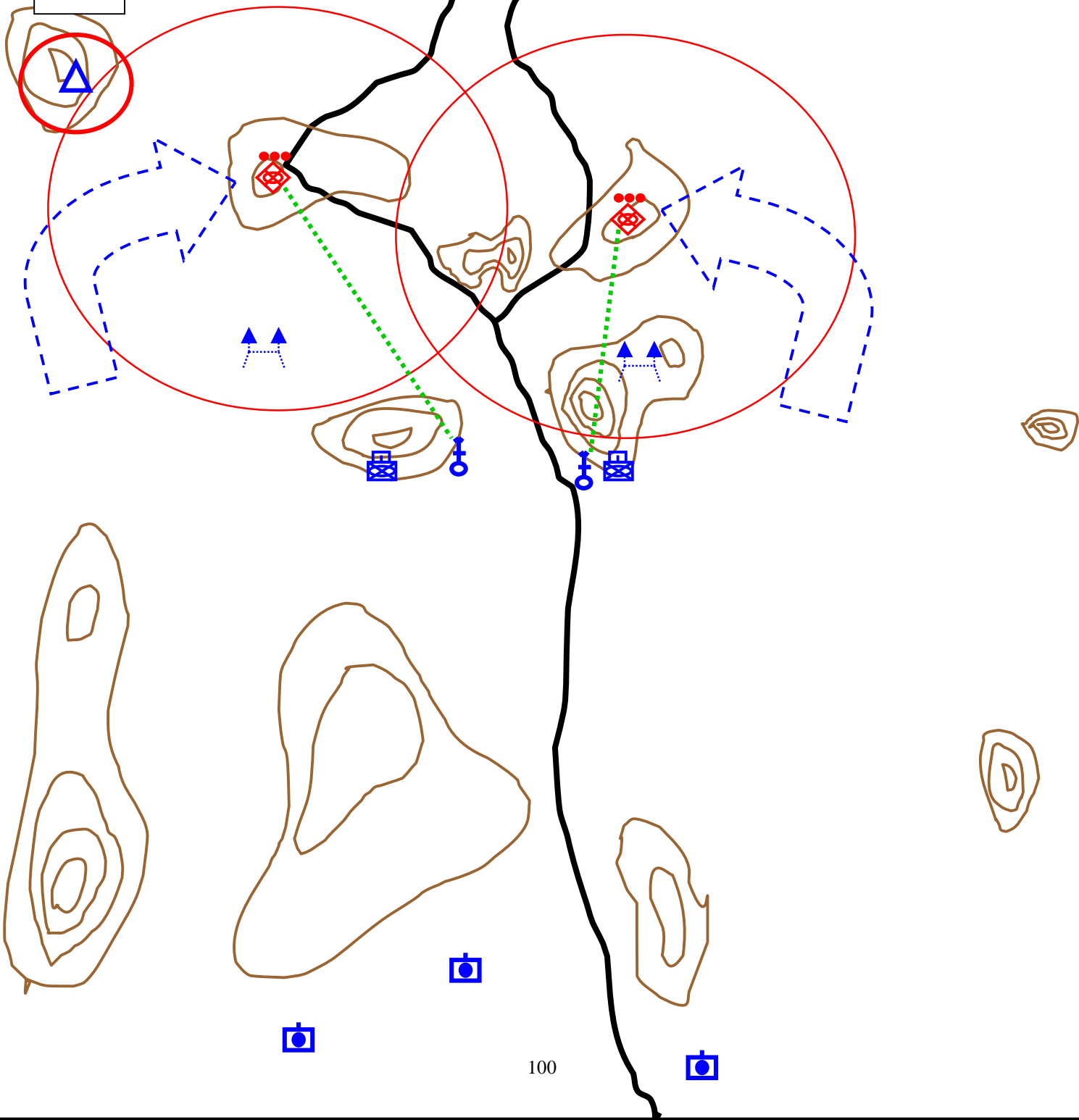
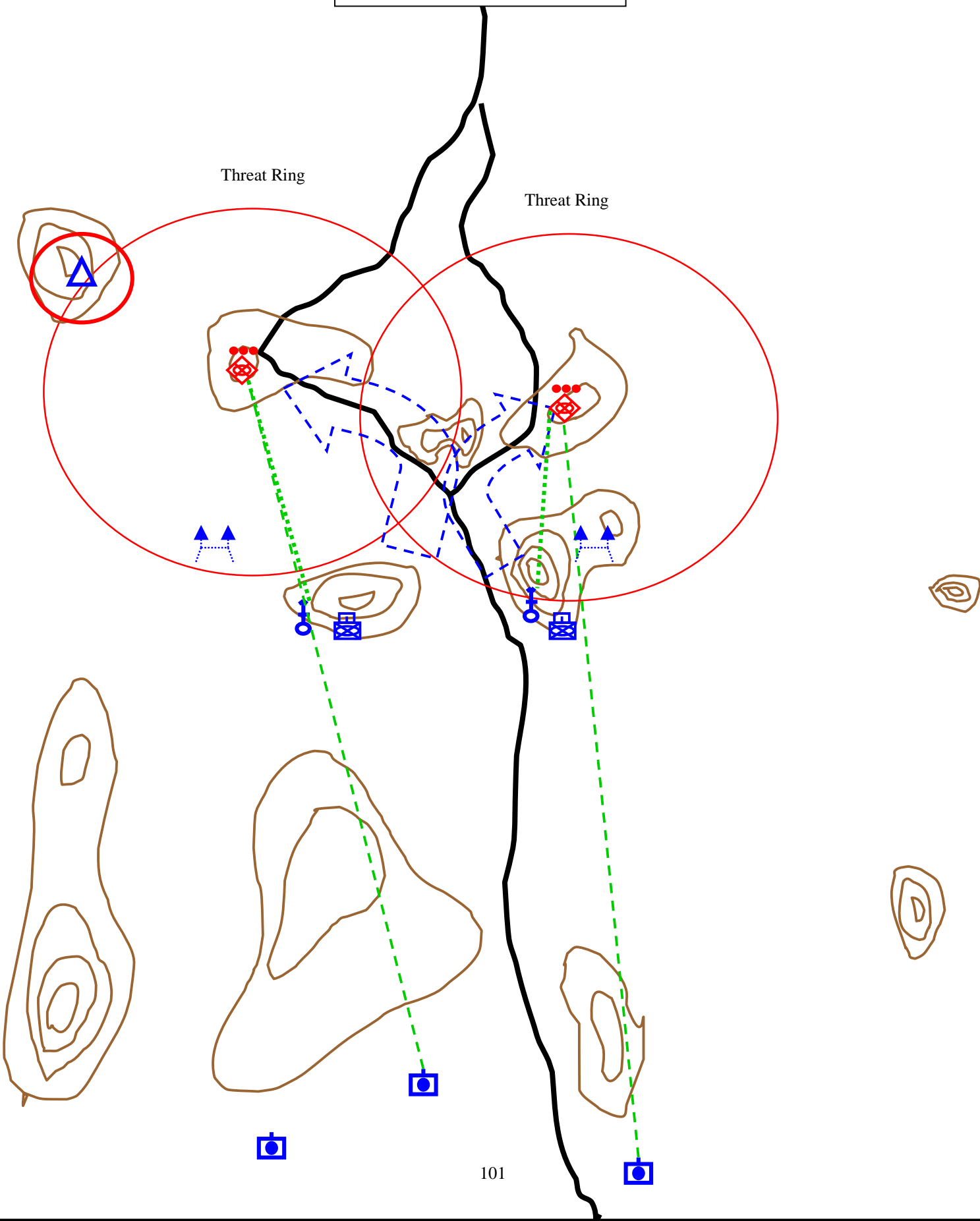


Figure 28

### Lateral Coordination: Schemes of Maneuver



## **Lateral Coordination of FW Final Attack Cones and RW Battle Positions**

Reference: Figure 29

This approach builds on the previous plot of positions.

**STEP 1** – Plot RW battle positions.

**STEP 2** – Plot FW final attack cones.

**STEP 3** – Trace FW path from IP to final attack cone and target.

**STEP 4** – Reference the enemy unit positions.

**STEP 5** – Reference adjacent unit positions.

**STEP 6** – Reference adjacent unit artillery gun target line.

**STEP 7** – Reference adjacent unit mortar gun target line.

**STEP 8** – Reference units forward of your lead trace.

### **Possible Conflicts**

- ❑ RW battle position oriented toward friendly units. (adjust RW battle position)
- ❑ RW battle position located over a friendly unit position. (adjust the RW battle position or orient the RW to the exact position of the friendly unit and ensure they are forward of that position before they are cleared to fire)
- ❑ FW ingress crosses active mortar gun target line from the adjacent unit. (adjust FW final attack cone or request to have mortars interrupted during the FW attack)
- ❑ FW ingress crossed active artillery gun target line from the adjacent unit. (adjust the FW final attack cone, give a stay above to the aircraft or request to have the artillery interrupted during the FW attack)
- ❑ FW ingress flies over an adjacent enemy position. (request to have position suppressed, interrupted or continuous with a stay above, or adjust FW final attack cone)
- ❑ FW ingress flies over an adjacent friendly unit position. (adjust the final attack cone, coordinate the timing of the adjacent maneuver or do not clear aircraft to engage your target until it is forward of the adjacent unit position)
- ❑ FW final attack cone pointed toward a friendly unit forward of your lead trace.
- ❑ FW final attack cone pointed toward an adjacent friendly unit position. (for the previous two conflicts adjust the FW final attack cone so this

does not occur unless friendly position is located outside the ordnance minimum safe line for the aviation ordnance plus 2 km for dropped ordnance only)

- ❑ FW final attack cone pointed toward RW battle position.
- ❑ FW final attack cone pointed toward your direction of attack.
- ❑ FW final attack cone pointed toward your SBF position. (for the the last three conflicts adjust the FW final attack cone or time the occupation of the SBF and maneuver to occur after the FW attack)
- ❖ Figure 29 shows a situation with some lateral coordination problems with the RW battle positions and FW final attack cones.

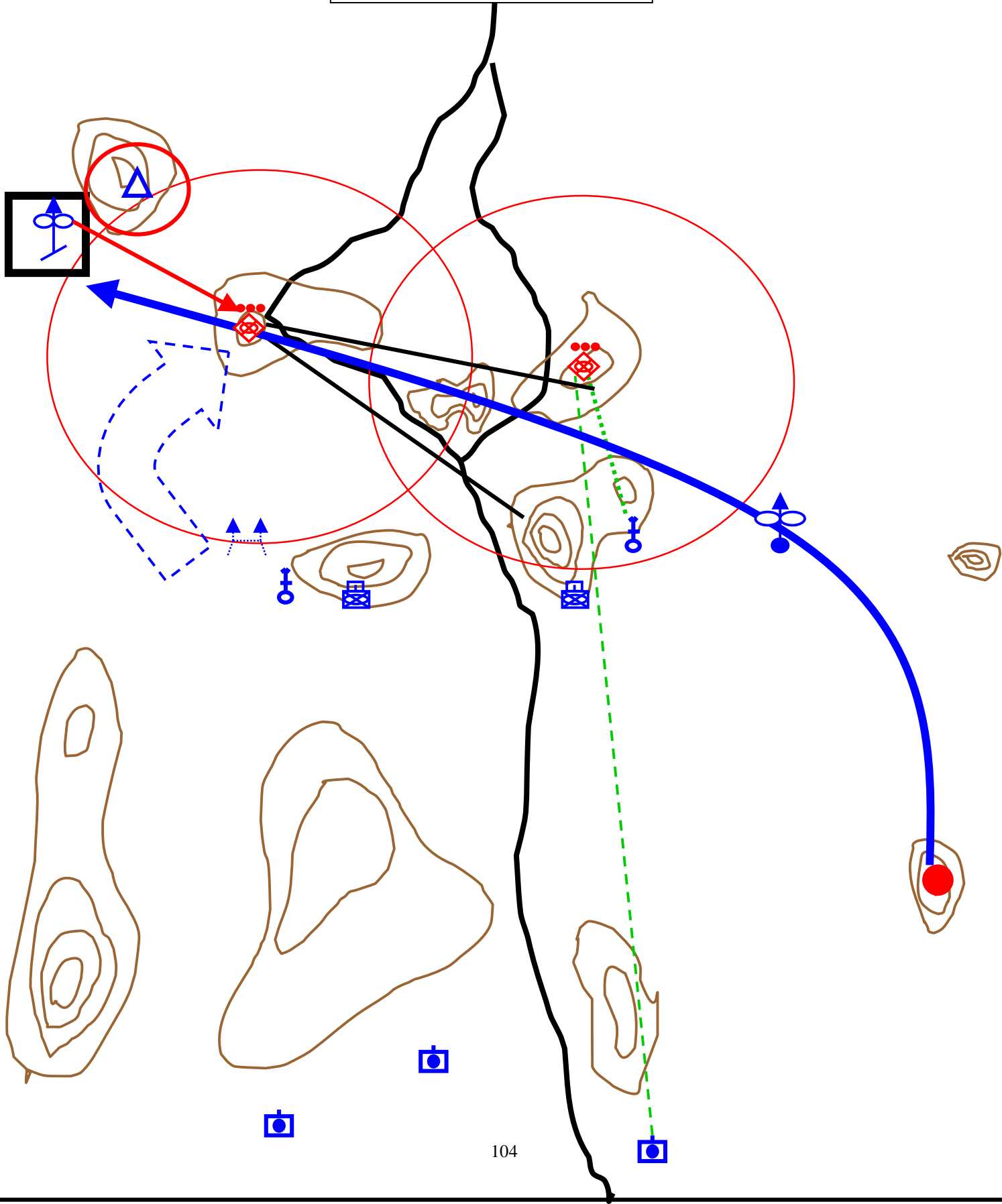
Reference: Figure 30

Figure 30 represents an attack by one company on an enemy position. The company's RW battle positions and FW final attack cone are deconflicted from the adjacent unit scheme of maneuver, adjacent unit positions, the adjacent enemy position and friendly units forward of the battalion's lead trace. (compare this figure with figure 29)



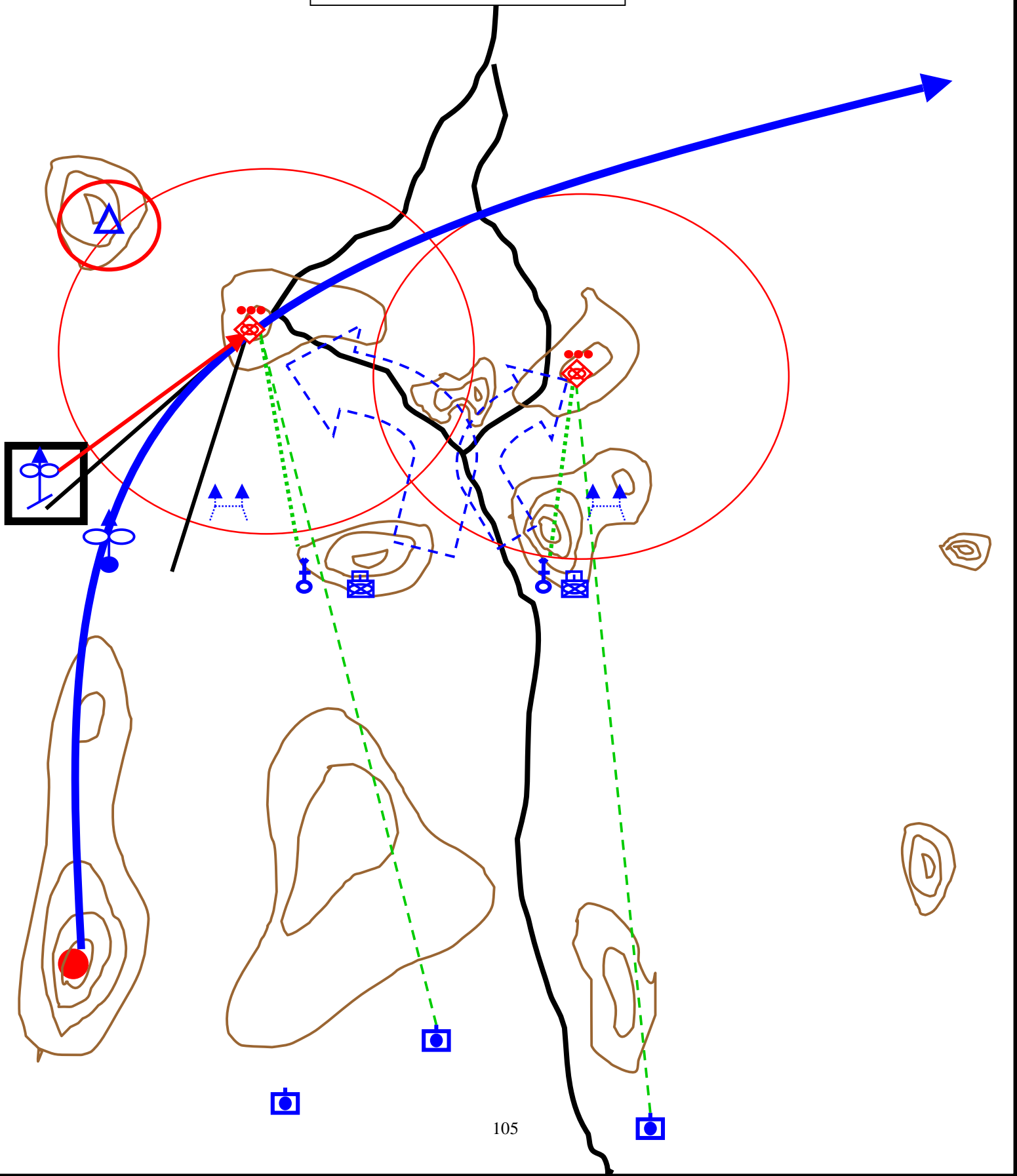
Figure 29

**Lateral Coordination:  
FW Final Attack Cones  
and  
RW Battle Positions**



**Figure 30**

**Lateral Coordination:  
FW Final Attack Cones  
and  
RW Battle Positions**



### **Lateral Coordination and timing of Attacks**

This section briefly covers coordinating simultaneous attacks onto two adjacent enemy positions. It assumes the geometry of all elements has already been deconflicted.

Reference: Figure 31

**STEP 1** – Get the adjacent unit commander’s fire plan.

**STEP 2** – Compare this fire plan with your SEAD fire plan.

**STEP 3** – Compare the FW attack times.

**STEP 4** – Compare the RW attack times.

**STEP 5** – Compare your FW attack times with the adjacent unit mortar suppression timelines.

**STEP 6** – Compare your FW final attack cones with the adjacent unit mortar gun target lines.

**STEP 7** – Compare your FW attack times with the adjacent unit artillery suppression timelines.

**STEP 8** – Compare your FW final attack cones with the adjacent unit artillery gun target lines.

**STEP 9** – Compare the maneuver start times.

**STEP 10** – Compare your maneuver start time with the adjacent unit FW attack times.

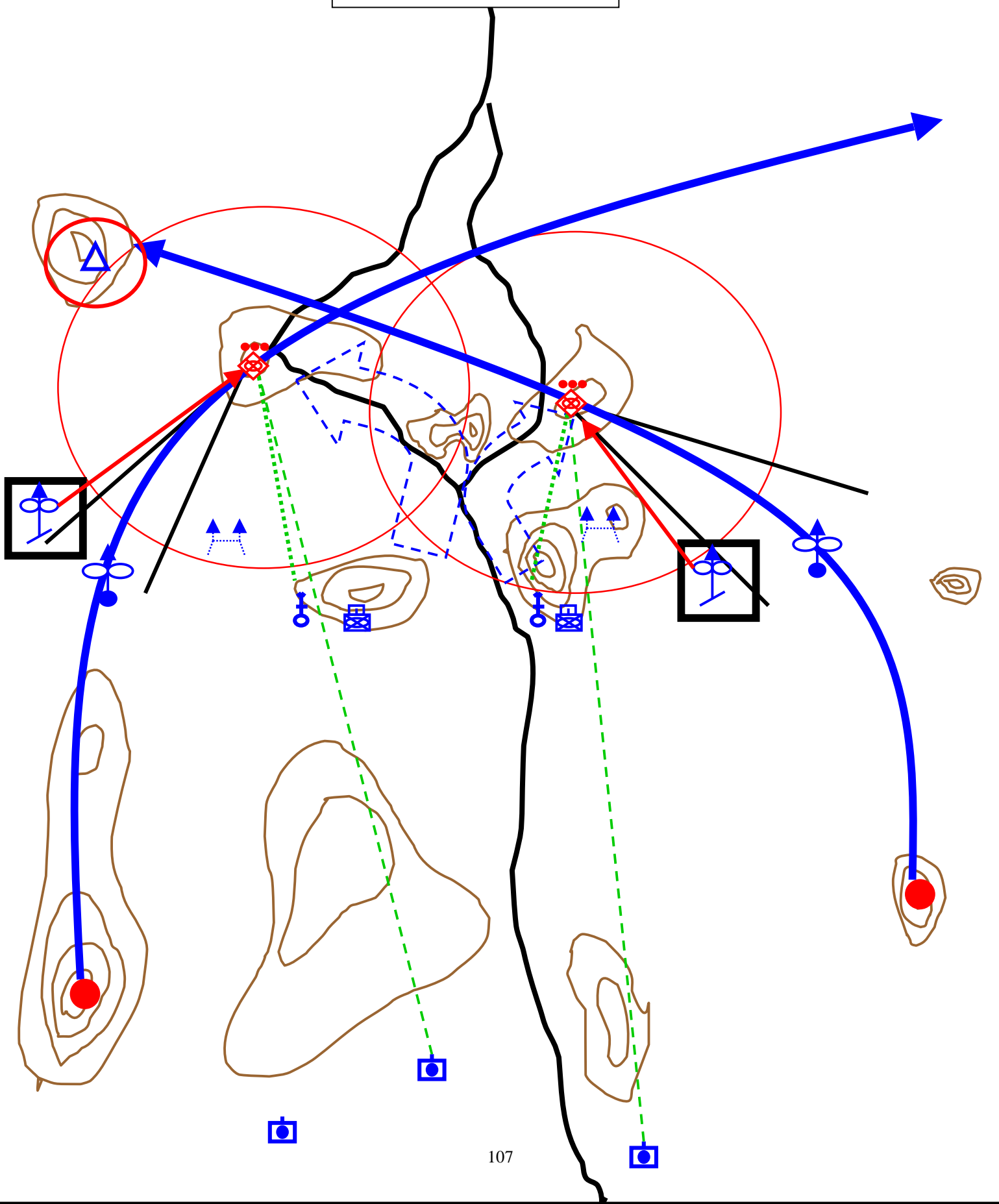
**STEP 11** – Compare your maneuver start time with the adjacent unit RW attack times.

### **Possible Conflicts**

- ❑ FW attack times occur at the same time. (adjust the start time of one fire plan so FW attack times are offset)
- ❑ FW attack cone crosses active adjacent artillery gun target line. (calculate stay above for cone at the gun target line)
- ❑ FW attack cone crosses an active adjacent mortar gun target line. (adjust cone or coordinate with adjacent unit commander to cease mortars)
- ❑ FW attack cones point at adjacent maneuver element. (adjust start time of maneuver, start time of fire plan, or FW final attack cones)
- ❑ RW attack points at adjacent maneuver element. (adjust start time of maneuver, start time of fire plan, or RW battle position)
- ❑ RW attack occurs over adjacent maneuver element. (adjust start time of maneuver, start time of fire plan, RW battle position or ensure RW is forward of maneuver element before clearance is given to fire)

Figure 31

Lateral  
Coordination:  
Timing of Attack



# Chapter 12:

## The FiST BATTLE DRILL

### In This Chapter

- The FiST Battle Drill
- Actions Before Contact: FiST Preparation
- Making Contact
- Executing the Fire Plan
- Continuation of the Attack

### The FiST Battle Drill

The FiST Battle Drill is simply the general sequence of events that a FiST will execute in order to bring together combined arms for the purpose of destroying an enemy. The FiST Battle Drill has two phases:

1. Making contact
2. Execution of the Fire Plan

Additionally, prior to the crossing the Line of Departure there are several things the FiST leader can do to prepare the FiST for action. It is often helpful for the FiST to conduct rehearsals of this sequence of events prior to crossing LD. This rehearsal is called the fire support plan rehearsal. Rehearsals improve comprehension of the plan. Individuals who are unclear on specific portions of the plan gain answers through repetition of the steps of a plan. Additionally, these rehearsals can bring up areas of conflict that can be resolved prior to contact with an enemy. Whenever possible the fire support plan should be rehearsed with the company commander and all FiST members. It is designed to show whether everyone knows his responsibilities and the cues for an action. Rehearsed battle drills are the key to quick execution.

### **Actions Before Contact (actions prior to LD): FiST Preparation**

- ❑ Establish the priority target on known, suspected or likely enemy positions (remember to establish new priority targets as the unit advances)
- ❑ Review indirect capabilities
  - The artillery FO briefs priority targets, the location of supporting indirect fire units, the munitions and charges available, types and duration of missions available, and displacement plans. The 81s FO briefs the mortar ammunition available and the resulting range limitations. Additionally, the FOs should brief any indirect fire issues.

- ❑ Review Air Tasking Order
  - The FAC briefs the number and type of aircraft available, their time on station, the aviation ordnance and preplanned 9-lines. The FAC should also brief any specific aviation concerns he might have.
- ❑ Review the basic FiST SEAD non-standard, or QFP
  - The FiST leader will brief his concept for employment of assets based on the FOs and FACs' briefs, the company scheme of maneuver and the mission. This will be the company's basic fire plan. This should include the timeline, the number of CAS attacks, targets to be suppressed and targets to be marked and mark type.
- ❑ Plot information from briefs
  - All FiST members and the company commander should plot priority targets, indirect firing agency positions, RW BPs and enemy threat rings.
- ❑ FiST leader makes duty assignments
  - Assignments for actions during contact include who will get target location, directions to targets, distances to targets and target elevations. Assignments for actions during execution of the fire plan include who will spot corrections from the mark, spot aircraft and watch aircraft egress.

### **Making Contact: Adjusting Fires and Building the Fire Plan**

- ❑ **Company commander** sends contact report
- ❑ **Company commander** positions the FiST
  - The FiST should be able to observe targets, lead trace of the company, RW BPs and FW axis of attack.
- ❑ **Company commander** directs mortars to FIRECAP based on the scheme of maneuver
- ❑ **Company commander** coordinates with adjacent units
  - Coordination information should include locations of enemy and friendly units.
- ❑ **FiST leader** orients the FiST member on the targets
- ❑ **The FiST** determines if the enemy location is near the priority target
  - If the enemy location is near the priority target, then fire the priority target. If the enemy location is not near the priority target and the lead unit is in the threat ring then request immediate suppression or fire for effect the grid to the enemy location. If the enemy position is not near the priority target and lead unit is not in the threat ring then begin adjust fire procedures
- ❑ **FiST** members get information for engagement
  - This information should include target locations, directions to targets, distances to targets and target elevations.
- ❑ **FiST leader** adds information to the Battle Board
- ❑ **All FOs** call for and adjust fire
- ❑ **FAC** requests available aviation
- ❑ **Company commander** gives the FiST leader the initial concept of operations
  - The company commander should pass mortar position, the basic scheme of maneuver and fire support requirements. Fire support requirements include the duration of suppression required for maneuver.

- ❑ **Company commander** coordinates with adjacent units
  - The company commander passes the mortar position, task for fires and scheme of maneuver.
- ❑ **FAC** begins work
  - He completes and refines preplanned 9-lines. Builds BPs based on mortar position and scheme of maneuver.
- ❑ **FiST leader** begins work
  - The FiST leader must plot targets, mortar position, gun target lines, BPs and aircraft final attack cones. Reviews scheme of maneuver. Refines the basic company fire plan to get final timeline. Reviews and approves 9-lines with the FAC.
- ❑ **FAC** briefs 9-lines
- ❑ **Company commander** briefs subordinate units and higher headquarters
  - The company commander reviews the scheme of maneuver and fire plan timeline.
- ❑ **Company commander** gives specific direction to subordinate units to deconflict them from the effect of fire to be delivered
- ❑ **FiST leader** ensures all indirect agencies have effect on the enemy before recording as target
- ❑ **Artillery FO** gets updated enemy location after fire for effect
- ❑ **FiST leader** updates Battle Board with new enemy location
- ❑ **FAC** builds the pilots situational awareness
  - The FAC describes the target area and target location.
- ❑ **FAC** updates 9-line with new enemy location
- ❑ **FiST leader** briefs FiST members on the fire plan
  - The FiST leader should generally describe the entire fire plan to the whole FiST, including the timeline, the number of CAS attacks, targets to be suppressed, duration of suppression, targets to be marked, mark times and mark type. Then he should pass the appropriate portion of the fire plan to each member of the FiST responsible for calling it to the supporting agency. Each FiST member in turn should then read back his portion of the timeline to the FiST leader. (This serves as a final check for the FiST leader)
- ❑ **All FiST members** send their portion of the fire plan into the appropriate agency
- ❑ **Company commander** approves TOT
- ❑ **FiST leader** sets TOT once all agencies have the fire plan
- ❑ **Company commander** briefs subordinate and adjacent units and higher headquarters
  - The company commander briefs the TOT and any refinements to the plan.

### **Executing the Fire Plan**

- ❑ **FiST leader** focuses the FiST members on the execution of the fire plan.
  - He quickly reviews the fire plan and begins announcing the time.
- ❑ **FAC** identifies the portion of the sky the aircraft will fly
- ❑ **The FiST member designated to spot the mark** maintains focus on target
- ❑ **The FAC** announces when the aircraft are IP inbound
- ❑ **All other FiST members** prepare to spot aircraft

- ❑ **FiST leader** begins to announce timeline
- ❑ **The company commander** tracks maneuver elements to make sure they are deconflicted from the effects of fires
- ❑ **FiST members** announce when artillery suppression and mortar suppression is shot
- ❑ **FAC** passes to the aircraft that suppression is in the air and when suppression is on the deck.
- ❑ **FiST leader** observes suppression's relationship to the target  
The FiST leader makes corrections if necessary.
- ❑ **FiST members** announce when marks are shot
- ❑ **FAC** passes to the aircraft that the marks are in the air
- ❑ **The FiST member designated to spot the mark** makes the correction from the mark
- ❑ **FAC** confirms and passes correction to the aircraft
- ❑ **FAC** determines if situation is safe and brings the aircraft in target area
- ❑ **FAC** clears aircraft
- ❑ **The FiST member designated to spot the mark** makes the correction from the lead aircraft's hit
- ❑ **FAC** passes correction to the second aircraft
- ❑ Repeat steps for follow on attack
- ❑ **The FiST leader** continues to track the fire plan until all elements of the attack are complete
- ❑ **FOs** send end of mission once fire plan is complete

### **Continuation of the Attack**

- ❑ Establish new priority target
- ❑ Review indirect capabilities
- ❑ Review Air Tasking Order
- ❑ Access the effects of continued maneuver on communications with higher headquarters, adjacent units and supporting units