CHAPTER 2

RECONNAISSANCE AND SURVEILLANCE AND INTELLIGENCE
PREPARATION OF THE BATTLEFIELD

Think of developing an R&S plan as being similar to building a house. A good house needs a solid foundation. The pillars for the foundation of R&S are the actual terms used. Before going on, let us discuss some important terms.

TERMS

Refer to the glossary for the definitions of reconnaissance, surveillance, and CR. Below is a discussion of these terms.

RECONNAISSANCE

Reconnaissance is concerned with three components: enemy, weather, and terrain. You should understand that reconnaissance is active; it seeks out enemy positions, obstacles, and routes. Since movement draws attention, good reconnaissance uses stealth to avoid detection.

SURVEILLANCE

Surveillance is passive. Surveillance implies observing a specified area or areas systematically from a fixed, concealed position. A good R&S plan contains the best mix of R&S based on requirements, assets available, and the threat.

COUNTERRECONNAISSANCE

Essentially, CR means blinding the enemy's eyes so they cannot detect our attack, or cannot locate our defensive positions. CR missions require you to--

o Know something about how the enemy reconnoiters.

o Be able to locate, target, destroy, or suppress enemy reconnaissance assets.

Providing support to the CR mission means that you must become an expert on threat reconnaissance doctrine, tactics, unit organizations, and equipment. You must know how the enemy plans to collect information; when they do it; and with what equipment, vehicles, and organizations they collect.

Then plan how to find the enemy's reconnaissance assets before they are able to find friendly forces. You also need to understand US maneuver organizations, doctrine, tactics, and capabilities, since you may be called on to provide a recommendation for organizing CR forces.

Coordinate closely with the S3 and the FSO, since much of their planning relies on your ability to predict, locate, and confirm enemy reconnaissance assets. Your knowledge of threat reconnaissance capabilities, limitations, and vulnerabilities aids the staff in developing high payoff targets (HPTs). It aids in determining how best to destroy or suppress those targets, either by lethal or nonlethal means.

At brigade level, you must get the IEWSE officer involved in CR battle planning, because using EW may be crucial to the success of the mission.

Defining R&S and CR in isolation may suggest they occur in a vacuum. Nothing could be further from the truth. R&S is a crucial phase of the intelligence cycle. As you will see, your R&S effort requires direction if it is to provide the necessary intelligence the commander needs to fight and win the battle.

You might have the impression R&S has definitive start and end points. Actually, R&S is part of a larger, continuing collection process. That process gets its direction from two things: first, the mission; and second, by extension, the IPB process.

These two things tell you--

o What to collect.

o Where to collect.

o When to collect.

o Who should collect it for you.

o Why you must collect it.

Your collection plan enables you to direct and control the collection of information. That information, once recorded, evaluated, and interpreted, becomes intelligence. Collecting information gives commanders targeting data so they can destroy enemy weapon systems and units. Your analysis can provide insight into the enemy situation to the extent that you can make an educated estimate of possible future enemy courses of action (COAs). At this point, inform your commander and the rest of the staff; then begin to develop friendly COAs for future operations.

The cycle continues endlessly. However, within the cycle you may discover, based on the picture you have developed, that you must modify the collection plan. Or, based on what you have collected, you must update the IPB terrain data base.

There is an interrelationship between all aspects of the intelligence cycle. Your collection plan has a direct effect on how you--

o Process information and disseminate intelligence during the present battle.

o Direct your intelligence efforts for future battles.

The R&S plan marries the IPB with assets available for information collection. It organizes and prioritizes information requirements. This results in R&S taskings to units through the S3.

RECONNAISSANCE AND SURVEILLANCE PRINCIPLES

Now that we have defined the terms, let us discuss the two principles of R&S. They are--

o Tell commanders what they need to know in time for them to act.

o Do as much as possible ahead of time.

TELL COMMANDERS WHAT THEY NEED TO KNOW IN TIME FOR THEM TO ACT

This principle is of paramount importance. You must develop the R&S plan so that it directly addresses what the commander wants to know. In essence, the R&S effort (as with the intelligence effort in general) is commander-oriented and commander-directed. Therefore, you cannot develop a successful R&S plan until you know exactly what the commander needs to know.

The commander's questions which positively must be answered in order to accomplish the mission are PIR. They are the start point for the R&S plan. The clearer and more precise the commander's PIR, the better you will be able to develop the R&S plan to answer them.

How do PIR come about? As part of the mission analysis process, you and your commander study the mission given to you by higher headquarters. You develop specified, implied, and essential tasks. As you do this, you should also be able to identify gaps in your understanding of the battlefield situation.

The following are examples of possible gaps:

o Which avenue of approach (AA) will the enemy use, and when?

o Which fixed- and rotary-wing air AAs will the enemy use?

o How will the enemy deploy in their attack?

o Where will the enemy commit their second echelon forces?

o What are the enemy reconnaissance forces, tactics, and capabilities?

o Where is the enemy main supply route (MSR)?

o Under what circumstances will the enemy use NBC weapons? How will they be employed?

o What are the enemy subsequent and fallback positions, and routes from their main defensive positions to the fallback positions?

o In what strength will the enemy counterattack, and where are the armor counterattack forces?

o Where are the enemy observation posts (OPs) and listening posts (LPs)?

o Where are the enemy antitank (AT) helicopters?

o Where are the enemy TOCs and tactical command posts, relays, and communications sites?

o Where are the enemy logistic and support areas?

o What effects of weather provide a key advantage or disadvantage to you or the enemy?

o Where are the enemy obstacles and fire sacks?

o Where are the enemy main defensive positions?

o Where and when will the enemy counterattack, and how will they counterattack?

o Where are the enemy AT weapons?

o Where is the enemy artillery?

Essentially, you and your commander try to zero in on exactly what will determine the outcome of the battle. Many times, the commander will tell you what is of the most concern. It is the responsibility of the commander to state PIR. However, the S2 and the S3 can assist in this process by presenting their own analyses of the mission.

Remember, PIR drive your R&S efforts; so it is critical that you understand just exactly what your commander needs to know in order to fight.

Try to keep the commander's PIR as specific as possible. The more general the question, the harder it is to answer. Instead of asking, "With what force will the 34th Motorized Rifle Regiment attack?", try to discern exactly what it is your commander is looking for. If the commander wants to know how the 34th will initially deploy, it is better to ask, "Will the 34th attack in column, with two battalions leading, or with three battalions on line?"

Similarly, is the commander concerned with finding the

enemy's main defensive area; or is he really worried about locating company and platoon positions within the main defensive area? How you phrase the PIR has a direct bearing on how you answer those PIR.

To better focus R&S efforts, keep PIR down to a manageable number. Normally, you will only be able to concentrate on three or four at any one time. Of course, the mission and the commander's needs may sometimes dictate more. Having a large number of priorities defeats the purpose of having PIR in the first place.

Other questions the commander may have regarding the enemy, weather, and terrain of a lesser priority than PIR are called IR. Examples of IR are--

o Where or what is the enemy's immediate objective?

o Will the enemy employ smoke?

o Where are the usable river fording points?

Answers to these questions may not be critical to the immediate success of the mission, but they will certainly help provide answers to those critical questions. Keep in mind that IR may at some point become PIR, and vice versa, depending on the situation.

Once developed, PIR should be disseminated to subordinate, adjacent, and higher units. In this way, you inform everyone of the questions you need answered. Remember, although you may not be able to answer a specific PIR at your level, your higher headquarters may be able to. Disseminating your PIR also tells everyone what you are most interested in.

Use the intelligence annex and intelligence summaries to disseminate PIR. Your PIR and IR also determine your request for intelligence information (RII) . The RII is the best way to let your higher headquarters know your information needs. Your higher headquarters does not always know what specific information you may need.

Your commanders PIR give you a direction in which to start your R&S planning. Subsequently, most of your time will be spent doing detailed planning and analysis, all focused on answering those PIR. Essentially, you will study the effects of enemy, weather, and terrain on the battlefield and the mission.

The best way to study the enemy, weather, and terrain is through the IPB process. IPB--

o Enables you to focus analytical efforts on a specific part of the battlefield.

o Gives you a way to systematically examine the terrain and weather effects on enemy and friendly actions.

o Helps you determine the effects on R&S activities.

o Gives you an in-depth view of how the enemy fight, how they reconnoiter, and where they may be most vulnerable.

Most importantly, IPB gives you a way to synchronize your R&S plan with the general battle plan. Figure 2-1 illustrates the commander's decision-making process (supported by IPB). If it is done right, IPB is people-intensive and time-consuming. This brings us to a second principle of R&S.

DO AS MUCH AS POSSIBLE AHEAD OF TIME

The first four functions of the IPB process are homework functions. That means you build a data base on terrain and weather conditions, and enemy order of battle (OB) before hostilities. For example, your unit has received a new contingency mission for some part of the world. Given this mission, begin collecting information on terrain features and conditions for the area your unit is responsible for. You might get this information from existing maps, area studies, or special engineer products. Then build a data base on the people, customs, culture, and other demographics of the region.

Also, collect information on historic weather patterns and conditions for your area. Develop a data base that includes how the weather influences the terrain and the people of that region.

Finally, learn as much as you can about the potential threat in that region. Depending on how much time you had and how much information were available, you would--

o Find out individual unit identifications, unit organization, and garrison locations.

o Determine the status of unit training and overall combat readiness.

o Study threat tactics, both doctrinally and historically.

o Build a data base containing all this information.

o Update your data base as more recent information becomes available. (Don't forget to ask higher headquarters for data base information already obtained.)

INTELLIGENCE PREPARATION OF THE BATTLEFIELD PROCESS

The majority of the IPB process needs to be done ahead of time. You simply will not have time during combat to establish any data base or to perform an in-depth analysis of the enemy, weather, or
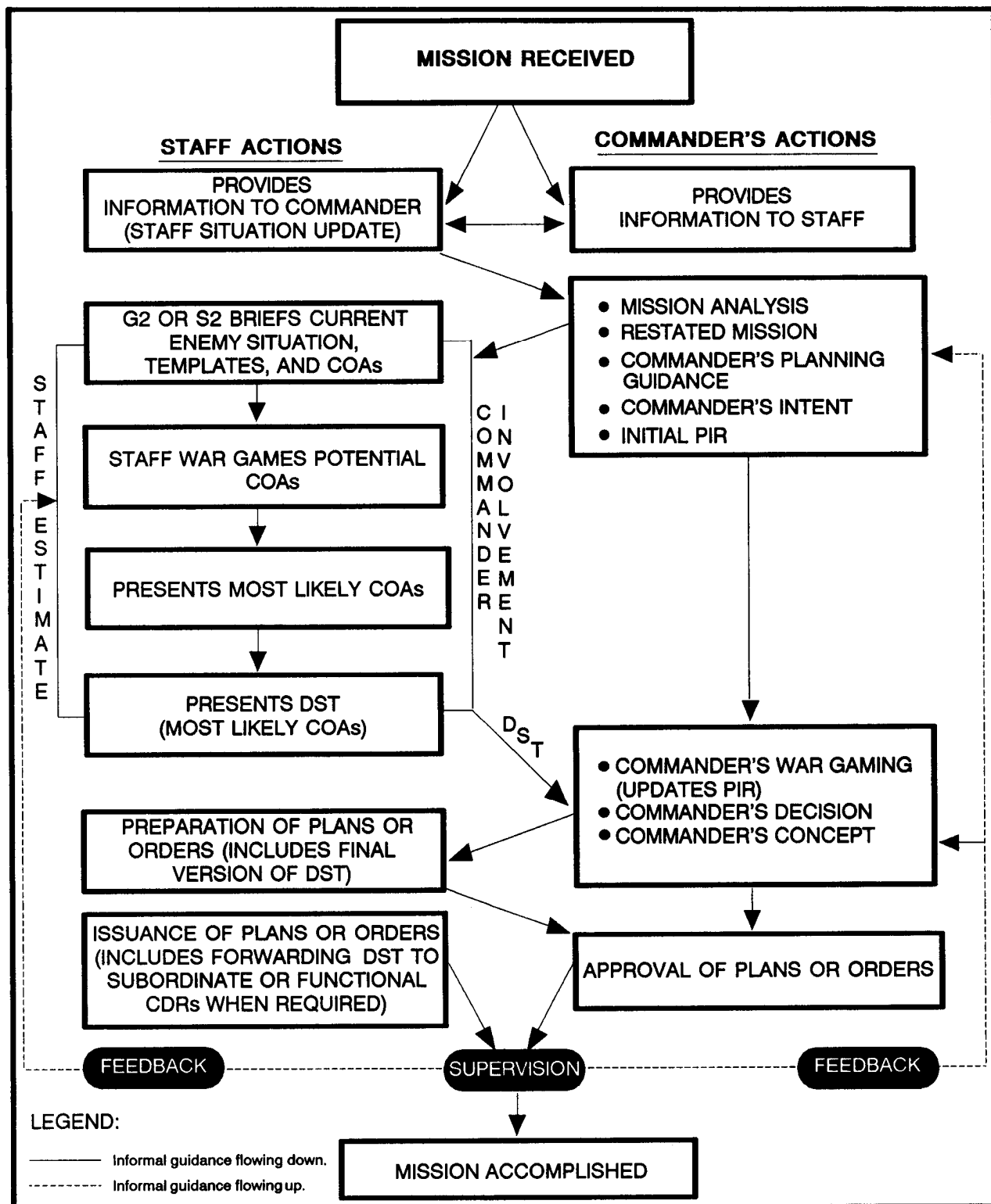
MISSION RECEIVED

STAFF ACTIONS

COMMANDER'S ACTIONS

PROVIDES
INFORMATION TO COMMANDER
(STAFF SITUATION UPDATE)

PROVIDES
INFORMATION TO STAFF

G2 OR S2 BRIEFS CURRENT
ENEMY SITUATION,
TEMPLATES, AND COAs

- MISSION ANALYSIS
- RESTATED MISSION
- COMMANDER'S PLANNING
  GUIDANCE
- COMMANDER'S INTENT
- INITIAL PIR

STAFF WAR GAMES POTENTIAL
COAs

PRESENTS MOST LIKELY COAs

PRESENTS DST
(MOST LIKELY COAs)

S T A F F   E S T I M A T E

C O M M A N D E R

I N V O L V E M E N T

$^{D}S_{T}$

- COMMANDER'S WAR GAMING
  (UPDATES PIR)
- COMMANDER'S DECISION
- COMMANDER'S CONCEPT

PREPARATION OF PLANS OR
ORDERS (INCLUDES FINAL
VERSION OF DST)

ISSUANCE OF PLANS OR ORDERS
(INCLUDES FORWARDING DST TO
SUBORDINATE OR FUNCTIONAL
CDRs WHEN REQUIRED)

APPROVAL OF PLANS OR ORDERS

FEEDBACK   SUPERVISION   FEEDBACK

LEGEND:

———— Informal guidance flowing down.
- - - - Informal guidance flowing up.

MISSION ACCOMPLISHED

Figure 2-1. Commander's decision-making process (supported by IPB).

terrain. To successfully plan and execute the R&S operation, you must have this detailed analysis. The IPB process has five components:

o Battlefield area evaluation (BAE).

o Terrain analysis.

o Weather analysis.

o Threat evaluation.

o Threat integration.

Refer to FM 34-130, Intelligence Preparation of the Battlefield, for detailed information on IPB.

BATTLEFIELD AREA EVALUATION

BAE is the first step of the IPB process. Begin your analysis by figuring out what part of the battlefield should be of interest to you and your commander. The end result of this step is the identification of the area of interest (AI): That part of the battlefield which contains significant terrain features or enemy units and weapon systems that may affect your unit's near or future battle.

BAE is a crucial step in the IPB process because it focuses your analytical efforts on a finite piece of the battlefield. By extension, it will also provide geographic limits to your R&S and collection efforts.

The commander bases the unit's AI on many things. It is normally an expansion of your unit's area of operations (AO). It should be large enough to provide answers to the commander's PIR; yet small enough to prevent your analytical efforts from becoming unfocused. Determining the AI depends on the unit mission and threat capabilities. For example, if your unit is to attack, your AI should extend across your LD/LC up to and surrounding your intermediate and subsequent objectives.

If the mission is to defend, the AI should extend far enough to include any possible units that might reinforce against you. You can base your AI considerations in terms of time and on how fast you or the enemy moves. Figure 2-2 lists general distance guidelines in hours and kilometers; use this to determine your unit's AI.

Considerations for your AI should be expressed in terms of distance, based on--

o How your unit attacks.

o How the enemy attacks.

o What your commander needs to know.

For example, a battalion commander fighting an attacking enemy using Soviet tactics is normally interested in 1st- and

2nd-echelon battalions of
1st-echelon regiments.

Doctrinally, these units
would normally be from 1 to 15
kilometers from our FLOT.
Therefore, the AI should extend
forward at least 15 kilometers.

You must determine your AI
during mission analysis. Your
commander and S3 play a big
part in formulating the AI.
They tell you what their
intelligence concerns are.
Like PIR, your unit's AI must
be the commander's and must be
sent to higher headquarters.
Figures 2-3 and 2-4 show
examples of AIs for defensive
and offensive missions.
Figure 2-5 shows both defensive
and offensive. It will help in
determining your unit's AI.

<div align="center">TERRAIN ANALYSIS AND
WEATHER ANALYSIS</div>

The next two steps in the
IPB process are terrain and
weather analyses. Essentially,
these are detailed studies of
how the terrain and weather
will affect both friendly and
enemy operations.
Specifically, terrain and
weather will dictate how
effective R&S assets will be,
and where they should go to
be most effective. Your
knowledge of terrain and
weather will allow you to
anticipate effects on friendly
and enemy R&S systems and
operations.

Terrain analysis and
weather analysis should
start as soon as you have
determined your AI. Do not
wait until you deploy to
start your analysis! The
more prepared you are, the
better the R&S plan will be.
Figures 2-6 and 2-7 show
specific uses and effects
for terrain and weather
analyses.

COMMAND ECHELON	AREA OF INTEREST	
	Hours	Kilometers
Battalion	Up to 12	Up to 15
Brigade	Up to 24	Up to 30
Division	Up to 72	Up to 100

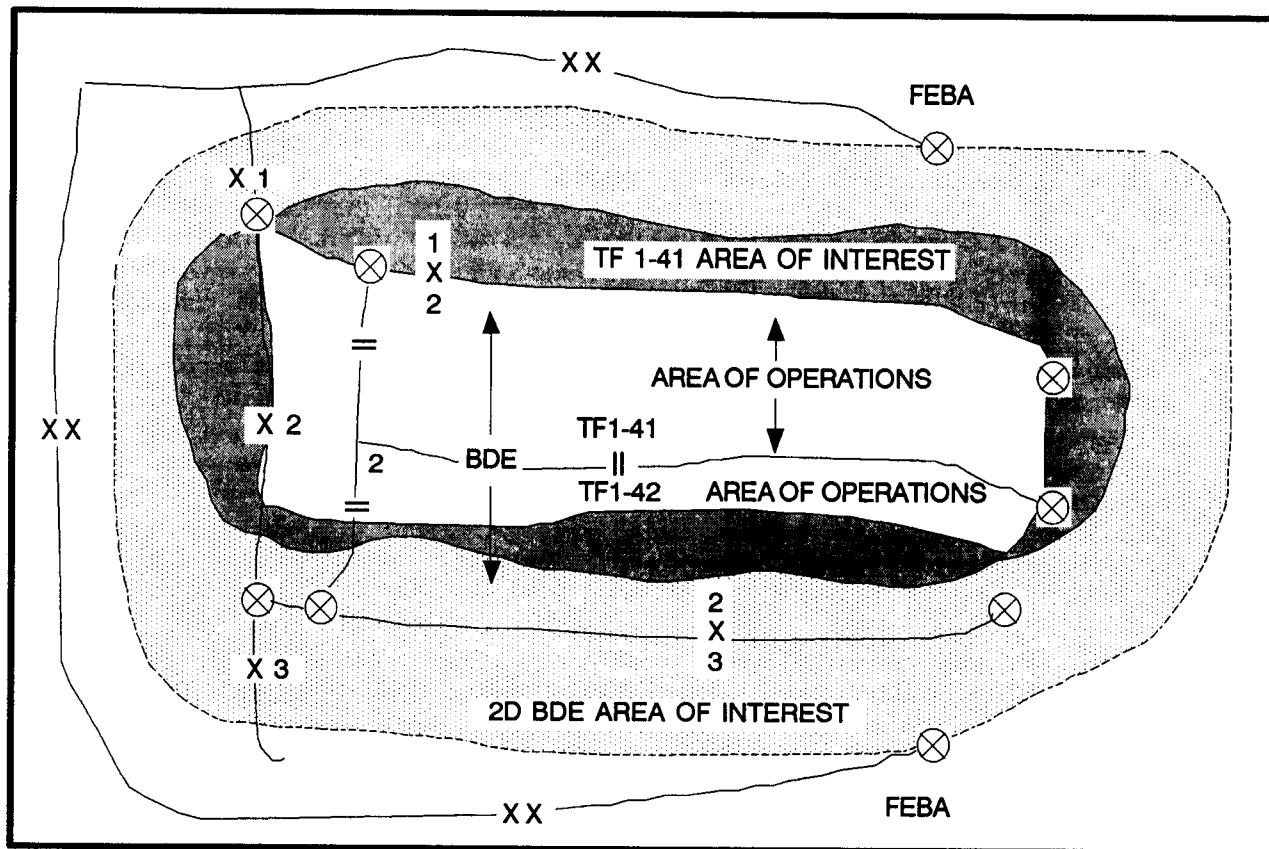<div align="center">Figure 2-2. General distance guidelines.</div>

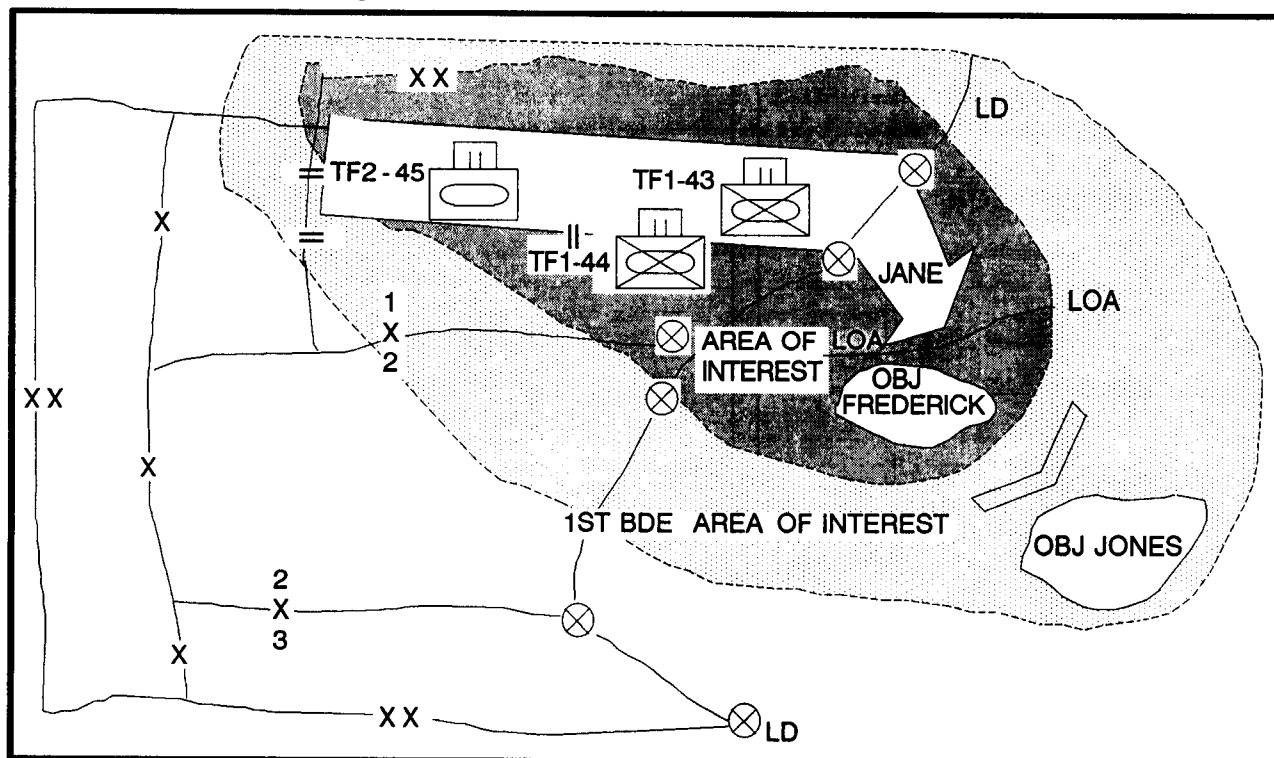**Figure 2-3. Area of interest in the defense.**

Figure 2-4. Area of interest in the offense.

ECHELON	TIME	DISTANCE		WHAT YOU WILL SEE
		DEFENSE		
Bn	Up to 12 hours	15 km		Forward: out to enemy first and second echelon bn of first echelon regts.
		Flanks: 3 to 6 km either side		-Regimental artillery -Regimental air defense -Div or regimental recon -Tank bn (-) (MRR)
Bde	Up to 24 hours	Forward: out to 30 km		Enemy first and second echelon regt of first echelon div
		Flanks: 6 to 10 km either side		-Div artillery -ITB -Div ADA -tank regt -SSMs (OF MRDs)
Div	Up to 72 hours	Forward: out to 100 km		Enemy first and second echelon div of first echelon armies
		Flanks: 2 to 30 km either side		-Div, Army, or front arty -Div or Army ADA -SSMs -Div, Army, or front avn
		Rear: out to 30 km		-Follow-on div -Div or Army CP -OMG
		OFFENSE		
Bn	Up to 12 hours	Forward: out to subsequent objective		Security echelon or first echelon bn in main defensive area
		Flanks: out to 3 to 6 km of axis or zone		-Div or regt recon -Plt or co strong points -AT systems or plt -Tank bn (-) (MRR)
Bde	Up to 24 hours	Forward: out to subsequent objective		First and second echelon bn of main defensive area -Co/bn strong points/fire sacks
		Flanks: out to 6 to 10 km of axis or zone		-AT battery -Tank regt or ITB (MRD) -AT bn
Div	Up to 72 hours	Forward: out to subsequent objective		First and second echelon regt in Army main defensive area -Tank regt or ITB (MRD)
		Flanks: out to 25 to 30 km of axis or zone		-Div, Army, or front arty -ITR or tank div of Army Second defensive echelon -SSMs
		Rear: out to 30 km		-Div or Army avn

Figure 2-5. Defensive and offensive areas of interest.

TERRAIN FACTOR	R&S APPLICATION
Observation	Ensuring LOS for GSRs Emplacement of OPs/LPs and NODs Ensuring radio LOS for comm with R&S assets Templating enemy R&S asset locations Templating enemy smoke and obscurant employment

Field of Fire	Templating enemy defensive positions
	Templating possible enemy obstacle
	   locations
	Coordinating friendly supporting fires
	   for patrols and other R&S assets

Concealment and cover	Ensuring routes for friendly patrols and scouts Emplacement of REMBASS sensor strings Emplacement of LPs, OPs, and GSRs Templating enemy patrols Templating enemy obstacles
Obstacles	Ensuring routes for friendly patrols and scouts Emplacement of REMBASS sensor strings Emplacement of LPs, OPs, and GSRs Templating enemy patrols Templating enemy obstacles

Key terrain	Emplacement of LPs, OPs, GSRs, NODs,
	   and REMBASS
	Ensuring routes for friendly patrols
	   or scouts
	Templating enemy patrols, recon, or
	   obstacles
	Templating enemy movement or defensive
	   positions

AAs	Emplacement of OPs, LPs, GSRs, NODs,
	   and REMBASS
	Templating enemy movement or defensive
	   positions
	Templating enemy recon effort

Figure 2-6. Special uses and effects of terrain.

ENVIRON-MENTAL EFFECTS	PVS5	PVS2	PVS4	DRAGON THERMAL	TVS2/5	TVS4	TOW THERMAL PAS7/UAS11	GSR	REMBASS
Reduced visibility (in meters) (darkness, smoke and fog)	MLT 200	MLT 400	MLT 600	MLT 1,000	MLT 1,200	MLT 2,000	MLT 3,200	No EFX	No EFX
Surface winds (in knots)	No EFX	No EFX	No EFX	No EFX	No EFX	No EFX	No EFX	SGT 20 MGT 7	SGT 45 MGT 15
Temperature (in fahrenheit)	SGT 125 MLT 32	SGT 125	SGT 125 MLT -20	No EFX	SGT 125 MLT (5) -20	SGT 125	SLT (PAS7) -25 MLT (UAS11) 20	No EFX	No EFX
Precipitation	All sensors are severely degraded by heavy rain or snow.								

LEGEND: S = Severe degradation M = Moderate degradation LT = Less than GT = Greater than
        EFX = Effects

Figure 2-7. Effects of environment on R&S.

THREAT EVALUATION

Once you have analyzed terrain and weather, begin a thorough study of enemy--

o Composition.

o Disposition.

o Tactics.

o Training.

o Combat readiness.

o Logistic support.

o Electronic technical data.

o Personalities.

o Other miscellaneous factors.

This study results in threat evaluation, the fourth step in the IPB process. During this step--

o Develop a doctrinal template file.

o Build up your threat data base.

o Evaluate threat capabilities.

Doctrinal templates are important because they show how the enemy doctrinally attacks or defends in various situations. Knowing how the enemy defends will tell you what you ought to look for in order to confirm that they are, in fact, defending.

Knowing how the enemy employs reconnaissance in the attack will help you target them, allowing you to destroy or neutralize those assets. It also helps you determine which of those assets are most important to the enemy's reconnaissance effort.

Figures 2-8 and 2-9 are examples of doctrinal templates you might use specifically for R&S planning. Whenever you use doctrinal templates, you must temper them with some reality. For example: a Soviet regimental attack template has set doctrinal sector widths. It serves no purpose to place this over a map where a battalion falls outside an AA. There is enough leeway even in Soviet doctrine to conform to terrain limitations; when using the template you must make those same allowances.

A careful study of threat doctrine tells how fast they will attack in various situations. This information will become very important later on. For right now, remember during threat evaluation that you determine enemy doctrinal rates of advance. Figure 2-10 is a table of enemy rates of advance for specific situations and terrain.

Finally, knowing how the threat uses weapon systems and units gives you an appreciation of which are most important to the enemy commander in a particular situation. These important weapon systems and units are called high value targets (HVTs). They are the starting point for the target value analysis process. Target acquisition is an important aspect of R&S and CR. Target value analysis will play a big role in your R&S planning.

THREAT INTEGRATION

Remember, the four IPB steps should be started before deployment. They ought to be part of your day-by-day intelligence operations. You are now at the point where you can pull together what you have developed about the enemy, weather, and terrain and apply it to a specific battlefield situation.

This step is threat integration. You will discover you can also perform some threat integration functions ahead of time. The first such function is to develop a series of situation templates depicting how you think the enemy will deploy assets.

Situation Template
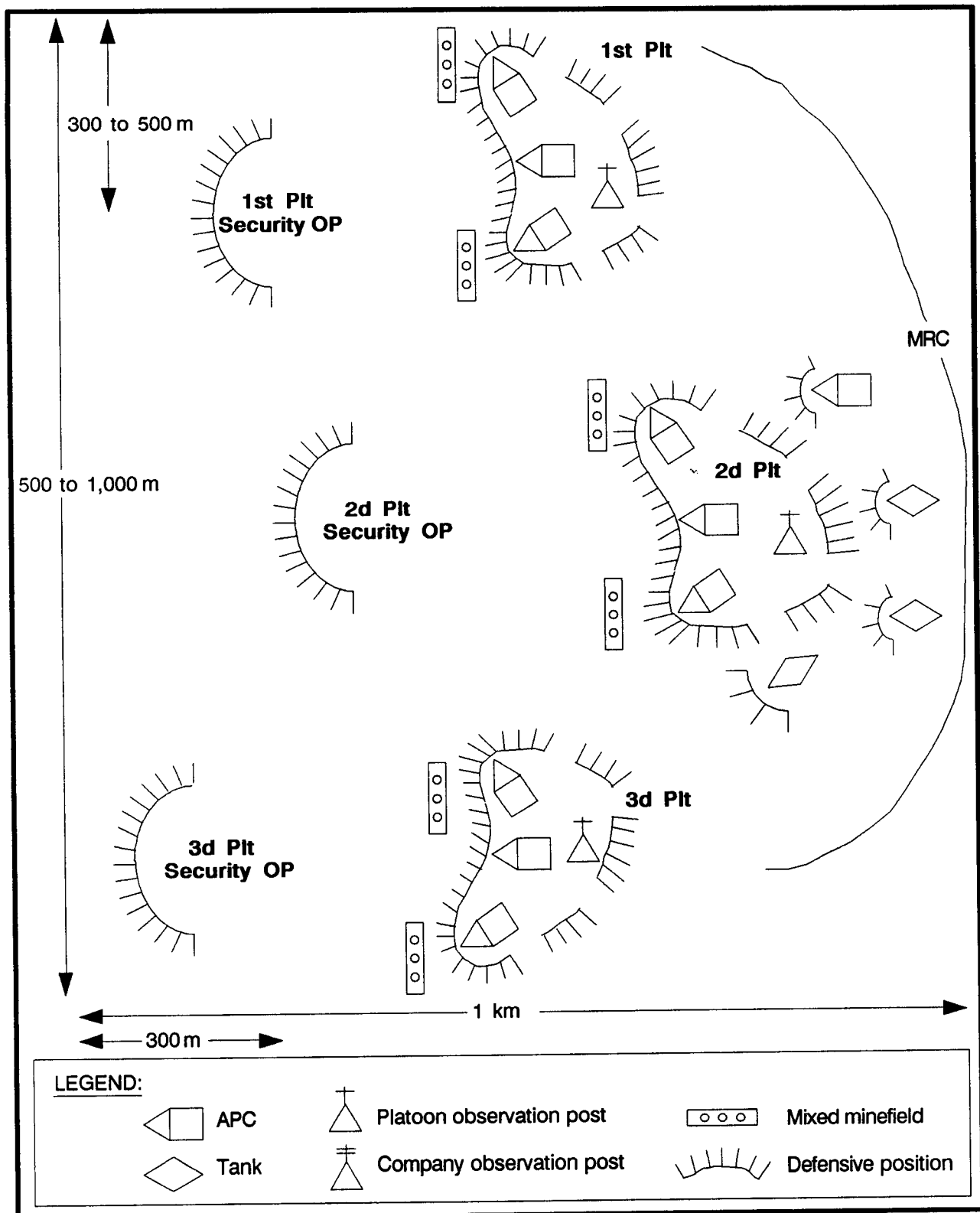
The situation template takes what is on the doctrinal

1st Plt

1st Plt
Security OP

300 to 500 m

500 to 1,000 m

MRC

2d Plt
Security OP

2d Plt

3d Plt
Security OP

3d Plt

1 km

300 m

LEGEND:

APC   Platoon observation post   Mixed minefield

Tank   Company observation post   Defensive position

Figure 2-8. Doctrinal template of an MRC (reinforced) strong point.

Figure 2-9. Offensive doctrinal template.

RATES OF MARCH

UNOPPOSED TACTICAL THREAT RATES OF MARCH

Unpaved road or trail	20 to 30 km/h	1 km/h 2 min
Cross country	5 to 15 km/h	1 km/h 4 min
Paved roads	30 to 40 km/h	6 km/h 10 min
Assault	11 to 22 Km/h	1 km/h 3 min

RATES OF MOVEMENT (km/h)

RATIO THREAT : OPPOSITION	PREPARED DEFENSE			HASTY DEFENSE		
	GO	SLOW GO	NO GO	GO	SLOW GO	NO GO
Intense resistance 1 : 1	.6	.5	.3	1.0	.8	.4
Very heavy resistance 2 : 1	.9	.6	.4	1.5	1.0	.6
Heavy resistance 3 : 1	1.2	.75	.5	2.0	1.3	.8
Medium resistance 4 : 1	1.4	1.0	.5	2.4	1.75	.9
Light resistance 5 : 1	1.5	1.1	.6	2.6	2.0	1.0
Negligible resistance 4 : 1	1.7+	1.3+	.6 +	3.0+	2.3+	1.1+

Opposed doctrinal rates of advance

6 km/h covering force	1 km/h 10 min
2 km/h MBA	1 km/h 30 min
5 km/h rear	1 km/h 12 min

Figure 2-10. Threat rates of advance.

template and integrates what you know about weather and terrain. The situation templates will show how an enemy unit might modify its doctrine and tactics because of the effects of weather and terrain.

Figure 2-11 is an example of one situation template. It is important to understand that you should develop as many situation templates as there are enemy COAs. This allows you to thoroughly examine what options the enemy has for each COA.

For example, you may discover enemy forces have to use specific bridges, road intersections, or mobility corridors (MCs) for a specific COA. Or you may discover that the terrain offers the enemy several choices to attack. Or you may determine the terrain offers a limited number of suitable enemy defensive positions. And you may learn that the terrain only provides a limited number of concealed routes for enemy reconnaissance to enter your sector.

The bridges, road intersections, and possible defensive positions you have identified become NAI. Focus your attention on these NAI because it is there you expect something to happen. What you see or fail to see at your NAI will confirm whether or not the enemy is doing what you expected them to do, as projected on the situation

template. NAI do several things for you. They--

o Focus the collection effort on specific points or areas of the battlefield.

o Tell you what to look for and when you should expect to see it, at those points or areas on the battlefield (based on the situation templates).

o Enable you to decide which of your R&S assets are best suited to cover a particular NAI. For example, a point NAI for a road intersection where you expect to see a motorized rifle company (MRC) might require seismic-acoustic sensors. On the other hand, an area NAI designated for a dug-in BMP platoon might require a dismounted patrol.

Remember, one of the things you did during threat evaluation was to determine enemy rates of advance. You now put this knowledge to work by developing time phase lines (TPLs). Think of TPLs as snapshots of an enemy or a friendly frontline trace. A series of TPLs would portray friendly or enemy movement over a period of time.

Event Template

If you combine NAI with TPLs, you will be able to show approximately when and where you would expect to see enemy critical events occur. This is basically what the event
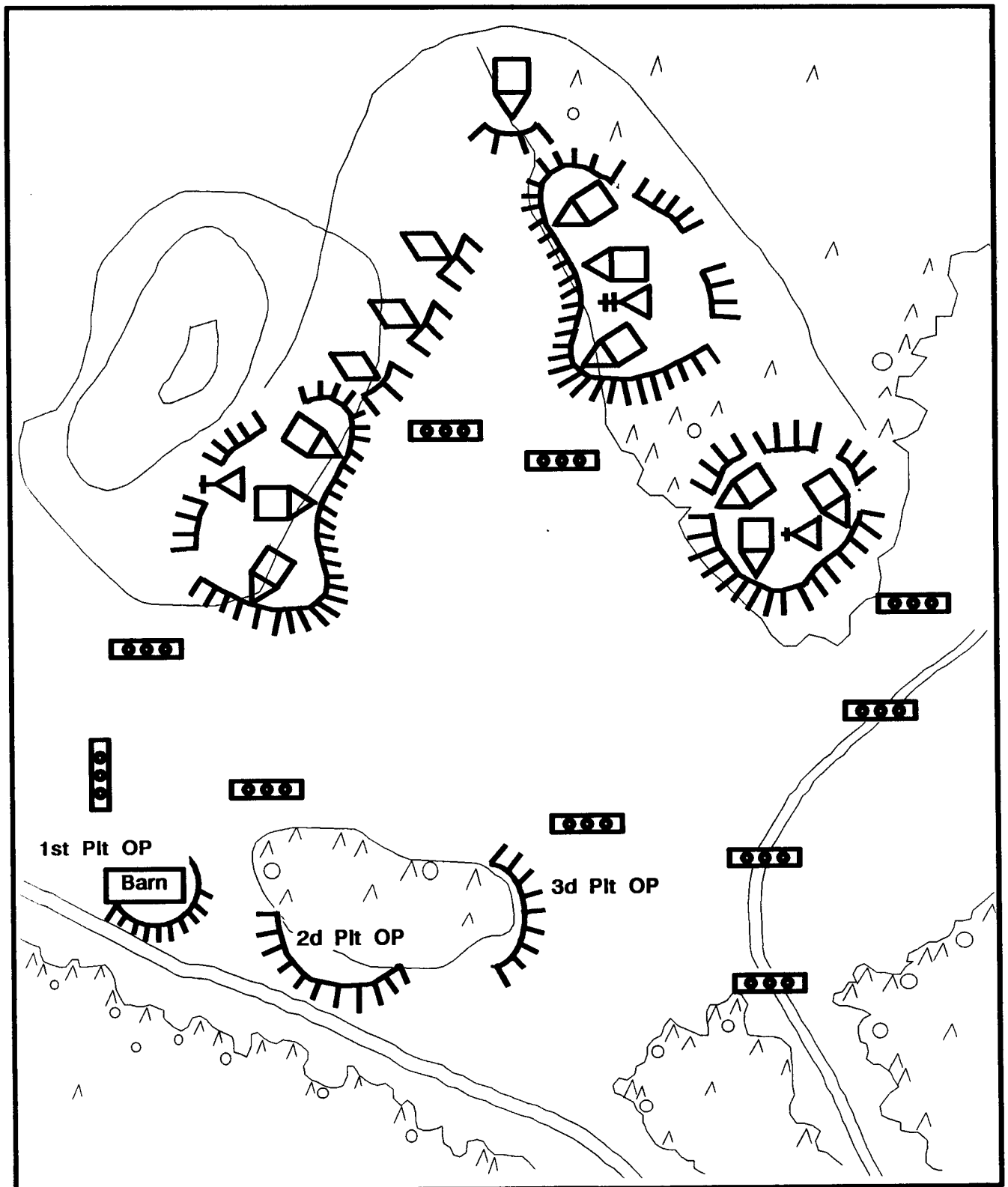
Figure 2-11. Situation template.

1st Plt OP

Barn

2d Plt OP

3d Plt OP

template does. Figure 2-12 is a sample event template.

The event template allows you to--

o Confirm or deny your situation templates.

o Gauge enemy and friendly rates of movement.

o Compare rates of movement between MCs and AAs.

o Cue other collection assets based on friendly and enemy movement.

Of all IPB products, the event template is the most important product for the R&S effort. As you will see, the event template is also the basis for the decision support template (DST).

In many situations you might find it helpful to calculate how long an enemy unit would take to move from one NAI to another. Normally, your calculations will be based on opposition and doctrinal rates of advance. Situational aspects such as weather, terrain, and your previous hindering actions are also factored in.

Comparing actual movement rates with your calculations will tell you whether the enemy is moving slower or faster than expected. It will also help you predict how long it will actually take the enemy to reach a certain point (your FEBA, for example).

Event Analysis Matrix

The event analysis matrix is a tool used along with the event template to analyze specific events. Figure 2-13 shows examples of event analysis matrixes.

Basically, you calculate the not earlier than (NET) and the not later than (NLT) times lead elements of a unit will arrive at an NAI. Determine the distance between NAI and multiply the distance by the expected rate of advance.

For example, suppose the distance between NAI 1 and NAI 2 is 2.5 kilometers. Suppose also, for the sake of this example, that the enemy expected rate of advance is 6 kilometers per hour, or 1 kilometer every 10 minutes. Use this formula to calculate time:

$$\frac{distance}{rate} = time$$

2.5 km ÷ .1 km (1 km every 10 minutes) = 25 minutes. Therefore, it takes the unit 25 minutes to travel from NAI 1 to NAI 2.

Decision Support Template

The final IPB product is the DST. The purpose of the DST is to synchronize all battlefield operating systems (BOS) to the commander's best advantage. The DST consists of target areas of interest (TAI), decision points or lines, TPLs,
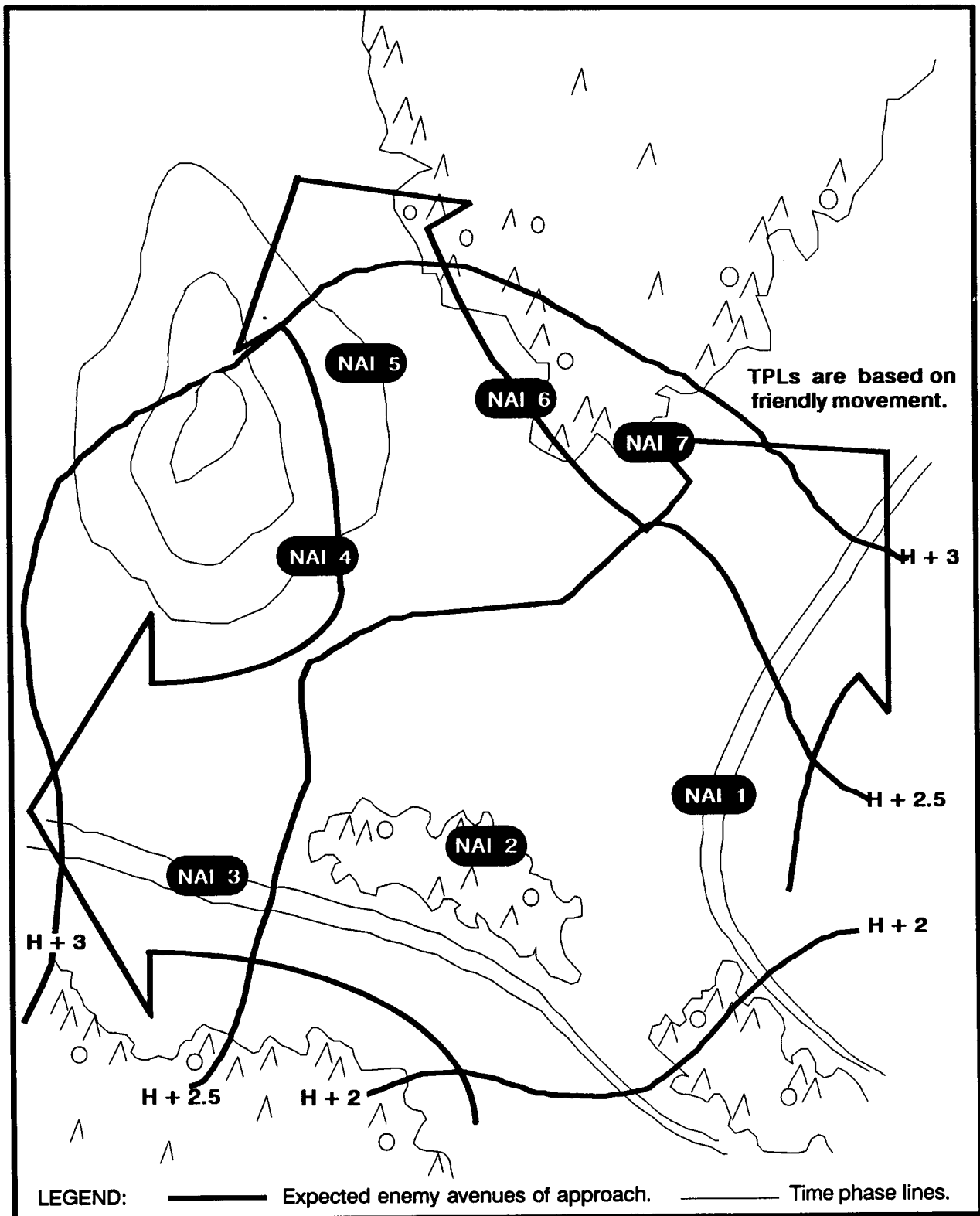
TPLs are based on friendly movement.

Figure 2-12. Event template.

LEGEND: ———— Expected enemy avenues of approach. ————— Time phase lines.

AVENUE OF APPROACH:	COORDINATES:			
MOBILITY CORRIDOR: 1	COORDINATES: PA 2071 - PA 1076			
NAI ACTIVITY	DISTANCE (KM)	RATE OF MOVEMENT	NET ╱ NLT	TIME OBSERVED TIME CONFIRMED
1. Enemy recon elements, groups, and patrols move along MC 1.	—	—	— ╱ H-hours	
2.. Activity is as per NAI 1.	18 km	20 km	H + 54 min ╱ H + 69 min	
3. Recon elements assume screen positions.	20 km	20 km	H + 114 min ╱ H + 144 min	

AVENUE OF APPROACH:	COORDINATES:			
MOBILITY CORRIDOR: 1	COORDINATES: PA 4850 - PA 2840			
NAI ACTIVITY	DISTANCE (KM)	RATE OF MOVEMENT	NET ╱ NLT	TIME OBSERVED TIME CONFIRMED
1. Enemy MRBs conduct night river crossing with illumination.	—	—	— ╱ H-hours	
2. Enemy counterattack with reinforced TB.	20 km	20 KmPh	H + 1 ╱ H + 75 min	
3. Enemy reinforce MRB shifting into prebattle formation.	18 km	20 KmPh	H + 104 min ╱ H + 144 min	

Figure 2-13. Event analysis matrixes.

and a synchronization matrix. Figure 2-14 shows a DST.

There are many important things you should know about the DST. First, the DST is a total staff product, not something the S2 makes in isolation. Although you may begin the process of developing the DST, the S3 and the commander drive the development.

Second, the DST is a product of war gaming. Together with the rest of the staff, you develop friendly COAs which consider what you envision the enemy doing. As a result of this action, reaction, and counteraction war game, you identify actions and decisions that may occur during the battle.

Third, the R&S plan must support the DST.

Fourth, you can use the DST, as well as the general battle plan, to synchronize the R&S effort.

As a result of the war-gaming process, the staff identifies HPTs--those enemy weapon systems and units that must be acquired and successfully attacked for the success of the friendly commander's mission. The staff identifies HPTs from the list of HVTs you developed during threat evaluation. (See FM 6-20-10, TTP for the Targeting Process.)

Once the staff has decided on HPTs, it begins to identify where on the battlefield it can best interdict them. These interdicting sites are labelled TAI. The next step is for the staff to decide how best to interdict the enemy at a particular TAI. The method of interdiction will determine the location of decision points or lines.

Decision points or lines are a time and a place on the battlefield which represent the last chance your commander has to decide to use a specific system for a particular TAI. Once the enemy or friendly forces pass the decision point, the ability to use that system is lost. Logically, you should monitor decision points to detect if and when enemy units enter and to confirm enemy rates of movement.

This logical relationship shows that NAI (such as your event template) must support your decision points. There is a relationship between NAI and TAI as well. If battle damage assessment of a particular TAI is important, your event template (and your R&S plan) must support that TAI.

RECONNAISSANCE & SURVEILLANCE PLAN DEVELOPMENT

There are many things you must consider when you develop the R&S plan. You will probably have to think about fire support, maneuver,
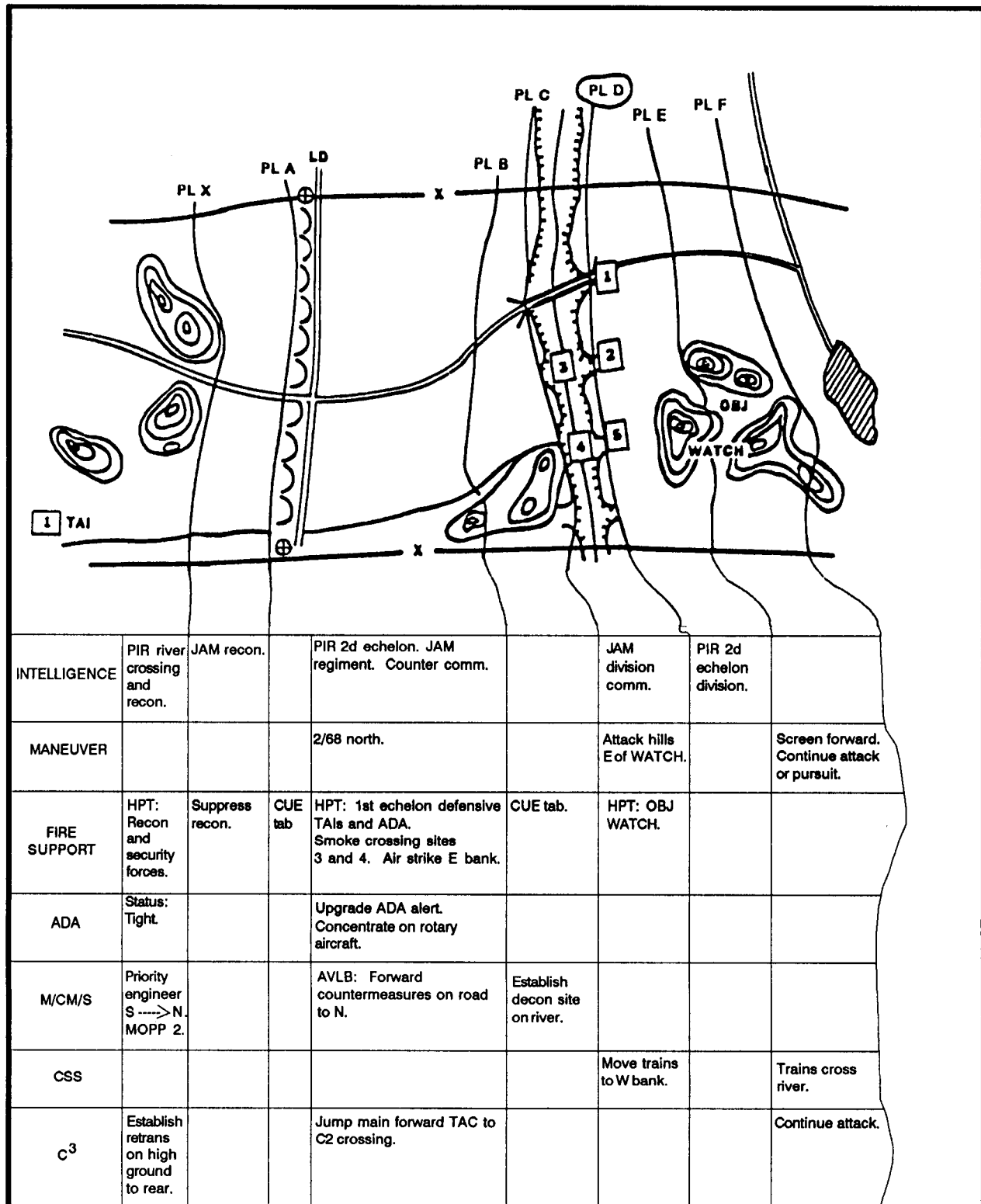
INTELLIGENCE	PIR river crossing and recon.	JAM recon.		PIR 2d echelon. JAM regiment. Counter comm.		JAM division comm.	PIR 2d echelon division.	
MANEUVER				2/68 north.		Attack hills E of WATCH.		Screen forward. Continue attack or pursuit.
FIRE SUPPORT	HPT: Recon and security forces.	Suppress recon.	CUE tab	HPT: 1st echelon defensive TAIs and ADA. Smoke crossing sites 3 and 4. Air strike E bank.	CUE tab.	HPT: OBJ WATCH.		
ADA	Status: Tight.			Upgrade ADA alert. Concentrate on rotary aircraft.				
M/CM/S	Priority engineer S ---->N. MOPP 2.			AVLB: Forward countermeasures on road to N.	Establish decon site on river.			
CSS						Move trains to W bank.		Trains cross river.
c³	Establish retrans on high ground to rear.			Jump main forward TAC to C2 crossing.				Continue attack.

Figure 2-14. Decision support template.

engineer augmentation, and command and control (C^2). You will also want to make sure the R&S plan fits into your commander's overall scheme of maneuver.

You will want to make sure the R&S plan is closely tied to fire support and maneuver for the CR mission as well. You can synchronize these elements by completing the synchronization matrix as a staff. Once again, completing the matrix can only be done by war gaming.

We have discussed IPB and the importance of doing as much as you can ahead of time. The primary reason for this is because you will not have a lot of time for in-depth analysis in the field.

On one hand, your higher headquarters normally gives you a deadline to develop and forward a copy of your R&S plans to them. You want to get your assets out looking as soon as possible. On the other hand, you may feel you have to wait until your subordinates give you their R&S plans.

Do not wait! "Time is blood!" The faster your R&S assets are out looking, the more time they will have to find what you want.

Do not delay your planning because you do not have a complete situation template, or because you do not have all your subordinate units' plans. If necessary, give your R&S

assets an initial mission and update the mission when you have had the time to do more detailed planning.

The technique that allows you, your subordinate units, and your higher headquarters to conduct R&S planning simultaneously is the use of limits of responsibility. A limit of responsibility is a boundary defining where a particular unit should concentrate its R&S efforts.

In essence, a limit of responsibility is a "no further than" line; it tells the unit, "your R&S responsibility stops here." Figure 2-15 is an example of limits of responsibility for battalions, brigades, and divisions. They may be tied to a unit's AI or may depend entirely on mission, enemy, terrain, time, and troops available (METT-T).

The key is that limits of responsibility allow each echelon to formulate its R&S plan independently. It is important to note that an R&S plan is never a finished product. Because the situation and the operational plan will most likely change, the R&S plan must change to fit them.

This chapter discussed R&S and CR definitions, PIR, the contributions of IPB to R&S, and limits of responsibility. If you understand these concepts, you have a solid foundation on which to build your R&S plan. The next

chapter talks about assets you may have available to you. These will be the bricks for
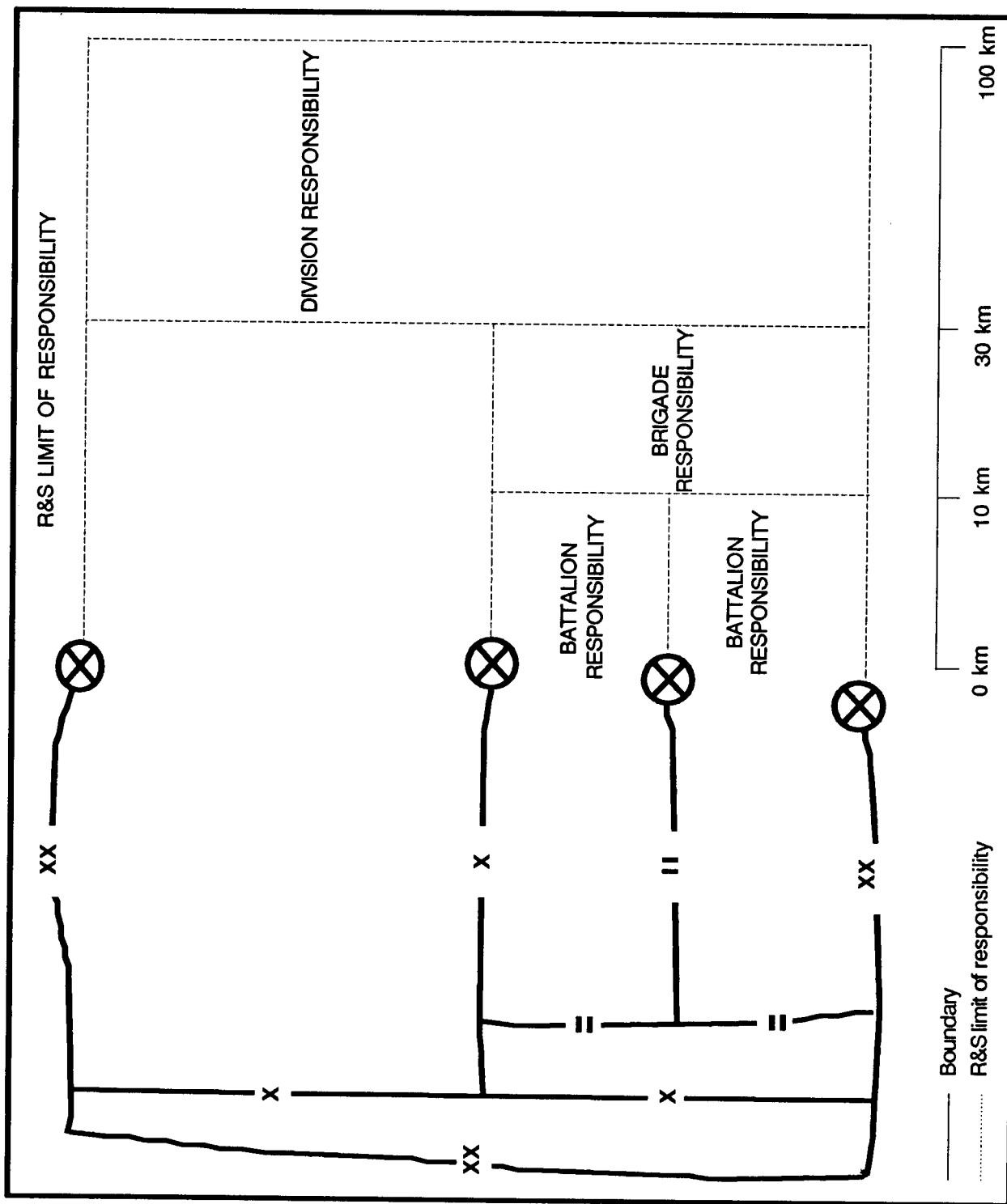
you to actually build your plan.

Figure 2-15. R&S limits of responsibility.