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CHAPTER III  
PHYSICAL DEFENSES AND LIMITATIONS

Introduction

An effective base physical defense environment has as its goal four objectives: the detection, detention, and destruction of the enemy; and, of greatest importance, the preservation of vital resources while accomplishing the preceding objectives.

This chapter briefly considers four aspects of physical defenses as they existed in Thailand from 1968 to 1972. First, it examines active defense systems designed to aid personnel in the detection, containment, and response to an enemy intrusion. Then, the chapter details passive defense measures designed to protect personnel and vital resources during an attack. It explores the limitations imposed by natural conditions as well as political and economic constraints on the use of defensive devices. Finally, it briefly discusses some of the specific difficulties and achievements. No effort is made to duplicate concepts discussed in PACAFM 207-25.

Two CHECO reports on base defense concepts and measures in the Republic of Vietnam provide additional information.<sup>123/</sup>

Active and Passive Defense Measures

The first "ring of defense" within the bounds of USAF responsibility was the base perimeter, usually composed of fence lines and other integrated

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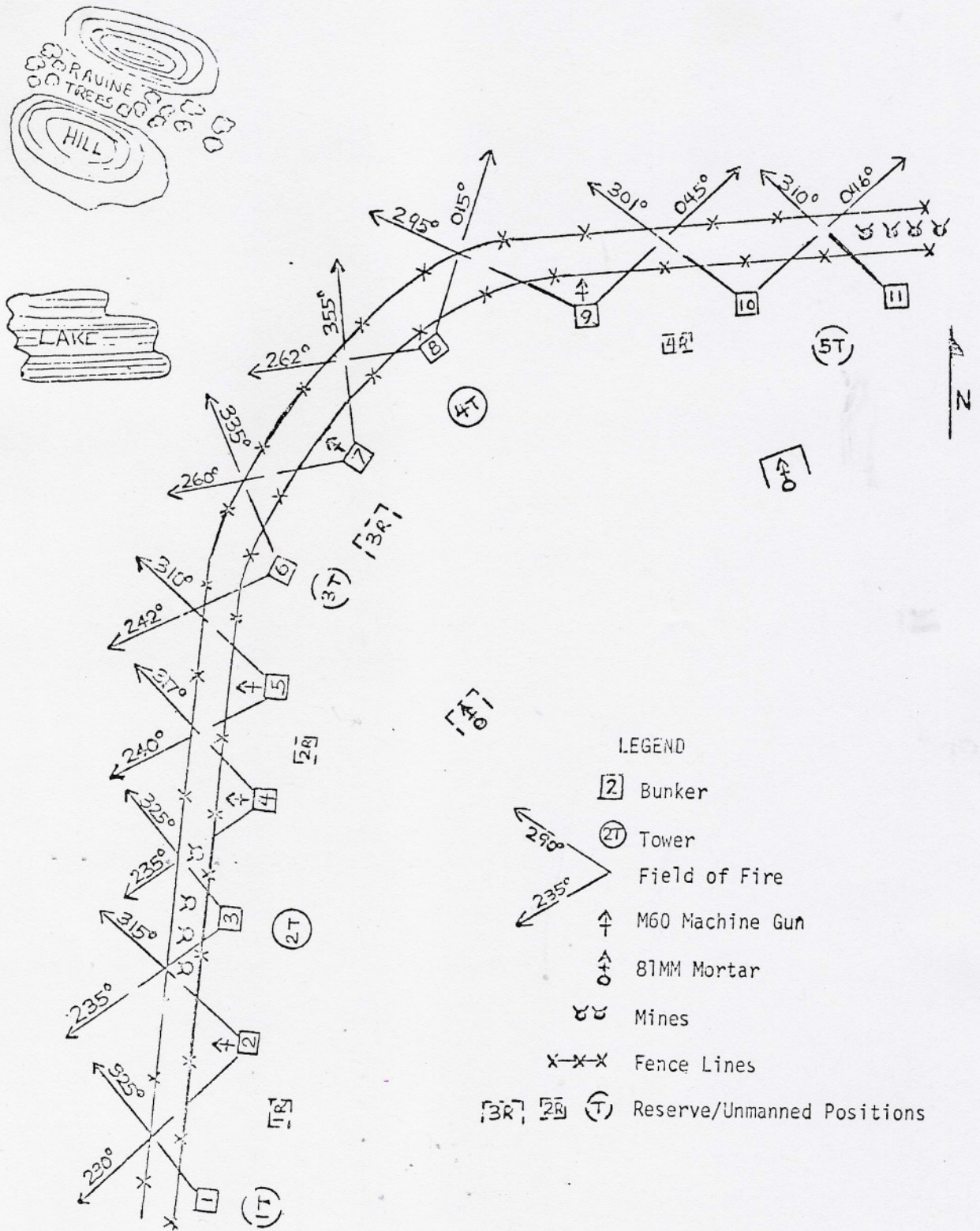
defenses, all designed to expose the enemy to an increased risk of observation and detection. No base considered itself secure because of an impenetrable perimeter, for as one Chief of Security Police stated: "Fences only keep honest people and cattle out, they don't stop determined sapper squads."<sup>124/</sup>

Perimeter lines at most bases consisted of various combinations of rolls of concertina wire, "tangle-foot" barbed-wire barriers, and, occasionally, chain-link fences. Some bases placed trip-flares among the fences. These had wires which, when disturbed, would trigger the flare. (The figures on the following pages illustrate some of the typical perimeter defense concepts.) All bases (except Takhli RTAFB) had generally adequate lighting on the perimeter fences and several had NF-2 Light-All units to provide additional illumination as backup or in critical areas. Most of the bases had Xenon lights with the capability of lighting several hundred meters with either infrared or visible light; however, not a single base was able to fully utilize these units, either because of maintenance difficulties or insufficient manning. Most installations also had various night observation devices (NODs) such as starlight scopes or the more expensive tower-mounted NODs. Unfortunately, no base had sufficient numbers of these devices to permit visual observation of the entire base perimeter. To further aid in observation, herbicides were employed to assist in the difficult task of vegetation control. Use of these agents was limited by such factors as the ROE and supply problems.

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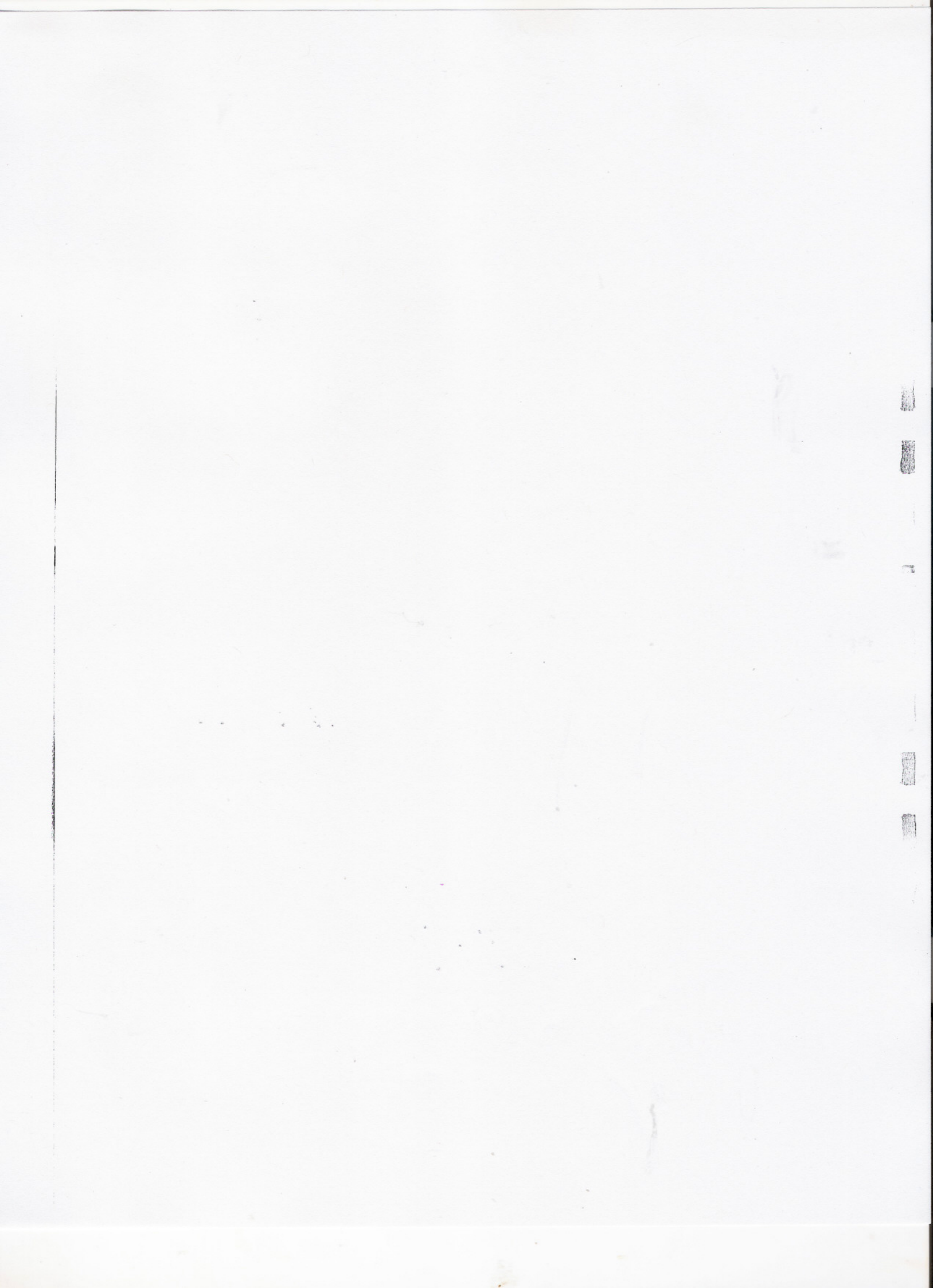
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Perimeter Defense System

FIGURE 11

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TAUT HORIZONTAL SUPPORT  
WIRE RACKED TO UPPER  
CONCERTINA HALFWAY  
BETWEEN PICKETS

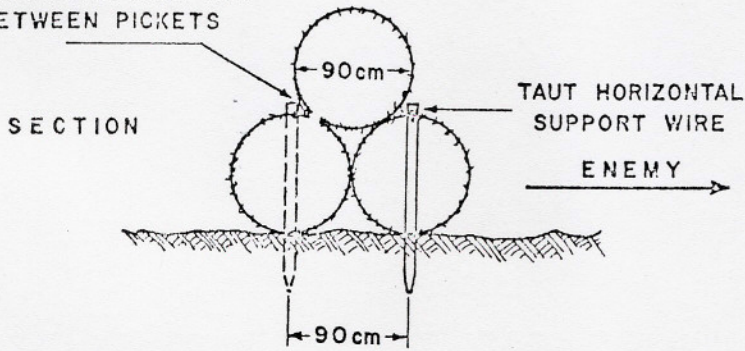
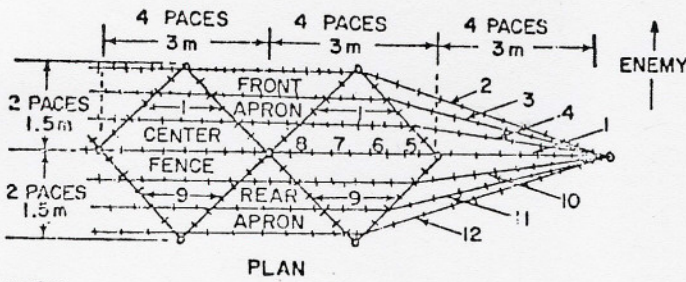
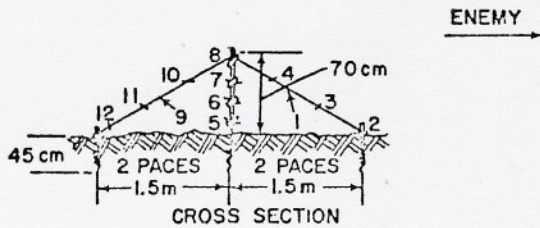


Figure 3-1. Triple Standard Concertina Fence.



NOTE:  
EYES OF ALL PICKETS POINT  
IN DIRECTION FROM WHICH  
FENCE IS BEING ERRECTED.

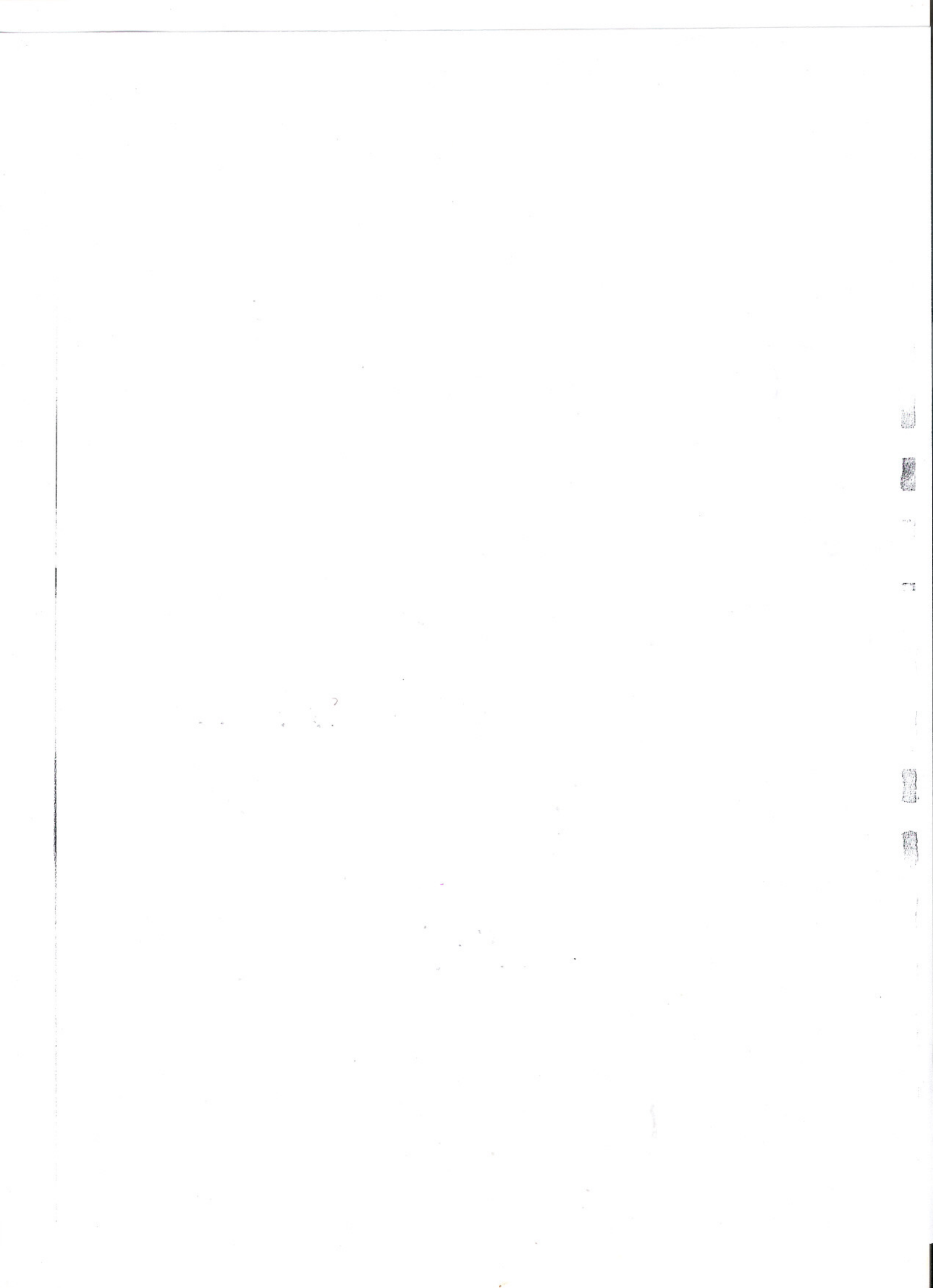
Figure 3-2. Double Apron Fence.



Defensive Perimeter Fences

FIGURE 12

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Only one base made use of any form of Tactical Security Support Equipment. In January 1971, Nakhon Phanom RTAFB was the test base for the Westinghouse AN/GSS-15 Alarm Set. This system of intrusion detection used the Balanced Pressure System (BPS). Test results were highly satisfactory. From January 1971 through June 1972, the system averaged 90 percent operational effectiveness. Future plans called for the late 1972 completion of the NKP perimeter and the installation of equipment at U-Tapao, Ubon, and Udorn RTAFB.<sup>125/</sup> The system at Nakhon Phanom was not really an integrated part of the base defenses in mid-1972. The system covered about 30 percent of the base perimeter, but all of the sensory "actuators" or alert lights were located in one observation tower. That tower had no opportunity to observe all portions of the perimeter covered by the BPS. Effective use would have required that each section of the perimeter be under observation by a tower guard who would be alerted by an alarm triggered by any intrusion in his sector. Delay in communicating an alarm from one tower to the sector guard in the area being penetrated would have effectively prevented detection.<sup>126/</sup>

Great variations in perimeter defenses and detection devices were evident in 1972. PACAFM 207-25 and periodic staff visits by 7/13AF Security Police personnel provided the only command guidance. Variations in amount and types of fencing, use of trip-flares, tower height and positioning, and circulation control procedures were in evidence from base to base. Inner defenses also varied significantly, both from each other and from PACAFM 207-25.<sup>127/</sup> No base had close-in defense perimeters

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meeting the manual's standards, and none possessed intrusion detection devices, such as trip-flares, around the vital resources. Further, defensive fencing around such resources was generally incomplete or non-existent, thereby limiting the site defenses to reliance upon human sentries alone. Even this detection capability was hindered by inadequate lighting around the perimeter of the close-in defenses, and aircraft noise also served to complicate detection. This absence of in-depth site protection was not due to any lack of perception by defense planners, but, rather, was dictated by various practical considerations such as access to the flight-line areas by maintenance personnel and equipment.

The second and third objectives of active defense were to contain an enemy and respond with adequate forces to destroy or repel him. Both fencing and illumination were significant in providing this ability. Slap-flares and 81mm mortars with illumination rounds were available at all bases for use during any attempted or suspected penetration effort by sappers.

Two significant deficiencies in base defenses existed throughout Thailand and seriously limited the response capability of defense forces. The first was a lack of adequate communications, and the second was vehicle problems. Most bases had radios with only a two-channel capacity; while adequate under normal conditions, the urgency created by an emergency plus the difficulties of a multilingual defense force seriously overburdened this system at times. <sup>128/</sup> Further, maintenance problems and lack of

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sufficient quantities of vehicles, such as the armored personnel carriers (APC/113 and APC/706) and other rough terrain vehicles, made them the number one priority need of almost all bases.<sup>129/</sup>

In addition to the foregoing, mines were another "response" device. The ROE prohibited "Claymore" mines in Thailand,<sup>130/</sup> but in 1970 U.S. Embassy permission was given for limited use of A/E 25P-1 "pop-up" mines at all bases except Korat RTAFB and Don Muang Airfield, Bangkok.<sup>131/</sup> These command-detonated mines were not in use as of June 1972, but 400 were programmed as part of the defenses of U-Tapao RTNAF, the Thai test base, for late 1972.<sup>132/</sup>

Response capability to a stand-off RAM attack was extremely limited. The ROE prohibited employment of USAF firepower or aircraft in any suppression role.<sup>133/</sup> Only close coordination with RTG units provided any form of active defense. However, most bases did not have the capability to direct RTG units to a suspected launch site. Several bases possessed mechanical triangulation devices known as "azimuth boards" that enabled a fairly accurate plot of RAM element sources if two observers located the launch site and used the plotting device correctly. Defense personnel, however, admitted that use of the board was not practical and field exercises emphasizing its use were not conducted. Further, except for Nakhon Phanom's HH-53 helicopter exercises, no serious practice of close coordination with external RTG forces targeted to a simulated RAM site was undertaken. Failure to utilize these potentially effective RAM countermeasures was a result of the perceived "low" threat.<sup>134/</sup>

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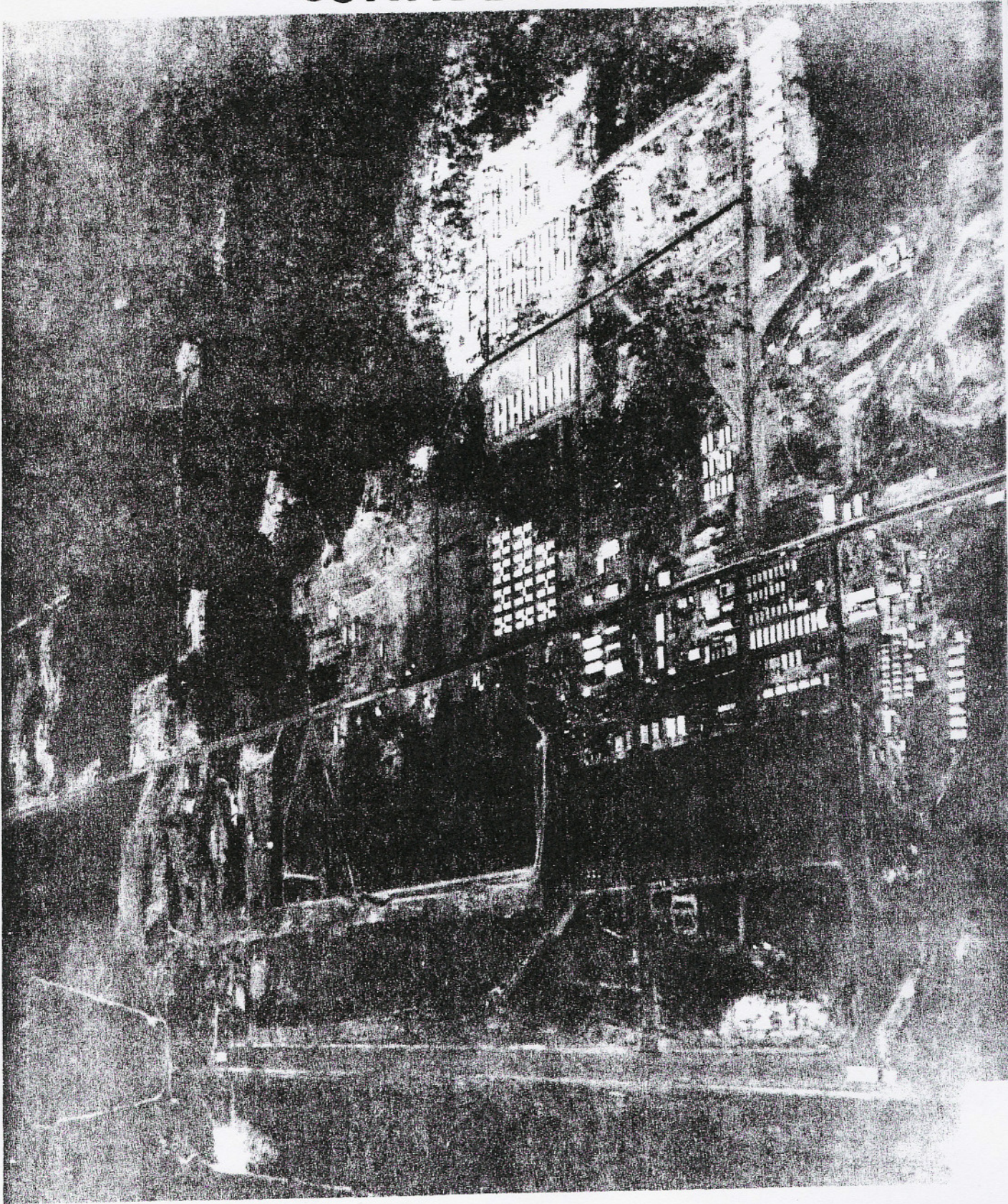
Passive defenses for RAM attacks, such as revetments for aircraft and personnel shelters, differed widely. Aircraft dispersal, another effective passive protection measure, was limited by the severe restrictions on available ramp parking space. POL and MMS areas were likewise provided with what few revetments and whatever dispersal space was possible under the circumstances. Another example of the varied responses of defense planners was "stand-off" fencing. Designed to shield defensive bunkers from an RPG attack, this concept of defense initiated in early 1972 by 7/13AF SP had yet to be fully implemented at base level by June. Indeed, several bases had hardly begun the project.<sup>135/</sup>

A series of reports from the bases to COMUSMACTHAI detailed the multi-million dollar impact of upgrading the physical defenses of USAF/Thai bases since 1968. Also, the first attack caused defense planners to realize that adequate base protection required much more than a few armed sentries with rifles walking posts after dark behind a three strand barbed-wire fence.<sup>136/</sup> However, a fully standardized base defense posture had not yet been attained by mid-1972.

#### Limitations

Geographic constraints provided many problems in the USAF base defense posture in Thailand. Contiguous population centers at many of the bases severely limited opportunities for both observation and effective counterfire. Further, tropical vegetation aided by seasonal monsoon rains grew almost faster than it could be controlled. Dense jungles were rated as the greatest threat to the defenses at U-Tapao.<sup>137/</sup> Other natural features such as streams

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NAKHON PHANOM RTAFB 1966

FIGURE 13

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and drainage ditches, known as "klongs," provided concealment and thus were natural points of entry for enemy sappers. Most bases relied on extra illumination to counter the threat in those areas. The extent to which vegetation has been cleared is graphically illustrated in the case of NKP. The photograph of that base on the following page shows the extent of vegetation inside the base perimeters in the early days of construction when the airfield was carved out of virgin jungle. An interesting comparison between NKP 1966 and NKP 1972 can be made by reference to the picture of that base that appears earlier in this report. (See Figure 6.)

Other constraints were imposed by various economic and political considerations. There was a relative scarcity of resources and money which forced defense planners to establish priorities in the areas of the base they were able to defend in depth. Thus POL and MMS areas had to compete with aircraft, which past experience had shown were more lucrative targets.

Local USAF base commanders' emphasis on defense often varied. For example, prior to the June 1972 attack, the base commander of Ubon RTAFB directed that a triple concertina barrier be removed from an area between aircraft revetments and the base perimeter, just 100 meters beyond. The directive ordering the removal of the fence was part of a current "base beautification" effort. This very area became the penetration point for the sapper attack.<sup>138/</sup> Occasionally, higher command also diverted defense resources to areas with higher threat estimates. Barbed-tape, considered the most effective anti-penetration barrier available for use along

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perimeters, <sup>139/</sup> was scheduled for installation at U-Tapao RTNAF in late 1971. In November, PACAF directed that the tape be held for possible diversion to vulnerable Vietnam bases. <sup>140/</sup> Four days after the January 1972 attack, 13AF directed that the tape still at U-Tapao RTNAF be employed in that base's defense. <sup>141/</sup> Thirteenth Air Force further indicated that the tape sent to Vietnam would either be replaced or redirected back to U-Tapao. <sup>142/</sup>

Construction projects, such as fence barriers, defensive bunkers, and observation towers, frequently had to await the completion of higher-priority civil engineering work orders. The response to this difficulty often was an enormous SP self-help effort. Probably well over 50 percent of all defensive structures in Thailand were constructed solely by security police personnel. Higher headquarters, while commending such vigorous efforts, cautioned the field not to rely exclusively on self-help but to utilize regular Air Force supply and civil engineering channels whenever possible. <sup>143/</sup>

The U.S. Embassy's ROE also provided several limitations on physical defenses. The original 1968 ROE prohibited the use of flareships. This was changed in 1969, and flare drops and the use of 81mm mortars were approved for illumination as long as the "trash" didn't impact outside the base. Soil sterilization and herbicide use was also approved in 1969, but these were subject to extensive coordination with local RTG authorities and final permission from the Embassy. They could only be used on areas within the perimeter and under no circumstances could the vegetation control agents be used to clear areas of observation to fire off-base. <sup>144/</sup> This lengthy

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process, and the inability to go beyond the fences, significantly limited the use of those agents at many bases. <sup>145/</sup>

The 1969 ROE required advance approval of the Ambassador for all "new weapons" introduced into Thailand. <sup>146/</sup> This rule was used to limit the previously-discussed, command-detonated pop-up mines. The Embassy limited their installation to the launcher tubes. The actual mines and detonation circuitry could not be installed until a "Yellow" (or higher) Security Alert Condition was in effect. This stricture led CINCPACAF to cancel the planned use of such mines when several efforts to secure fewer limitations from the Embassy proved unsuccessful. <sup>147/</sup> Finally, in May 1972, PACAF permission was obtained to undertake a limited test of the mines at U-Tapao, subject to the ROE restrictions. CINCPACAF then requested that Headquarters USAF seek greater freedom in their use and directed that no further bases would be armed until the ROE were modified. <sup>148/</sup>

### Base Analysis

Korat RTAFB. Vegetation control was a serious problem at this base in 1972, especially in the critical RTAF area near the end of the runway. The dense growth offered opportunity for concealment in the area contiguous to the unrevetted KC-135 parking ramp. Further, vegetation was thick in many sectors of the concertina wire on the perimeter. The base had received Embassy permission to use herbicides and had just begun that program in June.

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