Research Product 98-09

# Plan for Combat Operations (Battlefield Function 18) as Accomplished by an Engineer Battalion Supporting a Heavy Brigade Volume 1: Function Analysis

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**14. ABSTRACT** *(Maximum 200 words)*:

The purpose of the overall research program was to document the synchronization required by command and control tasks performed within the armored brigade, to include combat support and combat service support units. The immediate application of the documentation was to support developers of staff training in two related projects: Battle Staff Training System and Staff Group Trainer. The documentation was also intended to assist with the planning and execution of collective training.

The documentation approach was to apply function analysis (FA) techniques for battlefield functions (BFs) in the Command and Control battlefield operating system. Thirteen FAs were developed for the brigade headquarters and four supporting units: direct support field artillery battalion, engineer battalion, forward support battalion, and air defense artillery battery. The FAs were revised through a formative evaluation process that included internal review and successive external reviews by combat training centers, proponent agencies, and a review council representing potential users of the FAs. The final products include the FAs, a user's guide, and assessment packages for the BFs. This report provides the FA and user's guide for BF 18 as performed by the engineer battalion supporting a heavy brigade.

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## FOREWORD

One of the goals for the U.S. Army Research Institute for the Behavioral and Social Sciences (ARI) is to facilitate the development of training strategies that will serve the needs of the combined arms team today and into the 21st century. The indispensable foundations, the cornerstones, for meeting this goal are solid information and data bases. One such base is a set of comprehensive descriptions of how soldiers accomplish their missions. Many task descriptions have been developed where the focus is on activities within a particular Battlefield Operating System (BOS); these are often further narrowed to one BOS element within one echelon. What have been lacking are function analyses along with task descriptions that have a broader BOS perspective; one which focuses not only on intra-BOS relationships, but also the relationships of that BOS with other BOSs in accomplishing the overall mission. It is this latter perspective which is needed, for example, to define training requirements and strategies for combined arms operations.

The function analysis described in this report is a product of one of three efforts conducted under the ARI project, "Innovative Tools and Techniques for Brigade and Below Staff Training (ITTBBST)." The work in this part of ITTBBST is the fifth in a series of ARI projects directed at analyzing the vertical and horizontal synchronization required by combined arms operations. All of the projects have analyzed functions, previously labeled "critical combat functions (CCFs)" and now labeled "battlefield functions (BFs)." The previous projects analyzed: all BFs performed by a heavy battalion task force; a sample of seven BFs performed by an armored brigade; and the integration of fire support BFs as performed by an armored brigade and at echelons higher than brigade. The research in this project analyzed BFs in the Command and Control BOS. Separate coordinated analyses of these BFs were performed for the armored brigade headquarters and four types of supporting units, one of which is the Engineer Battalion.

The analyses developed in the project have been used in the development of staff training in related projects within the ITTBBST program. In addition, U.S. Army Training and Doctrine Command (TRADOC) representatives have identified a variety of applications by TRADOC training and other developers as well as potentials for collective training management.

ZITA M. SIMUTIS
Technical Director

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This analysis has benefited from considerable dedicated effort on the part of many persons. The efforts of a few of these many persons are specifically and gratefully acknowledged here. An especially key person was MG (Ret) Lon E. Maggart, Commanding General of the U.S. Army Armor Center (USAARMC). Prior to and during the conduct of this effort, he contributed greatly to definition of training needs and concepts in support of Force XXI. He saw that battlefield functional analyses could provide a valuable foundation for Force XXI training development efforts; hence, MG (Ret) Maggart strongly backed these efforts.

COL G. Patrick Ritter and LTC Marvin K. Decker, acting in accordance and agreement with MG (Ret) Maggart's vision, vigorously pursued battlefield function analysis efforts and persevered in ensuring their application to Force XXI training developments. COL Ritter, Director of Directorate of Training Development and Doctrine (DTDD) at USAARMC, and LTC Decker, Chief of DTDD's Force XXI Training Program office, ensured implementation of necessary actions, and the participation of military subject matter experts and potential users of function analysis products as needed to assure quality outcomes.

Among many participants in performing the analyses themselves, and validating their integrity and validity, were members of the Directorate of Training at U.S. Army Engineer School (USAES), DTDD at USAARMC, and Operations Group at the National Training Center (NTC). Final recommendations and approval of these analyses were provided by proponents and users constituting the Force XXI Review Council. Members of the Review Council included: COL G. Patrick Ritter and LTC Marvin K. Decker, USAARMC; LTC James R. Harrison, U.S. Army Armor School (USAARMS); COL Philip Federle, USAES; LTC David M. Annen, U. S. Army Field Artillery School; LTC Larry Newman, U.S. Army Air Defense Artillery School; LTC Roger F. Murtie, National Training Center; LTC Gilbert Pearsall, Joint Readiness Training Center; COL Roger W. Jones, TRADOC Program Integration Office-Army Battle Command System; and COL Robert J. Fulcher, 29th Infantry Regiment.

The research for and preparation of this report benefited immeasurably from the assistance provided by members of the U.S. Army Research Institute. Specifically, the authors would like to acknowledge Ms. Dorothy Finley for serving as a peer reviewer for the product. She offered constructive comments that have improved both the content and style of the report. Also, special recognition is given to Ms. May Throne, a Consortium Research Fellow from the University of Louisville assigned to Fort Knox, and Ms. Lori Cracknell. Their never ending efforts to assist in the formal production of this report will not soon be forgotten.

Finally, a large debt of gratitude is owned to BG (Ret) Bill Mullen for guidance and support on this product. He provided the program management that ensured this product is well "synched" with past products as well as the Army of the future. His continual attention to details have provided the Army with a truly unique document.

PLAN FOR COMBAT OPERATIONS (BATTLEFIELD FUNCTION 18) AS ACCOMPLISHED BY AN ENGINEER BATTALION SUPPORTING A HEAVY BRIGADE
VOLUME 1: FUNCTION ANALYSIS

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## OVERVIEW

The results of the Army Research Institute's (ARI) examination of battlefield functions (BFs) relevant to a heavy (armored or mechanized infantry) brigade combat team's combined arms operations are in two volumes. Volume 1, Function Analysis, identifies and describes various components necessary to accomplish the function. The components were selected based on their relevance to a unit trainer's interests. Volume 2, Assessment Package, is an assessment aid. It describes performance measures based on the purpose, outcomes, and tasks supporting the outcomes identified in the Function Analysis (Volume 1).

This overview provides the reader/user with necessary and relevant information concerning the analysis of BF 18, Plan for Combat Operations, as performed by an engineer battalion of the engineer brigade in a heavy division habitually associated with a maneuver brigade in either a command or support relationship. Participants and organizational structure identified in this analysis are based on table of organization and equipment (TOE) 05336L000, dated 10 March 1996. Additionally, special staff officer functions required to be performed in accordance with field manual (FM) 5-71-3, dated 3 October 1995, are included.

This function analysis (FA) Plan for Combat Operations (BF 18) as performed by an engineer battalion, is a product of the process of developing a training strategy for the engineer battalion. It is the first of three BFs (Plan, Prepare, Execute) which compose the Command and Control (C2) Battlefield Operating System (BOS). The analysis reflects all the tasks, participants, products, and processes required to achieve the outcomes necessary for the engineer battalion commander and staff to plan for combat operations. The battalion's ability and capability to perform all tasks will be affected by technology and automation systems capabilities that are dynamic and in different states of fielding. It is also recognized that there will be changes to Force XXI engineer structure and doctrine. This FA does not address such changes.

A battlefield function is defined as processes or activities occurring over time that must be performed to accomplish a mission(s) or supporting critical tasks. It provides task integration, combined arms interaction, and inter-BOSs linkages.[1]

Synchronization, the arrangement of military actions in time, space, and purpose to produce maximum relative combat power at a decisive place and time, chosen by the commander, starts in the planning phase (BF 18) when the battalion commander first visualizes and articulates his intent and concept of the operation to his staff and subordinate/supporting commanders. Synchronization continues into the preparation phase (BF 19) with the rehearsals, other preparations for battle, and refinements of the original operations plan. In the execution phase of the battle (BF 20) the battalion commander must make timely decisions based upon the rapidly changing situation. He

[1] The term "Battlefield Function (BF)" was designated by the U.S. Army Training and Doctrine Command (TRADOC) in September 1996 to replace "Critical Combat Function (CCF)". At the same time, the term was redefined. TRADOC also renamed "task analysis" (TA) to "function analysis" (FA).

will be the center of multiple cycles of monitoring, planning, and directing as he, his battalion, and the brigade react to change in mission, enemy, terrain, troops, and time available (METT-T).

Synchronization of BFs provides commanders at tactical echelons with a definable outcome that materially affects the battle. Without this synchronization, it is doubtful that a commander's concept and intent will be achieved.

This analysis depicts the planning activities of the engineer battalion staff during the planning phase of the battle. This planning for combat operations is initiated upon the receipt of a division warning order (WARNO) alerting the supported maneuver brigade, the engineer brigade, and other division units of the receipt of a new mission. In turn, the engineer brigade will issue a WARNO to all engineer units in the division to facilitate parallel planning. The engineer battalion will also receive a WARNO from the supported maneuver brigade which initiates parallel planning between the engineer unit and maneuver brigade. The engineer battalion planning also is impacted by receipt of an initial division engineer unit operations order (OPORD) from the parent engineer brigade. This OPORD provides critical engineer information, to include the engineer task organization within the division at the outset of an operation, initial engineer missions, and division prescribed sustainment responsibility. Planning concludes when the engineer battalion order has been issued and briefed and when the confirmation briefing to the battalion commander has been conducted. Planning that occurs during the preparation and execution phases is addressed in engineer battalion BF 19, Direct and Lead Units in Preparation for Battle, and engineer battalion BF 20, Direct and Lead Units in Execution of Battle.

Typically, the engineer battalion will be placed in either direct support or operation control to the supported maneuver brigade and will be task organized with subordinate elements based on METT-T. This function analysis assumes that while some of the engineer battalion's subordinate elements will be further task organized to subordinate task forces of the supported maneuver brigade, others will remain under engineer battalion command and control. Further, the function analysis assumes that the engineer battalion may also be given other combat and combat support assets, such as a tank/mechanized infantry company team, a fire support team (FIST), a Bradley Stinger fighting vehical (BSFV) platoon, an military police (MP) platoon, and/or a smoke platoon by the supported maneuver brigade to accomplish assigned missions as an engineer battalion task force. In this event, the task list component reflects that liaison officers will be dispatched to the engineer battalion from these units to participate in the engineer battalion task force planning process.

The military decision-making process (MDMP) outlined in the 1993 publication of FM 101-5, Command and Control for Commanders and Staff, "draft," and its extension, the Engineer Estimate, outlined in FM 5-71-3, dated 3 October 1995, is the basis for the processes and task arrangement described in the task list component. At the time of writing this analysis (August - December 1996), the Command and General Staff College (CGSC), proponent for FM 101-5, Command and Control for Commanders and Staff, is in the process of rewriting the draft manual. This function analysis recognizes the decision by the Commanding General, Combined Arms

Center, that there is only one MDMP and that commanders in the field will have to modify the single process based on situation constraints. The authors coordinated continuously with the Command and General Staff College to ensure that the doctrine reflected in this analysis is accurate and current. However, information reflected in the recently published FM 101-5 (31 May 1997) will most likely require minor modification of this analysis. The currency of this analysis will also be affected by changes to unit capabilities such as the additional technology (e.g., information systems), now in different stages of fielding. This analysis also reflects current and emerging Army doctrine based on FM 71-3, The Armored and Mechanized Infantry Brigade, January 1996, and its portrayal of the decision-making process. The MDMP outlined in the 1993 publication of FM 101-5 "Draft" is the basis of the processes described in this function analysis. Planning associated with the development of a fragmentary order (FRAGO) is discussed in both BF 19, Direct and Lead the Battalion During Preparation for the Battle and BF 20, Direct and Lead the Battalion During Execution of the Battle.

Current doctrine supports the concept of "parallel planning" that must be conducted by the engineer battalion and the supported maneuver brigade to ensure that engineer planning and operations can commence as soon as possible after the brigade OPORD is issued. However, doctrine does not detail the techniques and procedures which would allow units to train to accomplish "parallel planning." This analysis identifies those tasks and provides "a way" to conduct parallel planning.

This analysis has also addressed the differences in the MDMP which the engineer battalion faces when it finds itself in one of two operational contexts. The first situation is when the engineer battalion is assigned a mission which can only be accomplished by maintaining the integrity of the engineer battalion with most of its subordinate units and, in many cases, augmentation with additional elements. In such a case, the engineer battalion would conduct an analysis of the supported brigade OPORD and would follow the MDMP described in current doctrine. Specifically, the engineer battalion would develop battalion course of action (COA) in much the same manner as did the supported brigade staff.

The second difference arises when the brigade war-gaming, participated in by the engineer battalion S3 and assistant brigade engineer (ABE), results in the task organizing of the engineer companies to the subordinate battalion task forces (TFs) of the brigade. The engineer battalion commander and staff placed in this situation use the selected brigade COA for the start point for the development of engineer battalion COA (Task 7). This technique permits the engineer battalion to war-game optimum methods of supporting the selected brigade COA with the engineer battalion elements remaining with the battalion headquarters. The battalion TFs of the brigade would perform the COA and war-gaming, resulting in optimum employment of the engineer companies task organized to their units.

The product of this BF will be a complete OPORD which contains the necessary information to allow and empower all elements subordinate to or operating with the engineer battalion/engineer battalion TF to successfully accomplish the mission assigned by the supported maneuver brigade. The timing of the issuance of the engineer battalion OPORD will be driven

by the requirements of the supported maneuver brigade and the need to provide timely planning information to those engineer companies task organized to maneuver task forces. The parallel planning reflected in the task list and flow chart components allows the engineer battalion OPORD to be issued shortly after the supported maneuver brigade OPORD.

The output of this BF will become planning input for all other BFs performed by the engineer battalion in the preparation and execution phases.

This BF recognizes that planning is a continuous process and addresses tasks necessary for the engineer battalion commander and staff to continue to revise and refine the plan up until a point that further refinement is dysfunctional to the conduct of subordinate preparation and execution activities. Tasks concerning the refinement of the plan are also included in Engineer Battalion BF 19, Direct and Lead the Engineer Battalion during Preparation for Battle.

An effort was made to identify specific task titles taken directly from the appropriate Army Training and Evaluation Program - Mission Training Plan (ARTEP-MTP). The wording of each task in this analysis is sometimes a direct quote from the MTP. Generally, however, the wording of the tasks is an integration of tasks and requirements derived from ARTEP-MTPs, applicable FMs, and other related documents. Those tasks not taken from the ARTEP-MTPs are: a) derived titles that may apply only to a part of an ARTEP-MTP subtask or some other element of the ARTEP-MTP; b) multiple subtasks from several different, but related, tasks; c) tasks that are not directly stated in the ARTEP-MTP, but are implied by other tasks or requirements in an applicable FM or other related document; d) tasks derived from Center for Army Lessons Learned publications; e) tasks developed during coordination visits with TRADOC proponent schools, U.S. Army Forces Command (FORSCOM) units, and the Combat Training Centers; or, f) performance requirements considered necessary based on experience of the analyst. There was close coordination between the author and the Engineer School about the FA, especially the Task List. It is anticipated that when ARTEP-5-335-MTP, now in draft (May 97) is published, minor refinements to the FA will be required.

## PURPOSE AND OUTCOMES

This component identifies what the battlefield function (BF) is supposed to accomplish overall, which we term as the purpose. This component also identifies the endstates or bottom line results necessary to achieve the purpose, which we term outcomes. As a consequence, this component of the analysis defines the endstates that performance of the tasks will accomplish.

**PURPOSE**

To provide direction and guidance to all elements of the engineer battalion in the form of orders.

**OUTCOMES**

1. Complete, concise, feasible, suitable, acceptable, and tactically sound engineer battalion orders are produced.

2. Engineer battalion orders are received in no more than 1/3 of the available time and are understood by key brigade personnel.

3. Sufficient hard copies of engineer battalion orders and all key accompanying documents are provided to key personnel and units in accordance with tactical standing operating procedures (TSOP).

4. Engineer battalion operations continue during the planning process.

## FLOW CHARTS

This component provides a graphical/pictorial description of BF tasks as they are sequenced within the framework of tactical battle phases (e.g., planning, preparation, execution). The purposes of this component are: to describe the flow of tasks during each battle phase; to describe vertical task linkages (to higher and lower echelon units) and horizontal task linkages (to other BF tasks for the echelon being analyzed); and to depict information input and output which affect each task. Although the sequencing of tasks throughout each battle phase is intended to reflect the flow of tasks, tasks may be performed concurrently or may overlap with preceding or subsequent tasks.

Each echelon is described by the echelon on the left of the flow chart; a horizontal line depicts the flow of tasks by sequence, reading left to right. The horizontal line for the echelon being analyzed is thicker than all other echelon horizontal lines.

Tasks from the BF task list are applied to the echelon line in the sequence in which they occur. The tasks are depicted in a task box. Inside and to the upper left of each task box is placed the task number of the appropriate task as listed in the task list.

The linkages of tasks, both vertically and horizontally, are depicted with lines. Arrowheads are placed on lines to depict linkages or interaction with other tasks. The linkage or interaction between these tasks is detailed in the task list.

Figure 1 illustrates the battalion (Bn) or battalion task force (Bn TF) task contributing to or otherwise supporting the brigade (Bde) task.

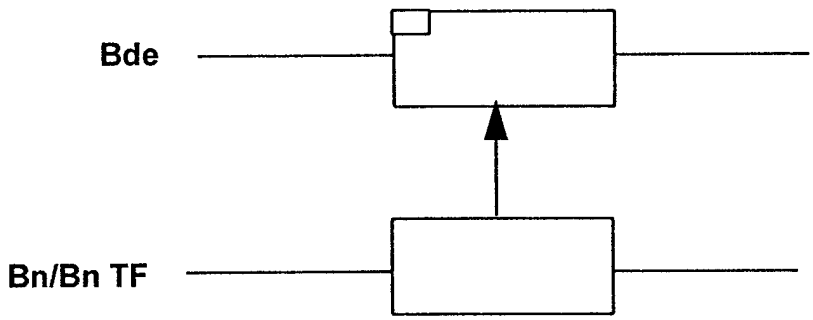



Figure 1. Depiction of a task contributing to the accomplishment of another task.

Lines with no arrowheads reflect a task and its subordinate (sub)tasks. Figure 2 illustrates this association.

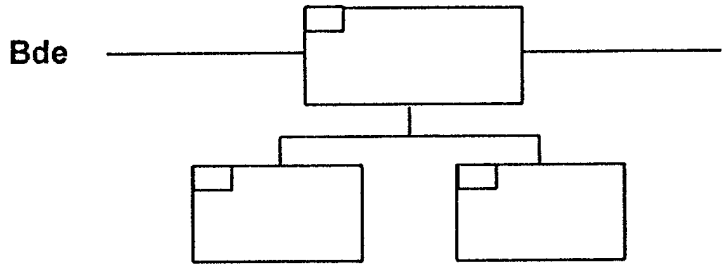



Figure 2. Depiction of the relationship between tasks and subtasks.

Inputs and/or outputs, as contained in the "Key Inputs and Outputs" component (section 5) of this BF function analysis (FA), are also reflected on the flow charts. The relevant input and/or output letter listed in the "Key Inputs and Outputs" component is listed in a box on the outside upper right of the task. Relevant information input for each task is depicted to demonstrate information which is required to perform the task; output information is that which is produced as a result of performing the task. Figure 3 illustrates how information input and output are depicted.

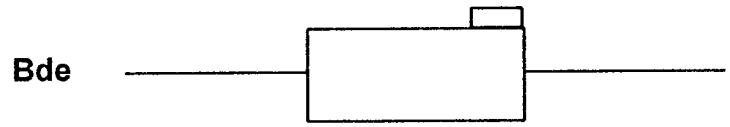
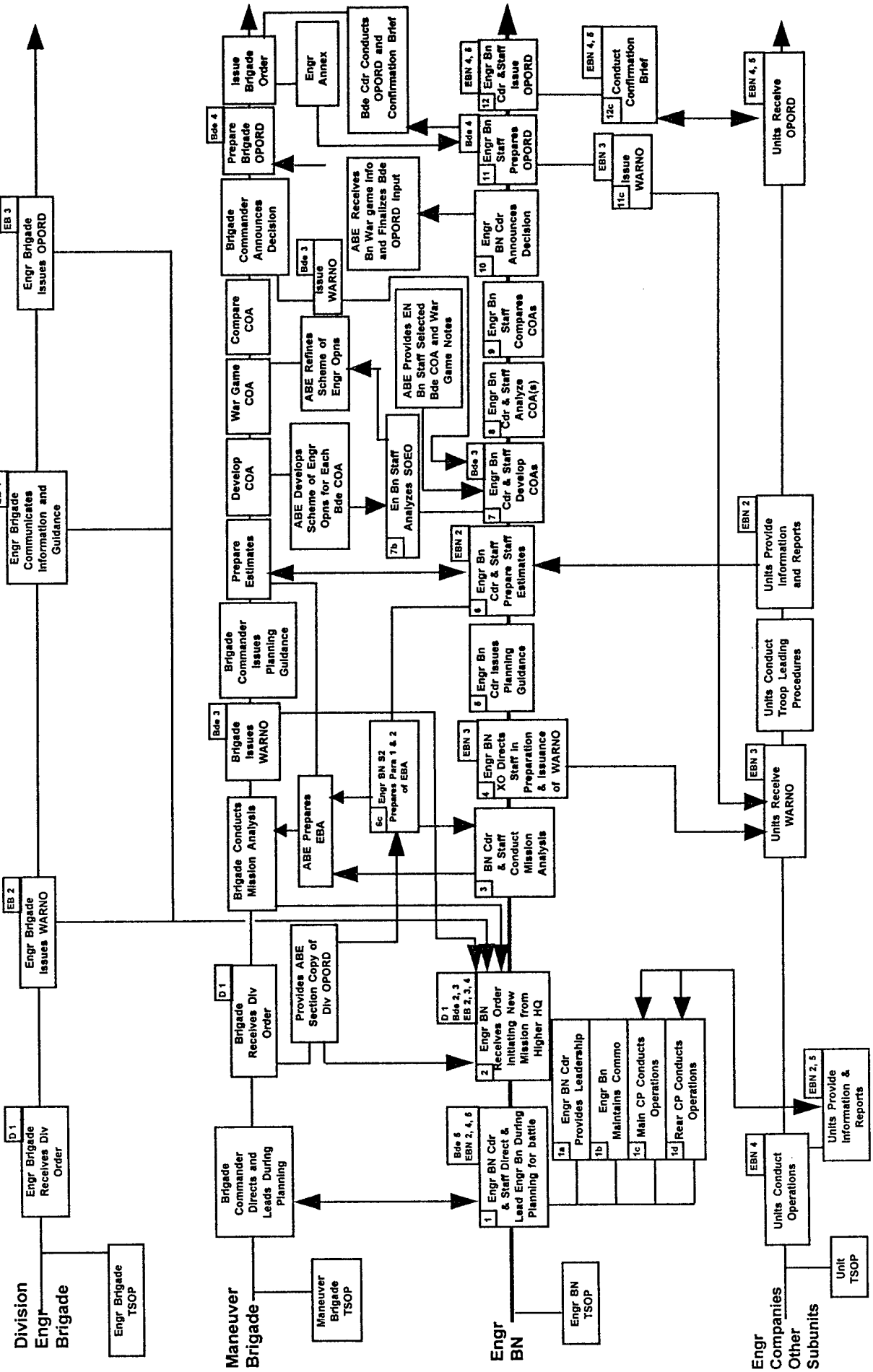



Figure 3. Depiction of placement of the box reflecting information input and output.

# Task Flow Plan



## TASK LINKAGES TO OTHER BFs/UNITS

This component links the tasks performed as a part of this function with the tasks performed in other BFs or by other units. The purpose of this component is to allow the trainer or training developer to incorporate related tasks and participants into a training exercise for this BF. Tasks which link to this analysis have been extrapolated for BFs/type units for which FAs have not been accomplished. For tasks extracted from published BF FAs, the task number is provided.

| TASKS | LINKS TO OTHER BFs/UNITS |
|---|---|
| 1. **The engineer battalion commander and staff direct and lead the engineer battalion during planning for battle.** | Bde BF 18, Task 1. b. 2).<br>- Brigade main command post (CP) elements conduct necessary tactical movement and occupy assembly areas.<br><br>Bde BF 18, Task 1. d. 6) d).<br>- Bde S2 directs and monitors Bde reconnaissance.<br><br>Bde BF 18, Task 1. d. 9).<br>- Assistant brigade engineer (ABE) section conducts engineering (Engr) operations staff supervision.<br><br>Bde BF 21, Task 22 a.<br>- Engr Bn assists the Bde in negotiating a friendly obstacle system.<br><br>Bde BF 22.<br>- Engr Bn provides combat road construction for Bde.<br><br>Bde BF 23.<br>- Engr Bn constructs/emplaces obstacles for Bde.<br><br>Bde BF 24.<br>- Engr Bn provides survivability construction for Bde. |
| 2. **The engineer battalion receives an order initiating a new mission from higher headquarters.** | Division BF 18.<br>- Division conducts operations order (OPORD) briefing.<br><br>Engr Bde BF 18. |

- The Engr Bde executive officer (XO) directs issuance of a division engineer (DIVEN) unit warning order (WARNO).
- The Engr Bde commander (Cdr) directs issuance of a DIVEN unit OPORD.

Bde BF 18, Task 2. a.
- The Bde Cdr and designated personnel, based on standing operating procedures (SOP) (e.g., fire support coordinator [FSCOORD], Engr Bn Cdr, Bde S3), attend division order brief.

Brigade BF 18, Task 2. d. 2) c).
- ABE provides copy of division OPORD to Engr Bn XO.

Brigade BF 18, Task 2. g. 3) d).
- ABE gathers information for Engr estimate.

Brigade BF 18, Task 2.h. 3) 4).
- The Bde XO directs issuance of a Bde WARNO.

3. **The engineer battalion commander and staff conduct mission analysis.**

Bde BF 18, Task 3. b. 4) e).
- The Engr Bn S3 performs mission analysis as part of Bde staff.

4. **The engineer battalion executive officer directs the staff in the preparation and issuance of an engineer battalion warning order.**

5. **The engineer battalion commander issues planning guidance.**

Bde BF 18, Task 5.
- The Bde Cdr issues planning guidance.

6. **The engineer battalion commander and staff prepare staff estimates.**

Bde BF 18, Task 6. d. 5).
- Bde S2 provides intelligence estimate information to the Engr Bn S2.

Brigade BF 18, Task 6. j. 1) 2).
- ABE section coordinates paragraphs 1 and 2a of Engr estimate with Engr Bn XO and staff.

Engr Bde BF 18.
- The Engr Bde staff provides staff estimate information to the Engr Bn XO.

Engr Battalion BF 1.
- The Engr Bn S2 performs part 1 and 2 of the Engr battlefield assessment with ABE section.

7. **The engineer battalion commander and staff develop courses of action.**

Bde BF 18, Task 10.
- Bde Cdr announces course of action (COA) decision.

Brigade BF 18, Task 10. d.
- ABE section documents selected Bde COA, and its supporting scheme of Engr operations and provides to Engr Bn XO and staff.

Battalion TF BF 18.
- Maneuver element leader coordinates with Engr Bn XO.

8. **The engineer battalion commander and staff analyze course(s) of action.**

9. **The engineer battalion staff compares courses of action.**

10. **The engineer battalion commander announces decision.**

Bde BF 18, Task 11. r. 1).
- ABE incorporates Engr Bn COA input to Bde OPORD.

11. **The engineer battalion staff prepares the operations order.**

Bde BF 18, Task 12.
- The Bde prepares and issues an OPORD.
- Bde Cdr and staff conduct OPORD briefing.

12. **The engineer battalion commander and staff issue the operations order.**

## KEY PARTICIPANTS BY TASK

This component identifies the training audience for training events for the related tasks. It is based on the appropriate echelon/type unit table of organization and equipment (TOE) and includes special staff (as per appropriate doctrinal reference) critical for the task accomplishment. The purpose of this component is to help commanders and trainers to identify the training audience required for a training event.

| TASKS | PARTICIPANTS |
|---|---|
| 1. **The engineer battalion commander and staff direct and lead the engineer battalion during planning for battle.** | Engr Bn Cdr, Engr Bn XO, Engr Bn command sergeant major (CSM), Engr Bn S1, Engr Bn personnel and administrative center (PAC) supervisor (Supv), Engr Bn S1 section, Engr Bn S2, Engr Bn intelligence (Intel) sergeant (Sgt), Engr Bn S3, Engr Bn S3 operations (Ops) officers, Engr Bn S3 Ops Sgt, Engr Bn S3 section, Engr Bn S4, Engr Bn supply Sgt, Engr Bn S4 section, Engr Bn maintenance technician (BMT), Engr Bn nuclear, biological, and chemical (NBC) noncommissioned officer (NCO), Engr Bn signal officer (SO), Engr Bn communications (commo) section chief, Engr Bn commo section, Engr Bn headquarters and headquarters company (HHC) Cdr, HHC first sergeant (1SG), combat medical section NCO, food service Sgt, Engr company (Co) Cdr, ABE section. |
| 2. **The engineer battalion receives an order initiating a new mission from higher headquarters.** | Engr Bn Cdr, Engr Bn XO, Engr Bn S1, Engr Bn PAC Supv, Engr Bn S1 section, Engr Bn S2, Engr Bn Intel Sgt, Engr Bn S3, Engr Bn S3 Ops officers, Engr Bn S3 Ops Sgt, Engr Bn S3 section, Engr Bn S4, Engr Bn supply Sgt, Engr Bn S4 section, Engr Bn BMT, Engr Bn NBC NCO, Engr Bn SO, Engr Bn commo section chief, Engr Bn commo section, ABE. |
| 3. **The engineer battalion commander and staff conduct mission analysis.** | Engr Bn Cdr, Engr Bn XO, Engr Bn S1, Engr Bn PAC Supv, Engr Bn S1 section, Engr Bn S2, Engr Bn Intel Sgt, Engr Bn S3, Engr Bn S3 Ops officers, Engr Bn S3 Ops Sgt, Engr Bn S3 section, Engr Bn S4, Engr Bn supply Sgt, Engr Bn S4 section, Engr Bn BMT, Engr Bn NBC |

| | | |
|---|---|---|
| | | NCO, Engr Bn SO, Engr Bn commo section chief, ABE. |
| 4. | **The engineer battalion executive officer directs the staff in the preparation and issuance of an engineer battalion warning order.** | Engr Bn Cdr, Engr Bn XO, Engr Bn S1, Engr Bn S2, Engr Bn Intel Sgt, Engr Bn S3, Engr Bn S3 Ops officers, Engr Bn S3 Ops Sgt, Engr Bn S3 section, Engr Bn S4, Engr Bn BMT, Engr Bn NBC NCO, Engr Bn SO, Engr Bn commo section chief, Engr Bn commo section. |
| 5. | **The engineer battalion commander issues planning guidance.** | Engr Bn Cdr, Engr Bn XO, Engr Bn S1, Engr Bn S2, Engr Bn Intel Sgt, Engr Bn S3, Engr Bn S3 Ops officers, Engr Bn S3 Ops Sgt, Engr Bn S3 section, Engr Bn S4, Engr Bn BMT, Engr Bn NBC NCO, Engr Bn SO, Engr Bn commo section chief. |
| 6. | **The engineer battalion commander and staff prepare staff estimates.** | Engr Bn Cdr, Engr Bn XO, Engr Bn S1, Engr Bn PAC Supv, Engr Bn S1 section, Engr Bn S2, Engr Bn Intel Sgt, Engr Bn S3, Engr Bn S3 Ops officers, Engr Bn S3 Ops Sgt, Engr Bn S3 section, Engr Bn S4, Engr Bn supply Sgt, Engr Bn S4 section, Engr Bn BMT, Engr Bn NBC NCO, Engr Bn SO, Engr Bn commo section chief, liaison officers (LNO), ABE. |
| 7. | **The engineer battalion commander and staff develop courses of action.** | Engr Bn Cdr, Engr Bn XO, Engr Bn S1, Engr Bn PAC Supv, Engr Bn S1 section, Engr Bn S2, Engr Bn Intel Sgt, Engr Bn S3, Engr Bn S3 Ops officers, Engr Bn S3 Ops Sgt, Engr Bn S3 section, Engr Bn S4, Engr Bn supply Sgt, Engr Bn S4 section, Engr Bn BMT, Engr Bn NBC NCO, Engr Bn SO, Engr Bn commo section chief, LNOs, ABE. |
| 8. | **The engineer battalion commander and staff analyze course(s) of action.** | Engr Bn Cdr, Engr Bn XO, Engr Bn S1, Engr Bn S2, Engr Bn Intel Sgt, Engr Bn S3, S3 Ops officers, Engr Bn S3 Ops Sgt, Engr Bn S3 section, Engr Bn S4, Engr Bn BMT, Engr Bn NBC NCO, Engr Bn SO, LNOs. |
| 9. | **The engineer battalion staff compares courses of action.** | Engr Bn Cdr, Engr Bn XO, Engr Bn S1, Engr Bn S2, Engr Bn Intel Sgt, Engr Bn S3, Engr Bn |

| | | |
|---|---|---|
| | | S3 Ops officers, Engr Bn S3 Ops Sgt, Engr Bn S4, Engr Bn BMT, Engr Bn NBC NCO, Engr Bn SO, LNOs. |
| 10. | **The engineer battalion commander announces decision.** | Engr Bn Cdr, Engr Bn XO, Engr Bn S1, Engr Bn S2, Engr Bn Intel Sgt, Engr Bn S3, Engr Bn S3 Ops officers, Engr Bn S3 Ops Sgt, Engr Bn S3 section, Engr Bn S4, Engr Bn BMT, Engr Bn NBC NCO, Engr Bn SO, Engr Bn commo section chief, LNOs, ABE. |
| 11. | **The engineer battalion staff prepares the operations order.** | Engr Bn Cdr, Engr Bn XO, Engr Bn S1, Engr Bn PAC Supv, Engr Bn S1 section, Engr Bn S2, Engr Bn Intel Sgt, Engr Bn S3, Engr Bn S3 Ops officers, Engr Bn S3 Ops Sgt, Engr Bn S3 section, Engr Bn S4, Engr Bn supply Sgt, Engr Bn S4 section, Engr Bn BMT, Engr Bn NBC NCO, Engr Bn SO, Engr Bn commo section chief, LNOs, ABE. |
| 12. | **The engineer battalion commander and staff issue the operations order.** | Engr Bn Cdr, Engr Bn XO, Engr Bn S1, Engr Bn S2, Engr Bn Intel Sgt, Engr Bn S3, Engr Bn S3 Ops officers, Engr Bn S3 Ops Sgt, Engr Bn S3 section, Engr Bn S4, Engr Bn BMT, Engr Bn NBC NCO, Engr Bn SO, Engr Bn commo section chief, Engr Bn commo section, Engr Bn HHC Cdr, all subordinate unit Cdrs. |

## KEY INPUTS AND OUTPUTS

This component identifies critical input information required by participants to successfully accomplish the BF. Where information results from the performance of the BF tasks, BF information output will be identified. One BF's information output normally is provided as another BF's input. Critical input and output information is organized by the specific part of the doctrinal product or the means used to communicate the information. The orders' content reflected below is based on information obtained during the revision of the 1993 draft of FM 101-5. The orders outlines have been expanded to facilitate development of material to support unit training. The source of critical information identified is specific only to the BF echelon and function being analyzed, and is not intended to reflect all the information the product may contain. The purpose of this component is to identify information required to drive a training exercise for this BF as performed by this echelon.

### KEY INPUTS

**D - 1 DIVISION OPORD**

a. HEADING

1) References. (Maps, charts, DATUM, and other related documents needed to understand the order.)

2) Task organization.

b. SITUATION

1) Enemy forces.

a) Description of the enemy to brigade level.

b) Enemy most probable COA.

c) Enemy most dangerous (to the division) COA.

d) Enemy engineer activities or capabilities critical to maneuver brigades or division engineers.

2) Friendly forces.

a) Echelons above corps (EAC) mission.

b) EAC commander's intent.

c) EAC concept of operation.

d) Corps mission.

e) Corps commander's intent.

f) Corps concept of operation.

g) Missions of units to the immediate left and right of the division.

h) Missions of other units with a significant bearing on the division.

3) Attachments and detachments.

c. MISSION

d. EXECUTION

Intent of the division commander.

1) Concept of operation (by phase if required).

a) Maneuver.

b) Fire support.

(1) Main effort.

(2) Priority of fires.

c) Mobility and survivability.

(1) General concept of engineer operations to support the maneuver plan.

(2) Priority of support by mission and unit for each phase of the operation.

(3) Designation of authority to emplace obstacles.

d) Air defense (AD).

(1) Priority of AD.

(2) AD weapons status.

(3) AD warning status.

e) Command and Control Warfare (C2W).

2) Tasks to maneuver units.

a) Infantry.

b) Armor.

c) Cavalry.

d) Aviation.

e) Mission essential tasks to be accomplished by the supported maneuver brigade.

f) Mission essential tasks to be accomplished by engineers task organized to maneuver elements.

3) Tasks to combat support units.

a) Fires.

(1) Close air support.

(2) Chemical support. (Priorities of reconnaissance, decontamination, and smoke.)

(3) Field artillery support.

(a) General. (Priorities for counterfire or interdiction.)

(b) Organization for combat.

(4) Fire support coordinating instructions.

b) Mobility and survivability.

(1) Engineer (and engineer overlay).

(2) NBC operations.

c) Air defense.

(1) Organization for combat.

(2) Missions.

(3) Priorities for protection.

d) C2W.

4) Coordinating instructions.

a) Time or condition when the division OPORD becomes effective.

b) Commander's critical information requirements (CCIR).

(1) Priority intelligence requirements (PIR) (if not addressed in Annex B [Intelligence]).

(2) Essential elements of friendly information (EEFI) (if not addressed in Annex B [Intelligence]).

(3) Friendly forces information requirements (FFIR) (if not addressed in Annex B [Intelligence]).

c) Risk reduction control measures.

(1) Antiterrorist actions.

(2) Mission-oriented protective posture (MOPP).

(3) Operational exposure guidance (OEG).

(4) Vehicle recognition signals.

(5) Fratricide prevention measures.

d) Rules of engagement (ROE).

e) Environmental considerations.

g) Any other coordinating instructions or additional instructions.

e. SERVICE SUPPORT

1) Support concept.

a) Synopsis of the division support command (DISCOM) mission.

b) DISCOM headquarters and/or division support area locations.

c) The corps support command (COSCOM) support priorities and where the division fits into those priorities.

d) The division commanders priorities of support.

e) COSCOM units supporting the division.

f) Significant and/or unusual combat service support (CSS) issues that might impact the overall division operation.

g) Any significant CSS risks.

h) Support requirements in the functional areas of manning, arming, fueling, fixing, and moving.

i) Concept of push of Class IV/V (obstacle) supplies.

j) Concept for logistic support of organic and supporting corps engineer units task organized to maneuver brigades.

2) Material and services.

a) Brigade's allocations of Class (CL) IV/V (obstacle) supplies.

b) Tentative locations for transfer of class IV/V supplies to maneuver brigades.

3) Medical evacuation (MEDEVAC) and hospitalization.

4) Personnel.

5) Civil-military cooperation.

6) Miscellaneous.

f. COMMAND AND SIGNAL

1) Command.

a) Map coordinates for division CP locations.

b) Chain of command if different from division SOP.

2) Signal.

a) Signal instructions.

b) Identification of current signal operating instructions (SOI).

c) Required division reports, formats, and times due.

g. ACKNOWLEDGE

h. ANNEXES:

1) A-Task organization.

2) B-Intelligence.

a) SITUATION

(1) Enemy.

(a) Terrain.

(b) Weather.

(c) Enemy capabilities and/or activities.

1 Known and templated locations and activities of enemy units to brigade level.

2 Significant enemy maneuver and other functional area capabilities that

impact on accomplishment of division functions.

3 Expected employment of enemy assets based on most probable enemy COA.

(2) Friendly situation.

(3) Attachments and detachments.

b) MISSION

c) EXECUTION

(1) Concept of intelligence support to support the overall division operation.

(2) Tasks to subordinate units. (Detailed intelligence acquisition tasks by unit.)

(3) Multidisciplined counterintelligence (CI). (Special operational instructions having CI aspects.)

(4) Coordinating instructions.

(a) Intelligence requirements and their priority.

(b) Intelligence acquisition.

1 Requests to corps, EAC, adjacent, and cooperating units (for intelligence information).

2 Requests for information from other units not organic or attached.

(c) Measures for handling personnel, documents, and material.

1 Enemy prisoners of war (EPW), deserters, repatriates, civilian inhabitants of area, and other persons.

a Special handling and segregation instructions.

b Location of EPW collection points.

2 Captured documents. (Special instructions for handling and processing from time of capture to receipt by specified division intelligence personnel. [If different from TSOP.])

3 Captured material. (Specially designated items or categories of enemy material required for examination; specific instructions for their processing and disposition. [If different from TSOP.])

(d) Documents or equipment required. (Description of the conditions under which subordinate units can obtain or request documents or equipment, such as: air photographs and maps. [If different from TSOP.])

(e) Distribution of intelligence products.

1 Periods that routine reports and distribution cover.

2 Distribution of special intelligence products.

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL

f) APPENDICES:

(1) Appendix 1 - Intelligence Estimate.

Tab 1 Situation Overlay.

(2) Appendix 2 - Reconnaissance and Surveillance (R&S).

3) C-Operation Overlay.

4) E-Mobility and Survivability.

a) SITUATION

(1) Enemy.

(a) Terrain.

(b) Weather.

(c) Enemy engineer capabilities and/or activities.

1 Known and templated locations and activities of enemy engineer units to battalion level.

2 Significant enemy maneuver and engineer capabilities that impact division engineer operations.

3 Expected employment of enemy engineer assets based on most probable enemy COA.

(2) Friendly situation.

(3) Attachments and detachments.

b) MISSION

c) EXECUTION

(1) Scheme of engineer operations to support the overall division operation, by phase and in priority.

(2) Tasks to subordinate units.

(3) Coordinating instructions.

(a) ROE for engineer units.

(b) Reference to supporting appendices.

d) SERVICE SUPPORT

(1) Command-regulated classes of supply.

(2) Supply distribution plan.

(3) Transportation.

(4) Combat health support (CHS).

(5) Host nation (HN).

(a) Type, location, facilities, assets, and support available.

(b) Procedures for requesting and acquiring HN support.

(c) Limitations and restrictions on HN support.

e) COMMAND AND SIGNAL

f) APPENDICES:

(1) Appendix 1 - Engineer.

(a) Scheme of engineer operations to support the overall division operation. The engineer main effort by mission and unit for each phase of the operation. Corps level missions that impact the division.

1 Obstacles. (The details of the countermobility effort. Identification of obstacle belts to support division deep, close, and rear operations. Identification, prioritization, and assignment of responsibilities for

corps and division directed and reserve targets. Execution criteria for reserve targets.)

2 Situational obstacles. (Concept for employing situational obstacles to support the division plan. Division planned and executed obstacles. Division planned and brigade executed obstacles. Division resourced and brigade planned and executed obstacles. Criteria for each type of obstacle with designation of headquarters maintaining authority to use scatterable mines (SCATMINEs); restrictions on duration (by belt)).

(b) Tasks to subordinate units.

(c) Coordinating instructions.

1 Times or events at which obstacle belts become effective.

2 Division PIR to be considered by subordinate engineer staffs and PIR that must be reported.

3 Mission reports required.

4 Explanation of engineer work lines.

(d) SERVICE SUPPORT

(e) COMMAND AND SIGNAL

(2) Appendix 2 - Environmental Considerations.

(a) Operational effect on environment versus military advantage.

(b) Coordinating instructions.

1 Certification of local water sources.

2 Solid waste and liquid waste management.

3 Medical waste.

4 Hazardous waste management.

5 Flora and fauna protection.

6 Archeological and historical preservation.

(d) SERVICE SUPPORT

(e) COMMAND AND SIGNAL (Responsibility for initial environmental considerations guidance. Point of contact [POC] for processing requested waivers to environmental governing standards, and responsibility for coordinating and issuing guidance on disposal of hazardous material and waste.)

(3) Appendix 3 - Nuclear, Biological, and Chemical (NBC) Operations.

(a) Scheme of NBC defense operations to support the overall division operation.

(b) Tasks to subordinate units.

(c) Coordinating instructions.

1 MOPP level guidance.

2 Automatic masking criteria.

3 Troop safety criteria.

4 Decontamination site locations.

5 Medical facilities and locations for treating chemical casualties.

6 Turn-in points for chemical/biological samples.

7 List of civilian and military facilities whose destruction could create militarily significant NBC hazards.

8 OEG guidance (if applicable).

9 Procedures for limiting electro-magnetic pulse (EMP) effects.

(d) SERVICE SUPPORT
(Procedures for handling contaminated casualties. Information on availability and locations of field expedient decontamination supplies, materials, and decontaminants.)

(e) COMMAND AND SIGNAL
(NBC warning and reporting system.)

(f) Tabs:

1 Tab 1- NBC Defense.

2 Tab 2 - Smoke operations.

**EB - 1 ENGINEER BRIGADE TSOP**

a. Command and control (C2) procedures.

1) Command group and CP composition.

2) Echelons above division engineer integration.

3) Orders.

4) Engineer estimate.

5) Engineer battlefield assessment (EBA).

b. Intelligence procedures.

1) Engineer intelligence.

2) EPWs and captured material.

3) R&S requests and missions.

4) Targeting development.

5) Enemy unit tracking.

c. Operations procedures.

1) Mobility operations.

2) Fire support.

3) Army aviation.

4) Obstacle operations.

5) Mine warfare.

6) Reserve targets.

7) Obstacle numbering system.

8) Breaching operations.

9) River crossings.

10) NBC operations.

11) Decontamination.

12) Standard engineer planning factors.

13) Standard engineer packages.

14) Smoke operations.

15) Receipt of task organized units.

16) Standard briefings.

d. Signal procedures.

1) Communications security.

2) Engineer CP communications.

3) Radio operations.

4) Standard call signs.

e. Logistics procedures.

1) Supply.

2) Services.

3) Transportation.

4) Area damage control (ADC) operations.

5) Maintenance.

6) Personnel and administration.

7) Reorganization.

f. Reports.

g. Safety and risk assessment procedures.

**EB - 2 ENGINEER BRIGADE WARNO**

a. HEADING

1) References. (Maps, charts, and other relevant documents.)

2) Time zone used throughout the order.

3) Task organization.

b. SITUATION

1) Enemy forces. (Include significant changes of information.)

2) Friendly forces.

a) Division mission.

b) Division commander's intent.

c) Division concept of operation.

d) Missions of units to the immediate left and right of the division.

e) Missions of other units with a significant bearing on the engineer brigade.

3) Attachments and detachments.

c. MISSION of the engineer brigade

d. EXECUTION

Intent of the engineer brigade commander (if available).

1) Concept of engineer operation (when available).

2) Tasks to subordinate units (when available).

a) Tasks to units for execution.

b) Movement to be initiated (time).

c) Reconnaissance to be initiated (time).

d) Security to be in place (time).

3) Coordinating instructions.

a) CCIR.

b) Risk guidance.

c) Timeline.

d) Guidance on orders and rehearsals as applicable.

e) Orders group meeting (attendees, location, and time) (when applicable).

f) Earliest time of movement and amount of notice.

g) Attachments and detachments.

e. SERVICE SUPPORT

1) Special equipment. (Identify requirements and coordinate transfer to using units.)

2) Transportation. (Identify requirements, and coordinate for pre-positioning of assets.)

3) Arrangements for Class IV/V push packages.

f. COMMAND AND SIGNAL

1) Command. (Chain of command if different from engineer brigade SOP.)

2) Signal. (Identify current SOI and prepositioning of assets to support the operation.)

g. ACKNOWLEDGE (Statement directing acknowledgment of receipt and understanding.)

**EB - 3 ENGINEER BRIGADE OPORD**

a. HEADING

1) References. (Maps, charts, DATUM, and other related documents needed to understand the order.)

2) Task organization.

a) All engineer unit headquarters under division control.

b) All organic engineer unit headquarters (if initial OPORD).

b. SITUATION

1) Enemy forces.

a) Terrain and weather.

b) Description of the enemy facing the division.

c) Enemy most probable COA.

d) Enemy engineer activities, capabilities, and COA that affect division-level engineer operations.

2) Friendly forces.

a) Corps mission.

b) Corps commander's intent.

c) Corps concept of operation.

d) Division mission.

e) Division commander's intent

f) Division concept of operation.

g) Missions of adjacent divisions and engineer units that impact on division missions.

3) Attachments and detachments.

c. MISSION

d. EXECUTION

Intent of the engineer brigade commander.

1) Scheme of engineer operations.

a) Mission essential engineer missions in rear operations.

b) Mission essential division level missions in close operations.

c) Division engineer main effort by phase of operation.

(1) Obstacles.

(2) Survivability construction.

(3) Mobility operations.

2) Tasks to subordinate units.

3) Coordinating instructions.

a) Time or condition when the engineer brigade OPORD becomes effective.

b) CCIR.

(1) PIR (if not addressed in Annex B [Intelligence]).

(2) EEFI (if not addressed in Annex B [Intelligence]).

(3) FFIR (if not addressed in Annex B [Intelligence]).

c) Risk reduction control measures.

(1) Antiterrorist actions.

(2) MOPP.

(3) OEG.

(4) Vehicle recognition signals.

(5) Fratricide prevention measures.

d) ROE.

e) Environmental considerations.

f) Any other coordinating instructions or additional instructions.

e. SERVICE SUPPORT

1) Support concept.

2) Material and services.

a) Supply.

(1) Allocation and controlled supply rates (CSRs) for each unit.

(2) Basic loads.

(3) Mission logistics arrangements.

b) Transportation.

(1) Main supply routes (MSRs).

(2) Allocations of division and corps transportation assets.

3) MEDEVAC and hospitalization.

4) Personnel.

5) Civil-military cooperation. Host nation support (HNS).

6) Miscellaneous.

f. COMMAND AND SIGNAL

1) Command.

a) Map coordinates for engineer brigade CP locations.

b) Chain of command if different from engineer brigade standing operating procedures (SOP).

2) Signal.

a) Signal instructions.

b) Identify current signal operating instructions (SOI).

c) Required engineer brigade reports, formats, and times due.

g. ACKNOWLEDGE

h. ANNEXES:

1) A-Engineer Execution Matrix.

2) B-Intelligence Annex.

3) C-Combat Service Support (CSS) Annex.

4) D-Movement Annex.

i. OVERLAYS:

1) Situation template (SIT TEMP).

2) Engineer operations overlay.

3) Division CSS overlay.

4) Division obstacle overlay.

5) Other operations (e.g., large scale breach, river crossing).

j. DISTRIBUTION

**EB - 4 GUIDANCE AND INFORMATION FROM THE ENGINEER BRIGADE COMMANDER AND STAFF**

a. Commander's situation reports (SITREP).

b. Intelligence reports.

c. Operations reports.

d. Logistics reports.

e. Personnel reports.

**Bde - 1 BRIGADE TSOP**

a. Battle command procedures.

1) Succession of command.

2) Alternate CPs.

3) Displacement of CPs.

4) CP security.

5) Orders and plans.

6) CP organization/layout/shifts.

7) CP communications.

8) Reports.

b. Control procedures.

1) LNO procedures.

2) Brevity codes.

3) Terrain index reference system.

4) Recognition techniques.

5) Signals.

6) Alarms and warnings.

7) Readiness conditions.

8) Fixed call signs.

c. Tactical movements procedures.

d. Assembly area occupation procedures.

e. Other tactical operations procedures.

1) Link-up operations.

2) Relief-in-place.

3) Passage of lines.

4) River crossing.

f. Air defense procedures.

1) Air defense warnings (ADWs).

2) Local air defense warnings (LADWs).

3) Weapons control status (WCS)/guidance.

4) Hostile aircraft criteria.

5) ROE.

g. Army airspace command and control (A2C2) procedures.

h. Signal procedures.

i. Intelligence and security procedures.

1) General guidance.

2) Named area of interest (NAI)/targeted area of interest (TAI) designation procedures.

3) Document security.

4) Personnel security.

5) Enemy prisoner of war (EPW) procedures.

6) Captured document and equipment procedure.

j. NBC procedures.

1) MOPP guidance.

2) Required NBC teams.

3) Alarms and warnings.

4) Reporting and marking procedures.

k. Engineer procedures.

1) Priorities for support.

2) Countermobility procedures.

3) SCATMINEs.

4) Mobility.

5) Standard obstacles.

l. Fire support procedures.

1) Target numbering.

2) Laser code assignments.

m. Army aviation procedures.

1) Priorities.

2) Supported unit responsibilities.

3) Landing zone selection/preparation.

n. Procedures for attachments/detachments.

o. Logistics procedures.

1) Reports.

2) Reorganization/reconstitution.

3) Supply.

4) Services.

5) Transportation.

6) Refuel-on-the-move (ROM).

p. Personnel procedures.

1) Reports.

2) Replacement operations.

3) Casualty reporting.

4) Postal.

5) Finance.

6) Health service support (HSS).

7) MEDEVAC.

8) Legal.

9) Public affairs.

10) Religious.

q. Military police (MP) procedures.

r. Civil-military operations (CMO) procedures.

**Bde - 2** **REPORTS AND INFORMATION FROM BRIGADE ELEMENTS AND OTHER UNITS**

a. Spot reports (SPOTREPs).

b. Commander's SITREPs.

c. Intelligence reports.

d. Logistics reports.

e. Personnel reports.

f. Engineer reports.

g. Closing reports.

h. Meaconing, intrusion, jamming, and interference (MIJI) reports.

i. Patrol reports.

j. EPW or captured materials reports.

k. Shell reports.

l. Splash reports.

m. NBC reports.

**Bde - 3 BRIGADE WARNO**

a. HEADING

1) References. (Maps, charts, and other relevant documents.)

2) Time zone used throughout the order.

3) Task organization.

b. SITUATION

1) Enemy forces. (Include significant changes of information.)

2) Friendly forces.

a) Division mission.

b) Division commander's intent.

c) Division concept of operation.

d) Missions of units to the immediate left and right.

e) Missions of other units with a significant bearing on the brigade.

3) Attachments and detachments.

c. MISSION of the brigade

d. EXECUTION

Intent of the brigade commander (if available).

1) Concept of operation (when available).

2) Tasks to maneuver units (when available).

a) Tasks to units for execution.

b) Movement to be initiated (time).

c) Reconnaissance to be initiated (time).

d) Security to be in place (time).

3) Tasks to combat support units (when available).

4) Coordinating instructions.

a) CCIR.

b) Risk guidance.

c) Deception guidance.

d) Timeline.

e) Guidance on orders and rehearsals.

f) Orders group meeting (attendees, location, and time) (when applicable).

g) Earliest time of movement and degree of notice.

e. SERVICE SUPPORT

1) Special equipment. (Identify requirements, and coordinate transfer to using units.)

2) Transportation. (Identify requirements, and coordinate for pre-positioning of assets.)

f. COMMAND AND SIGNAL

1) Command. (Chain of command if different from brigade TSOP.)

2) Signal. (Identification current SOI and prepositioning of assets to support the operation.)

g. ACKNOWLEDGE (Statement directing acknowledgment of receipt and understanding.)

**Bde - 4 BRIGADE OPORD**

a. HEADING

1) References. (Maps, charts, DATUM, and other related documents needed to understand the order.)

2) Task organization.

b. SITUATION

1) Enemy forces.

a) Description of the enemy to battalion level.

b) Enemy most probable COA.

c) Enemy most dangerous (to the brigade) COA.

d) Assessment of terrorist activities directed against the brigade.

2) Friendly forces.

a) Corps mission.

b) Corps commander's intent.

c) Corps concept of operation.

d) Division mission.

e) Division commander's intent.

f) Division concept of operation.

g) Missions of units to the immediate left and right of the brigade.

h) Missions of other units with a significant bearing on the brigade.

3) Attachments and detachments.

c. MISSION

d. EXECUTION

Intent of the brigade commander.

1) Concept of operation (by phase if required).

a) Maneuver.

b) Fire support.

(1) Main effort.

(2) Priority of fires.

c) Mobility and survivability.

(1) Priority of support.

(2) Concept of engineer operations to support the maneuver plan.

(3) Main engineer effort by mission and unit for each phase of the operation.

(4) Brigade level engineer missions that impact on maneuver battalions.

(5) Designation of authority to emplace obstacles.

d) Air defense (AD).

(1) Priority of AD.

(2) AD weapons status.

(3) AD warning status.

e) Command and control warfare (C2W).

2) Tasks to maneuver units.

a) Infantry.

b) Armor.

c) Cavalry.

d) Aviation.

e) Mission essential tasks to be accomplished by engineers task organized to maneuver battalions.

3) Tasks to combat support units.

a) Fires.

(1) Air support.

(a) Close air support (CAS) sorties allocation.

(b) Tactical air reconnaissance sorties allocation.

(2) Chemical support. (Priorities of reconnaissance, decontamination, and smoke.)

(3) Field artillery support.

(a) General. (Priorities for counterfire or interdiction.)

(b) Organization for combat.

(4) Naval surface fires (NSF).

(5) Fire support coordinating instructions.

b) Mobility and survivability.

(1) Engineer (and engineer overlay).

(a) Brigade level tasks assigned to supporting engineer units.

(b) Division level tasks assigned to division controlled engineer units.

(2) NBC operations.

c) Air defense.

(1) Organization for combat.

(2) Missions.

(3) Priorities for protection.

d) C2W.

(1) Functional and support roles of attached military intelligence (MI) units.

(2) Deception.

(3) Electronic warfare (EW).

(4) Psychological warfare.

(5) Unmanned aerial vehicle (UAV).

4) Coordinating instructions.

a) Time or condition when the brigade OPORD becomes effective.

b) CCIR.

(1) PIR (if not addressed in Annex B [Intelligence]).

(2) EEFI (if not addressed in Annex B [Intelligence]).

(3) FFIR (if not addressed in Annex B [Intelligence]).

c) Risk reduction control measures.

(1) Antiterrorist actions.

(2) MOPP.

(3) OEG.

(4) Vehicle recognition signals.

(5) Fratricide prevention measures.

d) ROE.

e) Environmental considerations.

f) Any other coordinating instructions or additional instructions.

e. SERVICE SUPPORT

1) Support concept.

a) Synopsis of the forward support battalion (FSB) mission.

b) FSB headquarters and/or brigade support area locations.

c) The division support command (DISCOM) support priorities and where the brigade fits into those priorities.

d) The brigade commander's priorities of support.

e) DISCOM units supporting the brigade.

f) Significant and/or unusual CSS issues that might impact the overall brigade operation.

g) Any significant CSS risks.

h) Support requirements in the functional areas of manning, arming, fueling, fixing, and moving.

i) Concept for push of Class IV/V (obstacle) supplies.

j) Concept for CSS support of organic and supporting corps engineers task organized to maneuver battalions.

2) Material and services.

a) Brigade allocations of Class IV/V (obstacle) supplies.

b) Tentative locations for transfer of Class IV/V (obstacle) supplies to maneuver brigades.

3) MEDEVAC and hospitalization.

4) Personnel.

5) Civil-military cooperation.

6) Miscellaneous.

f. COMMAND AND SIGNAL

1) Command.

a) Map coordinates for brigade CP locations.

b) Chain of command if different from brigade SOP.

2) Signal.

a) Signal instructions.

b) Identification of current SOI.

c) Required brigade reports, formats, and times due (if different from TSOP).

g. ACKNOWLEDGE

h. ANNEXES:

1) A-Task organization.

2) B-Intelligence.

a) SITUATION

(1) Enemy.

(a) Terrain.

(b) Weather.

(c) Enemy capabilities and/or activities.

1 Known and templated locations and activities of enemy units to battalion level.

2 Significant enemy maneuver and other functional area capabilities that impact accomplishment of brigade functions.

3 Expected employment of enemy assets based on most probable enemy COA.

(2) Friendly situation.

(3) Attachments and detachments.

b) MISSION

c) EXECUTION

(1) Concept of intelligence support to support the overall brigade operation.

(2) Tasks to subordinate units. (Detailed intelligence acquisition tasks, by unit.)

(3) Multidisciplined counterintelligence (CI). (Special operational instructions having CI aspects.)

(4) Coordinating instructions.

(a) Intelligence requirements and their priority.

(b) Intelligence acquisition.

1 Requests to division and corps, adjacent, and cooperating units (for intelligence acquisition).

2 Requests for information from other units not organic or attached.

(c) Measures for handling personnel, documents, and material.

1 Enemy prisoners of war (EPW), deserters, repatriates, civilian inhabitants, and other persons.

a Special handling and segregation instructions.

b Locations of EPW collection points.

2 Captured documents. (Special instructions for handling and processing from time of capture to receipt by specified brigade intelligence personnel. [If different from TSOP.])

3 Captured material. (Specially designated items or categories of enemy material required for examination; and specific instructions for their processing and disposition. [If different from TSOP.])

(d) Documents or equipment required. (Description of the conditions under which subordinate units can obtain or request documents or equipment, such as air photographs and maps. [If different from TSOP.])

(e) Distribution of intelligence products.

1 Periods that routine reports and distribution cover.

2 Distribution of special intelligence products.

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL

f) APPENDICES:

(1) Appendix 1 - Intelligence Estimate.

Tab 1 Situation Overlay.

(2) Appendix 2 - Reconnaissance and Surveillance.

(3) Appendix 3 - Signals Intelligence.

(4) Appendix 4 - Multidisciplined Counterintelligence Estimate.

3) C-Operation Overlay.

4) D-Fire Support.

a) SITUATION

(1) Enemy.

(a) Description of enemy fire support and AD assets up to division and down to battery/ company.

(b) Enemy capabilities and/or activities.

1 Enemy rocket, cannon, and missile artillery.

2 Numbers of possible enemy CAS and attack helicopter sorties by day.

3 Number, type, yield, and delivery means of enemy NBC weapons available to the committed force.

(2) Friendly situation.

(a) Division's concept of fires.

(b) Adjacent units' concepts of fires.

(c) Supporting air and naval forces.

(3) Attachments and detachments.

b) MISSION

c) EXECUTION

(1) Concept of fires to support the brigade commander's concept and priority of fire support.

(2) Air support.

(a) Brigade commander's intent for use of air power.

(b) Air interdiction (AI) operations.

(c) CAS operations.

(d) Electronic combat (EC) operations.

(e) R&S operations.

(f) Miscellaneous.

1 Air tasking order (ATO) effective time period.

2 Deadlines for submission of AI, CAS, R&S, and EC requests.

3 Mission request numbering system as it relates to the target numbering system.

(3) Field artillery support.

(a) Concept for use of cannon, rocket, and missile artillery in support of close, deep, and rear operations.

(b) Artillery organization for combat.

(c) Allocation of ammunition.

(d) Miscellaneous.

1 Changes to the targeting numbering system.

2 Use of pulse repetition frequency (PRF) codes.

3 Positioning restrictions.

(4) NSF.

(5) Chemical support.

(6) Offensive EW support. (Concept for use of EW [jamming] in close and deep operations.)

(7) Target acquisition.

(a) Employment and allocation of field artillery (FA) target-acquisition systems and intelligence and electronic warfare (IEW) assets.

(b) Specific target-acquisition tasks, the observation matrix, fire support execution matrix (FSEM), and radar deployment order (RDO).

(8) Coordinating instructions.

(a) Deep operations boundary.

(b) Targeting products.

1 Target selection standards (TSS) matrix.

2 High-payoff target list (HPTL).

3 Attack guidance matrix (AGM).

(c) Fire support coordination measures (FSCMs).

(d) Time of execution of program of fires relative to H-Hour.

(e) ROE.

d) SERVICE SUPPORT

(1) Location of ammunition transfer points (ATPs) and ammunition supply points (ASPs).

(2) CSR.

e) COMMAND AND SIGNAL

f) APPENDICES:

(1) Appendix 1 - Air Support.

(2) Appendix 2 - Field Artillery.

(3) Appendix 3 - Naval Surface Fires.

5) E-Mobility and Survivability.

a) SITUATION

(1) Enemy.

(a) Terrain.

(b) Weather.

(c) Enemy engineer capabilities and/or activities.

1 Known and templated locations and activities of enemy engineer units to company level.

2 Significant enemy maneuver and engineer capabilities that impact brigade engineer operations.

3 Expected employment of enemy engineer assets based on most probable enemy COA.

(2) Friendly situation.

(3) Attachments and detachments.

b) MISSION

c) EXECUTION

(1) Scheme of mobility and survivability operations to support the overall brigade operation, by phase and in priority.

(2) Tasks to subordinate units.

(3) Coordinating instructions.

(a) ROE for engineer units.

(b) Reference to supporting appendices.

d) SERVICE SUPPORT

(1) Command regulated classes of supply.

(2) Supply distribution plan.

(3) Transportation.

(4) Combat health support (CHS).

(5) HN.

(a) Type, location, facilities, assets, and support available.

(b) Procedures for requesting and acquiring HN support.

(c) Limitations and restrictions on HN support.

e) COMMAND AND SIGNAL

f) APPENDICES:

(1) Appendix 1 - Engineer.

(a) Scheme of engineer operations to support the overall brigade operation. The engineer main effort by mission and unit for each phase of the operation. Division level missions that impact the brigade.

1 Obstacles. (The details of the countermobility effort. Identification of obstacle belts to support brigade deep, close, and rear operations. Identification, prioritization, and assignment of responsibilities for division and brigade directed and reserve targets. Execution criteria for reserve targets.)

2 Situational obstacles. (Concept for employing situational obstacles to support the brigade plan. Brigade planned and executed obstacles. Brigade planned and battalion/TF executed obstacles. Brigade resourced and battalion/TF planned and executed obstacles. Criteria for each type of obstacle with designation of headquarters maintaining authority to use SCATMINEs; restrictions on duration [by belt].)

3 Survivability construction. (Description of the tactical construction plan along a timeline that delineates which units get how many positions by type.)

4 Mobility operations. (Concept for brigade deliberate breaching operations, hasty gap crossings, combat road/trail construction/ upgrade in brigade area of operations [AO].)

(b) Tasks to subordinate units.

(c) Coordinating instructions.

1 Times or events at which obstacle belts become effective.

2 Brigade PIR to be considered by subordinate engineer staff or PIR that must be reported.

3 Mission reports required.

4 Explanation of engineer work lines.

(d) SERVICE SUPPORT

(e) COMMAND AND SIGNAL

(2) Appendix 2 - Environmental Considerations.

(a) Operational effect on environment versus military advantage.

(b) Coordinating instructions.

1 Certification of local water sources.

2 Solid waste and liquid waste management.

3 Medical waste.

4 Hazardous waste management.

5 Flora and fauna protection.

6 Archeological and historical preservation.

(d) SERVICE SUPPORT

(e) COMMAND AND SIGNAL (Responsibility for initial environmental considerations guidance, point of contact [POC] who will process requested waivers to environmental governing standards, and who is responsible for coordinating and issuing instructions for disposal of hazardous material and waste.)

(3) Appendix 3 - Nuclear, Biological, and Chemical (NBC) Operations.

(a) Scheme of NBC defense operations to support the overall brigade operation.

(b) Tasks to subordinate units.

(c) Coordinating instructions.

1 MOPP level guidance.

2 Automatic masking criteria.

3 Troop safety criteria.

4 Decontamination site locations.

5 Medical facilities and locations for treating chemical casualties.

6 Turn-in points for chemical/ biological samples.

7 List of civilian and military facilities whose destruction could create militarily significant NBC hazards.

8 OEG guidance (if applicable).

9 Procedures for limiting EMP effects.

(d) SERVICE SUPPORT
(Procedures for handling contaminated casualties. Information on availability and locations of field expedient decontamination supplies, materials, and decontaminants.)

(e) COMMAND AND SIGNAL
(NBC warning and reporting system.)

(f) Tabs:

1 Tab 1- NBC Defense.

2 Tab 2 - Smoke operations.

6) F-Air Defense.

a) SITUATION

(1) Enemy.

(a) Terrain. Most likely routes of enemy ingress and egress.

(b) Weather.

(c) Enemy air capabilities and/or activities.

1 Air threat data. Air-capable enemy organizations including platforms by number and type. Enemy aircraft all weather capabilities; limitations.

2 Additional air threat information. (Air threat information not covered in the intelligence annex. Specific air

threat considerations: sortie rate, subordination of air elements to ground units, ordnance peculiarities, target preferences, tactics, and recent significant activities.)

3 Patterns of use of air avenues of approach.

(2) Friendly situation. (Description of how the AD plan integrates with division plans.)

(3) Attachments and detachments.

b) MISSION

c) EXECUTION

(1) Scheme of air defense artillery (ADA) support to the overall brigade operation. (Includes the brigade commander's intent, objectives, and priorities.)

(2) Tasks to subordinate units. (Command and support relationships and priority of protection.)

(3) Coordinating instructions.

(a) ADW and ADW authority.

(b) Specific orders and requests (SOR) plan.

(c) WCS and WCS authority.

(d) Hostile criteria.

(e) ROE.

(f) Passive air defense.

(g) Combined arms for air defense.

(h) Early warning.

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL
(identification, friend, or foe (IFF) code edition and book number.)

7) G-Command and Control Warfare ($C^2W$).

a) SITUATION

b) MISSION

c) EXECUTION

(1) Scheme of support for $C^2W$ to the overall brigade operation.

(a) Military deception.

(b) EW.

(c) Operations security (OPSEC).

(d) Psychological operations (PSYOP).

(e) Physical destruction.

(2) $C^2W$ tasks. (Exercise of coordinating authority for $C^2W$ operations. Division commander's $C^2W$ objectives and guidelines for accomplishment. Joint restricted fires list [JRFL] to support operations.)

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL

f) APPENDICES:

(1) Appendix 1- Electronic Warfare.

(2) Appendix 2 - Operations Security.

(3) Appendix 3 - Deception.

(4) Appendix 4 - PSYOP.

8) H-Signal Operations (SO).

a) SITUATION

(1) Enemy.

(a) Terrain. (All critical terrain aspects that will impact on employment of $C^2$ communications systems.)

(b) Enemy capabilities and/or activities. (Significant enemy EW capabilities that impact $C^2$ systems.)

(2) Friendly situation. (Primary communications gateways providing connectivity to division, battalion/TFs, and adjacent units. Critical communications measures required to counter expected enemy EW capabilities and protect $C^2$ systems. External communication assets that will augment the brigade's signal support.)

b) MISSION

c) EXECUTION

(1) Concept of signal support to support the overall brigade operation. (Primary and back-up systems supporting critical $C^2$ networks. Plan for extending $C^2$ systems through each phase of the brigade operation. Critical links between tactical and strategic communications systems [if applicable]. Signal support priorities.)

(2) Tasks to subordinate units. (Tasks to specific maneuver and signal support units not contained in the five paragraph brigade OPORD. Detailed Army Battle Command System [ABCS] control procedures.)

(3) Coordinating instructions. (Key times or events critical to information system and network control procedures.)

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL
($C^2$ systems control [SYSCON] hierarchy for common user network. Local area network [LAN] control procedures for network administration and/or management.)

9) I-Provost Marshal (PM).

a) SITUATION

b) MISSION

c) EXECUTION

(1) Scheme of PM operations to support the overall brigade operation.

(a) Maneuver and mobility support. (Battlefield circulation control [BCC] plan. Route reconnaissance and surveillance. MSR traffic control. Straggler control. Refugee control. Intelligence collecting and reporting.)

(b) Area security. (Rear area protection plan, to include base defense. Security of critical assets. Base response force [Levels I, II, III]. Counterincursion. Air ground defense. Terrorism counteraction. ADC. NBC detection and reporting.)

(c) Internment and resettlement operations.

(d) EPW holding areas. EPW operations.

(e) Law and order operations. Maintenance of law and order in rear area forward to maneuver units' rear boundaries.

(2) Tasks to subordinate units.

(3) Coordinating instructions. (Refer to Annex K [Rear Operations]. Coordination/cooperation among

adjacent and other units. Civilian HN agencies which are required to complete the mission. Actions pertaining to rear area force protection that expand or differ from the brigade TSOP.)

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL

10) J-Civil-Military Operations (CMO).

a) Scheme of operation for civil-military support to the overall brigade operation.

b) Tasks to subordinate units.

c) Coordinating instructions.

d) Signal. (Reporting functions for units and CMO activities. Special operations forces [SOF] [if appropriate] specific communications procedures to support CMO.)

11) K-Rear Operations.

a) SITUATION

b) MISSION

c) EXECUTION

(1) Scheme of rear area operations to support the overall brigade operation. Support for the brigade deep and close operations by executing rear operations.

(a) Terrain management.

(b) Security. (Tactical combat force [TCF], response force, and reaction force. Counterreconnaisance plan. CI tasks to assist in threat reduction, location, and identification. Plan for integrating HN, multinational, or joint forces support.)

(c) Sustainment. (Monitoring of sustainment operations within the brigade. Positioning of support assets and critical CSS facilities and movements that require priority protection. Plan for establishment of forward supply points.)

(d) Movements. (Monitoring of administrative and tactical movement in the rear area. Identification of critical choke points that require sustained engineer support. Plan for routing of sustainment on MSRs to ensure no interference with movement of tactical units. Plan for tracking of all units moving through the rear area.)

(2) Tasks to subordinate units.

(a) TCF.

(b) MP. Response force. (Establishment of traffic control points [TCPs].)

(c) Base/base clusters. (Reaction force. Establishment of listening posts [LPs] and observation posts [OPs]. Patrols.)

(3) Coordinating instructions. (Establishment of operations centers. Reaction forces. Liaison with the rear CP. Terrain management coordination. Base defense plans.)

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL
(Location of rear operations commander. Chain of command for the rear CP. Base and base cluster commanders and chain of command. Deconfliction of chain of command with chain of support. Alternate rear CP location.)

12) L-Service Support

a) SITUATION (see base OPORD)

b) MISSION (see base OPORD)

c) EXECUTION

(1) Scheme of service support operations to support the overall brigade operation.

(2) Tasks to subordinate units.

(3) Coordinating instructions.

d) SERVICE SUPPORT

(1) Material and services.

(a) Supply. (Information by class of supply. Supply cycle [as appropriate] plan and procedures by class of supply.)

(b) Transportation. (Land, sea, and air [as applicable]. Facility locations, traffic control, regulation measures, MSRs and alternate supply routes (ASRs), transportation critical shortages, and essential data not provided elsewhere.)

1 Road movement table.

2 Traffic circulation.

(c) Services. (Construction. Clothing exchange and bath (CEB) and laundry. Mortuary affairs. Identification of services available, designation and location of units providing services.)

(d) Labor.

(e) Maintenance. (Aircraft, ground vehicles and other equipment, and watercraft maintenance. Priority of maintenance, location of facilities and collecting points, repair time limits at each level of maintenance, and evacuation procedures.)

(2) MEDEVAC and hospitalization. (Evacuation. Hospitalization. Plan for collection, medical treatment, MEDEVAC policy, and hospitalization of sick, injured, or wounded US and joint forces soldiers, EPW, and civilians [as appropriate]. Requirements for CHS logistics, combat stress management, preventive medicine, dental services, and veterinary services.)

(3) Personnel. (Unit strength maintenance. Morale. Plans for unit strength maintenance, personnel management, morale development and maintenance, discipline, law and order, headquarters management, and religious support.)

(4) Civil-military cooperation. (if not addressed in Annex J, [Civil-Military Operations]).

e) COMMAND AND SIGNAL

f) APPENDICES:

(1) Appendix 1- Service Support Matrix.

(2) Appendix 2 - Service Support Overlay.

(3) Appendix 3 - Traffic Circulation and Control.

Tab 1 Traffic Circulation (Overlay).

Tab 2 Road Movement Table.

(4) Appendix 4 - Personnel.

(5) Appendix 5 - Legal.

Tab 1 ROE

(6) Appendix 6 - Religious Support.

13) M-Army Airspace Command and Control (A2C2)

a) SITUATION

(1) Enemy capability and activity. (Known and templated enemy ADA locations and enemy air corridors. Significant enemy maneuver capabilities that affect A2C2 operations.)

(2) Friendly situation. (Additional airspace users including Air Force, Navy, Marine, allies, coalition forces, ADA, FA, and UAV that affect the scheme of maneuver.)

b) MISSION

c) EXECUTION

(1) Concept of A2C2 support to the overall brigade operation.

(2) Tasks to subordinate units.

(3) Coordinating instructions.

(a) All ADA warnings, WCS, and ROE.

(b) Rules for in-flight procedures if different from the aviation procedures guide.

(c) Description of liaison procedures.

(d) Hostile and friendly aircraft in the brigade area of interest.

(e) Routes and corridors (Minimum risk routes, low level transit routes [LLTRs], standard use routes, UAV operating areas, restricted operations zones [ROZs], air forces routes, coordination requirements.)

(f) FSCMs that affect airspace users.

d) SERVICE SUPPORT

e) COMMAND AND SIGNAL

i. DISTRIBUTION

**Bde - 5** **GUIDANCE AND INFORMATION FROM THE BRIGADE COMMANDER AND STAFF.**

a. Commander's SITREPs.

b. Intelligence reports.

c. Operations reports.

d. Logistics reports.

e. Personnel reports.

f. NBC reports.

**EBN - 1** **ENGINEER BATTALION TACTICAL STANDING OPERATING PROCEDURES (TSOP)**

a. Passage of lines.

b. Immediate action drills.

c. Formations.

d. Movement techniques.

e. OPSEC requirements/procedures.

f. Attachments and detachments.

g. Load plans.

h. Pre-combat checklists.

i. Passive and active air defense measures.

j. Obstacle gap closure.

k. Obstacle preparation and engineer asset management.

l. Obstacle site security.

m. Siting of obstacles.

n. Obstacle reports.

o. Movement and distribution of obstacle material and supplies.

p. Responsibility for completed obstacles.

q. Succession of command.

r. Briefings and rehearsal procedures/techniques.

s. Situation update format.

t. CP operations.

1) Communications.

2) CP organization/layout.

3) Staff duties and responsibilities.

4) Plan development.

5) Coordination procedures.

6) Exchange of LNOs.

7) Shift schedules.

8) Log/journal requirements.

9) Displacement/movement of CPs.

10) Split CP operations.

11) Battle tracking charts and boards.

12) Order production.

13) Graphics displays.

14) Security.

15) Dissemination of information.

**EBN - 2 REPORTS AND INFORMATION FROM ENGINEER BATTALION SUBORDINATE ELEMENTS AND OTHER UNITS**

a. Intelligence reports.

b. SPOTREPs.

c. Obstacle intelligence (OBSTINTEL) reports.

d. Logistic reports.

## KEY OUTPUTS

### EBN - 3 ENGINEER BATTALION WARNO

a. HEADING

1) References. (Maps, charts, and other relevant documents.)

2) Time zone used throughout the order.

3) Task organization.

b. SITUATION

1) Enemy forces. (Include significant changes of information.)

2) Friendly forces.

a) Maneuver brigade mission.

b) Maneuver brigade commander's intent.

c) Maneuver brigade concept of operation.

d) Missions of units to the immediate left and right.

e) Missions of other units with a significant bearing on the engineer battalion.

3) Attachments and detachments.

c. MISSION of the engineer battalion

d. EXECUTION

Intent of the engineer battalion commander (if available).

1) Scheme of engineer operation (when available).

2) Tasks to subordinate units (when available).

a) Tasks to units for execution.

b) Movement to initiate.

c) Reconnaissance to initiate.

3) Coordinating instructions.

a) CCIR.

b) Risk guidance.

c) Link-ups with other units.

d) Timeline.

e) Guidance on orders and rehearsals as applicable.

f) Orders group meeting (attendees, location, and time) (when applicable).

g) Earliest time of movement and amount of notice.

e. SERVICE SUPPORT

1) Special equipment, (Identification of requirements; coordinating instructions for transfer to using units.)

2) Transportation. (Identification of requirements; coordinating instructions for pre-positioning of assets.)

3) Class IV/V supply points.

f. COMMAND AND SIGNAL

1) Command. (Chain of command if different from engineer battalion SOP.)

2) Signal. (Identify current SOI and prepositioning of assets to support the operation.)

g. ACKNOWLEDGE (Statement directing acknowledgment of receipt and understanding.)

## EBN - 4 ENGINEER BATTALION OPORD

a. HEADING

1) References. (Maps, charts, DATUM, and other related documents needed to understand the order.)

2) Task organization.

b. SITUATION

1) Enemy forces.

a) Terrain and weather.

b) Enemy situation.

(1) Current disposition of enemy forces facing the brigade.

(2) Enemy engineer activities and capabilities.

(3) Most probable enemy COA.

(4) Enemy activities, capabilities, COA that effect brigade level engineer operations.

2) Friendly forces.

a) Division mission.

b) Division commander's intent.

c) Division concept of operation.

d) Brigade commander's intent.

e) Brigade mission.

f) Brigade concept of operation.

g) Missions of adjacent divisions and engineer units that impact brigade missions.

3) Attachments and detachments.

a) Organic and supporting engineers to the brigade.

b) Changes that occur during the operation including time/event that triggers the change.

c. MISSION

d. EXECUTION

Intent of the engineer battalion commander.

1) Scheme of engineer operations (by phase if required).

a) Mission essential engineer tasks in brigade rear.

b) Division level mission essential engineer tasks in close operations.

c) Brigade's main engineer effort.

(1) Obstacles' emplacement.

(2) Survivability construction.

(3) Mobility operations.

d) Other mission essential tasks (e.g., engineer battalion task force).

2) Tasks to subordinate units.

3) Coordinating instructions.

a) Time or condition when the engineer battalion OPORD becomes effective.

b) CCIR.

(1) PIR (if not addressed in Annex B [Intelligence]).

(2) EEFI (if not addressed in Annex B [Intelligence]).

(3) FFIR (if not addressed in Annex B [Intelligence]).

c) Risk reduction control measures.

d) Any other coordinating instructions or additional instructions.

e. SERVICE SUPPORT

1) Support concept.

a) Logistic concept for units under engineer battalion control.

b) Logistic support for battalion elements given operational control (OPCON) to maneuver units.

c) Subordinate unit supply support.

(1) How. (Area support, unit support, supply point distribution, unit distribution.)

(2) Where. (brigade support area (BSA), trains.)

(3) What. (Manning, arming, fueling, fixing, and moving.)

d) Locations of key CSS nodes referencing brigade CSS graphics.

e) The engineer battalion commander's priorities of support.

2) Material and services.

a) Allocations and CSR for each class of supply for each unit.

b) Basic loads.

c) Mission logistic arrangements.

d) Allocation of corps and division transportation assets.

e) MSRs.

3) MEDEVAC and hospitalization.

a) Primary and backup means of MEDEVAC.

b) ATPs.

c) Aid station locations.

4) Personnel.

a) EPW handling and collection points.

b) Mail.

c) Graves registration (GRREG).

d) Religious services.

5) Civil-military cooperation.

a) Engineer supplies and services provided by HN.

b) Engineer equipment provided by HN.

6) Miscellaneous.

f. COMMAND AND SIGNAL

1) Command.

a) Map coordinates for engineer battalion CP locations.

b) Chain of command (if different from engineer battalion TSOP).

2) Signal.

a) Signal instructions.

b) Identify current SOI.

c) Required engineer battalion reports, formats, and times due.

g. ACKNOWLEDGE

h. ANNEXES:

1) A-Engineer Execution Matrix.

2) B-Intelligence (As required).

3) C-CSS Annex (As required).

4) D- Movement Annex (As required).

i. OVERLAYS:

1) SIT TEMP.

2) Engineer operations overlay including brigade maneuver graphics.

3) Brigade CSS overlay.

4) Brigade obstacle plan.

5) Other operations (e.g., brigade deliberate breach, river crossing, NBC).

j. DISTRIBUTION

**EBN - 5 GUIDANCE AND INFORMATION FROM ENGINEER BATTALION COMMANDER AND STAFF**

a. Commander's SITREPs.

b. Intelligence reports.

c. Operations reports.

d. Logistics reports.

e. Personnel reports.

f. NBC reports.

## TASK LIST SUMMARY

This component provides a summary of the first level of tasks on the task list.

1. **The engineer battalion commander and staff direct and lead the engineer battalion during planning for battle.**

2. **The engineer battalion receives an order initiating a new mission from higher headquarters.**

3. **The engineer battalion commander and staff conduct mission analysis.**

4. **The engineer battalion executive officer directs the staff in the preparation and issuance of an engineer battalion warning order.**

5. **The engineer battalion commander issues planning guidance.**

6. **The engineer battalion commander and staff prepare staff estimates.**

7. **The engineer battalion commander and staff develop courses of action.**

8. **The engineer battalion commander and staff analyze course(s) of action.**

9. **The engineer battalion staff compares courses of action.**

10. **The engineer battalion commander announces his decision.**

11. **The engineer battalion staff prepares the operations order.**

12. **The engineer battalion commander and staff issue the operations order.**

## TASK LIST

The purpose of this component is to identify, organize, and list in logical sequence all of the tasks and subtasks necessary to perform this function. Normally, the primary participants responsible for performing the task are identified. The tasks were extracted from the appropriate doctrinal publications and sources. The specific sources of reference for each task and subtask are shown in brackets [ ] following the task.

In many instances, the wording of the task has been changed from the text found in the Army Training and Evaluation Program - Mission Training Plan (ARTEP MTP) or Field Manual (FM) to add clarity, context, or meaning. The references allow the user to refer to the original source material for further detail and context, if desired.

For tasks selected from an ARTEP MTP, the task number has been expanded with a slash (/) to identify the subtask and standard reflected in the ARTEP MTP task. To illustrate: a task referenced as [ARTEP 71-3 MTP, 71-3-4001/4c] was derived from ARTEP 71-3 MTP, the Mission Training Plan for the Heavy Brigade Command Group and Staff, and identifies brigade S4 section task "71-3-4001, Conduct Logistical Planning," subtask "4," "Prepares plans and orders," standard or sub-element "c."

For tasks derived from an FM, the FM number and page number have been provided as a reference. For example, the reference for a task, "The brigade commander demonstrates understanding of mission and higher commander's intent during confirmation briefing to the division commander," would be [FM 101-5, p. 1-9].

Some tasks and subtasks needed to define the function are not contained in ARTEP MTPs nor can they be derived from FMs. Tasks and subtasks were identified to fill such gaps and were developed during coordination visits with various TRADOC schools, Forces Command (FORSCOM) units, and Combat Training Center (CTCs). These tasks are listed as field notes [FN] and are annotated with their source. For example, tasks identified by Combat Service Support (CSS) Observer-Controllers (OCs) at the National Training Center (NTC) would be referenced as [FN-NTC CSS OCs]. Still other tasks and subtasks were identified based on review of newsletters and other documents published by the Center for Army Lessons Learned (CALL) which capture lessons learned from Army units relevant to doctrine, tactics, techniques, and procedures (DTTP). Tasks derived from CALL publications are referenced as Lessons Learned [LL] with the appropriate document and page number provided. For example, a task extracted from CALL Newsletter 95-6, "National Training Center's 'Fighting with Fires,' is referenced as [LL-CALL Newsletter 95-6, p. 16].

In some cases, the analysis of the BF resulted in the identification of tasks for which no doctrinal references could be determined. Such tasks were selected based on author experience and a careful study of relevant doctrine. These tasks are referenced as author notes [AN].

Full references for all the source material are listed in the reference section.

1. **The engineer battalion commander and staff direct and lead the engineer battalion during planning for the battle.** [AN]

   a. The engineer battalion commander provides command presence and leadership to soldiers, leaders, and units of the battalion. [FM 22-103, Chap 3, 5]

   b. The engineer battalion commander directs ongoing engineer mobility, counter-mobility, and survivability operations. [ARTEP 5-145 MTP 05-1-0018/4f; FN-NTC Engr OC]

      1) Meetings/visits with subordinate commanders.

      2) Briefings by staff.

      3) Personal observation of engineer activities.

      4) Guidance from supported maneuver brigade commander and staff.

      5) Input from maneuver battalion task force commanders and staff.

   c. The engineer battalion maintains communications. [ARTEP 5-145 MTP 05-1-0028]

      1) The communications section operates frequency modulated (FM) radio nets. [ARTEP 5-145 MTP 05-4-0028/4]

      2) Engineer battalion CPs are connected with the division mobile subscriber radio telephone system by the engineer battalion communications section. [ARTEP 5-145 MTP 05-4-0028/2(a)]

      3) The engineer Bn SO advises the battalion commander on employment of communications equipment. [FM 5-71-3 Chap 2]

      4) The engineer Bn SO ensures that communications are maintained with subordinate, superior, and supported units. [FM 5-71-3 Chap 2]

      5) The engineer Bn SO monitors communications security (COMSEC). [FM 5-71-3 Chap 2]

      6) The engineer battalion main CP is the net control station for the engineer battalion command net. [FM 5-71-3 Chap 2]

      7) The engineer battalion rear CP functions as net control station for the engineer battalion administrative and logistics net. [FM 5-71-3 Chap 2]

8) All engineer battalion elements establish and maintain radio communications. [ARTEP 5-145 MTP 05-4-1027]

d. The engineer battalion main CP operations are conducted. [ARTEP 5-145 MTP 05-1-0018]

1) The engineer battalion XO directs and supervises the efforts of the main CP. [FM 5-71-3 Chap 2]

2) The engineer battalion operations sergeant coordinates with the supported maneuver brigade XO for collocation with brigade main CP. [FM 5-71-3, App B]

3) The engineer battalion XO coordinates with the supported maneuver brigade headquarters and headquarters company (HHC) commander for: [AN]

a) Integration into movement serials of brigade main for displacement.

b) Quartering party requirements.

c) Location of the main CP within the headquarters area (or separate planning facility if the main CP is collocated with the brigade main CP).

d) Physical security measures.

e) NBC defense.

f) Space/shelter allocation.

g) Supply and services support, as necessary.

4) The engineer battalion S3 section monitors the current mobility, counter-mobility, and survivability operations. [ARTEP 5-145 MTP 05-1-0018/4a]

a) Maintains current situation overlays, information displays, execution matrices, and obstacle database. [ARTEP 5-145 MTP 05-1-0018/4a(2)(b)(c)]

b) Continually updates the engineer estimate. [ARTEP 5-145 MTP 05-1-0018 /4b(2)(b)]

c) Conducts shift change briefs. [LL - CALL, News from the Front]

5) The engineer battalion S3 section reports engineer information. [ARTEP 5-145 MTP 05-1-0026]

a) The S3 section receives and logs engineer information.

b) The S3 section determines the appropriate engineer battalion staff action element (S1, S2, S3, S4, BMT, NBC NCO, Bn SO).

c) The S3 section disseminates the information to the staff action element.

d) The staff action element analyzes the information for validity, importance, and required actions.

e) The staff action element acts on the information.

f) The S3 section prepares and submits reports to higher headquarters and subordinate units.

6) The engineer battalion S3 section reports obstacle information. [ARTEP 5-145 MTP 05-1-0025]

a) The S3 section receives obstacle information from subordinate units.

b) The S3 section reports obstacle information to higher headquarters and subordinate units.

c) The S3 section records obstacle information and posts it on the overlay.

d) The S3 briefs the staff and company commanders on obstacle information received by higher headquarters and adjacent units.

7) The engineer battalion S3 section disseminates WARNOs and FRAGOs to all subordinate units. [FM 5-71-3 Chap 2]

8) The engineer battalion S2 and the S3 section direct and receive engineer intelligence collection in accordance with the brigade R&S plan. [ARTEP 5-145 MTP 05-1-0413]

a) The engineer battalion S2 monitors tactical intelligence reporting of engineer PIR on the brigade operations and intelligence (O&I) net. [AN]

(1) River crossing (opposed).

(2) Enemy obstacles.

(3) Enemy engineer activity.

(4) Enemy engineer equipment.

(5) Terrain.

b) The engineer battalion S2 in accordance with engineer battalion OPORD directs engineer companies to do specific engineer technical reconnaissances. [ARTEP 5-145 MTP 05-1-0413/2]

(1) The S2, in conjunction with the engineer battalion S3, briefs engineer reconnaissance personnel.

(a) Enemy situation.

(b) Reporting requirements.

(c) Detailed information.

1 Characteristics of area; route to the reconnaissance objective.

2 Communications nets and procedures.

(d) CSS support plan, to include casualty evacuation.

(e) Engineer battalion commander's guidance and intent.

(2) The S2 provides forms and materials to assist in collecting and recording information.

(3) The S2 ensures that coordination of engineer battalion reconnaissance is effected with the maneuver brigade S2 concerning:

(a) NAIs.

(b) Force protection measures.

(c) Casualty evacuation.

(4) The S2 receives reports directly from engineer reconnaissance teams.

(5) The S2 consolidates the engineer information obtained during reconnaissance operations.

(a) River (unopposed).

(b) Bridge.

(c) Route.

(d) Engineer resource.

(6) The S2 processes from intelligence and reconnaissance reports the information and develops intelligence.

c) The engineer battalion S2 updates the situation analysis of the engineer estimate. [ARTEP 5-145 MTP 05-0413/3].

d) The engineer battalion S2 requests and obtains standard and non-standard topographic products. [AN]

e) The engineer battalion S2 sends the intelligence to the ABE, maneuver units, and the brigade S2 by fax, courier, or radio. [ARTEP 5-145 MTP 05-1-0413/4]

9) The engineer battalion S3 section monitors implementation of OPSEC measures. [ARTEP 71-3 MTP 71-3-2010]

e. The engineer battalion rear CP conducts operations. [ARTEP 5-145 MTP 05-1-0018]

1) The engineer battalion rear CP assumes the functions of the main CP if required. [FM 5-71-3 Chap 2]

2) The engineer battalion S1 and S4 sections establish the rear CP in the brigade support area (BSA) and: [FM 5-71-3 Chap 2]

   a) The S4 section, in conjunction with the S1 section, monitors the tactical situation. [FM 5-71-3 Chap 2]

      (1) Maintains current situation maps (SITMAP) and operational information displays.

      (2) Conducts shift change briefs.

   b) The S1/S4 sections update the main CP on key CSS factors. [FM 5-71-3 Chap 6]

      (1) Last logistical package (LOGPAC) resupply.

      (2) Number of operational systems.

      (3) Overall personnel status.

      (4) Projections on attaining specified operational readiness levels.

   c) The S1/S4 sections coordinate personnel and logistic support for the engineer battalion main CP. [AN]

3) The engineer battalion S4 section plans, coordinates, directs, and tracks logistic operations. [ARTEP 5-145 MTP 05-1-1000]

   a) The S4 section maintains daily staff journal.

   b) The S4 section supervises the requisition, receipt, storage, and distribution of supplies and equipment (all Classes except VIII).

   c) The S4 section supervises and monitors property accounting procedures.

   d) The S4 section supervises and monitors supply and maintenance record procedures.

   e) The S4 section forecasts and maintains data on Class II items.

f) The S4 section and the support platoon establish and camouflage material storage areas.

g) The S4 section coordinates other supply/service actions.

(1) Laundry support.

(2) Clothing exchange and bath points.

(3) Salvage.

(4) Receipt, storage, and issuance of organizational clothing and individual equipment.

(5) Transportation of remains to graves registration point in BSA.

(6) Distribution of unit basic loads.

h) The S4 section, with assistance of BMT, coordinates, controls, and supervises the turn-in of supplies and equipment.

i) The S4 section, with the assistance of the BMT, coordinates, controls, and supervises the issue of supplies and equipment.

j) The S4 section, with input from unit 1SGs, maintains radio and weapon configurations by each vehicle. [FN - United States Engineer School (USAES)]

k) The S4 section coordinates transportation requirements.

(1) Coordinates with the S3 section for priorities for movement.

(2) Reviews movement and load plans of subordinate units.

(3) Determines requirements for transportation and submits requests for external transportation.

(4) Obtains road clearances for movements.

l) Revises the logistics estimate. [ARTEP 5-145 MTP 05-1-0018/4b(3)]

4) The engineer battalion S1 section conducts administrative operations. [ARTEP 5-145 MTP 05-1-1008]

a) Maintains a daily staff journal.

b) Receives and reports casualties.

c) Provides mail services.

d) Performs administrative functions in accordance with Department of the Army (DA) pamphlet (Pam) 600-8 series.

e) Plans and supervises the discipline, law, and order program.

f) Monitors file and record maintenance.

g) Revises the personnel estimate.

h) Coordinates and arranges religious support.

i) Directs medical section leader concerning: [AN]

(1) Preventative health activities.

(2) Reporting and tracking casualties' status.

(3) Information on medic casualty treatment and evacuation, location of ambulance exchange points (AXPs), and medical support facilities within brigade AO.

5) The engineer battalion S1 section performs strength accounting. [ARTEP 5-145 MTP 05-1-1032]

a) Updates the battalion battle roster.

b) Performs personnel status reporting.

c) Reports casualties.

6) The engineer battalion S1 section conducts replacement operations. [ARTEP 5-145 MTP 05-1-1033]

a) Establishes a replacement receiving point and advises the supported brigade S1 of the location.

b) Welcomes and orients replacements.

c) Assigns replacements.

d) Performs personnel actions.

e) Briefs replacements.

f) Inspects soldier clothing and equipment and coordinates provision of any required items.

g) Coordinates for transportation to subordinate units.

7) The battalion S1 section coordinates EPW operations. [FM 5-71-3 Chap 2; ARTEP 5-145 MTP 05-1-1028]

a) Coordinates EPW holding and processing procedures.

b) Supervises the processing of EPWs.

c) Evacuates EPWs to the supported maneuver brigade EPW collection point.

d) Coordinates with the engineer battalion S4 for transportation.

8) The HHC commander directs the battalion field trains and: [FM 5-71-3 Chap 2; FN - NTC Engr OCs]

a) Executes CSS portion of engineer battalion plan/OPORD.

b) Coordinates the CSS plan with the S1, S4, and BMT.

c) Coordinates flow of information between engineer battalion combat and field trains CPs.

d) Coordinates with FSB for positioning and security of field trains.

e) Coordinates support for the battalion in the BSA.

f) Directs company supply sergeants in formation of LOGPACs to subordinate units and engineer main CP.

g) Identifies and acts on CSS problems.

h) The HHC commander serves as staff engineer to the FSB. [FM 5-71-3 Chap 2; FN - USAES]

(1) Assists FSB staff in identifying requirements for engineer support for CSS operations in the BSA.

(2) Assists FSB staff in coordinating/monitoring engineer support provided in the BSA.

i) The S4 section coordinates engineer battalion food service section operations:

(1) Monitors food service operations.

(2) Prepares the battalion feeding plan.

(3) Inspects field feeding operations.

9) The BMT supervises engineer battalion maintenance operations and establishment of unit maintenance collection point (UMCP). [FM 5-71-3 Chap 2, ARTEP 5-145 MTP 05-1-1000/5]

a) Supervises the battalion maintenance program.

b) Tracks equipment status.

c) Reviews unit status reports and material condition reports.

d) Conducts spot inspections.

e) Reviews and supervises the prescribed load list (PLL) for Class IX repair parts.

f) Coordinates the recovery and evacuation of unserviceable/ irreparable engineer battalion vehicles.

g) Establishes maintenance priorities and monitors controlled exchange program.

h) Monitors the Army oil analysis program and calibration program.

i) Revises the maintenance input to the logistic estimate.

j) Monitors UMCP operations.

2. **The engineer battalion receives an order initiating a new mission from higher headquarters.** [FM 101-5; FM 5-71-100, FM 5-71-3]

a. The engineer battalion commander as the brigade engineer attends the division orders brief in accordance with supported maneuver brigade TSOP. [AN]

1) Receives any additional guidance and information after briefing from engineer brigade commander and staff.

2) Focuses on the engineer briefing by the engineer brigade commander as the division engineer.

b. The engineer battalion receives a WARNO. (The engineer battalion may receive a WARNO from the engineer brigade and from the supported maneuver brigade. [FM 5-71-3 Chap 2; FM 5-71-100, B-13])

1) When a WARNO from the engineer brigade is received prior to the division OPORD briefing, the engineer battalion XO informs the engineer battalion commander of the content of the WARNO; critical information communicated includes: [FM 5-71-3 Chap 2; FM 5-71-100, B-13]

a) Friendly and enemy situation.

b) Tentative changes to task organization.

c) Tentative scheme of engineer operations.

d) On-order tasks.

e) Logistics operations.

f) Changes to situation, guidance since last order.

2) When a supported maneuver brigade WARNO is received, the engineer battalion XO informs the engineer battalion commander of the content of the WARNO; critical information communicated includes: [FM 5-71-3 Chap 2; FM 101-5, PH-14]

a) Brigade mission.

b) Division mission and intent.

c) Brigade commander's intent.

d) Orders for preliminary action.

e) Service support instructions.

f) Timelines.

g) Tasks for brigade units.

h) Changes to situation, guidance since last order.

c. The engineer battalion commander, as brigade engineer, initiates detailed terrain analysis using: [FM 5-71-3 Chap 2; FN - USAES]

1) TerraBase products.

2) Map reconnaissance.

3) Aerial photographs.

4) Air and ground reconnaissance.

d. The engineer battalion XO initiates the process to inform the engineer battalion staff on the content of the WARNOs/OPORDs as they are received. Staff begins planning in parallel with the brigade. [AN]

1) Conducts "staff huddles."

2) Initiates staff estimate process.

3) Directs coordination of staff sections.

4) Directs new information as it is received to the appropriate staff section.

e. The engineer battalion S3 section obtains copies of higher headquarters written OPORDs/WARNOs and provides an advance copy to the engineer battalion rear CP; S3 receives: [ARTEP 5-145 MTP 05-1-0018/4a(2)(c); FN - NTC Engr OCs]

1) Division OPORD with engineer annex from ABE section.

2) Division engineer unit WARNO/OPORD from engineer brigade by courier or electronic means.

3) Supported maneuver brigade WARNO from maneuver brigade S3 section.

f. The engineer battalion rear CP coordinates with supported maneuver Bde S4 and FSB support operations section to obtain a copy of the division OPORD. [FN-NTC Engr OCs]

g. The engineer battalion XO tracks the supported maneuver brigade planning in order to conduct parallel planning in the engineer battalion main CP. [FM 5-71-3 Chap 2]

1) Coordinates with supported maneuver brigade XO for planning timelines.

2) Receives status of brigade planning timelines from the ABE section.

h. The engineer battalion S3 participates in the supported maneuver brigade's planning process. [AN]

1) Moves to the maneuver brigade main CP.

2) Directs ABE section participation.

3) Provides information on engineer battalion status, capabilities, and limitations.

4) Provides information to the engineer battalion main CP about supported maneuver brigade planning.

i. The engineer battalion S3 (as officer in charge [OIC] of the ABE section) and the engineer battalion XO coordinate closely to support planning in parallel with the brigade and facilitate information flow. [FM 5-71-3 p. 2-22]

1) The engineer battalion S3 provides the engineer battalion XO and staff with timely information concerning:

a) Supported maneuver brigade mission analysis.

b) Supported maneuver brigade commander's planning guidance.

c) Supported maneuver brigade COA development.

d) Supported maneuver brigade war-gaming results.

e) Supported maneuver brigade commander's COA decision.

2) The engineer battalion XO and staff provide support to the ABE section concerning:

a) Engineer mission analysis.

b) EBA.

c) Analysis of schemes of engineer operations (SOEO) and supporting maneuver brigade COAs.

j. The engineer battalion XO directs the efforts of the engineer battalion staff in preparation for implementing the military decision-making process (MDMP). [FM 5-71-3 Chap 2]

1) Upon receipt of a higher headquarters order, the engineer battalion XO develops a planning and preparation timeline for the staff.

2) The engineer battalion XO ensures that any LNOs are:

a) Dispatched as required.

b) Received from other units and given an orientation briefing.

3) The engineer battalion XO prepares to issue an initial WARNO to all engineer battalion subordinate units. (See also Task 4 of this analysis.)

k. The engineer battalion S1 or S4 comes forward to the engineer battalion main CP upon receipt of division and/or division engineer unit OPORD to: [AN]

1) Participate in the battalion orders process.

2) Coordinate with brigade staff counterparts.

l. The engineer battalion commander as the brigade engineer attends maneuver brigade mission analysis at brigade main CP.[1] [FN-NTC Engr OC]

m. The engineer battalion commander and staff implement, when required, the MDMP in a time-constrained environment by employing time-reducing measures

[1] The engineer battalion commander as brigade engineer should decide whether he will personally continue to participate in the brigade planning process or designate his battalion S3. (This task analysis reflects the S3 as the participant, which is in consonance with FM 5-71-3).

such as collocating the engineer battalion main CP with the supported maneuver brigade main CP. [AN]

3. **The engineer battalion commander and staff conduct mission analysis.** [ARTEP 5-145 MTP, 05-1-0002; FM 101-5 Chap 4, FM 5-71-3 Chap 2]

a. The engineer battalion commander performs a mission analysis. [ARTEP 5-145 MTP 05-1-0002/1a, and FM 101-5, p. 4-11]

1) The engineer battalion commander derives the missions and intents of division, engineer brigade, and supported maneuver brigade commanders.

2) The engineer battalion commander communicates his understanding of these higher headquarters (HQ) commanders' missions and intents to his staff.

b. The engineer battalion staff members individually conduct mission analyses of higher HQ missions and higher commanders' intents, utilizing the division OPORD engineer annex, division engineer unit WARNO, and the supported maneuver brigade's WARNO to determine: [FM 101-5, p. 4-11, FM 5-71-3, Chap 2; LL- CALL Newsletter No. 93-3, p. 4]

1) Specified tasks.

2) Implied tasks.

3) Assets available.

4) Limitations.

a) Constraints.

(1) Breach lane requirements.

(2) Designated reserve targets.

b) Restrictions.

(1) Obstacle control measures (e.g., division obstacle zones).

(2) Scatterable mine (SCATMINE) employment.

5) Critical facts and assumptions relating to engineer operations from the preparation of the EBA.

6) Risk, as applied to engineer capability to perform tasks.

7) Time analysis:

a) Planning timeline that includes items such as:

(1) Issue WARNO.

(2) Prepare staff estimates.

(3) Develop COAs.

(4) Announce COA decision.

(5) Prepare written copy of engineer battalion OPORD.

b) Operational timelines that include such items as:

(1) Supported maneuver brigade and engineer battalion TF OPORD briefings, when determined.

(2) Time of engineer battalion OPORD briefing.

(3) Rehearsals.

(a) Supported maneuver brigade.

(b) Engineer battalion.

(c) Maneuver battalion TFs, as appropriate.

(4) Movement times.

(5) Line of departure or prepare to defend times.

(6) Hours of darkness or limited visibility.

8) Essential tasks that are critical to the engineer mission.

9) Restated engineer battalion mission.

10) Provide engineer battalion XO input for the WARNO. [AN]

c. The engineer battalion XO consolidates individual staff mission analyses and: [FM 101-5 p. 4-14]

1) Reviews consolidated mission analysis for accuracy.

2) Directs preparation of mission analysis briefing.

3) Prepares restated mission for battalion commander's approval.

4) Coordinates/provides information concerning mission analysis to/with the ABE.

d. The engineer battalion XO briefs the battalion commander on the results of the staff mission analysis. [FM 101-5, p. 4-14 and App D, FM 5-71-3, Chap 2]

1) Specified and implied tasks.

2) Essential tasks.

3) Available engineer assets.

4) Determined limitations.

5) Proposed acceptable risk to engineer capability.

6) Determined critical facts and assumptions.

7) Time analysis.

a) Supported maneuver brigade timelines from the ABE section.

b) Timeline for engineer battalion staff planning process.

c) Timeline for engineer operations during preparation and execution phases.

8) Mission and intent of supported maneuver brigade and division commanders.

9) Recommended restated engineer battalion mission.

e. The engineer battalion commander based on his own mission analysis and the mission analysis brief from the engineer battalion staff: [FM 101-5, p. 4-15]

1) Approves/modifies specified engineer battalion essential tasks.

2) Approves/modifies the engineer battalion restated mission.

3) Directs the issuance of a WARNO.

f. The engineer battalion commander and staff continue to develop their estimates. [AN]

g. When necessary, the engineer battalion commander and staff employ the military decision-making process (MDMP) in a time-constrained environment to conduct mission analysis using one of the following alternative methods: [FM 101-5 Chap 4]

1) The engineer battalion commander personally conducts mission analysis.

2) The engineer battalion commander and staff jointly conduct mission analysis in the form of a brainstorming session.

4. **The engineer battalion executive officer directs the staff in the preparation and issuance of an engineer battalion warning order.** [FM 5-71-3 Chap 2]

a. The engineer battalion XO ensures that the engineer battalion WARNOs are prepared and issued in the 5-paragraph format and: [FM 101-5, p. H-13]

1) Provide major timeline events which accompany mission execution.

2) Provide planning focus to subordinate unit commanders and staff.

3) Provide essential details of impending engineer operations.

b. The engineer battalion staff, under the supervision of the engineer battalion XO, prepares the WARNO, which includes critical information available at the time for WARNO, such as: [FM 5-71-3, Chap 2] (Normally a minimum of three WARNOs are issued during the conduct of the MDMP.)

1) Enemy and friendly situations.

2) Changes in task organization.

3) Directed movements of subordinate units and linkups.

4) Nature and time of operation.

5) Time and place the engineer battalion OPORD will be issued.

6) Other specified tasks.

7) Service support instructions.

c. The engineer battalion XO ensures that the WARNO is sent by the S3 section to: [FM 5-71-3 Chap 2]

1) All subordinate engineer companies, regardless of command/support relationships.

2) The HHC commander.

3) All attached/supporting units.

4) All engineer battalion staff members.

5. **The engineer battalion commander issues planning guidance.** [FM 101-5, Chap. 4 FM 5-71-3]

a. The engineer battalion commander develops planning guidance using: [FM 101-5, p. 4-16; FM 5-71-3 Chap 2]

1) Supported maneuver brigade commander's planning guidance.

2) Engineer brigade commander's guidance.

3) Results of his own mission analysis and his mission, enemy, terrain, troops, and time available.

4) Results of the engineer battalion staff mission analysis.

b. The engineer battalion XO prepares the battalion staff to receive the engineer battalion commander's guidance. [FM 101-5, p. 4-15]

1) Determines who must be present.

2) Ensures that the staff is prepared to take notes on guidance issued.

c. The engineer battalion commander's guidance focuses staff on: [FM 5-71-3 Chap 2]

1) Identification, integration, and synchronization of tasks to support the engineer battalion missions assigned by the supported maneuver brigade.

a) Engineer battalion staff.

b) ABE section of maneuver brigade.

2) Parallel planning between the ABE section and engineer battalion staff.

d. The engineer battalion commander issues guidance to the engineer staff that is complete and includes: [FM 5-71-3, p. 2-19; FM 101-5, Chap 4]

1) Commander's intent. [FM 5-71-3, p. 2-19; FM 101-5, p. 4-18]

a) Supported maneuver brigade and division commanders' intents.

b) His own intent, which includes:

(1) Purpose.

(2) Method.

(3) Endstate.

2) Restated mission for the engineer battalion. [FM 5-71-3, p. 2-19; FM 101-5, p. 4-18]

a) Stated in doctrinally correct terms.

b) Explains missions as tasks and purposes.

3) Planning and operational timelines. [FM 101-5, p. 4-23]

4) Engineer battalion COAs to consider. [FM 5-71-3, p. 2-19]

5) Engineer battalion commander's CCIR for each phase of the operation, including: [Battle Command Battle Lab (BCBL) Battle Command, p. 21; FN - USAES]

a) Essential elements of friendly information (EEFI).

b) Friendly force information requirements (FFIR).

c) Priority information requirements (PIR).

d) Instructions for incorporating engineer battalion CCIR into maneuver brigade CCIR, as appropriate.

6) Effects desired on enemy force. [FM 5-71-3, p. 2-19]

7) Risk assessment. [FM 5-71-3, p. 2-19]

8) Priorities. [FM 101-5, p. 4-22]

a) Priorities of engineer tasks.

b) Priorities of additional engineer assets.

c) Priorities for equipment repair.

9) Time plan. [FM 101-5, p. 4-23]

a) Time allocated for planning and preparation to the engineer battalion staff and to subordinate units.

b) The engineer battalion commander determines who, where, and how the engineer battalion OPORD will be issued.

10) Type of battalion order to issue; formats include: [FM 101-5, p. 4-24]

a) FRAGO.

b) Oral order.

c) Overlay order.

d) Five paragraph.

11) Type of rehearsal to conduct; options include: [FM 101-5, p. 4-25]

a) Backbrief.

b) Radio.

c) Map.

d) Sketch map.

e) Terrain model.

f) Key leader.

g) Full.

12) Any modifications to MDMP needed to cope with METT-T (e.g., time constraints). [FM 101-5, p. 4-16] [AN]

13) Rehearsals of brigade and other brigade units in which the engineer battalion will participate or observe. [AN]

e. The engineer battalion commander conducts a confirmation brief at the end of his initial planning guidance to ensure that: [FM 101-5 p. 4-15, 16]

1) The information he has provided will result in timely and effective COA development and analysis.

2) The commander's vision of the scheme of engineer operation is imparted to the staff.

3) The guidance does not overly restrict staff initiative or ideas.

f. The engineer battalion commander, when employing the MDMP in a time-constrained environment, issues planning guidance that: [FM 101-5 p. 4-16]

1) Shortens time by giving more detailed directive guidance.

2) Adds focus to staff planning by stating options he does not want considered.

6. **The engineer battalion commander and staff prepare staff estimates.** [ FM 101-5, Chap. 4, App C]

a. The engineer battalion commander develops his commander's estimate concurrently with the staff estimates being prepared by his engineer battalion staff. [FM 101-5 p. 4-3]

1) The engineer battalion commander integrates information from the mission analysis process into his updated commander's estimate which began at the receipt of mission.

2) The engineer battalion commander continues to refine his updated estimate over the duration of the operation.

3) The engineer battalion commander, during this task, focuses information related to paragraphs 1 and 2 of the commander's estimate.

a) Mission.

b) The situation and COA.

b. Upon receipt of an order (OPORD/WARNO) from higher headquarters initiating a mission, the engineer battalion commander begins his estimate. [FM 101-5 Chap 4 and App C ]

c. Upon receipt of an order (OPORD/WARNO) from higher headquarters initiating a mission, the engineer battalion staff begins to organize information in preparation for staff estimate process and begins the development of paragraphs 1 and 2 of its individual staff estimates. [FM 101-5, pp. 3-84 and App C]

1) The S1 gathers information for the personnel estimate.

2) The S2 gathers information to include standard and non-standard topographic products, and initiates development of part 1 and 2 of the engineer battlefield assessment (EBA) with the ABE and the engineer battalion S3.

3) The S3 gathers information for the engineer estimate (i.e., EBA).

4) The S4 gathers information for the logistics estimate.

5) The NBC NCO gathers information for the NBC estimate.

6) The Bn SO gathers information for the command, control, communications estimate.

7) All staff members begin to gather facts concerning:

a) Enemy dispositions.

b) Friendly dispositions.

c) Available troops.

d) Unit's strength.

e) Material readiness.

f) Battlefield situation.

d. The engineer battalion commander and staff clarify information with their counterparts at engineer brigade. [AN]

1) Operational (e.g., tasks assigned to the engineer battalion).

2) Combat service support (e.g., requirements for additional maintenance support).

e. Engineer battalion staff members prepare staff estimates in their areas of responsibility: [FM 101-5 Chap 4, App C]

1) Engineer battalion staff members begin the development of their estimates as early as possible (upon receipt of the division engineer unit WARNO). [AN]

2) Each engineer battalion staff member continually performs estimate activities. [FM 101-5 p. C-3]

3) Each engineer battalion staff member analyzes how factors in his respective staff area of responsibility will influence mission accomplishment. [FM 101-5 p. 4-4]

4) Engineer battalion staff members consult with other staff officers internally and externally to the engineer battalion to obtain critical, relevant, and accurate information. [FM 101-5 p. 4-4]

5) Engineer battalion staff members develop and maintain estimates that are forward looking and predictive of the enemy. [FM 101-5 p. C-2]

6) Each engineer battalion staff estimate focuses on identifying and answering the engineer battalion CCIR. [FM 101-5 p. C-4]

7) Engineer battalion staff members are prepared to present their estimates orally. [FM 101-5 p. 4-4]

f. The engineer battalion S2, in coordination with the ABE, finalizes the EBA: [FM 5-71-3 Chap 2; ARTEP 5-145 MTP, 05-1-0027]

1) Analyzes weather impact on:

a) Trafficability.

b) Water obstacles, e.g., depth, width, flow, rate, and bank conditions.

c) Ability to dig, or breach obstacles, or emplace obstacles.

d) Fog/limited visibility impact on obstacle positioning.

e) Employment of mines/demolitions in severe weather.

(1) Reliability.

(2) Effects.

2) Analyzes terrain for impacts on mobility operations.

a) Observation and fields of fire.

(1) Identifies obscuration/location of support force for breaching.

(2) Assesses impacts on desired obstacle effects.

(3) Determines obstacle distance from direct fire systems.

b) Cover and concealment.

(1) Identifies obscuration/assault positions for breaches.

(2) Determines effects on survivability and deception operations.

c) Obstacles.

(1) Identifies locations and significance of existing and potential reinforcing obstacle locations.

(2) Assesses impact on countermobility/mobility requirements for the operation (e.g., effects of soil composition on ability to breach obstacles).

d) Key terrain.

(1) Identifies dominant terrain, ford sites, key bridges, and defiles.

(2) Recommends locations for indirect fire suppression and obscuration for breaching operations.

(3) Impacts of terrain on communications.

e) Avenues of approach.

(1) Identifies need for flank protection.

(2) Determines requirements to improve trafficability.

(3) Determines soil types encountered and ability to perform earthmoving operations.

3) Analyzes enemy engineer mission and mobility/survivability capabilities.

a) Coordinates with supported maneuver brigade S2 to confirm baseline data: [FN - NTC Engr OCs]

(1) Order of battle.

(2) Enemy strength.

(3) Enemy dispositions.

b) Uses supported maneuver brigade S2 intelligence preparation of the battlefield (IPB) database and assists in the development of the situational template to develop enemy engineer order of battle and capabilities.

c) Templates enemy mobility/counter-mobility/survivability capabilities (M/CM/S).

(1) Offense.

(a) Tactical obstacle effort.

(b) Protective obstacle effort.

(c) Scatterable minefields.

(d) NBC targets.

(2) Defense.

(a) Mobility capabilities and locations.

(b) Use of SCATMINEs.

(c) Use of NBC.

(d) High value targets.

1 Bridging assets.

2 Breaching assets.

(e) Engineer support of the reconnaissance effort.

d) Evaluates recent enemy engineer activities and what enemy engineer has done in similar circumstances to identify strengths/weaknesses.

e) Predicts possible enemy courses of action and the impact of the engineer situation on these courses of action.

4) Appraises friendly engineer missions and capabilities.

a) Brigade's and task forces' missions.

b) Task organizations for:

(1) Maneuver forces.

(2) Engineer forces.

c) Availability of critical resources.

d) Engineer ability to accomplish the supported brigade's mission.

5) Develops from the above analyses the following intelligence preparation of the battlefield products:

a) Modified combined obstacle overlay (MCOO).

b) Situational template overlay of anticipated enemy obstacles, fortifications, and significant enemy engineer activities.

6) Provides the products to the engineer battalion commander, the battalion staff, ABE, the supported maneuver brigade S2, and subordinate engineer company commanders in a timely manner. [AN]

7) Orally briefs the assessment as required.

g. The engineer battalion S3 and S3 section in coordination with the ABE prepare paragraphs 1 and 2 of the engineer estimate utilizing information from the S2's part 1 and 2 of EBA, and engineer battalion logistic/personnel estimates. Contents include[2]: [ARTEP 5-145 MTP 05-1-0002/1,2 and FM 5-100, p. 25; LL - Lessons Learned Bulletin]

1) Mission analysis and restated mission of engineer battalion.

2) Analysis of operations to be supported.

3) Weather and terrain impact on engineer options.

4) Enemy engineer situation.

5) Friendly brigade tactical situation.

6) Own engineer situation.

a) Task organization.

b) Dispositions.

c) Levels of effectiveness (current and projected).

d) Assessment of engineer capabilities.

(1) Productivity rates developed for each engineer resource (e.g., engineer platoon, Volcano, armored combat earthmover, mine clearing line charge [MICLIC], bulldozer, etc.) by type of requirement (e.g., numbers of M1 fighting positions, meters of minefield, meters of breached lane).

[2] The situational analysis (paragraph 2) of the engineer estimate has the same components and content as the engineer battlefield assessment (EBA). The engineer battalion S3 is the overall staff proponent for its development. The engineer battalion S2 prepares the terrain analysis and enemy engineer assessment components and the S3 section prepares the friendly engineer assessment component with input from the S1 and S4 estimates and coordinates it with the ABE section.

(2) Matrices or other tools that apply engineer resources available against identified requirements. Such tools track/display the following information:

(a) Consumption/commitment of engineer assets available.

(b) Start-finish times.

(c) Tradeoffs.

(3) Calculations of total projected engineer capability by requirement.

(4) Calculations of initial resourcing estimates of tentative brigade obstacle belts and assigned effects based on notational placement of obstacle groups. [FN - USAES]

(5) Assessment of capability to conduct in-stride and deliberate breaching operations.

e) Status of current activities.

f) Estimated completion times of current engineer tasks.

g) Assumptions.

7) Logistics.

a) Levels of Classes IV and V to support engineer operations through all phases of battle.

b) Current and projected maintenance status of vehicles and weapons/engineer systems to include all mobility assets available to the maneuver brigade such as mine plows and rollers.

c) Availability of transportation assets to support engineer operations.

d) Disposition and locations of logistic units and facilities supporting engineer operations.

8) Combat status and capabilities of other force elements as provided by LNOs if an engineer battalion TF has been directed by the maneuver brigade. [AN]

h. The engineer battalion NBC NCO prepares paragraphs 1 and 2 of the NBC estimate, which include: [FM 101-5 Chap 4, App C]

1) Available battalion NBC defense capabilities.

a) Available chemical unit support.

(1) Smoke platoon.

(2) Decontamination units/sites.

(3) NBC reconnaissance vehicles.

b) Status of NBC personnel.

c) Maintain status of on-hand NBC defense equipment.

d) Current status of NBC Class V.

(1) Fog oil.

(2) Smoke pots.

(3) Incendiaries.

2) Assessment of NBC defense capabilities.

a) Capability to provide smoke in terms of duration and density.

b) Capability to provide NBC reconnaissance in terms of space and time.

c) Decontamination on capabilities in terms of equipment and personnel.

i. The engineer battalion S4, with input from the BMT, prepares paragraphs 1 and 2 of the logistics estimate, which include: [FM 101-5 Chap 4 App C]

1) S4 current and projected maintenance status.

a) DA Form 2406 report.

b) Repair parts (Class IX).

c) Maintenance asset locations and activities (UMCP, field trains).

d) Key maintenance personnel status.

e) Available direct support (DS) and general support (GS) support.

f) BMT's assessment of capabilities in terms of strengths and weaknesses.

2) S4 current and projected logistics status.

a) Classes I, II, III, IV, V, VII, and VIII.

b) Logistics asset locations and activities (field trains, LOGPACs, combat trains).

c) Key logistics personnel status.

d) Available DS and GS support.

e) S4's assessment of capabilities in terms of strengths and weaknesses.

3) S4 assessment of logistics capability to support the battalion. [FM 101-5 Chap 4]

a) Organic and supporting transpiration capabilities to move and recover equipment and haul/delivery mission requirements of Class IV/V.

b) Organic and supporting maintenance capabilities to achieve/maintain operational readiness rates.

c) Adequacy of levels of all classes of supplies and services to sustain engineer battalion operations.

j. The engineer battalion S1 prepares paragraphs 1 and 2 of the personnel estimate, which include: [FM 101-5 Chap 4, App C]

1) Personnel strength (personnel status).

2) Key personnel status.

3) Replacement projections.

4) Personnel service asset locations and activities.

   a) Mail.

   b) Finance.

   c) Personnel administration center.

   d) Post exchange.

   e) Chaplain and/or religious ministry coverage.

   f) Recreation services.

   g) Mortuary affairs.

5) S1 current medical support status.

   a) Medical treatment and evacuation support, DS and GS.

   b) Class VIII status.

   c) Key medical personnel status.

   d) Available DS and GS support.

   e) Assessment of capability for casualty treatment and evacuation in terms of strengths and weaknesses.

   f) Stress assessment.

   g) Rest plans.

6) S1 assessment of engineer status in terms of capability to support the battalion mission. [FM 101-5 Chap 4]

   a) Personnel replacement capability to maintain personnel strength in all military occupational specialties.

b) Personnel services capabilities to sustain morale and discipline.

k. The engineer Bn SO prepares paragraphs 1 and 2 of the command, control, and communications estimate, which include: [FM 101-5 Chap 4, App C]

1) Current communications status and serviceability.

a) Secure and non-secure radio communications.

b) Retransmission capability and status.

(1) Location.

(2) Equipment.

c) Land lines installation status.

d) Communications with higher and adjacent units.

e) Bn SO's assessment of capability to support battalion.

f) Communications links from battalion CPs to brigade CPs and subordinate CPs.

g) Communications equipment status (secure and non-secure).

h) Signal operating instructions information.

i) Availability of communications personnel.

j) Communication requirements for CPs (current and projected locations).

k) Enemy electronic and communications capabilities.

l) Constraints, e.g., equipment capabilities (ranges, frequency ranges, dead spaces, atmospheric conditions).

2) Current and projected command/control requirements.

a) Location and activities.

(1) Supported maneuver brigade main CP/ tactical (TAC) CP.

(2) Engineer battalion main CP/TAC CP.

(3) Engineer battalion rear CP, field trains, and combat trains (if established).

(4) Maneuver battalion TF CPs (TF engineer).

b) Requirements to support other force elements under engineer battalion TF control.

3) Assessment of capability to support engineer battalion operations.

a) Communication capabilities to support engineer battalion operations in support of the brigade's TFs.

b) Communication capabilities of engineer battalion organized as engineer battalion TF.

l. The engineer battalion XO guides the staff to continuously maintain and update forward-oriented time-charts and information. [FM 101-5 p. C-2]

m. The engineer battalion commander requests staff information at any time to update his own commander's estimate. [FM 101-5 p. C-2]

7. **The engineer battalion commander and staff develop course(s) of action.** [FM 101-5 Chap. 4, App E; FM 5-71-3 Chap 2]

a. Engineer battalion XO obtains supported maneuver brigade's COAs as that information emerges:

1) ABE furnishes brigade COA sketches with supporting SOEOs as developed during brigade development of COAs. [AN]

2) The engineer battalion S3 communicates the selected brigade COA, its SOEO, and the brigade's war-gaming notes after the brigade commander's decision. [AN]

b. The engineer battalion XO leads the engineer battalion staff in analyzing SOEOs and the supporting maneuver brigade COAs. Identifies: [FN - USAES] (See also Task 8 of this analysis.)

1) Problems with engineer support to the maneuver brigade COAs.

2) Coordination requirements to be included in maneuver brigade synchronization matrix.

3) Information requirements to be included in the maneuver brigade decision support template (DST).

c. The engineer battalion XO provides the ABE with information resulting from engineer battalion analysis for use during brigade war-gaming. [FN - USAES]

d. The engineer battalion S3 communicates the selected brigade COA, its supporting scheme of engineer operations, and the supported maneuver brigade war-gaming notes to the engineer battalion commander and/or XO. [AN]

e. The engineer battalion S3 rejoins the engineer battalion staff for battalion COA development after brigade COA is selected. [AN]

f. The engineer battalion commander and/or the engineer battalion S3 develop COA considering: [AN] (See also the preface to this analysis.)

1) Critical tasks assigned to the engineer battalion.

2) Scheme of engineer operations.

3) War-gaming notes from the supported maneuver brigade COA analysis.

g. COAs are developed using doctrinally correct procedures, which include: [FM 101-5, p. 4-26 and App E]

1) Analyzing relative combat power/engineer capabilities.

2) Arraying initial forces/engineer assets.

3) Developing a concept of engineer battalion operation.

4) Incorporating a scheme of maneuver if an engineer battalion TF is being considered.

5) Determining essential tasks that will permit engineer battalion/engineer battalion TF to accomplish its mission.

6) Determining command and control measures.

7) Developing a course of action statement and sketch.

h. The engineer battalion S3, in conjunction with the staff, develops COAs that are: [FM 101-5, App E]

1) Suitable:

a) Accomplish the mission.

b) Focused on the restated mission.

c) Consistent with SOEO developed in maneuver brigade MDMP. [AN]

2) Feasible: the unit has the required resources (e.g., time, blade hours, platoon hours, special equipment, mission supplies of Class IV/V).

3) Acceptable level of risk to mission accomplishment and in terms of loss of personnel, time, material, or capability.

4) Distinguishable, as identified at a minimum by:

a) The task organization.

b) The concept of engineer operations.

5) Complete, in that each addresses:

a) What elements will execute the action (who).

b) Type of action contemplated to include battalion essential tasks (what).

c) Time engineer operation begins (when).

d) Location (where).

e) Method of conducting the engineer battalion operation (how).

f) The engineer battalion commander's intent (why).

i. At least two COAs are developed unless time or the commander's guidance dictates only one. [ARTEP 5-145 MTP 05-1-0002/3]

j. The engineer battalion S2 develops, refines, and provides necessary intelligence products to the engineer battalion S3. [ARTEP 71-3 MTP, Task 71-3-2001/3a; FM 34-8, p. 3-13]

1) Enemy situation template which depicts relevant enemy COAs that could affect the engineer battalion.

2) Terrain and weather analysis.

k. Engineer battalion staff members integrate their functional area COAs into the S3 COAs: [FM 101-5, p. 4-26]

1) The S1 identifies personnel courses of action which can support the concept of engineer operation identified by each S3 COA.

2) The S4 identifies logistic courses of action (including maintenance input from the BMT) which can support the concept of engineer operation identified by each S3 COA.

3) The Bn SO develops COA to support each S3 COA.

4) The NBC NCO develops COA to support each S3 COA.

l. LNOs from other force elements placed operational control (OPCON) to the engineer battalion TF (e.g., mechanized infantry company/team commander, fire support team OIC, chemical smoke platoon leader, ADA platoon leader, MP platoon leader) provide functional input about their units for the S3 COA. [AN]

m. The engineer battalion S3, in coordination with engineer battalion XO, develops COA sketches or other means to display the COAs for presentation during analysis of COAs. [FM 101-5, p. E-16]

n. When the MDMP is used in a time-constrained environment, the engineer battalion commander adheres to doctrine in developing COAs, and may: [FM 101-5, p. 4-44]

1) Limit the number of COAs to be considered.

2) Give the staff a specific COA or more specific guidance on how to develop COAs.

3) Remain with the staff and develop the COA(s).

4) Develop the COA(s) by himself.

8. **The engineer battalion commander and staff analyze course(s) of action.** [FM 5-71-3 Chap 2; FM 101-5, p. 4-28, App F]

a. The commander and staff use a previously trained procedure for war game. [FM 101-5, App F]

1) Belt.

2) Box.

3) Avenue.

4) Any other technique that has been developed and in which the staff is trained.

b. The engineer battalion XO supervises the staff in conducting the war-gaming sequence: [FM 101-5, App F]

1) Gather the tools, materials, and data:

a) Post COAs on a map as appropriate.

b) Post enemy template.

c) Post current friendly unit dispositions.

d) Develop other information/data displays.

2) List all friendly forces.

a) Assigned, attached, OPCON.

b) Support relationships.

c) Constraints and restrictions from higher headquarters.

d) Priority of engineer support.

e) Multipliers such as additional equipment (plows rollers)/ manpower available from other units/sources.

3) List the assumptions.

a) Assumptions from supported maneuver brigade OPORD.

b) Enemy options and activities that could impact engineer operations.

c) Friendly strengths and activities.

4) List known critical events and anticipated decision points for the engineer operation.

5) List significant factors.

a) Timelines.

b) Phasing requirements.

c) Weather/terrain.

d) Sustainment capabilities/requirements.

e) Other identified factors.

6) Select the war-gaming method.

7) Select a technique to record and display the war game results.

a) Narrative.

b) Sketch notes.

c) Execution matrix.

8) Wargame and assess the results by:

a) Using action/reaction/counteraction drills against enemy; or

b) Conducting an advantages/disadvantages analysis of one COA relative to another based upon an evaluation of the impacts of significant factors.

c. The engineer battalion commander, XO, or S3 presides over the war-gaming of each developed course of action for the engineer battalion mission; ensures that: [FM 101-5 App F; ARTEP 5-145 MTP, 05-1-0002/4a]

1) Each COA is war gamed against:

a) The enemy.

b) Other significant criteria.

2) Each COA is well integrated with the selected brigade COA.

3) Entire staff and LNOs are present, if available.

4) Staff members have current estimate for their areas of responsibility.

5) Staff members have planning factors and other tools to enable them to compute consumption of resources during the war game.

6) War-game notes are kept by means such as a synchronization or execution matrix.

7) Advantages and disadvantages are listed as they are identified.

8) Staff members and LNOs actively participate in the war game.

9) Staff remains unbiased.

10) Premature conclusions are not drawn.

11) Feasibility is continually assessed and analysis stops if COA becomes infeasible.

d. The engineer battalion XO ensures that the staff fully explores each COA during war-gaming to include as appropriate (arranged by battlefield operating system [BOS]): [FM 101-5, App F; LL - CTC Bulletin No. 95-4]

1) General. [FM 5-71-3, pp. 2-20 - 2-23]

a) Identify strengths and weaknesses of COA.

b) Adjustments to COA.

(1) Shift available engineer assets.

(2) Identify additional engineer or other assets needed.

c) Task organization.

d) The engineer battalion XO, with input from the S3, develops the operational timeline which describes mission execution events. [AN]

2) Command and control. [FM 5-71-3, pp. 3-4, 4-3]

a) Required coordination with adjacent and supported units.

b) Critical engineer events and timing.

c) Decision points for engineer operations.

d) Command/support relationships.

e) Communication requirements and priorities.

f) Command and control positioning/repositioning during phases of operations.

(1) Engineer battalion main CP.

(2) Engineer battalion rear CP.

(3) Engineer battalion TAC CP.

(4) Engineer battalion command group (if not at TAC CP).

g) Engineer battalion TF unique command and control (C2) requirements are identified.

3) Intelligence. [FM 5-71-3, pp. 3-4, 4-3]

a) Identify any additional NAIs, TAI requirements not accomplished in the supported maneuver brigade war-gaming.

b) Identify additional engineer reconnaissance requirements not accomplished in supported maneuver brigade war-gaming.

c) Limited visibility, soil, terrain, and hydrographic considerations on engineer operations.

d) Requirements for TerraBase products to support engineer operations.

4) Maneuver. [FM 5-71-3. pp. 3-4, 4-3]

a) Linkups with other force elements supporting engineer battalion TF.

(1) Location.

(2) Time.

b) Routes to be used to position engineer battalion elements.

c) Passage of lines if required.

d) Control measures.

e) Movement times and distances to position/reposition engineer assets.

f) Identify tasks for supporting combat elements in engineer battalion TF operations.

5) Mobility and survivability. [FM 5-71-3, pp. 3-4, 4-3]

a) Obstacle integration. [FM 90-7, Chap 4]

(1) Plan obstacle belts to support each maneuver COA, based on:

(a) Division obstacle control measures (e.g., zones).

(b) Maneuver brigade commander's intent for obstacles.

1 Target.

2 Obstacle effect (e.g., turn, fix, block, disrupt).

3 Time and assets available.

(2) Array tentative obstacle control measures (e.g., groups).

(3) Identify restrictions required for mobility.

(4) Resource obstacle groups by:

(a) Requirements.

(b) Capabilities (used for initial calculations of estimates of Class IV/V materials).

(c) Required times.

(5) Identify priorities for obstacles if requirements exceed capabilities.

(6) Modify/refine the obstacle plan as required.

(a) Size of belts.

(b) Locations of belts and Class IV/V supply points.

(c) Situational obstacle requirements.

(d) Reserve obstacle requirements.

(e) Directed obstacle requirements.

(f) Taskings to units.

(g) Additional resources required.

b) Survivability construction. [FM 5-103, Chap 2].

(1) Brigade commander's priorities for survivability protection based on vulnerability analysis.

(a) Unit.

(b) Weapons, equipment, and facilities.

(c) Required times.

(2) Time available:

(a) Prior to development of direct fire plan by maneuver battalion TFs to maximize the protective

position construction effort (e.g., artillery, C2 nodes, CSS assets).

(b) After development of direct fire plans to construct fighting positions.

(3) Constraints to digging production.

(a) Competing requirements for digging assets to support mobility/countermobility requirements.

(b) Soil conditions classified as dig/no dig.

(c) Weather and light conditions impacts.

(d) Movement requirements of digging assets.

(e) Equipment availability.

(f) Equipment maintenance procedures.

(g) Alternate operators for continuous operations.

(h) Selection of type positions (i.e., two tier vice modified two tier).

(4) Siting requirements and coordination.

c) Combat road and trail construction. [FM 5-101, Chap 7]

(1) Engineer effort required to support movement of logistics from BSA to maneuver unit trains.

(2) Engineer effort required to maintain maneuver units' mobility.

(a) Bypass construction as an alternative to breaching obstacles.

(b) Rubble clearing in built-up areas.

d) River crossing (hasty).[3] [FM 90-13, Chap 6]

[3] This consideration is intended for decentralized river crossings controlled by the maneuver brigade, which is a feature of hasty crossings. According to FM 90-13, the brigade may use organic, existing, or any available crossing

(1) Crossing site evaluations (primary and alternate).

(2) Entry and exit bank preparations.

(3) Type of bridging and configuration.

(4) Control measures.

(a) Traffic control.

(b) Engineer regulation.

(5) Crossing plan and movement schedule.

e) Breaching operations. [FM 90-13-1, Chap 4]

(1) Obstacle intelligence. [FM 90-13-1, p. 2-2]

(a) Obstacle types and orientation.

(b) Minefield types and locations of leading edges.

(c) Enemy fortifications.

(2) Actions on objective.

(a) Size and composition of assault force.

(b) Requirements for assault breaching of protective obstacles.

(3) Lane requirements.

(a) Number based on size of assault force.

(b) Locations.

(c) Marking.

(d) Widening/improvement.

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means, but additional support from division or corps is often necessary. In this context the engineer battalion may be responsible for the crossing sites and means. Planning considerations for a hasty crossing are the same as a deliberate crossing.

(e) Handover to follow-on forces.

(4) Breaching asset allocation per lane based on 50% redundancy.

(a) Armor plows and rollers.

(b) Engineer breaching equipment.

(5) Task organization of the breach force.

(6) Direct fire plans for the breach force.

(7) Battle drills to be used in breaching.

(8) Traffic control measures.

(9) Crossing plan.

(10) Coordination with support force.

(a) Suppression of direct fires.

(b) Obscuration.

(c) Indirect fire suppression.

(11) Coordination with assault force for passing through lanes.

(12) Rehearsal planning.

(a) Site selection.

(b) Layout requirements to replicate obstacles.

f) Identification of tasks for all subordinate units. [AN]

g) Phasing of engineer tasks. [AN]

h) Completion times for all tasks. [AN]

i) MOPP and NBC operations. [AN]

6) Fire support. [FM 5-71-3, pp. 3-4, 4-3]

a) Fire support for engineer battalion TF maneuver.

b) Fire support for engineer work sites.

c) Critical fire zones for breaching and river crossing sites.

d) Scatterable mine employment.

7) Air defense. [FM 5-71-3. pp. 3-4, 4-3]

a) Positioning supporting air defense elements at breach sites, gap crossing sites, Class IV/V points.

b) Early warning requirements.

c) Weapons status during engineer operations.

d) Direct fire systems in air defense role at work sites.

8) Combat service support. [FM 5-71-3, pp. 3-4, 4-3, Chap 6]

a) CSS requirements:

(1) Critical classes of supply.

(2) Supply priorities.

(3) Maintenance support requirements and priorities.

(a) UMCP locations.

(b) Maintenance recovery.

(4) Transportation requirements and priorities.

b) Class IV/V supply point considerations to support engineer work sites.

(1) Class IV/V supply point locations.

(2) Class V prepositioning/cache locations.

(a) MICLIC reloads.

(b) Volcano reloads.

c) Medical support requirements:

(1) Casualty estimates.

(2) Medical treatment and evacuation.

d) EPW evacuation and support.

e) Unique logistic requirements to support engineer battalion TF operations.

e. As a result of war-gaming, the engineer battalion XO ensures that the staff members develop and refine appropriate products for which they are functionally responsible: [FM 101-5, App F]

1) Overlay.

2) Event template.

3) Initial DST.

4) Branches to plan.

5) Battalion CCIR.

6) Operational risk assessment.

7) Possible fratricide locations/situations.

8) Execution matrix.

9) Synchronization matrix if other force elements are involved in engineer battalion TF.

10) Requests for additional assets required by battalion staff.

11) Information staff requires to prepare their portion of the OPORD.

f. The engineer battalion commander and key staff (XO, S3) determine acceptable levels of risk based on COA selected following these steps: [FM 101-5, p. 4-31]

1) Identify hazards associated with major events.

2) Assess hazards (operational and safety).

3) Make risk assessments regarding mission accomplishment and safety.

4) Implement controls to mitigate risk.

g. When war-gaming does not produce needed information, or if information is unclear, the responsible staff officer aggressively pursues needed information. [AN]

h. Upon completing COA war-gaming, the engineer battalion XO ensures that: [CTC Bulletin No. 95-4]

1) War-gaming notes are completed.

2) COA timelines and requirements are understood.

i. War-gaming during the MDMP in a time-constrained environment may be conducted and supervised by the engineer battalion XO and includes: [FM 101-5 p. 4-42]

1) Performing all the steps of the war-gaming.

2) Adhering to all the required principles.

3) Having as many of the staff present with the commander as possible, given the tactical situation.

4) Considering all staff and LNO functional areas.

5) Setting aside as much time as possible.

6) Commander is present and involved.

7) Using less time consuming methods such as the critical points (box method).

9. **The engineer battalion staff compares courses of action**. [FM 101-5, p. 4-32]

a. The engineer battalion XO supervises comparisons of COA by the staff and LNOs ensuring: [FM 101-5 p. 4-32]

1) Use of commander's previous guidance on comparison criteria.

2) Use of criteria and weighting selected to build a decision matrix.

b. Each battalion staff officer prepares a COA decision matrix for his own BOS that identifies which COA can best be supported from that BOS standpoint. [FM 101-5, p. 4-32]

c. The battalion S3 identifies the best COA to recommend to the battalion commander. [FM 101-5, p. F-38]

1) Each battalion staff member presents his assessment to the other staff members for consideration.

2) The battalion S3 chooses which COA will produce success if the staff is unable to reach a consensus.

3) The battalion staff prepares necessary briefing charts for the COA brief to the commander.

4) The staff prepares updated estimate notes for their respective areas.

5) The battalion S3 prepares a list of assumptions for each COA.

6) The battalion S3 ensures that a COA sketch with implementation statements has been prepared for each COA.

7) The battalion S3 ensures that the wargame notes or worksheets are prepared.

d. The engineer battalion XO or S3, with staff and LNOs present, briefs the engineer battalion commander on the results of the COA comparison, which include: [FM 5-71-3, Chap 2; FM 101-5, p. 4-33]

1) The intents of division and brigade commanders.

2) The battalion restated mission.

3) The status of battalion forces.

4) The updated intelligence estimate.

5) Own courses of action:

a) Assumptions used in the wargame.

b) Results of staff estimate.

c) Advantages and disadvantages of each COA.

6) Recommended COA.

7) Branches to each COA.

8) Unresolved issues.

9) Dissenting staff positions.

e. The engineer battalion commander makes a decision based on: [FM 5-71-3 Chap 2, FM 101-5 p. 4-33, 34]

1) His experience.

2) His trust and confidence in his personnel and his knowledge of his battalion's present capabilities.

3) His estimate of the situation.

4) The inherent flexibility of the selected COA.

5) The supported maneuver brigade commander's announced decision.

NOTE: The engineer battalion commander may agree with the staff-recommended COA, modify it, or select another COA, although he must consider the additional staff work required if other than staff-recommended COA is chosen.

f. Once the battalion commander has selected the COA to be employed, the XO leads the staff in war-gaming branches of the COA selected. [CGSC Student Text 101-5, p. 4-32]

g. The engineer battalion commander, when required, employs the MDMP in a time-constrained environment by: [FM 101-5, p. 4-42]

1) Having available generic COA decision/comparison matrices to save time.

2) Reducing the number of comparison criteria.

3) Personally conducting the COA comparison.

10. **The engineer battalion commander announces his decision**. [FM 101-5, Chap. 4]

a. The engineer battalion commander announces his COA decision by: [FM 101-5 p. 4-35]

1) A clear, concise statement of his intent and concept of operation.

2) Stating the who-what-when-where-how-and why associated with the COA.

3) Stating the risk he is willing to accept to:

a) Retain engineer capabilities.

b) Complete engineer tasks.

4) The engineer battalion commander specifies the battalion task organization. [FM 101-5 p. 4-35]

5) The engineer battalion commander specifies the command and support relationships of engineer companies/elements. [FM 101-5, p. 4-35]

a) By phase of operation.

b) With supported maneuver elements.

b. The engineer battalion S3 returns to the ABE section and integrates the engineer battalion selected course of action into the final scheme of engineer operations stated in the supported maneuver brigade OPORD. [AN]

c. The engineer battalion commander and staff conduct reconnaissance to confirm selected COA and make necessary modifications. [FM 101-5, p. 4-44; FM 5-71-3 pp. 2-19, 23]

d. During the MDMP time-constrained environment, the battalion commander's decision is announced with the same precision, completeness, and clarity as in a more deliberate process. [FM 101-5, Chap 4, p. 4-44]

11. **The engineer battalion staff prepares the operations order.** [ARTEP 5-145 MTP 05-1-0007, FM 5-71-3 Chap 2 and App D; FM 101-5, Chap. 4]

a. The engineer battalion commander and selected staff attend the supported maneuver brigade order and confirmation briefs. [FM 5-71-3, Chap 2]

b. The engineer battalion receives a written copy of supported brigade OPORD prior to preparing engineer battalion OPORD. [AN]

c. The engineer battalion XO and staff individually review brigade OPORD to: [AN]

1) Find necessary information for preparing their portion of the battalion order not previously determined. [AN] (See task 6.b.4)

2) Confirm and cross check information previously obtained through coordination in parallel planning. [AN]

d. The engineer battalion staff, under supervision of the engineer battalion XO, develops a WARNO that includes critical information based on results of COA analysis and engineer battalion commander's decision. [FM 5-71-3, Chap 2]

e. The engineer battalion S3 section issues the WARNO. [FM 5-71-3, Chap 2]

f. The engineer battalion staff, under the supervision of the XO, converts the war-gaming notes and engineer battalion commander's guidance into a written order (OPORD). [ARTEP 5-145 MTP 05-1-0007/4a]

1) The engineer battalion S2 prepares paragraph 1a, enemy situation, and an intelligence annex when required in accordance with FM 101-5. [ARTEP 5-145 MTP 05-1-0007/4b]

2) The engineer battalion S3 section prepares the task organization, paragraph 1, situation less subparagraph 1a; paragraph 2, mission; paragraph 3, execution; paragraph 5, command and signal; and operation overlays, annexes as required. [ARTEP 5-145 MTP 05-1-0007/4b]

3) The engineer battalion S4 prepares paragraph 4, service support, and the service support annex and overlay when required. [ARTEP 5-145 MTP 05-1-0007/4d]

4) The engineer battalion S1 provides the S4 with information on personnel and administrative services to be included in paragraph 4, service support, or the service support annex. [ARTEP 5-145 MTP 05-1-0007/4e]

5) The engineer BMT provides the S4 with information on maintenance services to be included in paragraph 4, service support or service support annex. [ARTEP 5-145 MTP 05-1-0007/4f]

6) The engineer Bn SO provides the S3 with information about communication requirements, assets, and instructions to be included in paragraph 5, command, and signal. [ARTEP 5-145 MTP 05-1-0007/4g]

7) The engineer battalion NBC NCO provides input to the S3 for the order, which includes: [AN]

a) Locations of decontamination sites.

b) Smoke operations.

c) MOPP status.

8) The engineer battalion S2, S4, S1, BMT, Bn SO, and NBC NCO provide the engineer battalion S3 with any coordinating instructions. [ARTEP 5-145 MTP 05-1-0007/4c-g]

9) For engineer battalion task force operations, LNOs from the other force elements provide information about their units' operations to the engineer battalion S3 for integration into the order as appropriate. [FM 5-71-3, Chap 5]

a) Maneuver.

b) Fire support.

c) Military police.

d) Air defense.

e) Chemical (smoke).

g. The engineer battalion S3 section ensures that the engineer battalion OPORD order is doctrinally sufficient and in a doctrinally correct format: [ARTEP 5-145 MTP 05-1-0007/6; FM 5-71-3 App D]

1) Heading to include:

a) Security markings.

b) Confirmation statement in regard to oral orders.

c) Copy number.

d) Issuing headquarters.

e) Place of issue.

f) Date and time order is signed.

g) Message reference number.

h) OPORD number.

i) Code name (if applicable).

j) Map references.

k) Time zone order is executed.

2) Task organization:

a) Includes all engineer headquarters of units under brigade control.

b) Includes all engineer headquarters of organic units if the OPORD is the initial order for the operation.

c) Lists companies and special platoons task organized to HQ other than their parent unit.

d) Lists special equipment if not clear in unit task organization.

e) Addresses command and support relationships, as necessary.

f) Streamlines C2.

3) Situation:

a) Enemy forces:

(1) Terrain and weather include:

(a) Critical aspects of the terrain that affect operations.

(b) Critical and decisive terrain in the brigade area.

(c) Expected weather conditions and their impact on operations.

(d) Light data and its impact on operations.

(2) Enemy situation. This paragraph should include:

(a) Macro picture of enemy forces facing the brigade.

(b) Current disposition of enemy forces, strength, disposition, composition, and current activities.

(c) Enemy engineer activities and capabilities.

(d) Enemy activities, capabilities, and COAs that affect brigade level engineer operations.

b) Friendly forces:

(1) Higher. This paragraph should include:

(a) Division and supported maneuver brigade missions and commanders' intent paraphrased as it applies to engineer operations.

(b) Brief description of division plan.

(c) Division level engineer plans and priorities.

(2) Adjacent. Highlight missions of adjacent divisions and engineer units that impact brigade missions.

c) Attachments and detachments:

(1) List attachments and detachments of organic and supporting engineers to the maneuver brigade.

(2) Highlight any attachments and detachments that occur during the operation.

(3) Identify the time or event for the change.

4) Mission. This paragraph should include:

a) The engineer battalion organization (who).

b) The supported maneuver brigade and any essential brigade-level engineer missions (what, when, where, and why).

5) Execution:

a) Engineer battalion commander's intent for the operation:

(1) Commander's vision for operation and how it supports the brigade plan.

(2) The purpose of the operation.

(3) The endstate of battalion level operations and its link to the endstate of brigade operation.

(4) Linkage of the engineer battalion commander's intent to the brigade defeat mechanism.

b) Concept of engineer battalion operations:

(1) Uses phrases of the supported maneuver brigade plan to organize the narrative.

(2) Focuses on mission-essential engineer tasks and the supported maneuver brigade's main engineer effort.

(3) Identifies main engineer effort and shifts (changes) in priority during the operation to support the brigade plan.

(a) Tactical obstacles:

1 Details the counter-mobility effort.

2 Identifies obstacle belts and groups and assigns responsibilities, priorities, and restrictions to brigade-level counter mobility efforts and engineer units.

3 Identifies and assigns responsibilities for brigade and division-directed reserve targets to be prepared by brigade-controlled engineer units.

(b) Situational obstacles:

1 Includes concept for employment of situational obstacles and integration to complement tactical obstacles.

2 Details NAIs, TAIs, decision points (DPs), and execution criteria if the SCATMINE is executed by brigade controlled engineer units.

3 States headquarters maintaining authority to use SCATMINEs and any restrictions on duration by belt.

(c) Survivability construction. Describes the tactical construction plan along a timeline that delineates which units get how many positions by type (e.g., TF 2-5 Cavalry 12 M1 positions, 12 Bradley positions).

NOTE: Consider a construction matrix as an annex.

(d) Mobility operations.

1 Describes the concept for brigade deliberate breaching.

2 Describes the concept for brigade hasty gap crossings.

3 Describes plan for combat road/trail construction/upgrade throughout the brigade area of operations.

c) Tasks to subordinate units:

(1) Lists all tasks assigned to engineer units remaining under the engineer battalion's control and any combat support units under engineer battalion TF control.

(2) Lists tasks assigned by unit in the order they will be executed.

(3) Distinguishes between "be prepared," or "on order" tasks and "execute now" tasks.

d) Coordinating instructions:

(1) Includes tasks and instructions that are common to two or more units.

(2) Lists all pertinent coordinating instructions listed in brigade order.

(3) Authorizes direct coordination, if appropriate.

(4) Describes any turnover of tasks between engineer units for breaches, fords, obstacles, etc.

(5) Gives time task organization is effective.

6) Service support:

a) General concept of logistics support.

(1) Provides general concept of logistics support for units under the battalion commander's control throughout the operation.

(2) Describes support of those battalion elements given OPCON to other units.

(3) Identifies primary and backup means of subunit sustainment, addressing who (companies); how (area support, unit support, supply point distribution, and unit distribution); where (BSA, trains); and what (classes of supply and critical services).

(4) Makes maximum references to brigade CSS graphics.

(5) Ensures consistency with task organization and command support relationships.

(6) Lists locations of key CSS nodes as they apply to concept of logistics support.

b) Material and services:

(1) Supply. For each class of supply:

(a) Lists allocation and CSRs for each unit based on missions.

(b) Lists basic loads to be maintained by the unit.

(c) Addresses mission logistics arrangements (Class IV, V).

(2) Transportation:

(a) Lists primary, alternate, and contaminated MSRs during operation.

(b) States allocations of division or corps haul assets.

(3) Services. For each service, lists location and means of requesting.

c) Medical treatment, evacuation, and hospitalization. Indicates primary and backup means of medical evacuation and locations of facilities.

d) Personnel:

(1) Identifies method of handling EPWs and EPW collection points.

(2) Identifies method of receiving mail, religious services, and graves registration.

e) Civil-military cooperation. Identifies engineer supplies, services, or equipment provided by host nation.

7) Command and signal:

a) Command:

(1) Location of engineer CPs.

(2) Projected displacement of CPs.

b) Signal:

(1) Identifies any signal/communication peculiarities for operation not covered in SOP.

(2) Identifies critical reporting requirements of subordinates if not covered in SOP.

(3) Designates nets for mission and routine reports.

8) Ending:

a) Acknowledgment of receipt and understanding.

b) Original order signed by commander or designated representative.

c) Other copies authenticated by the engineer battalion S3.

d) Annexes lettered alphabetically and listed in the order as they appear in the OPORD.

e) Distribution includes:

(1) Subordinate units.

(2) Higher units.

(3) Adjacent units.

(4) Supporting units as necessary.

f) Security markings (top/bottom of each page, centered).

h. The engineer battalion XO ensures that the OPORD meets the following criteria: [ARTEP 5-145 MTP 05-1-0007/5]

1) Has clarity.

2) Shows simplicity.

3) Contains timelines.

4) Excludes irrelevant information.

5) Excludes items covered in unit TSOP.

6) Is directed to only major subordinate units under engineer battalion's control.

7) Covers support of elements under OPCON to other units.

i. The engineer battalion XO supervises the production of the OPORD and: [ARTEP 5-145 MTP, 05-1-0007/4a]

1) Engineer battalion XO employs the necessary staff to rapidly produce an accurate OPORD in sufficient copies by performing trained, drilled tasks and responsibilities. [CALL Newsletter No. 93-3, p. 27]

2) The engineer battalion S3 section incorporates all appropriate annexes, matrices, and overlays into the order. [FM 5-71-3, App D]

a) Execution matrix.

b) Decision support template.

c) Engineer operations overlay (includes maneuver graphics as necessary).

d) Intelligence annex.

e) CSS annex.

f) Movement annex.

g) Brigade CSS overlay.

h) Brigade obstacle plan overlay.

3) The engineer battalion S3 checks OPORD for legibility and accuracy.

4) The engineer battalion S3 cross checks graphics with written portion of order.

5) The engineer battalion XO submits OPORD to commander for approval.

6) The engineer battalion XO coordinates OPORD with adjacent units.

a) Briefs and employs liaison officers.

b) Adjusts based on coordination.

j. During the MDMP in a time-constrained environment, the engineer battalion staff uses preformatted orders and graphics to reduce preparation time. [LL - CALL Newsletter No. 93-3, p. 27]

12. **The engineer battalion commander and staff issue the operations order**. [FM 101-5, Chap. 4; FM 5-71-3 Chap 2; ARTEP 5-145 MTP 05-1-0007/7, CALL Newsletter No. 93-3]

a. The engineer battalion commander controls the briefing. [CALL Newsletter No. 93-3, p. 31]

1) When possible, the engineer battalion commander personally issues the OPORD with all key individuals present. [FM 5-71-3, Chap 2]

2) A briefing sequence is determined and followed by the engineer battalion commander. [CALL Newsletter No. 93-3, p. 31]

3) The engineer battalion OPORD is issued at an appropriate location to facilitate understanding and coordination. [CALL Newsletter No. 93-3, p. 31]

a) At a vantage point.

b) At a location that reduces travel time for key leaders.

c) At a location that enhances OPSEC.

4) The engineer battalion staff prepares graphic aids to enhance the OPORD brief. [FM 101-5, Chap 4]

5) All key engineer battalion staff and subordinates are present at the OPORD issuance and are alert and attentive during briefing. [LL - CALL Newsletter No. 93-3, p. 31]

6) The engineer battalion commander and staff issue the engineer battalion OPORD within 1/3 of the total time available. (The parallel planning reflected in this task analysis allows the engineer battalion OPORD to be issued shortly after the supported maneuver brigade OPORD.) [ARTEP 5-145 MTP 05-1-0007/7b]

7) The engineer battalion S3 section ensures that all key leaders receive a copy of engineer battalion OPORD with all appropriate attachments and overlays. [ARTEP 71-3 MTP, Task 71-3-3002]

8) Engineer battalion subordinate leaders and staff members are provided timing of and guidance for subsequent briefbacks and rehearsals. [AN]

b. The engineer battalion commander conducts confirmation briefs immediately after the engineer battalion OPORD is issued as a final check to ensure clear understanding of his intent. [FM 101-5, p. 4-59]

1) Subordinates repeat back to the engineer battalion commander what he wants them to do and why, to include:

a) Critical tasks.

b) Specified missions.

c) Implied missions.

d) Own restated mission.

e) His commander's intent.

f) Division and brigade commanders' intents.

g) Synchronization requirements.

2) When possible the engineer battalion staff participates in the confirmation briefs and:

a) Assists in clarifying issues as appropriate.

b) Captures any changes directed by the engineer battalion commander and ensures that the engineer battalion OPORD is appropriately refined.

c. The engineer battalion commander, when conducting the MDMP in a time-constrained environment, may choose one of the following options: [FM 101-5, p. 4-43]

1) Issue a verbal order with an overlay. [FM 101-5, p. 4-59]

2) Issue an overlay with execution matrix as an order. [FM 5-71-3, Chap 2]

## TASKS ORGANIZED BY OUTCOMES

This component links the tasks with the outcomes the task performance supports. Each outcome is linked with all appropriate tasks. This component is used for two purposes. The first is to ensure that each BF outcome is sufficiently supported by all tasks necessary to achieve the outcome. The second is to verify that the outcomes selected support the BF purpose and that they are complete in that no additional outcomes are required to define the BF. This component can be used by trainers to facilitate assessment of training proficiency and to plan training.

**Outcome 1**

Complete, concise, feasible, suitable, acceptable, and tactically sound engineer battalion orders are produced.

**Task Elements**

2. **The engineer battalion receives an order initiating a new mission from higher headquarters.** [FM 101-5; FM 5-71-100, FM 5-71-3]

    a. The engineer battalion commander as the brigade engineer attends the division orders brief in accordance with supported maneuver brigade TSOP. [AN]

        1) Receives any additional guidance and information after briefing from engineer brigade commander and staff.

        2) Focuses on the engineer briefing by the engineer brigade commander as the division engineer.

    b. The engineer battalion receives a WARNO. (The engineer battalion may receive a WARNO from the engineer brigade and from the supported maneuver brigade. [FM 5-71-3 Chap 2; FM 5-71-100, B-13])

        1) When a WARNO from the engineer brigade is received prior to the division OPORD briefing, the engineer battalion XO informs the engineer battalion commander of the content of the WARNO; critical information communicated includes: [FM 5-71-3 Chap 2; FM 5-71-100, B-13]

            a) Friendly and enemy situation.

            b) Tentative changes to task organization.

            c) Tentative scheme of engineer operations.

            d) On-order tasks.

e) Logistics operations.

f) Changes to situation, guidance since last order.

2) When a supported maneuver brigade WARNO is received, the engineer battalion XO informs the engineer battalion commander of the content of the WARNO; critical information communicated includes: [FM 5-71-3 Chap 2; FM 101-5, PH-14]

a) Brigade mission.

b) Division mission and intent.

c) Brigade commander's intent.

d) Orders for preliminary action.

e) Service support instructions.

f) Timelines.

g) Tasks for brigade units.

h) Changes to situation, guidance since last order.

c. The engineer battalion commander, as brigade engineer, initiates detailed terrain analysis using: [FM 5-71-3 Chap 2; FN - USAES]

1) TerraBase products.

2) Map reconnaissance.

3) Aerial photographs.

4) Air and ground reconnaissance.

d. The engineer battalion XO initiates the process to inform the engineer battalion staff on the content of the WARNOs/OPORDs as they are received. Staff begins planning in parallel with the brigade. [AN]

1) Conducts "staff huddles."

2) Initiates staff estimate process.

3) Directs coordination of staff sections.

4) Directs new information as it is received to the appropriate staff section.

e. The engineer battalion S3 section obtains copies of higher headquarters written OPORDs/WARNOs and provides an advance copy to the engineer battalion rear CP; S3 receives: [ARTEP 5-145-MTP 05-1-0018/4a(2)(c); FN - NTC Engr OCs]

1) Division OPORD with engineer annex from ABE section.

2) Division engineer unit WARNO/OPORD from engineer brigade by courier or electronic means.

3) Supported maneuver brigade WARNO from maneuver brigade S3 section.

f. The engineer battalion rear CP coordinates with supported maneuver Bde S4 and FSB support operations section to obtain a copy of the division OPORD. [FN-NTC Engr OCs]

i. The engineer battalion S3 (as officer in charge [OIC] of the ABE section) and the engineer battalion XO coordinate closely to support planning in parallel with the brigade and facilitate information flow. [FM 5-71-3 p. 2-22]

1) The engineer battalion S3 provides the engineer battalion XO and staff with timely information concerning:

a) Supported maneuver brigade mission analysis.

b) Supported maneuver brigade commander's planning guidance.

c) Supported maneuver brigade COA development.

d) Supported maneuver brigade war-gaming results.

e) Supported maneuver brigade commander's COA decision.

k. The engineer battalion S1 or S4 comes forward to the engineer battalion main CP upon receipt of division and/or division engineer unit OPORD to: [AN]

1) Participate in the battalion orders process.

2) Coordinate with brigade staff counterparts.

l. The engineer battalion commander as the brigade engineer attends maneuver brigade mission analysis at brigade main CP.[1] [FN-NTC Engr OC]

3. **The engineer battalion commander and staff conduct mission analysis.** [ARTEP 5-145-MTP, 05-1-0002; FM 101-5 Chap 4, FM 5-71-3 Chap 2]

a. The engineer battalion commander performs a mission analysis. [ARTEP 5-145-MTP 05-1-0002/1a, and FM 101-5, p. 4-11]

1) The engineer battalion commander derives the missions and intents of division, engineer brigade, and supported maneuver brigade commanders.

2) The engineer battalion commander communicates his understanding of these higher headquarters (HQ) commanders' missions and intents to his staff.

b. The engineer battalion staff members individually conduct mission analyses of higher HQ missions and higher commanders' intents, utilizing the division OPORD engineer annex, division engineer unit WARNO, and the supported maneuver brigade's WARNO to determine: [FM 101-5, p. 4-11, FM 5-71-3, Chap 2; LL- CALL Newsletter No. 93-3, p. 4]

1) Specified tasks.

2) Implied tasks.

3) Assets available.

4) Limitations.

a) Constraints.

(1) Breach lane requirements.

(2) Designated reserve targets.

b) Restrictions.

(1) Obstacle control measures (e.g., division obstacle zones).

(2) Scatterable mine (SCATMINE) employment.

[1] The engineer battalion commander as brigade engineer should decide whether he will personally continue to participate in the brigade planning process or designate his battalion S3. (This task analysis reflects the S3 as the participant, which is in consonance with FM 5-71-3).

5) Critical facts and assumptions relating to engineer operations from the preparation of the EBA.

6) Risk, as applied to engineer capability to perform tasks.

7) Time analysis:

b) Operational timelines that include such items as:

(4) Movement times.

(5) Line of departure or prepare to defend times.

(6) Hours of darkness or limited visibility.

8) Essential tasks that are critical to the engineer mission.

9) Restated engineer battalion mission.

10) Provide engineer battalion XO input for the WARNO. [AN]

c. The engineer battalion XO consolidates individual staff mission analyses and: [FM 101-5 p. 4-14]

1) Reviews consolidated mission analysis for accuracy.

2) Directs preparation of mission analysis briefing.

3) Prepares restated mission for battalion commander's approval.

4) Coordinates/provides information concerning mission analysis to/with the ABE.

d. The engineer battalion XO briefs the battalion commander on the results of the staff mission analysis. [FM 101-5, p. 4-14 and App D; FM 5-71-3, Chap 2]

1) Specified and implied tasks.

2) Essential tasks.

3) Available engineer assets.

4) Determined limitations.

5) Proposed acceptable risk to engineer capability.

6) Determined critical facts and assumptions.

7) Time analysis.

a) Supported maneuver brigade timelines from the ABE section.

c) Timeline for engineer operations during preparation and execution phases.

8) Mission and intent of supported maneuver brigade and division commanders.

9) Recommended restated engineer battalion mission.

e. The engineer battalion commander based on his own mission analysis and the mission analysis brief from the engineer battalion staff: [FM 101-5, p. 4-15]

1) Approves/modifies specified engineer battalion essential tasks.

2) Approves/modifies the engineer battalion restated mission.

f. The engineer battalion commander and staff continue to develop their estimates. [AN]

g. When necessary, the engineer battalion commander and staff employ the military decision-making process (MDMP) in a time-constrained environment to conduct mission analysis using one of the following alternative methods: [FM 101-5 Chap 4]

1) The engineer battalion commander personally conducts mission analysis.

2) The engineer battalion commander and staff jointly conduct mission analysis in the form of a brainstorming session.

4. **The engineer battalion executive officer directs the staff in the preparation and issuance of an engineer battalion warning order.** [FM 5-71-3 Chap 2]

a. The engineer battalion XO ensures that the engineer battalion WARNOs are prepared and issued in the 5-paragraph format and: [FM 101-5, p. H-13]

1) Provide major timeline events which accompany mission execution.

2) Provide planning focus to subordinate unit commanders and staff.

3) Provide essential details of impending engineer operations.

b. The engineer battalion staff, under the supervision of the engineer battalion XO, prepares the WARNO, which includes critical information available at the time for WARNO, such as: [FM 5-71-3, Chap 2] (Normally a minimum of three WARNOs are issued during the conduct of the MDMP.)

1) Enemy and friendly situations.

2) Changes in task organization.

3) Directed movements of subordinate units and linkups.

4) Nature and time of operation.

5) Time and place the engineer battalion OPORD will be issued.

6) Other specified tasks.

7) Service support instructions.

5. **The engineer battalion commander issues planning guidance.** [FM 101-5, Chap. 4; FM 5-71-3]

a. The engineer battalion commander develops planning guidance using: [FM 101-5, p. 4-16; FM 5-71-3 Chap 2]

1) Supported maneuver brigade commander's planning guidance.

2) Engineer brigade commander's guidance.

3) Results of his own mission analysis and his METT-T.

4) Results of the engineer battalion staff mission analysis.

b. The engineer battalion XO prepares the battalion staff to receive the engineer battalion commander's guidance. [FM 101-5, p. 4-15]

1) Determines who must be present.

2) Ensures that the staff is prepared to take notes on guidance issued.

c. The engineer battalion commander's guidance focuses staff on: [FM 5-71-3 Chap 2]

1) Identification, integration, and synchronization of tasks to support the engineer battalion missions assigned by the supported maneuver brigade.

a) Engineer battalion staff.

b) ABE section of maneuver brigade.

2) Parallel planning between the ABE section and engineer battalion staff.

d. The engineer battalion commander issues guidance to the engineer staff that is complete and includes: [FM 5-71-3, p. 2-19; FM 101-5, Chap 4]

1) Commander's intent. [FM 5-71-3, p. 2-19; FM 101-5, p. 4-18]

a) Supported maneuver brigade and division commanders' intents.

b) His own intent, which includes:

(1) Purpose.

(2) Method.

(3) Endstate.

2) Restated mission for the engineer battalion. [FM 5-71-3, p. 2-19; FM 101-5, p. 4-18]

a) Stated in doctrinally correct terms.

b) Explains missions as tasks and purposes.

3) Planning and operational timelines. [FM 101-5, p. 4-23]

4) Engineer battalion COAs to consider. [FM 5-71-3, p. 2-19]

5) Engineer battalion commander's CCIR for each phase of the operation, including: [BCBL Battle Command, p. 21; FN - USAES]

a) Essential elements of friendly information (EEFI).

b) Friendly force information requirements (FFIR).

c) Priority information requirements (PIR).

d) Instructions for incorporating engineer battalion CCIR into maneuver brigade CCIR, as appropriate.

6) Effects desired on enemy force. [FM 5-71-3, p. 2-19]

7) Risk assessment. [FM 5-71-3, p. 2-19]

8) Priorities. [FM 101-5, p. 4-22]

a) Priorities of engineer tasks.

b) Priorities of additional engineer assets.

c) Priorities for equipment repair.

9) Time plan. [FM 101-5, p. 4-23]

a) Time allocated for planning and preparation to the engineer battalion staff and to subordinate units.

b) The engineer battalion commander determines who, where, and how the engineer battalion OPORD will be issued.

10) Type of battalion order to issue; formats include: [FM 101-5, p. 4-24]

a) FRAGO.

b) Oral order.

c) Overlay order.

d) Five paragraph.

11) Type of rehearsal to conduct; options include: [FM 101-5, p. 4-25]

a) Backbrief.

b) Radio.

c) Map.

d) Sketch map.

e) Terrain model.

f) Key leader.

g) Full.

12) Any modifications to MDMP needed to cope with METT-T (e.g., time constraints). [FM 101-5, p. 4-16] [AN]

13) Rehearsals of brigade and other brigade units in which the engineer battalion will participate or observe. [AN]

e. The engineer battalion commander conducts a confirmation brief at the end of his initial planning guidance to ensure that: [FM 101-5 p. 4-15, 16]

1) The information he has provided will result in timely and effective COA development and analysis.

2) The commander's vision of the scheme of engineer operation is imparted to the staff.

3) The guidance does not overly restrict staff initiative or ideas.

f. The engineer battalion commander, when employing the MDMP in a time-constrained environment, issues planning guidance that: [FM 101-5 p. 4-16]

1) Shortens time by giving more detailed directive guidance.

2) Adds focus to staff planning by stating options he does not want considered.

6. **The engineer battalion commander and staff prepare staff estimates.** [ FM 101-5, Chap. 4, App C]

a. The engineer battalion commander develops his commander's estimate concurrently with the staff estimates being prepared by his engineer battalion staff. [FM 101-5 p. 4-3]

1) The engineer battalion commander integrates information from the mission analysis process into his updated commander's estimate which began at the receipt of mission.

2) The engineer battalion commander continues to refine his updated estimate over the duration of the operation.

3) The engineer battalion commander, during this task, focuses information related to paragraphs 1 and 2 of the commander's estimate.

a) Mission.

b) The situation and COA.

c. Upon receipt of an order (OPORD/WARNO) from higher headquarters initiating a mission, the engineer battalion staff begins to organize information in preparation for staff estimate process and begins the development of paragraphs 1 and 2 of its individual staff estimates. [FM 101-5, pp. 3-84 and App C]

1) The S1 gathers information for the personnel estimate.

2) The S2 gathers information to include standard and non-standard topographic products, and initiates development of part 1 and 2 of the engineer battlefield assessment (EBA) with the ABE and the engineer battalion S3.

3) The S3 gathers information for the engineer estimate (i.e., EBA).

4) The S4 gathers information for the logistics estimate.

5) The NBC NCO gathers information for the NBC estimate.

6) The Bn SO gathers information for the command, control, communications estimate.

7) All staff members begin to gather facts concerning:

a) Enemy dispositions.

b) Friendly dispositions.

c) Available troops.

d) Unit's strength.

e) Material readiness.

f) Battlefield situation.

d. The engineer battalion commander and staff clarify information with their counterparts at engineer brigade. [AN]

1) Operational (e.g., tasks assigned to the engineer battalion).

2) Combat service support (e.g., requirements for additional maintenance support).

e. Engineer battalion staff members prepare staff estimates in their areas of responsibility: [FM 101-5 Chap 4, App C]

1) Engineer battalion staff members begin the development of their estimates as early as possible (upon receipt of the division engineer unit WARNO). [AN]

2) Each engineer battalion staff member continually performs estimate activities. [FM 101-5 p. C-3]

3) Each engineer battalion staff member analyzes how factors in his respective staff area of responsibility will influence mission accomplishment. [FM 101-5 p. 4-4]

4) Engineer battalion staff members consult with other staff officers internally and externally to the engineer battalion to obtain critical, relevant, and accurate information. [FM 101-5 p. 4-4]

5) Engineer battalion staff members develop and maintain estimates that are forward looking and predictive of the enemy. [FM 101-5 p. C-2]

6) Each engineer battalion staff estimate focuses on identifying and answering the engineer battalion CCIR. [FM 101-5 p. C-4]

7) Engineer battalion staff members are prepared to present their estimates orally. [FM 101-5 p. 4-4]

f. The engineer battalion S2, in coordination with the ABE, finalizes the EBA: [FM 5-71-3 Chap 2; ARTEP 5-145-MTP, 05-1-0027]

1) Analyzes weather impact on:

a) Trafficability.

b) Water obstacles, e.g., depth, width, flow, rate, and bank conditions.

c) Ability to dig, or breach obstacles, or emplace obstacles.

d) Fog/limited visibility impact on obstacle positioning.

e) Employment of mines/demolitions in severe weather.

(1) Reliability.

(2) Effects.

2) Analyzes terrain for impacts on mobility operations.

a) Observation and fields of fire.

(1) Identifies obscuration/location of support force for breaching.

(2) Assesses impacts on desired obstacle effects.

(3) Determines obstacle distance from direct fire systems.

b) Cover and concealment.

(1) Identifies obscuration/assault positions for breaches.

(2) Determines effects on survivability and deception operations.

c) Obstacles.

(1) Identifies locations and significance of existing and potential reinforcing obstacle locations.

(2) Assesses impact on countermobility/mobility requirements for the operation (e.g., effects of soil composition on ability to breach obstacles).

d) Key terrain.

(1) Identifies dominant terrain, ford sites, key bridges, and defiles.

(2) Recommends locations for indirect fire suppression and obscuration for breaching operations.

(3) Impacts of terrain on communications.

e) Avenues of approach.

(1) Identifies need for flank protection.

(2) Determines requirements to improve trafficability.

(3) Determines soil types encountered and ability to perform earthmoving operations.

3) Analyzes enemy engineer mission and mobility/survivability capabilities.

a) Coordinates with supported maneuver brigade S2 to confirm baseline data: [FN - NTC Engr OCs]

(1) Order of battle.

(2) Enemy strength.

(3) Enemy dispositions.

b) Uses supported maneuver brigade S2 IPB database and assists in the development of the situational template to develop enemy engineer order of battle and capabilities.

c) Templates enemy mobility/countermobility/survivability capabilities.

(1) Offense.

(a) Tactical obstacle effort.

(b) Protective obstacle effort.

(c) Scatterable minefields.

(d) NBC targets.

(2) Defense.

(a) Mobility capabilities and locations.

(b) Use of SCATMINEs.

(c) Use of NBC.

(d) High value targets.

1 Bridging assets.

2 Breaching assets.

(e) Engineer support of the reconnaissance effort.

d) Evaluates recent enemy engineer activities and what enemy engineer has done in similar circumstances to identify strengths/weaknesses.

e) Predicts possible enemy courses of action and the impact of the engineer situation on these courses of action.

4) Appraises friendly engineer missions and capabilities.

a) Brigade's and task forces' missions.

b) Task organizations for:

(1) Maneuver forces.

(2) Engineer forces.

c) Availability of critical resources.

d) Engineer ability to accomplish the supported brigade's mission.

5) Develops from the above analyses the following intelligence preparation of the battlefield products:

a) MCOO.

b) Situational template overlay of anticipated enemy obstacles, fortifications, and significant enemy engineer activities.

6) Provides the products to the engineer battalion commander, the battalion staff, ABE, the supported maneuver brigade S2, and subordinate engineer company commanders in a timely manner. [AN]

7) Orally briefs the assessment as required.

g. The engineer battalion S3 and S3 section in coordination with the ABE prepare paragraphs 1 and 2 of the engineer estimate utilizing information from the S2's part 1 and 2 of EBA, and engineer battalion logistic/personnel estimates. Contents include[2]: [ARTEP 5-145-MTP 05-1-0002/1,2 and FM 5-100, p. 25; LL - Lessons Learned Bulletin, July 87]

1) Mission analysis and restated mission of engineer battalion.

2) Analysis of operations to be supported.

3) Weather and terrain impact on engineer options.

4) Enemy engineer situation.

5) Friendly brigade tactical situation.

6) Own engineer situation.

a) Task organization.

b) Dispositions.

c) Levels of effectiveness (current and projected).

d) Assessment of engineer capabilities.

(1) Productivity rates developed for each engineer resource (e.g., engineer platoon, Volcano, armored combat earthmover, mine clearing line charge [MICLIC], bulldozer, etc.) by type of requirement (e.g., numbers of M1 fighting positions, meters of minefield, meters of breached lane).

[2] The situational analysis (paragraph 2) of the engineer estimate has the same components and content as the engineer battlefield assessment (EBA). The engineer battalion S3 is the overall staff proponent for its development. The engineer battalion S2 prepares the terrain analysis and enemy engineer assessment components and the S3 section prepares the friendly engineer assessment component with input from the S1 and S4 estimates and coordinates it with the ABE section.

(2) Matrices or other tools that apply engineer resources available against identified requirements. Such tools track/display the following information:

(a) Consumption/commitment of engineer assets available.

(b) Start-finish times.

(c) Tradeoffs.

(3) Calculations of total projected engineer capability by requirement.

(4) Calculations of initial resourcing estimates of tentative brigade obstacle belts and assigned effects based on notational placement of obstacle groups. [FN - USAES]

(5) Assessment of capability to conduct in-stride and deliberate breaching operations.

e) Status of current activities.

f) Estimated completion times of current engineer tasks.

g) Assumptions.

7) Logistics.

a) Levels of Classes IV and V to support engineer operations through all phases of battle.

b) Current and projected maintenance status of vehicles and weapons/engineer systems to include all mobility assets available to the maneuver brigade such as mine plows and rollers.

c) Availability of transportation assets to support engineer operations.

d) Disposition and locations of logistic units and facilities supporting engineer operations.

8) Combat status and capabilities of other force elements as provided by LNOs if an engineer battalion TF has been directed by the maneuver brigade. [AN]

h. The engineer battalion NBC NCO prepares paragraphs 1 and 2 of the NBC estimate, which include: [FM 101-5 Chap 4, App C]

1) Available battalion NBC defense capabilities.

a) Available chemical unit support.

(1) Smoke platoon.

(2) Decontamination units/sites.

(3) NBC reconnaissance vehicles.

b) Status of NBC personnel.

c) Maintain status of on-hand NBC defense equipment.

d) Current status of NBC Class V.

(1) Fog oil.

(2) Smoke pots.

(3) Incendiaries.

2) Assessment of NBC defense capabilities.

a) Capability to provide smoke in terms of duration and density.

b) Capability to provide NBC reconnaissance in terms of space and time.

c) Decontamination on capabilities in terms of equipment and personnel.

i. The engineer battalion S4, with input from the BMT, prepares paragraphs 1 and 2 of the logistics estimate, which include: [FM 101-5 Chap 4 App C]

1) S4 current and projected maintenance status.

a) DA Form 2406 report.

b) Repair parts (Class IX).

c) Maintenance asset locations and activities (UMCP, field trains).

d) Key maintenance personnel status.

e) Available DS and GS.

f) BMT's assessment of capabilities in terms of strengths and weaknesses.

2) S4 current and projected logistics status.

a) Classes I, II, III, IV, V, VII, and VIII.

b) Logistics asset locations and activities (field trains, LOGPACs, combat trains).

c) Key logistics personnel status.

d) Available DS and GS support.

e) S4's assessment of capabilities in terms of strengths and weaknesses.

3) S4 assessment of logistics capability to support the battalion. [FM 101-5 Chap 4]

a) Organic and supporting transpiration capabilities to move and recover equipment and haul/delivery mission requirements of Class IV/V.

b) Organic and supporting maintenance capabilities to achieve/maintain operational readiness rates.

c) Adequacy of levels of all classes of supplies and services to sustain engineer battalion operations.

j. The engineer battalion S1 prepares paragraphs 1 and 2 of the personnel estimate, which include: [FM 101-5 Chap 4, App C]

1) Personnel strength (personnel status).

2) Key personnel status.

3) Replacement projections.

4) Personnel service asset locations and activities.

   a) Mail.

   b) Finance.

   c) Personnel administration center.

   d) Post exchange.

   e) Chaplain and/or religious ministry coverage.

   f) Recreation services.

   g) Mortuary affairs.

5) S1 current medical support status.

   a) Medical treatment and evacuation support, DS and GS.

   b) Class VIII status.

   c) Key medical personnel status.

   d) Available DS and GS support.

   e) Assessment of capability for casualty treatment and evacuation in terms of strengths and weaknesses.

   f) Stress assessment.

   g) Rest plans.

6) S1 assessment of engineer status in terms of capability to support the battalion mission. [FM 101-5 Chap 4]

   a) Personnel replacement capability to maintain personnel strength in all military occupational specialties.

   b) Personnel services capabilities to sustain morale and discipline.

k. The engineer Bn SO prepares paragraphs 1 and 2 of the command, control, and communications estimate, which include: [FM 101-5 Chap 4, App C]

1) Current communications status and serviceability.

a) Secure and non-secure radio communications.

b) Retransmission capability and status.

(1) Location.

(2) Equipment.

c) Land lines installation status.

d) Communications with higher and adjacent units.

e) Bn SO's assessment of capability to support battalion.

f) Communications links from battalion CPs to brigade CPs and subordinate CPs.

g) Communications equipment status (secure and non-secure).

h) Signal operating instructions information.

i) Availability of communications personnel.

j) Communication requirements for CPs (current and projected locations).

k) Enemy electronic and communications capabilities.

l) Constraints, e.g., equipment capabilities (ranges, frequency ranges, dead spaces, atmospheric conditions).

2) Current and projected command/control requirements.

a) Location and activities.

(1) Supported maneuver brigade main CP/ tactical (TAC) CP.

(2) Engineer battalion main CP/TAC CP.

(3) Engineer battalion rear CP, field trains, and combat trains (if established).

(4) Maneuver battalion TF CPs (TF engineer).

b) Requirements to support other force elements under engineer battalion TF control.

3) Assessment of capability to support engineer battalion operations.

a) Communication capabilities to support engineer battalion operations in support of the brigade's TFs.

b) Communication capabilities of engineer battalion organized as engineer battalion TF.

l. The engineer battalion XO guides the staff to continuously maintain and update forward-oriented time-charts and information. [FM 101-5 p. C-2]

m. The engineer battalion commander requests staff information at any time to update his own commander's estimate. [FM 101-5 p. C-2]

7. **The engineer battalion commander and staff develop course(s) of action.** [FM 101-5 Chap. 4, App E; FM 5-71-3 Chap 2]

b. The engineer battalion XO leads the engineer battalion staff in analyzing SOEOs and the supporting maneuver brigade COAs. Identifies: [FN - USAES] (See also Task 8 of this analysis.)

1) Problems with engineer support of the maneuver brigade COAs.

2) Coordination requirements to be included in maneuver brigade synchronization matrix.

3) Information requirements for the maneuver brigade DST.

c. The engineer battalion XO provides the ABE with information resulting from engineer battalion analysis for use during brigade war-gaming. [FN - USAES]

d. The engineer battalion S3 communicates the selected brigade COA, its supporting scheme of engineer operations, and the supported maneuver brigade war-gaming notes to the engineer battalion commander and/or XO. [AN]

e. The engineer battalion S3 rejoins the engineer battalion staff for battalion COA development after brigade COA is selected. [AN]

f. The engineer battalion commander and/or the engineer battalion S3 develop COA considering: [AN] (See also the preface to this analysis.)

1) Critical tasks assigned to the engineer battalion.

2) Scheme of engineer operations.

3) War-gaming notes from the supported maneuver brigade COA analysis.

g. COAs are developed using doctrinally correct procedures, which include: [FM 101-5, p. 4-26 and App E]

1) Analyzing relative combat power/engineer capabilities.

2) Arraying initial forces/engineer assets.

3) Developing a concept of engineer battalion operation.

4) Incorporating a scheme of maneuver if an engineer battalion TF is being considered.

5) Determining essential tasks that will permit engineer battalion/engineer battalion TF to accomplish its mission.

6) Determining command and control measures.

7) Developing a course of action statement and sketch.

h. The engineer battalion S3, in conjunction with the staff, develops COAs that are: [FM 101-5, App E]

1) Suitable:

a) Accomplish the mission.

b) Focused on the restated mission.

c) Consistent with SOEO developed in maneuver brigade MDMP. [AN]

2) Feasible: the unit has the required resources (e.g., time, blade hours, platoon hours, special equipment, mission supplies of Class IV/V).

3) Acceptable level of risk to mission accomplishment and in terms of loss of personnel, time, material, or capability.

4) Distinguishable, as identified at a minimum by:

a) The task organization.

b) The concept of engineer operations.

5) Complete, in that each addresses:

a) What elements will execute the action (who).

b) Type of action contemplated to include battalion essential tasks (what).

c) Time engineer operation begins (when).

d) Location (where).

e) Method of conducting the engineer battalion operation (how).

f) The engineer battalion commander's intent (why).

i. At least two COAs are developed unless time or the commander's guidance dictates only one. [ARTEP 5-145-MTP 05-1-0002/3]

j. The engineer battalion S2 develops, refines, and provides necessary intelligence products to the engineer battalion S3. [ARTEP 71-3-MTP, Task 71-3-2001/3a; FM 34-8, p. 3-13]

1) Enemy situation template which depicts relevant enemy COAs that could affect the engineer battalion.

2) Terrain and weather analysis.

k. Engineer battalion staff members integrate their functional area COAs into the S3 COAs: [FM 101-5, p. 4-26]

1) The S1 identifies personnel courses of action which can support the concept of engineer operation identified by each S3 COA.

2) The S4 identifies logistic courses of action (including maintenance input from the BMT) which can support the concept of engineer operation identified by each S3 COA.

3) The Bn SO develops COA to support each S3 COA.

4) The NBC NCO develops COA to support each S3 COA.

l. LNOs from other force elements placed operational control (OPCON) to the engineer battalion TF (e.g., mechanized infantry company/team commander, fire support team OIC, chemical smoke platoon leader, ADA platoon leader, MP platoon leader) provide functional input about their units for the S3 COA. [AN]

m. The engineer battalion S3, in coordination with engineer battalion XO, develops COA sketches or other means to display the COAs for presentation during analysis of COAs. [FM 101-5, p. E-16]

n. When the MDMP is used in a time-constrained environment, the engineer battalion commander adheres to doctrine in developing COAs, and may: [FM 101-5, p. 4-44]

1) Limit the number of COAs to be considered.

2) Give the staff a specific COA or more specific guidance on how to develop COAs.

3) Remain with the staff and develop the COA(s).

4) Develop the COA(s) by himself.

8. **The engineer battalion commander and staff analyze course(s) of action.** [FM 5-71-3 Chap 2; FM 101-5, p. 4-28, App F]

a. The commander and staff use a previously trained procedure for war game. [FM 101-5, App F]

1) Belt.

2) Box.

3) Avenue.

4) Any other technique that has been developed and in which the staff is trained.

b. The engineer battalion XO supervises the staff in conducting the war-gaming sequence: [FM 101-5, App F]

1) Gather the tools, materials, and data:

a) Post COAs on a map as appropriate.

b) Post enemy template.

c) Post current friendly unit dispositions.

d) Develop other information/data displays.

2) List all friendly forces.

a) Assigned, attached, OPCON.

b) Support relationships.

c) Constraints and restrictions from higher headquarters.

d) Priority of engineer support.

e) Multipliers such as additional equipment (plows rollers)/ manpower available from other units/sources.

3) List the assumptions.

a) Assumptions from supported maneuver brigade OPORD.

b) Enemy options and activities that could impact engineer operations.

c) Friendly strengths and activities.

4) List known critical events and anticipated decision points for the engineer operation.

5) List significant factors.

a) Timelines.

b) Phasing requirements.

c) Weather/terrain.

d) Sustainment capabilities/requirements.

e) Other identified factors.

6) Select the war-gaming method.

7) Select a technique to record and display the war game results.

a) Narrative.

b) Sketch notes.

c) Execution matrix.

8) War game and assess the results by:

a) Using action/reaction/counteraction drills against enemy; or

b) Conducting an advantages/disadvantages analysis of one COA relative to another based upon an evaluation of the impacts of significant factors.

c. The engineer battalion commander, XO, or S3 presides over the war-gaming of each developed course of action for the engineer battalion mission; ensures that: [FM 101-5 App F; ARTEP 5-145-MTP, 05-1-0002/4a]

1) Each COA is war gamed against:

a) The enemy.

b) Other significant criteria.

2) Each COA is well integrated with the selected brigade COA.

3) Entire staff and LNOs are present, if available.

4) Staff members have current estimate for their areas of responsibility.

5) Staff members have planning factors and other tools to enable them to compute consumption of resources during the war game.

6) War-game notes are kept by means such as a synchronization or execution matrix.

7) Advantages and disadvantages are listed as they are identified.

8) Staff members and LNOs actively participate in the war game.

9) Staff remains unbiased.

10) Premature conclusions are not drawn.

11) Feasibility is continually assessed and analysis stops if COA becomes infeasible.

d. The engineer battalion XO ensures that the staff fully explores each COA during war-gaming to include as appropriate (arranged by battlefield operating system [BOS]): [FM 101-5, App F; LL - CTC Bulletin No. 95-4]

1) General. [FM 5-71-3, pp. 2-20 - 2-23]

a) Identify strengths and weaknesses of COA.

b) Adjustments to COA.

(1) Shift available engineer assets.

(2) Identify additional engineer or other assets needed.

c) Task organization.

d) The engineer battalion XO, with input from the S3, develops the operational timeline which describes mission execution events. [AN]

2) Command and control. [FM 5-71-3, pp. 3-4, 4-3]

a) Required coordination with adjacent and supported units.

b) Critical engineer events and timing.

c) Decision points for engineer operations.

d) Command/support relationships.

e) Communication requirements and priorities.

f) Command and control positioning/repositioning during phases of operations.

(1) Engineer battalion main CP.

(2) Engineer battalion rear CP.

(3) Engineer battalion TAC CP.

(4) Engineer battalion command group (if not at TAC CP).

g) Engineer battalion TF unique command and control (C2) requirements are identified.

3) Intelligence. [FM 5-71-3, pp. 3-4, 4-3]

a) Identify any additional NAIs, TAI requirements not accomplished in the supported maneuver brigade war-gaming.

b) Identify additional engineer reconnaissance requirements not accomplished in supported maneuver brigade war-gaming.

c) Limited visibility, soil, terrain, and hydrographic considerations on engineer operations.

d) Requirements for TerraBase products to support engineer operations.

4) Maneuver. [FM 5-71-3. pp. 3-4, 4-3]

a) Linkups with other force elements supporting engineer battalion TF.

(1) Location.

(2) Time.

b) Routes to be used to position engineer battalion elements.

c) Passage of lines if required.

d) Control measures.

e) Movement times and distances to position/reposition engineer assets.

f) Identify tasks for supporting combat elements in engineer battalion TF operations.

5) Mobility and survivability. [FM 5-71-3, pp. 3-4, 4-3]

a) Obstacle integration. [FM 90-7, Chap 4]

(1) Plan obstacle belts to support each maneuver COA, based on:

(a) Division obstacle control measures (e.g., zones).

(b) Maneuver brigade commander's intent for obstacles.

1 Target.

2 Obstacle effect (e.g., turn, fix, block, disrupt).

3 Time and assets available.

(2) Array tentative obstacle control measures (e.g., groups).

(3) Identify restrictions required for mobility.

(4) Resource obstacle groups by:

(a) Requirements.

(b) Capabilities (used for initial calculations of estimates of Class IV/V materials).

(c) Required times.

(5) Identify priorities for obstacles if requirements exceed capabilities.

(6) Modify/refine the obstacle plan as required.

(a) Size of belts.

(b) Locations of belts and Class IV/V supply points.

(c) Situational obstacle requirements.

(d) Reserve obstacle requirements.

(e) Directed obstacle requirements.

(f) Taskings to units.

(g) Additional resources required.

b) Survivability construction. [FM 5-103, Chap 2].

(1) Brigade commander's priorities for survivability protection based on vulnerability analysis.

(a) Unit.

(b) Weapons, equipment, and facilities.

(c) Required times.

(2) Time available:

(a) Prior to development of direct fire plan by maneuver battalion TFs to maximize the protective position construction effort (e.g., artillery, C2 nodes, CSS assets).

(b) After development of direct fire plans to construct fighting positions.

(3) Constraints to digging production.

(a) Competing requirements for digging assets to support mobility/ countermobility requirements.

(b) Soil conditions classified as dig/no dig.

(c) Weather and light conditions impacts.

(d) Movement requirements of digging assets.

(e) Equipment availability.

(f) Equipment maintenance procedures.

(g) Alternate operators for continuous operations.

(h) Selection of type positions (i.e., two tier vice modified two tier).

(4) Siting requirements and coordination. [FM 101-1, Chap 7]

c) Combat road and trail construction. [FM 101, Chap 7]

(1) Engineer effort required to support movement of logistics from BSA to maneuver unit trains.

(2) Engineer effort required to maintain maneuver units' mobility.

(a) Bypass construction as an alternative to breaching obstacles.

(b) Rubble clearing in built-up areas.

d) River crossing (hasty).[3] [FM 90-13, Chap 6]

(1) Crossing site evaluations (primary and alternate).

(2) Entry and exit bank preparations.

(3) Type of bridging and configuration.

(4) Control measures.

[3] This consideration is intended for decentralized river crossings controlled by the maneuver brigade, which is a feature of hasty crossings. According to FM 90-13, the brigade may use organic, existing, or any available crossing means, but additional support from division or corps is often necessary. In this context the engineer battalion may be responsible for the crossing sites and means. Planning considerations for a hasty crossing are the same as a deliberate crossing.

(a) Traffic control.

(b) Engineer regulation.

(5) Crossing plan and movement schedule.

e) Breaching operations. [FM 90-13-1, Chap 4]

(1) Obstacle intelligence. [FM 90-13-1, p. 2-2]

(a) Obstacle types and orientation.

(b) Minefield types and locations of leading edges.

(c) Enemy fortifications.

(2) Actions on objective.

(a) Size and composition of assault force.

(b) Requirements for assault breaching of protective obstacles.

(3) Lane requirements.

(a) Number based on size of assault force.

(b) Locations.

(c) Marking.

(d) Widening/improvement.

(e) Handover to follow-on forces.

(4) Breaching asset allocation per lane based on 50% redundancy.

(a) Armor plows and rollers.

(b) Engineer breaching equipment.

(5) Task organization of the breach force.

(6) Direct fire plans for the breach force.

(7) Battle drills to be used in breaching.

(8) Traffic control measures.

(9) Crossing plan.

(10) Coordination with support force.

(a) Suppression of direct fires.

(b) Obscuration.

(c) Indirect fire suppression.

(11) Coordination with assault force for passing through lanes.

(12) Rehearsal planning.

(a) Site selection.

(b) Layout requirements to replicate obstacles.

f) Identification of tasks for all subordinate units. [AN]

g) Phasing of engineer tasks. [AN]

h) Completion times for all tasks. [AN]

i) MOPP and NBC operations. [AN]

6) Fire support. [FM 5-71-3, pp. 3-4, 4-3]

a) Fire support for engineer battalion TF maneuver.

b) Fire support for engineer work sites.

c) Critical fire zones for breaching and river crossing sites.

d) Scatterable mine employment.

7) Air defense. [FM 5-71-3. pp. 3-4, 4-3]

a) Positioning supporting air defense elements at breach sites, gap crossing sites, Class IV/V points.

b) Early warning requirements.

c) Weapons status during engineer operations.

d) Direct fire systems in air defense role at work sites.

8) Combat service support. [FM 5-71-3, pp. 3-4, 4-3, Chap 6]

a) CSS requirements:

(1) Critical classes of supply.

(2) Supply priorities.

(3) Maintenance support requirements and priorities.

(a) UMCP locations.

(b) Maintenance recovery.

(4) Transportation requirements and priorities.

b) Class IV/V supply point considerations to support engineer work sites.

(1) Class IV/V supply point locations.

(2) Class V prepositioning/cache locations.

(a) MICLIC reloads.

(b) Volcano reloads.

c) Medical support requirements:

(1) Casualty estimates.

(2) Medical treatment and evacuation.

d) EPW evacuation and support.

e) Unique logistic requirements to support engineer battalion TF operations.

e. As a result of war-gaming, the engineer battalion XO ensures that the staff members develop and refine appropriate products for which they are functionally responsible: [FM 101-5, App F]

1) Overlay.

2) Event template.

3) Initial DST.

4) Branches to plan.

5) Battalion CCIR.

6) Operational risk assessment.

7) Possible fratricide locations/situations.

8) Execution matrix.

9) Synchronization matrix if other force elements are involved in engineer battalion TF.

10) Requests for additional assets required by battalion staff.

11) Information staff requires to prepare their portion of the OPORD.

f. The engineer battalion commander and key staff (XO, S3) determine acceptable levels of risk based on COA selected following these steps: [FM 101-5, p. 4-31]

1) Identify hazards associated with major events.

2) Assess hazards (operational and safety).

3) Make risk assessments regarding mission accomplishment and safety.

4) Implement controls to mitigate risk.

g. When war-gaming does not produce needed information, or if information is unclear, the responsible staff officer aggressively pursues needed information. [AN]

h. Upon completing COA war-gaming, the engineer battalion XO ensures that: [CTC Bulletin No. 95-4]

1) War-gaming notes are completed.

2) COA timelines and requirements are understood.

i. War-gaming during the MDMP in a time-constrained environment may be conducted and supervised by the engineer battalion XO and includes: [FM 101-5 p. 4-42]

1) Performing all the steps of the war-gaming.

2) Adhering to all the required principles.

3) Having as many of the staff present with the commander as possible, given the tactical situation.

4) Considering all staff and LNO functional areas.

5) Setting aside as much time as possible.

6) Commander is present and involved.

7) Using less time consuming methods such as the critical points (box method).

9. **The engineer battalion staff compares courses of action.** [FM 101-5, p. 4-32]

a. The engineer battalion XO supervises comparisons of COA by the staff and LNOs ensuring: [FM 101-5 p. 4-32]

1) Use of commander's previous guidance on comparison criteria.

2) Use of criteria and weighting selected to build a decision matrix.

b. Each battalion staff officer prepares a COA decision matrix for his own BOS that identifies which COA can best be supported from that BOS standpoint. [FM 101-5, p. 4-32]

c. The battalion S3 identifies the best COA to recommend to the battalion commander. [FM 101-5, p. F-38]

1) Each battalion staff member presents his assessment to the other staff members for consideration.

2) The battalion S3 chooses which COA will produce success if the staff is unable to reach a consensus.

3) The battalion staff prepares necessary briefing charts for the COA brief to the commander.

4) The staff prepares updated estimate notes for their respective areas.

5) The battalion S3 prepares a list of assumptions for each COA.

6) The battalion S3 ensures that a COA sketch with implementation statements has been prepared for each COA.

7) The battalion S3 ensures that the war game notes or worksheets are prepared.

d. The engineer battalion XO or S3, with staff and LNOs present, briefs the engineer battalion commander on the results of the COA comparison, which include: [FM 5-71-3, Chap 2; FM 101-5, p. 4-33]

1) The intents of division and brigade commanders.

2) The battalion restated mission.

3) The status of battalion forces.

4) The updated intelligence estimate.

5) Own courses of action:

a) Assumptions used in the war game.

b) Results of staff estimate.

c) Advantages and disadvantages of each COA.

6) Recommended COA.

7) Branches to each COA.

8) Unresolved issues.

9) Dissenting staff positions.

e. The engineer battalion commander makes a decision based on: [FM 5-71-3 Chap 2; FM 101-5 p. 4-33, 34]

1) His experience.

2) His trust and confidence in his personnel and his knowledge of his battalion's present capabilities.

3) His estimate of the situation.

4) The inherent flexibility of the selected COA.

5) The supported maneuver brigade commander's announced decision.

NOTE: The engineer battalion commander may agree with the staff-recommended COA, modify it, or select another COA, although he must consider the additional staff work required if other than staff-recommended COA is chosen.

f. Once the battalion commander has selected the COA to be employed, the XO leads the staff in war-gaming branches of the COA selected. [CGSC Student Text 101-5, p. 4-32]

g. The engineer battalion commander, when required, employs the MDMP in a time-constrained environment by: [FM 101-5, p. 4-42]

1) Having available generic COA decision/comparison matrices to save time.

2) Reducing the number of comparison criteria.

3) Personally conducting the COA comparison.

10. **The engineer battalion commander announces his decision.** [FM 101-5, Chap. 4]

a. The engineer battalion commander announces his COA decision by: [FM 101-5 p. 4-35]

1) A clear, concise statement of his intent and concept of operation.

2) Stating the who-what-when-where-how-and why associated with the COA.

3) Stating the risk he is willing to accept to:

a) Retain engineer capabilities.

b) Complete engineer tasks.

4) The engineer battalion commander specifies the battalion task organization. [FM 101-5 p. 4-35]

5) The engineer battalion commander specifies the command and support relationships of engineer companies/elements. [FM 101-5, p. 4-35]

a) By phase of operation.

b) With supported maneuver elements.

b. The engineer battalion S3 returns to the ABE section and integrates the engineer battalion selected course of action into the final scheme of engineer operations stated in the supported maneuver brigade OPORD. [AN]

c. The engineer battalion commander and staff conduct reconnaissance to confirm selected COA and make necessary modifications. [FM 101-5, p. 4-44; FM 5-71-3 pp. 2-19, 23]

d. During the MDMP time-constrained environment, the battalion commander's decision is announced with the same precision, completeness, and clarity as in a more deliberate process. [FM 101-5, Chap 4, p. 4-44]

11. **The engineer battalion staff prepares the operations order**. [ARTEP 5-145-MTP 05-1-0007; FM 5-71-3 Chap 2 and App D; FM 101-5, Chap. 4]

a. The engineer battalion commander and selected staff attend the supported maneuver brigade order and confirmation briefs. [FM 5-71-3, Chap 2]

b. The engineer battalion receives a written copy of supported brigade OPORD prior to preparing engineer battalion OPORD. [AN]

c. The engineer battalion XO and staff individually review brigade OPORD to: [AN]

1) Find necessary information for preparing their portion of the battalion order not previously determined. [AN] (See task 6.b.4)

2) Confirm and cross check information previously obtained through coordination in parallel planning. [AN]

d. The engineer battalion staff, under supervision of the engineer battalion XO, develops a WARNO that includes critical information based on results of COA analysis and engineer battalion commander's decision. [FM 5-71-3, Chap 2]

f. The engineer battalion staff, under the supervision of the XO, converts the war-gaming notes and engineer battalion commander's guidance into a written order (OPORD). [ARTEP 5-145-MTP 05-1-0007/4a]

1) The engineer battalion S2 prepares paragraph 1a, enemy situation, and an intelligence annex when required in accordance with FM 101-5. [ARTEP 5-145 MTP 05-1-0007/4c]

2) The engineer battalion S3 section prepares the task organization, paragraph 1, situation less subparagraph 1a; paragraph 2, mission; paragraph 3, execution; paragraph 5, command and signal; and operation overlays, annexes as required. [ARTEP 5-145-MTP 05-1-0007/4b]

3) The engineer battalion S4 prepares paragraph 4, service support, and the service support annex and overlay when required. [ARTEP 5-145-MTP 05-1-0007/4d]

4) The engineer battalion S1 provides the S4 with information on personnel and administrative services to be included in paragraph 4, service support, or the service support annex. [ARTEP 5-145-MTP 05-1-0007/4e]

5) The engineer BMT provides the S4 with information on maintenance services to be included in paragraph 4, service support or service support annex. [ARTEP 5-145-MTP 05-1-0007/4f]

6) The engineer Bn SO provides the S3 with information about communication requirements, assets, and instructions to be included in paragraph 5, command, and signal. [ARTEP 5-145-MTP 05-1-0007/4g]

7) The engineer battalion NBC NCO provides input to the S3 for the order, which includes: [AN]

a) Locations of decontamination sites.

b) Smoke operations.

c) MOPP status.

8) The engineer battalion S2, S4, S1, BMT, Bn SO, and NBC NCO provide the engineer battalion S3 with any coordinating instructions. [ARTEP 5-145-MTP 05-1-0007/4c-g]

9) For engineer battalion task force operations, LNOs from the other force elements provide information about their units' operations to the engineer battalion S3 for integration into the order as appropriate. [FM 5-71-3, Chap 5]

a) Maneuver.

b) Fire support.

c) Military police.

d) Air defense.

e) Chemical (smoke).

g. The engineer battalion S3 section ensures that the engineer battalion OPORD order is doctrinally sufficient and in a doctrinally correct format: [ARTEP 5-145 MTP 05-1-0007/6; FM 5-71-3 App D]

1) Heading to include:

a) Security markings.

b) Confirmation statement in regard to oral orders.

c) Copy number.

d) Issuing headquarters.

e) Place of issue.

f) Date and time order is signed.

g) Message reference number.

h) OPORD number.

i) Code name (if applicable).

j) Map references.

k) Time zone order is executed.

2) Task organization:

a) Includes all engineer headquarters of units under brigade control.

b) Includes all engineer headquarters of organic units if the OPORD is the initial order for the operation.

c) Lists companies and special platoons task organized to HQ other than their parent unit.

d) Lists special equipment if not clear in unit task organization.

e) Addresses command and support relationships, as necessary.

f) Streamlines C2.

3) Situation:

a) Enemy forces:

(1) Terrain and weather include:

(a) Critical aspects of the terrain that affect operations.

(b) Critical and decisive terrain in the brigade area.

(c) Expected weather conditions and their impact on operations.

(d) Light data and its impact on operations.

(2) Enemy situation. This paragraph should include:

(a) Macro picture of enemy forces facing the brigade.

(b) Current disposition of enemy forces, strength, disposition, composition, and current activities.

(c) Enemy engineer activities and capabilities.

(d) Enemy activities, capabilities, and COAs that affect brigade level engineer operations.

b) Friendly forces:

(1) Higher. This paragraph should include:

(a) Division and supported maneuver brigade missions and commanders' intent paraphrased as it applies to engineer operations.

(b) Brief description of division plan.

(c) Division level engineer plans and priorities.

(2) Adjacent. Highlight missions of adjacent divisions and engineer units that impact brigade missions.

c) Attachments and detachments:

(1) List attachments and detachments of organic and supporting engineers to the maneuver brigade.

(2) Highlight any attachments and detachments that occur during the operation.

(3) Identify the time or event for the change.

4) Mission. This paragraph should include:

a) The engineer battalion organization (who).

b) The supported maneuver brigade and any essential brigade-level engineer missions (what, when, where, and why).

5) Execution:

a) Engineer battalion commander's intent for the operation:

(1) Commander's vision for operation and how it supports the brigade plan.

(2) The purpose of the operation.

(3) The endstate of battalion level operations and its link to the endstate of brigade operation.

(4) Linkage of the engineer battalion commander's intent to the brigade defeat mechanism.

b) Concept of engineer battalion operations:

(1) Uses phrases of the supported maneuver brigade plan to organize the narrative.

(2) Focuses on mission-essential engineer tasks and the supported maneuver brigade's main engineer effort.

(3) Identifies main engineer effort and shifts (changes) in priority during the operation to support the brigade plan.

(a) Tactical obstacles:

1 Details the countermobility effort.

2 Identifies obstacle belts and groups and assigns responsibilities, priorities, and restrictions to brigade-level countermobility efforts and engineer units.

3 Identifies and assigns responsibilities for brigade and division-directed reserve targets to be prepared by brigade-controlled engineer units.

(b) Situational obstacles:

1 Includes concept for employment of situational obstacles and integration to complement tactical obstacles.

2 Details NAIs, TAIs, DPs, and execution criteria if the SCATMINE is executed by brigade controlled engineer units.

3 States headquarters maintaining authority to use SCATMINEs and any restrictions on duration by belt.

(c) Survivability construction. Describes the tactical construction plan along a timeline that delineates which units get how many positions by type (e.g., TF 2-5 Cavalry 12 M1 positions, 12 Bradley positions).

NOTE: Consider a construction matrix as an annex.

(d) Mobility operations.

1 Describes the concept for brigade deliberate breaching.

2 Describes the concept for brigade hasty gap crossings.

3 Describes plan for combat road/trail construction/upgrade throughout the brigade area of operations.

c) Tasks to subordinate units:

(1) Lists all tasks assigned to engineer units remaining under the engineer battalion's control and any combat support units under engineer battalion TF control.

(2) Lists tasks assigned by unit in the order they will be executed.

(3) Distinguishes between "be prepared," or "on order" tasks and "execute now" tasks.

d) Coordinating instructions:

(1) Includes tasks and instructions that are common to two or more units.

(2) Lists all pertinent coordinating instructions listed in brigade order.

(3) Authorizes direct coordination, if appropriate.

(4) Describes any turnover of tasks between engineer units for breaches, fords, obstacles, etc.

(5) Gives time task organization is effective.

6) Service support:

a) General concept of logistics support.

(1) Provides general concept of logistics support for units under the battalion commander's control throughout the operation.

(2) Describes support of those battalion elements given OPCON to other units.

(3) Identifies primary and backup means of subunit sustainment, addressing who (companies); how (area support, unit support, supply point distribution, and unit distribution); where (BSA, trains); and what (classes of supply and critical services).

(4) Makes maximum references to brigade CSS graphics.

(5) Ensures consistency with task organization and command support relationships.

(6) Lists locations of key CSS nodes as they apply to concept of logistics support.

b) Material and services:

(1) Supply. For each class of supply:

(a) Lists allocation and CSRs for each unit based on missions.

(b) Lists basic loads to be maintained by the unit.

(c) Addresses mission logistics arrangements (Class IV, V).

(2) Transportation:

(a) Lists primary, alternate, and contaminated MSRs during operation.

(b) States allocations of division or corps haul assets.

(3) Services. For each service, lists location and means of requesting.

c) Medical treatment, evacuation, and hospitalization. Indicates primary and backup means of medical evacuation and locations of facilities.

d) Personnel:

(1) Identifies method of handling EPWs and EPW collection points.

(2) Identifies method of receiving mail, religious services, and graves registration.

e) Civil-military cooperation. Identifies engineer supplies, services, or equipment provided by host nation.

7) Command and signal:

a) Command:

(1) Location of engineer CPs.

(2) Projected displacement of CPs.

b) Signal:

(1) Identifies any signal/communication peculiarities for operation not covered in SOP.

(2) Identifies critical reporting requirements of subordinates if not covered in SOP.

(3) Designates nets for mission and routine reports.

8) Ending:

a) Acknowledgment of receipt and understanding.

b) Original order signed by commander or designated representative.

c) Other copies authenticated by the engineer battalion S3.

d) Annexes lettered alphabetically and listed in the order as they appear in the OPORD.

e) Distribution includes:

(1) Subordinate units.

(2) Higher units.

(3) Adjacent units.

(4) Supporting units as necessary.

f) Security markings (top/bottom of each page, centered).

h. The engineer battalion XO ensures that the OPORD meets the following criteria: [ARTEP 5-145-MTP 05-1-0007/5]

1) Has clarity.

2) Shows simplicity.

3) Contains timelines.

4) Excludes irrelevant information.

5) Excludes items covered in unit TSOP.

6) Is directed to only major subordinate units under engineer battalion's control.

7) Covers support of elements under OPCON to other units.

i. The engineer battalion XO supervises the production of the OPORD and: [ARTEP 5-145 MTP, 05-1-0007/4a]

1) Engineer battalion XO employs the necessary staff to rapidly produce an accurate OPORD in sufficient copies by performing trained, drilled tasks and responsibilities. [CALL Newsletter No. 93-3, p. 27]

2) The engineer battalion S3 section incorporates all appropriate annexes, matrices, and overlays into the order. [FM 5-71-3, App D]

a) Execution matrix.

b) Decision support template.

c) Engineer operations overlay (includes maneuver graphics as necessary).

d) Intelligence annex.

e) CSS annex.

f) Movement annex.

g) Brigade CSS overlay.

h) Brigade obstacle plan overlay.

3) The engineer battalion S3 checks OPORD for legibility and accuracy.

4) The engineer battalion S3 cross checks graphics with written portion of order.

5) The engineer battalion XO submits OPORD to commander for approval.

6) The engineer battalion XO coordinates OPORD with adjacent units.

a) Briefs and employs liaison officers.

b) Adjusts based on coordination.

j. During the MDMP in a time-constrained environment, the engineer battalion staff uses preformatted orders and graphics to reduce preparation time. [LL - CALL Newsletter No. 93-3, p. 27]

**Outcome 2**

Engineer battalion OPORD and verbal orders are received and understood by key participants in no more than 1/3 of the available time.

**Task Elements**

2. **The engineer battalion receives an order initiating a new mission from higher headquarters.** [FM 101-5; FM 5-71-100, FM 5-71-3]

   a. The engineer battalion commander as the brigade engineer attends the division orders brief in accordance with supported maneuver brigade TSOP. [AN]

      1) Receives any additional guidance and information after briefing from engineer brigade commander and staff.

   b. The engineer battalion receives a WARNO. (The engineer battalion may receive a WARNO from the engineer brigade and from the supported maneuver brigade. [FM 5-71-3 Chap 2; FM 5-71-100, B-13])

      1) When a WARNO from the engineer brigade is received prior to the division OPORD briefing, the engineer battalion XO informs the engineer battalion commander of the content of the WARNO; critical information communicated includes: [FM 5-71-3 Chap 2; FM 5-71-100, B-13]

         a) Friendly and enemy situation.

         b) Tentative changes to task organization.

         c) Tentative scheme of engineer operations.

         d) On-order tasks.

         e) Logistics operations.

         f) Changes to situation, guidance since last order.

      2) When a supported maneuver brigade WARNO is received, the engineer battalion XO informs the engineer battalion commander of the content of the WARNO; critical information communicated includes: [FM 5-71-3 Chap 2; FM 101-5, PH-14]

         a) Brigade mission.

         b) Division mission and intent.

         c) Brigade commander's intent.

         d) Orders for preliminary action.

e) Service support instructions.

f) Timelines.

g) Tasks for brigade units.

h) Changes to situation, guidance since last order.

c. The engineer battalion commander, as brigade engineer, initiates detailed terrain analysis using: [FM 5-71-3 Chap 2; FN - USAES]

1) TerraBase products.

2) Map reconnaissance.

3) Aerial photographs.

4) Air and ground reconnaissance.

d. The engineer battalion XO initiates the process to inform the engineer battalion staff on the content of the WARNOs/OPORDs as they are received. Staff begins planning in parallel with the brigade. [AN]

1) Conducts "staff huddles."

2) Initiates staff estimate process.

3) Directs coordination of staff sections.

4) Directs new information as it is received to the appropriate staff section.

e. The engineer battalion S3 section obtains copies of higher headquarters written OPORDs/WARNOs and provides an advance copy to the engineer battalion rear CP; S3 receives: [ARTEP 5-145-MTP 05-1-0018/4a(2)(c); FN - NTC Engr OCs]

1) Division OPORD with engineer annex from ABE section.

2) Division engineer unit WARNO/OPORD from engineer brigade by courier or electronic means.

3) Supported maneuver brigade WARNO from maneuver brigade S3 section.

f. The engineer battalion rear CP coordinates with supported maneuver Bde S4 and FSB support operations section to obtain a copy of the division OPORD. [FN-NTC Engr OCs]

g. The engineer battalion XO tracks the supported maneuver brigade planning in order to conduct parallel planning in the engineer battalion main CP. [FM 5-71-3 Chap 2]

1) Coordinates with supported maneuver brigade XO for planning timelines.

2) Receives status of brigade planning timelines from the ABE section.

i. The engineer battalion S3 (as officer in charge [OIC] of the ABE section) and the engineer battalion XO coordinate closely to support parallel planning and facilitate information flow. [FM 5-71-3 p. 2-22]

1) The engineer battalion S3 provides the engineer battalion XO and staff with timely information concerning:

a) Supported maneuver brigade mission analysis.

b) Supported maneuver brigade commander's planning guidance.

c) Supported maneuver brigade COA development.

d) Supported maneuver brigade war-gaming results.

e) Supported maneuver brigade commander's COA decision.

2) The engineer battalion XO and staff provide support to the ABE section concerning:

a) Engineer mission analysis.

b) EBA.

c) Analysis of schemes of engineer operations (SOEO) and supporting maneuver brigade COAs.

j. The engineer battalion XO directs the efforts of the engineer battalion staff in preparation for implementing the military decision-making process (MDMP). [FM 5-71-3 Chap 2]

1) Upon receipt of a higher headquarters order, the engineer battalion XO develops a planning and preparation timeline for the staff.

3) The engineer battalion XO prepares to issue an initial WARNO to all engineer battalion subordinate units. (See also Task 4 of this analysis.)

m. The engineer battalion commander and staff implement, when required, the MDMP in a time-constrained environment by employing time-reducing measures such as collocating the engineer battalion main CP with the supported maneuver brigade main CP. [AN]

3. **The engineer battalion commander and staff conduct mission analysis.** [ARTEP 5-145-MTP, 05-1-0002; FM 101-5, Chap 4, FM 5-71-3 Chap 2]

b. The engineer battalion staff members individually conduct mission analyses of higher HQ missions and higher commanders' intents, utilizing the division OPORD engineer annex, division engineer unit WARNO, and the supported maneuver brigade's WARNO to determine: [FM 101-5, p. 4-11, FM 5-71-3, Chap 2; LL- CALL Newsletter No. 93-3, p. 4]

7) Time analysis:

a) Planning timeline that includes items such as:

(1) Issue WARNO.

(2) Prepare staff estimates.

(3) Develop COAs.

(4) Announce COA decision.

(5) Prepare written copy of engineer battalion OPORD.

b) Operational timelines that include such items as:

(1) Supported maneuver brigade and engineer battalion TF OPORD briefings, when determined.

(2) Time of engineer battalion OPORD briefing.

(3) Rehearsals.

(a) Supported maneuver brigade.

(b) Engineer battalion.

(c) Maneuver battalion TFs, as appropriate.

(4) Movement times.

(5) Line of departure or prepare to defend times.

(6) Hours of darkness or limited visibility.

d. The engineer battalion XO briefs the battalion commander on the results of the staff mission analysis. [FM 101-5, p. 4-14 and App D, FM 5-71-3, Chap 2]

7) Time analysis.

b) Timeline for engineer battalion staff planning process.

e. The engineer battalion commander based on his own mission analysis and the mission analysis brief from the engineer battalion staff: [FM 101-5, p. 4-15]

3) Directs the issuance of a WARNO.

g. When necessary, the engineer battalion commander and staff employ the MDMP in a time-constrained environment to conduct mission analysis using one of the following alternative methods: [FM 101-5 Chap 4]

1) The engineer battalion commander personally conducts mission analysis.

2) The engineer battalion commander and staff jointly conduct mission analysis in the form of a brainstorming session.

4. **The engineer battalion executive officer directs the staff in the preparation and issuance of an engineer battalion warning order.** [FM 5-71-3 Chap 2]

a. The engineer battalion XO ensures that the engineer battalion WARNOs are prepared and issued in the 5-paragraph format. [FM 101-5, p. H-13]

b. The engineer battalion staff, under the supervision of the engineer battalion XO, prepares the WARNO, which includes critical information available at the time for WARNO. [FM 5-71-3, Chap 2] (Normally a minimum of three WARNOs are issued during the conduct of the MDMP.)

c. The engineer battalion XO ensures that the WARNO is sent by the S3 section to: [FM 5-71-3 Chap 2]

1) All subordinate engineer companies, regardless of command/support relationships.

2) The HHC commander.

3) All attached/supporting units.

4) All engineer battalion staff members.

5. **The engineer battalion commander issues planning guidance.** [FM 101-5, Chap. 4 FM 5-71-3]

a. The engineer battalion commander develops planning guidance using: [FM 101-5, p. 4-16; FM 5-71-3 Chap 2]

3) Results of his own mission analysis and his mission, enemy, terrain, troops, and time available.

d. The engineer battalion commander issues guidance to the engineer staff that is complete and includes: [FM 5-71-3, p. 2-19; FM 101-5, Chap 4]

9) Time plan. [FM 101-5, p. 4-23]

a) Time allocated for planning and preparation to the engineer battalion staff and to subordinate units.

b) The engineer battalion commander determines who, where, and how the engineer battalion OPORD will be issued.

12) Any modifications to MDMP needed to cope with METT-T (e.g., time constraints). [FM 101-5, p. 4-16] [AN]

e. The engineer battalion commander conducts a confirmation brief at the end of his initial planning guidance to ensure that: [FM 101-5, p. 4-15, 16]

1) The information he has provided will result in timely and effective COA development and analysis.

2) The commander's vision of the scheme of engineer operation is imparted to the staff.

3) The guidance does not overly restrict staff initiative or ideas.

f. The engineer battalion commander, when employing the MDMP in a time-constrained environment, issues planning guidance that: [FM 101-5, p. 4-16]

1) Shortens time by giving more detailed directive guidance.

2) Adds focus to staff planning by stating options he does not want considered.

6. **The engineer battalion commander and staff prepare staff estimates.** [ FM 101-5, Chap. 4, App C]

a. The engineer battalion commander develops his commander's estimate concurrently with the staff estimates being prepared by his engineer battalion staff. [FM 101-5 p. 4-3]

b. Upon receipt of an order (OPORD/WARNO) from higher headquarters initiating a mission, the engineer battalion commander begins his estimate. [FM 101-5 Chap 4 and App C ]

7. **The engineer battalion commander and staff develop course(s) of action.** [FM 101-5 Chap. 4, App E; FM 5-71-3 Chap 2]

a. Engineer battalion XO obtains supported maneuver brigade's COAs as that information emerges:

1) ABE furnishes brigade COA sketches with supporting SOEOs as developed during brigade development of COAs. [AN]

2) The engineer battalion S3 communicates the selected brigade COA, its SOEO, and the brigade's war-gaming notes after the brigade commander's decision. [AN]

n. When the MDMP is used in a time-constrained environment, the engineer battalion commander adheres to doctrine in developing COAs, and may: [FM 101-5, p. 4-44]

1) Limit the number of COAs to be considered.

2) Give the staff a specific COA or more specific guidance on how to develop COAs.

3) Remain with the staff and develop the COA(s).

4) Develop the COA(s) by himself.

8. **The engineer battalion commander and staff analyze course(s) of action.** [FM 5-71-3, Chap 2; FM 101-5, p. 4-28, App F]

d. The engineer battalion XO ensures that the staff fully explores each COA during war-gaming to include as appropriate (arranged by battlefield operating system [BOS]): [FM 101-5, App F; LL - CTC Bulletin No. 95-4]

1) General. [FM 5-71-3, pp. 2-20 - 2-23]

d) The engineer battalion XO, with input from the S3, develops the operational timeline which describes mission execution events. [AN]

i. War-gaming during the MDMP in a time-constrained environment may be conducted and supervised by the engineer battalion XO and includes: [FM 101-5 p. 4-42]

1) Performing all the steps of the war-gaming.

2) Adhering to all the required principles.

3) Having as many of the staff present with the commander as possible, given the tactical situation.

4) Considering all staff and LNO functional areas.

5) Setting aside as much time as possible.

6) Commander is present and involved.

7) Using less time consuming methods such as the critical points (box method).

9. **The engineer battalion staff compares courses of action.** [FM 101-5, p. 4-32]

g. The engineer battalion commander, when required, employs the MDMP in a time-constrained environment by: [FM 101-5, p. 4-42]

1) Having available generic COA decision/comparison matrices to save time.

2) Reducing the number of comparison criteria.

3) Personally conducting the COA comparison.

10. **The engineer battalion commander announces his decision**. [FM 101-5, Chap. 4]

d. During the MDMP time-constrained environment, the battalion commander's decision is announced with the same precision, completeness, and clarity as in a more deliberate process. [FM 101-5, Chap 4, p. 4-44]

11. **The engineer battalion staff prepares the operations order.** [ARTEP 5-145-MTP 05-1-0007, FM 5-71-3, Chap 2 and App D; FM 101-5, Chap. 4]

d. The engineer battalion staff, under supervision of the engineer battalion XO, develops a WARNO that includes critical information based on results of COA analysis and engineer battalion commander's decision. [FM 5-71-3, Chap 2]

e. The engineer battalion S3 section issues the WARNO. [FM 5-71-3, Chap 2]

g. The engineer battalion S3 section ensures that the engineer battalion OPORD order is doctrinally sufficient and in a doctrinally correct format. [ARTEP 5-145-0007/6; FM 5-71-3 App D]

i. The engineer battalion XO supervises the production of the OPORD and: [ARTEP 5-145 MTP, 05-1-0007/4a]

1) Engineer battalion XO employs the necessary staff to rapidly produce an accurate OPORD in sufficient copies by performing trained, drilled tasks and responsibilities. [CALL Newsletter No. 93-3, p. 27]

j. During the MDMP in a time-constrained environment, the engineer battalion staff uses preformatted orders and graphics to reduce preparation time. [LL - CALL Newsletter No. 93-3, p. 27]

12. **The engineer battalion commander and staff issue the operations order**. [FM 101-5, Chap. 4; FM 5-71-3, Chap 2; ARTEP 5-145-MTP 05-1-0007/7; CALL Newsletter No. 93-3]

a. The engineer battalion commander controls the briefing. [CALL Newsletter No. 93-3, p. 31]

1) When possible, the engineer battalion commander personally issues the OPORD with all key individuals present. [FM 5-71-3, Chap 2]

2) A briefing sequence is determined and followed by the engineer battalion commander. [CALL Newsletter No. 93-3, p. 31]

3) The engineer battalion OPORD is issued at an appropriate location to facilitate understanding and coordination. [CALL Newsletter No. 93-3, p. 31]

a) At a vantage point.

b) At a location that reduces travel time for key leaders.

c) At a location that enhances OPSEC.

4) The engineer battalion staff prepares graphic aids to enhance the OPORD brief. [FM 101-5, Chap 4]

5) All key engineer battalion staff and subordinates are present at the OPORD issuance and are alert and attentive during briefing. [LL - CALL Newsletter No. 93-3, p. 31]

6) The engineer battalion commander and staff issue the engineer battalion OPORD within 1/3 of the total time available. (The parallel planning reflected in this task analysis allows the engineer battalion OPORD to be issued shortly after the supported maneuver brigade OPORD.) [ARTEP 5-145-MTP 05-1-0007/7b]

7) The engineer battalion S3 section ensures that all key leaders receive a copy of engineer battalion OPORD with all appropriate attachments and overlays. [ARTEP 71-3 MTP, Task 71-3-3002]

8) Engineer battalion subordinate leaders and staff members are provided timing of and guidance for subsequent briefbacks and rehearsals. [AN]

b. The engineer battalion commander conducts confirmation briefs immediately after the engineer battalion OPORD is issued as a final check to ensure clear understanding of his intent. [FM 101-5, p. 4-59]

1) Subordinates repeat back to the engineer battalion commander what he wants them to do and why, to include:

a) Critical tasks.

b) Specified missions.

c) Implied missions.

d) Own restated mission.

e) His commander's intent.

f) Division and brigade commanders' intents.

g) Synchronization requirements.

2) When possible the engineer battalion staff participates in the confirmation briefs and:

a) Assists in clarifying issues as appropriate.

b) Captures any changes directed by the engineer battalion commander and ensures that the engineer battalion OPORD is appropriately refined.

c. The engineer battalion commander, when conducting the MDMP in a time-constrained environment, may choose one of the following options: [FM 101-5, p. 4-43]

1) Issue a verbal order with an overlay. [FM 101-5, p. 4-59]

2) Issue an overlay with execution matrix as an order. [FM 5-71-3, Chap 2]

**Outcome 3**

Sufficient hard copies of engineer battalion orders and all key accompanying documents are received by key personnel and units.

**Task Elements**

11. **The engineer battalion staff prepares the operations order**. [ARTEP 5-145-MTP 05-1-0007, FM 5-71-3 Chap 2 and App D; FM 101-5, Chap. 4]

g. The engineer battalion S3 section ensures that the engineer battalion OPORD order is doctrinally sufficient and in a doctrinally correct format: [ARTEP 5-145-0007/6; FM 5-71-3 App D]

8) Ending:

e) Distribution includes:

(1) Subordinate units.

(2) Higher units.

(3) Adjacent units.

(4) Supporting units as necessary.

i. The engineer battalion XO supervises the production of the OPORD and: [ARTEP 5-145 MTP, 05-1-0007/4a]

1) Engineer battalion XO employs the necessary staff to rapidly produce an accurate OPORD in sufficient copies by performing trained, drilled tasks and responsibilities. [CALL Newsletter No. 93-3, p. 27]

2) The engineer battalion S3 section incorporates all appropriate annexes, matrices, and overlays into the order. [FM 5-71-3, App D]

a) Execution matrix.

b) Decision support template.

c) Engineer operations overlay (includes maneuver graphics as necessary).

d) Intelligence annex.

e) CSS annex.

f) Movement annex.

g) Brigade CSS overlay.

h) Brigade obstacle plan overlay.

3) The engineer battalion S3 checks OPORD for legibility and accuracy.

4) The engineer battalion S3 cross checks graphics with written portion of order.

5) The engineer battalion XO submits OPORD to commander for approval.

6) The engineer battalion XO coordinates OPORD with adjacent units.

a) Briefs and employs liaison officers.

b) Adjusts based on coordination.

12. **The engineer battalion commander and staff issue the operations order.** [FM 101-5, Chap 4; FM 5-71-3, Chap 2; ARTEP 5-145-MTP 05-1-0007/7; CALL Newsletter No. 93-3]

a. The engineer battalion commander controls the briefing. [CALL Newsletter No. 93-3, p. 31]

1) When possible, the engineer battalion commander personally issues the OPORD with all key individuals present. [FM 5-71-3, Chap 2]

5) All key engineer battalion staff and subordinates are present at the OPORD issuance and are alert and attentive during briefing. [LL - CALL Newsletter No. 93-3, p. 31]

7) The engineer battalion S3 section ensures that all key leaders receive a copy of engineer battalion OPORD with all appropriate attachments and overlays. [ARTEP 71-3 MTP, Task 71-3-3002]

8) Engineer battalion subordinate leaders and staff members are provided timing of and guidance for subsequent briefbacks and rehearsals. [AN]

c. The engineer battalion commander, when conducting the MDMP in a time-constrained environment, may choose one of the following options: [FM 101-5, p. 4-43]

1) Issue a verbal order with an overlay. [FM 101-5, p. 4-59]

2) Issue an overlay with execution matrix as an order. [FM 5-71-3, Chap 2]

**Outcome 4**

Engineer battalion operations continue during the planning process.

**Task Elements**

1. **The engineer battalion commander and staff direct and lead the engineer battalion during planning for the battle.** [AN]

a. The engineer battalion commander provides command presence and leadership to soldiers, leaders, and units of the battalion. [FM 22-103, Chap 3, 5]

b. The engineer battalion commander directs ongoing engineer mobility, counter-mobility, and survivability operations. [ARTEP 5-145 MTP 05-1-0018/4f; FN-NTC Engr OC]

1) Meetings/visits with subordinate commanders.

2) Briefings by staff.

3) Personal observation of engineer activities.

4) Guidance from supported maneuver brigade commander and staff.

5) Input from maneuver battalion task force commanders and staff.

c. The engineer battalion maintains communications. [ARTEP 5-145-MTP 05-1-0028]

1) The communications section operates frequency modulated (FM) radio nets. [ARTEP 5-145 MTP 05-4-0028/4]

2) Engineer battalion CPs are connected with the division mobile subscriber radio telephone system by the engineer battalion communications section. [ARTEP 5-145-MTP 05-4-0028/2(a)]

3) The engineer Bn SO advises the battalion commander on employment of communications equipment. [FM 5-71-3, Chap 2]

4) The engineer Bn SO ensures that communications are maintained with subordinate, superior, and supported units. [FM 5-71-3, Chap 2]

5) The engineer Bn SO monitors communications security (COMSEC). [FM 5-71-3, Chap 2]

6) The engineer battalion main CP is the net control station for the engineer battalion command net. [FM 5-71-3, Chap 2]

7) The engineer battalion rear CP functions as net control station for the engineer battalion administrative and logistics net. [FM 5-71-3, Chap 2]

8) All engineer battalion elements establish and maintain radio communications. [ARTEP 5-145-MTP 05-4-1027]

d. The engineer battalion main CP operations are conducted. [ARTEP 5-145 MTP 05-1-0018]

1) The engineer battalion XO directs and supervises the efforts of the main CP. [FM 5-71-3, Chap 2]

2) The engineer battalion operations sergeant coordinates with the supported maneuver brigade XO for collocation with brigade main CP. [FM 5-71-3, App B]

3) The engineer battalion XO coordinates with the supported maneuver brigade headquarters and headquarters company (HHC) commander for: [AN]

a) Integration into movement serials of brigade main for displacement.

b) Quartering party requirements.

c) Location of the main CP within the headquarters area (or separate planning facility if the main CP is collocated with the brigade main CP).

d) Physical security measures.

e) NBC defense.

f) Space/shelter allocation.

g) Supply and services support, as necessary.

4) The engineer battalion S3 section monitors the current mobility, countermobility, and survivability operations. [ARTEP 5-145-MTP 05-1-0018/4a]

a) Maintains current situation overlays, information displays, execution matrices, and obstacle database. [ARTEP 5-145-MTP 05-1-0018/4a(2)(b)(c)]

b) Continually updates the engineer estimate. [ARTEP 5-145-MTP 05-1-0018 /4b(2)(b)]

c) Conducts shift change briefs. [LL - CALL, News from the Front]

5) The engineer battalion S3 section reports engineer information. [ARTEP 5-145-MTP 05-1-0026]

   a) The S3 section receives and logs engineer information.

   b) The S3 section determines the appropriate engineer battalion staff action element (S1, S2, S3, S4, BMT, NBC NCO, Bn SO).

   c) The S3 section disseminates the information to the staff action element.

   d) The staff action element analyzes the information for validity, importance, and required actions.

   e) The staff action element acts on the information.

   f) The S3 section prepares and submits reports to higher headquarters and subordinate units.

6) The engineer battalion S3 section reports obstacle information. [ARTEP 5-145-MTP 05-1-0025]

   a) The S3 section receives obstacle information from subordinate units.

   b) The S3 section reports obstacle information to higher headquarters and subordinate units.

   c) The S3 section records obstacle information and posts it on the overlay.

   d) The S3 briefs the staff and company commanders on obstacle information received by higher headquarters and adjacent units.

7) The engineer battalion S3 section disseminates WARNOs and FRAGOs to all subordinate units. [FM 5-71-3, Chap 2]

8) The engineer battalion S2 and the S3 section direct and receive engineer intelligence collection in accordance with the brigade R&S plan. [ARTEP 5-145-MTP 05-1-0413]

   a) The engineer battalion S2 monitors tactical intelligence reporting of engineer PIR on the brigade operations and intelligence (O&I) net. [AN]

(1) River crossing (opposed).

(2) Enemy obstacles.

(3) Enemy engineer activity.

(4) Enemy engineer equipment.

(5) Terrain.

b) The engineer battalion S2 in accordance with engineer battalion OPORD directs engineer companies to do specific engineer technical reconnaissances. [ARTEP 5-145-MTP 05-1-0413/2]

(1) The S2, in conjunction with the engineer battalion S3, briefs engineer reconnaissance personnel.

(a) Enemy situation.

(b) Reporting requirements.

(c) Detailed information.

1 Characteristics of area; route to the reconnaissance objective.

2 Communications nets and procedures.

(d) CSS support plan, to include casualty evacuation.

(e) Engineer battalion commander's guidance and intent.

(2) The S2 provides forms and materials to assist in collecting and recording information.

(3) The S2 ensures that coordination of engineer battalion reconnaissance is effected with the maneuver brigade S2 concerning:

(a) NAIs.

(b) Force protection measures.

(c) Casualty evacuation.

(4) The S2 receives reports directly from engineer reconnaissance teams.

(5) The S2 consolidates the engineer information obtained during reconnaissance operations.

(a) River (unopposed).

(b) Bridge.

(c) Route.

(d) Engineer resource.

(6) The S2 processes from intelligence and reconnaissance reports the information and develops intelligence.

c) The engineer battalion S2 updates the situation analysis of the engineer estimate. [ARTEP 5-145-MTP 05-0413/3].

d) The engineer battalion S2 requests and obtains standard and non-standard topographic products. [AN]

e) The engineer battalion S2 sends the intelligence to the ABE, maneuver units, and the brigade S2 by fax, courier, or radio. [ARTEP 5-145-MTP 05-1-0413/4]

9) The engineer battalion S3 section monitors implementation of OPSEC measures. [ARTEP 71-3-MTP 71-3-2010]

e. The engineer battalion rear CP conducts operations. [ARTEP 5-145-MTP 05-1-0018]

1) The engineer battalion rear CP assumes the functions of the main CP if required. [FM 5-71-3, Chap 2]

2) The engineer battalion S1 and S4 sections establish the rear CP in the brigade support area (BSA) and: [FM 5-71-3 Chap 2]

a) The S4 section, in conjunction with the S1 section, monitors the tactical situation. [FM 5-71-3 Chap 2]

(1) Maintains current situation maps (SITMAP) and operational information displays.

(2) Conducts shift change briefs.

b) The S1/S4 sections update the main CP on key CSS factors. [FM 5-71-3, Chap 6]

(1) Last logistical package (LOGPAC) resupply.

(2) Number of operational systems.

(3) Overall personnel status.

(4) Projections on attaining specified operational readiness levels.

c) The S1/S4 sections coordinate personnel and logistic support for the engineer battalion main CP. [AN]

3) The engineer battalion S4 section plans, coordinates, directs, and tracks logistic operations. [ARTEP 5-145-MTP 05-1-1000]

a) The S4 section maintains daily staff journal.

b) The S4 section supervises the requisition, receipt, storage, and distribution of supplies and equipment (all Classes except VIII).

c) The S4 section supervises and monitors property accounting procedures.

d) The S4 section supervises and monitors supply and maintenance record procedures.

e) The S4 section forecasts and maintains data on Class II items.

f) The S4 section and the support platoon establish and camouflage material storage areas.

g) The S4 section coordinates other supply/service actions.

(1) Laundry support.

(2) Clothing exchange and bath points.

(3) Salvage.

(4) Receipt, storage, and issuance of organizational clothing and individual equipment.

(5) Transportation of remains to graves registration point in BSA.

(6) Distribution of unit basic loads.

h) The S4 section, with assistance of BMT, coordinates, controls, and supervises the turn-in of supplies and equipment.

i) The S4 section, with the assistance of the BMT, coordinates, controls, and supervises the issue of supplies and equipment.

j) The S4 section, with input from unit 1SGs, maintains radio and weapon configurations by each vehicle. [FN - USAES]

k) The S4 section coordinates transportation requirements.

(1) Coordinates with the S3 section for priorities for movement.

(2) Reviews movement and load plans of subordinate units.

(3) Determines requirements for transportation and submits requests for external transportation.

(4) Obtains road clearances for movements.

l) Revises the logistics estimate. [ARTEP 5-145-MTP 05-1-0018/4b(3)]

4) The engineer battalion S1 section conducts administrative operations. [ARTEP 5-145-MTP 05-1-1008]

a) Maintains a daily staff journal.

b) Receives and reports casualties.

c) Provides mail services.

d) Performs administrative functions in accordance with DA Pam 600-8 series.

e) Plans and supervises the discipline, law, and order program.

f) Monitors file and record maintenance.

g) Revises the personnel estimate.

h) Coordinates and arranges religious support.

i) Directs medical section leader concerning: [AN]

(1) Preventative health activities.

(2) Reporting and tracking casualties' status.

(3) Information on medic casualty treatment and evacuation, location of ambulance exchange points (AXPs), and medical support facilities within brigade AO.

5) The engineer battalion S1 section performs strength accounting. [ARTEP 5-145-MTP 05-1-1032]

a) Updates the battalion battle roster.

b) Performs personnel status reporting.

c) Reports casualties.

6) The engineer battalion S1 section conducts replacement operations. [ARTEP 5-145-MTP 05-1-1033]

a) Establishes a replacement receiving point and advises the supported brigade S1 of the location.

b) Welcomes and orients replacements.

c) Assigns replacements.

d) Performs personnel actions.

e) Briefs replacements.

f) Inspects soldier clothing and equipment and coordinates provision of any required items.

g) Coordinates for transportation to subordinate units.

7) The battalion S1 section coordinates EPW operations. [FM 5-71-3, Chap 2; ARTEP 5-145-MTP 05-1-1028]

a) Coordinates EPW holding and processing procedures.

b) Supervises the processing of EPWs.

c) Evacuates EPWs to the supported maneuver brigade EPW collection point.

d) Coordinates with the engineer battalion S4 for transportation.

8) The HHC commander directs the battalion field trains and: [FM 5-71-3, Chap 2; FN - NTC Engr OCs]

a) Executes CSS portion of engineer battalion plan/OPORD.

b) Coordinates the CSS plan with the S1, S4, and BMT.

c) Coordinates flow of information between engineer battalion combat and field trains CPs.

d) Coordinates with FSB for positioning and security of field trains.

e) Coordinates support for the battalion in the BSA.

f) Directs company supply sergeants in formation of LOGPACs to subordinate units and engineer main CP.

g) Identifies and acts on CSS problems.

h) The HHC commander serves as staff engineer to the FSB. [FM 5-71-3 Chap 2; FN - USAES]

(1) Assists FSB staff in identifying requirements for engineer support for CSS operations in the BSA.

(2) Assists FSB staff in coordinating/monitoring engineer support provided in the BSA.

i) The S4 section coordinates engineer battalion food service section operations:

(1) Monitors food service operations.

(2) Prepares the battalion feeding plan.

(3) Inspects field feeding operations.

9) The BMT supervises engineer battalion maintenance operations and establishment of unit maintenance collection point (UMCP). [FM 5-71-3, Chap 2; ARTEP 5-145-MTP 05-1-1000/5]

a) Supervises the battalion maintenance program.

b) Tracks equipment status.

c) Reviews unit status reports and material condition reports.

d) Conducts spot inspections.

e) Reviews and supervises the prescribed load list (PLL) for Class IX repair parts.

f) Coordinates the recovery and evacuation of unserviceable/ irreparable engineer battalion vehicles.

g) Establishes maintenance priorities and monitors controlled exchange program.

h) Monitors the Army oil analysis program and calibration program.

i) Revises the maintenance input to the logistic estimate.

j) Monitors UMCP operations.

2. **The engineer battalion receives an order initiating a new mission from higher headquarters.** [FM 101-5; FM 5-71-100; FM 5-71-3]

h. The engineer battalion S3 participates in the supported maneuver brigade's planning process. [AN]

1) Moves to the maneuver brigade main CP.

2) Directs ABE section participation.

3) Provides information on engineer battalion status, capabilities, and limitations.

4) Provides information to the engineer battalion main CP about supported maneuver brigade planning.

i. The engineer battalion S3 (as officer in charge [OIC] of the ABE section) and the engineer battalion XO coordinate closely to support planning in parallel with the brigade and facilitate information flow. [FM 5-71-3, p. 2-22]

2) The engineer battalion XO and staff provide support to the ABE section concerning:

a) Engineer mission analysis.

b) EBA.

c) Analysis of SOEO and supporting maneuver brigade COAs.

j. The engineer battalion XO directs the efforts of the engineer battalion staff in preparation for implementing the MDMP. [FM 5-71-3, Chap 2]

2) The engineer battalion XO ensures that any LNOs are:

a) Dispatched as required.

b) Received from other units and given an orientation briefing.

## LESSONS LEARNED INTEGRATED INTO TASK LIST

This component identifies the lessons learned extracted from the U.S. Army Center for Army Lessons Learned (CALL) publications relevant to performing this battlefield function (BF). The lessons learned are organized and listed by the appropriate task in the BF task list, Section 7. Where appropriate to address the absence of a task in an Army Training and Evaluation Program - Mission Training Plan (ARTEP-MTP), the lessons learned have been structured as tasks and are included in the detailed task list as subtasks. The purpose of the lessons learned component is to provide the user with the most recent tactics, techniques, and procedures (TTP) associated with the performance of the tasks in this BF.

1. **The engineer battalion commander and staff direct and lead the engineer battalion during planning for the battle.**

LL - Practice SOPs for reporting to ensure that they are workable and effective. [CALL Bulletin No. 90-9]

LL - Use troop-leading procedures effectively. Planning and rehearsals are often much more important than trying to create a perfect plan at the higher headquarters. [CALL Bulletin No. 90-9]

LL - Leadership training and reinforcement of initiative paid excellent dividends. When communications failed, and/or the plan required modification, the junior leaders made decisions and made it work. [CALL Bulletin No. 90-9]

LL - Establish effective C2 channels. [CALL Newsletter No. 92-6, p. 2]

LL - Transition key staff positions. [CALL Newsletter No. 92-6, p. 3]

LL - Assign replacements to be the deputy for a period of time. [CALL Newsletter No. 92-6, p. 3]

LL - Have each staff establish a continuity file, and review this weekly. [CALL Newsletter No. 92-6, p. 3]

LL - Minimum critical information (MCI) that should be tracked in the battalion tactical operations center (TOC) (both friendly AND enemy forces) includes: relative combat power, unit locations, obstacle overlay, execution matrix, task organization, and personnel status. [CALL, News From the Front]

LL - Information boards need to be updated (at a minimum) every four hours. [CALL, News From the Front]

LL - Have a designated individual track MCI. [CALL, News From the Front]

LL - Conduct formal shift change briefs in the TOC. This process forces information updates and sharing. [CALL, News From the Front]

LL - Logs and journals (DA 1594s) are excellent tools for details and historical purposes. However, consider adding a "significant activities" board in the TOC to share information. This should display significant activities of all the battlefield operating systems in the TOC. [CALL, News From the Front]

LL - Plan for liaison officers with required common and communications electronics operating instructions (CEOI) to overcome problems with inter/intraservice operations, especially during short missions. [CALL Bulletin 90-4]

LL - Distribute common message formats and reports well in advance and rehearse if possible. [CALL Bulletin 90-4]

2. **The engineer battalion receives an order initiating a new mission from higher headquarters.**

LL - Send multiple warning orders to maximize subordinate planning and preparation time. [CALL Newsletter No. 93-3, p. 3]

LL - Conduct parallel planning by providing subordinate commanders the concept of the operation and specified tasks when they are developed. [CALL Newsletter No. 93-3, p. 3]

LL - Determine the necessary information required to complete the commander's METT-T analysis. [CALL Newsletter No. 93-3, p. 4]

LL - Develop a situation update format for all staff officers. [CALL Newsletter No. 93-3, p.4]

3. **The engineer battalion commander and staff conduct mission analysis.**

LL - Determine the necessary information required to complete the commander's METT-T analysis. [CALL Newsletter No. 93-3, p. 4]

LL - Develop a situation update format for all staff officers. [CALL Newsletter No. 93-3, p. 4]

LL - Assist the commander by identifying and listing constraints, restrictions, and specified and implied tasks. [CALL Newsletter No. 93-3, p. 4]

LL - Analyze the mission completely by accomplishing the following:

- Review the commanders' intent of the two higher echelons.
- Identify the unit's constraints and restrictions.
- Identify the unit's specified and implied tasks.
- Derive the essential tasks from the specified and implied tasks. [CALL Newsletter No. 93-3, p. 4]

LL - Preserve subordinate commanders' time. [CALL Newsletter No. 93-3, p. 12]

LL - Develop a planning and preparation timeline. [CALL Newsletter No. 93-3, p. 12]

LL - Refine the timeline by listing tasks to be accomplished during planning and preparation and the person responsible to complete the task. [CALL Newsletter No. 93-3, p. 12]

LL - Use the timeline to track the progression of preparation. [CALL Newsletter No. 93-3, p. 12]

LL - The mission analysis brief is not just a brief to the commander; it is also a brief from the staff, to the staff, to ensure that all time and effort are effectively focused. All primary staff officers must be present and actively involved in the planning process. [Combat Training Centers (CTC) Bulletin No. 95-4]

LL - Each staff officer should develop a list of potential issues for consideration during each type of mission. This list should be included in the unit TSOP. It will be of great assistance when time is limited and the staff officer is weary from lack of rest. [CTC Bulletin No. 95-4]

LL - Develop a detailed timeline identifying all key events up to, and including, the execution of the mission. Modify the timeline as required. Enforce the timeline. [CTC Bulletin No. 95-4]

LL - Understanding the intent of the higher headquarters commander is crucial. If the intent is unclear, seek clarification immediately. [CTC Bulletin No. 95-4]

LL - Leaders/soldiers must conduct detailed reconnaissance wherever possible. Crews saw their positions, ingress and egress routes, limits of fire, and obstacles that allowed detailed planning and accurate rehearsals. [CALL Bulletin No. 90-9]

LL - During mission analysis, commanders and staff must clearly define the critical tasks that the unit must accomplish. The commander's guidance and intent must reflect this focus. This enables the staff to define and clearly identify the decisive point, which becomes the main effort and provides the focus for all planning, preparation, and execution. All staff sections and LNOs must participate in the process. The analysis should produce a task and purpose mission statement that

supports the task force's single focus and a commander's intent which focuses on the decisive point. [CTCs Bulletin No. 93-4, p. 9]

LL - Practice effective time management. Ensure adherence to the 1/3 - 2/3 rule. This allows subordinates to have adequate planning time. [CTC Bulletin No. 94-1, p. 20]

LL - Fix Responsibility For Engineer Effort With Maneuver Commanders: Responsibility for success or failure ultimately resides with the maneuver commander. Both engineer and maneuver elements execute engineer tasks. Regardless of who does the work, the task supports a maneuver commander's plan. The simplest method to coordinate intent, logistics support, work party security, siting, etc., is to give the mission to a maneuver company commander and assign engineer support as required. [CALL Newsletter No. 88-3]

LL - During offensive operations, finding and neutralizing obstacles is a critical task which should be performed in advance of the attack. This requires detailed reconnaissance, distinctive breach marking schemes, and continuous security at the breach until the main body arrives. These locations must also be concealed from the enemy for as long as possible. Guides, colored smoke, and aircraft marking panels are three techniques used to orient forces. [CALL Newsletter No. 88-3]

4. **The engineer battalion executive officer directs the staff in the preparation and issuance of a brigade warning order.**

LL - Send multiple warning orders to maximize subordinate planning and preparation time. [CALL Newsletter No. 93-3, p. 3]

LL - Conduct parallel planning by providing subordinate commanders the concept of the operation and specified tasks when they are developed. [CALL Newsletter No. 93-3, p. 3]

LL - The following procedures warrant special consideration:

- Warning orders enjoy greater emphasis.
- To the maximum degree possible, commanders and staffs should go forward to issue orders. This buys critical time for subordinate commanders.
- Don't drive when you can fly. Maximum use should be made of aviation assets to buy commanders time. This is true at all levels of command. [CALL Newsletter No. 90-8, p. 23]

LL - Concurrent with the warning order, push standard logistics packages to subordinates. Don't wait for the OPORD or subordinate requests. Transportation

is scarce and CL IV/V mission loads are enormous. S4s determine unique logistics requirements based on standard missions (such as offense or defense) in garrison. Then they organize standard (SOP) means to transport and distribute this material. During operations, they:

- Conform higher push packs on receipt of higher warning order.
- Allocate these push packs to subordinates in accordance with (IAW) SOP.

Request throughput of additional required material to lower echelons based on the OPORD, planning refinements, and subordinate requests. [CALL Newsletter No. 88-3]

5. **The engineer battalion commander issues planning guidance.**

LL - Determine the amount of planning guidance the staff requires to develop the plan. [CALL Newsletter No. 93-3, p. 9]

LL - Do not suppress the staff's ability to plan by providing excessive planning guidance. [CALL Newsletter No. 93-3, p. 9]

LL - Sketch the initial concept of the operation for the staff. [CALL Newsletter No. 93-3, p. 9]

LL - Take notes on the commander's guidance. [CALL Newsletter No. 93-3, p. 9]

LL - Have the staff backbrief you on your guidance. [CALL Newsletter No. 93-3, p. 9]

LL - Provide clear and detailed planning guidance, and remain close to the staff during the MDMP. [CALL Newsletter No. 93-3, p. 28]

LL - The most valuable resource the staff possesses is time. Once lost, time can never be recovered. Therefore, detailed and specific guidance from the commander leads to efficient use of time by the staff. The commander must take time to mentally form a picture in his mind of what he expects and, just as important, what he does not expect. This mental picture must then be clearly communicated to the staff. As the situation develops, the commander must rapidly update his guidance to the staff. [CTC Bulletin No. 95-4]

LL - During mission analysis, commanders and staff must clearly define the critical tasks that the unit must accomplish. The commander's guidance and intent must reflect this focus. This enables the staff to define and clearly identify the decisive point, which becomes the main effort and provides the focus for all planning, preparation, and execution. All staff sections and LNOs must participate in the process. The analysis should produce a task and purpose mission statement that

supports the task force's single focus and a commander's intent which focuses on the decisive point. [CTC Bulletin No. 93-4, p. 9]

LL - Frequent changes in task organization should be avoided. The teamwork advantage is often far more important than a slightly more desirable mix of forces. Also, the timing of a change requires careful analysis. The significant advantage of a daylight link-up and the time required to receive the OPORD and to coordinate SOPs and LOGPACs must be considered. [NTC Commander's Memorandum]

6. **The engineer battalion commander and staff prepare staff estimates.**

LL - During mission analysis, commanders and staff must clearly define the critical tasks that the unit must accomplish. The commander's guidance and intent must reflect this focus. This enables the staff to define and clearly identify the decisive point, which becomes the main effort and provides the focus for all planning, preparation, and execution. All staff sections and LNOs must participate in the process. The analysis should produce a task and purpose mission statement that supports the task force's single focus and a commander's intent which focuses on the decisive point. [CTCs Bulletin No. 93-4, p. 9]

LL - Through IPB, identify likely obstacle sites; confirm or deny by reconnaissance; war game and schedule battlefield function responses at the most likely and dangerous obstacle sites. [CTCs Bulletin No. 93-4]

LL - Include minefields as NAI: Assume all avenues of approach are mined until reconnaissance determines otherwise. [CALL Newsletter No. 88-3]

LL - The engineer responsible for planning must have accurate planning factors with which to provide input to the maneuver commander and upon which to base the engineer estimate. [Lessons Learned Bulletin - July 87]

7. **The engineer battalion commander and staff develop courses of action.**

LL - Develop courses of action together to integrate all battlefield operating systems. [CALL Newsletter No. 93-3, p. 16]

LL - Ensure that the course of action is complete, is consistent with doctrine, complies with the commander's guidance, is feasible, and is unique. [CALL Newsletter No. 93-3, p.16]

LL - Develop courses of action that identify what, when, where, how, and why the unit will execute. [CALL Newsletter No. 93-3, p. 16]

LL - If time is short, remain with the staff and have it assist you in course-of-action development. [CALL Newsletter No. 93-3, p. 16]

LL - The S2's SITTEMP must be used during the COA development. Also the S2 must be an active participant, providing assistance in analyzing force rations, threat weapon capabilities, and as much intelligence and information about the enemy as possible. [CTC Bulletin No. 95-4]

LL - Each Bde SO must be integrated into each COA as it is developed. [CTC Bulletin No. 95-4]

LL - Executive officers and staffs are not practiced on the doctrinal steps of the Command Estimate Process and do not understand the expected product at the end of each step. COA development and war-gaming are fragmented and are not robust enough to lead to a good decision. [CTCs Bulletin No. 93-4, p. 8]

LL - Frequent changes in task organization should be avoided. The teamwork advantage is often far more important than a slightly more desirable mix of forces. Also, the timing of a change requires careful analysis. The significant advantage of a daylight link-up and the time required to receive the OPORD and to coordinate SOPs and LOGPACs must be considered. [NTC Commander's Memorandum]

LL - Organize to breach: Designate assault, breach, and support forces. Specify responsibilities for breach site selection, control of all fires, lifting and shifting of fires, which support force suppresses what position, who adjusts and executes fire support to include smoke, and who confirms/requests counterfire. [CALL Newsletter No. 88-3]

LL - Plan and Issue a Clear/Complete Order: Employ backwards planning. The objective of an attack is to destroy the enemy or seize terrain, not to breach an obstacle. First define actions on the objective: assault, consolidation, and reorganization. From this movement to the objective, to include breaching, flows logically. War-game courses of action and employ briefbacks to ensure clarity and understanding of staff and subordinates. [CALL Newsletter No. 88-3]

LL - Mass engineer headquarters forward: Habitually employ an engineer company headquarters with each committed battalion task force and involve them in the planning process. [CALL Newsletter No. 88-3]

LL - Push Engineers Forward: Push engineers rapidly forward to mass and synchronize at the decisive point. Normally the most crucial engineer tasks are forward where minefields are under fire or where nuisance minefields disrupt main body movement. Changing a task organization is complex and time consuming so make

the change early to allow time for synchronization. Rapidly push engineers forward to the:

- Advance guard (during movement to facilitate rapidly breaching/bypassing and reporting obstacles not under fire).
- Breach force(s) (during the breach to assist in the actual obstacle breaching).
- Recon forces (as practicable for detecting, reconning, and bypassing obstacles and for detailed obstacle reconnaissance if required). [CALL Newsletter No. 88-3]

LL - Maintain Positive Control of Engineer Work [CALL Newsletter No. 88-3]

8. **The engineer battalion commander and staff analyze course(s) of action.**

LL - Use the war-gaming sequence to develop and begin synchronizing the operation. [CALL Newsletter No. 93-3, p. 22]

LL - Follow the war-gaming rules to conduct the war game. [CALL Newsletter No. 93-3, p. 22]

LL - Have the entire staff involved in the war game. [CALL Newsletter No. 93-3, p. 22]

LL - It is imperative that each staff section be represented with an active participant in the process. The enemy situation must be depicted and accurately portrayed by the S2 throughout the process. The S2 does a disservice in the unit if he does not represent an active enemy that wants to win and fight accordingly. [CTC Bulletin No. 95-4]

LL - Critical assumptions must be recorded, discussed, and validated. [CTC Bulletin No. 95-4]

LL - When time is limited, the staff should focus its time and effort on the most critical events (box technique). When time is available, more resources (time and effort) can be spent analyzing a larger portion of the mission (belt or avenue-in-depth technique). [CTC Bulletin No. 95-4]

LL - The staff members must analyze and record each critical event in sufficient detail to result in a well-synchronized plan. [CTC Bulletin No. 95-4]

LL - Executive officers and staffs are not practiced on the doctrinal steps of the Command Estimate Process and do not understand the expected product at the

end of each step. COA development and war-gaming are fragmented and are not robust enough to lead to a good decision. [CTC Bulletin No. 93-4, p. 8]

LL - Adjustments of the elements of the Battlefield Operating Systems can unravel the focus of a commander's intent. This is especially true in open terrain. Tactical commanders should personally direct the synchronization of engagement areas. Obstacles should be positioned, indirect fires adjusted, and direct fires rehearsed under the personal supervision of the commander. The commander must take his unit out and actually time them performing certain actions to his standard so they understand his intent and he knows exactly how long they need to reach his goal. The unit must practice moving, digging, and fighting, and the planners must know the planning factors for that specific unit. [CALL Newsletter No. 90-8, p. 22]

LL - Through IPB, identify likely obstacle sites; confirm or deny by reconnaissance; war game and schedule battlefield function responses at the most likely and dangerous obstacle sites. [CTC Bulletin No. 93-4]

LL - Organize to breach: Designate assault, breach, and support forces. Specify responsibilities for breach site selection, control of all fires, lifting and shifting of fires, which support force suppresses what position, who adjusts and executes fire support to include smoke, and who confirms/requests counterfire. [CALL Newsletter No. 88-3]

LL - Plan and Issue a Clear/Complete Order: Employ backwards planning. The objective of an attack is to destroy the enemy or seize terrain, not to breach an obstacle. First define actions on the objective: assault, consolidation, and reorganization. From this movement to the objective, to include breaching, flows logically. War game courses of action and employ briefbacks to ensure clarity and understanding of staff and subordinates. [CALL Newsletter No. 88-3]

LL - Plan engineer work on obstacles beyond the expected enemy attack time. Engineer work can continue in the depth of a defender's sector while the enemy is being engaged forward. [Lessons Learned Bulletin - Feb 87]

LL - Push Engineers Forward: Push engineers rapidly forward to mass and synchronize at the decisive point. Normally the most crucial engineer tasks are forward where minefields are under fire or where nuisance minefields disrupt main body movement. Changing a task organization is complex and time consuming so make the change early to allow time for synchronization. Rapidly push engineers forward to the:

- Advance guard (during movement to facilitate rapidly breaching/bypassing and reporting obstacles not under fire).

- Breach force(s) (during the breach to assist in the actual obstacle breaching).
- Recon forces (as practicable for detecting, reconning, and bypassing obstacles and for detailed obstacle reconnaissance if required). [CALL Newsletter No. 88-3]

9. **The engineer battalion staff compares courses of action.**

LL - Conduct a detailed analysis with the entire staff to determine the recommended course of action. [CALL Newsletter No. 93-3, p. 23]

LL - Use a decision matrix with criteria developed from commanders' guidance, critical events, and other significant factors pertaining to the mission to analyze the courses of action. [CALL Newsletter No. 93-3, p. 23]

LL - Quantify each course of action by ranking them for each criterion. [CALL Newsletter No. 93-3, p. 23]

LL - It is imperative that each staff section be represented with an active participant in the process. The enemy situation must be depicted and accurately portrayed by the S2 throughout the process. The S2 does a disservice in the unit if he does not represent an active enemy that wants to win and fight accordingly. [CTC Bulletin No. 95-4]

LL - Critical assumptions must be recorded, discussed, and validated. [CTC Bulletin No. 95-4]

LL - When time is limited, the staff should focus its time and effort on the most critical events (box technique). When time is available, more resources (time and effort) can be spent analyzing a larger portion of the mission (belt or avenue-in-depth technique). [CTC Bulletin No. 95-4]

LL - The staff members must analyze and record each critical event in sufficient detail to result in a well-synchronized plan. [CTC Bulletin No. 95-4]

10. **The engineer battalion commander announces decision.**

LL - Specify through guidance the type of order to issue (written five-paragraph, oral, overlay, or matrix). [CALL Newsletter No. 93-3, p. 27]

LL - Frequent changes in task organization should be avoided. The teamwork advantage is often far more important than a slightly more desirable mix of forces. Also, the timing of a change requires careful analysis. The significant advantage of a daylight link-up and the time required to receive the OPORD and to

coordinate SOPs and LOGPACs must be considered. [NTC Commander's Memorandum]

LL - Organize to breach: Designate assault, breach, and support forces. Specify responsibilities for breach site selection, control of all fires, lifting and shifting of fires, which support force suppresses what position, who adjusts and executes fire support to include smoke, and who confirms/requests counterfire. [CALL Newsletter No. 88-3]

11. **The engineer battalion staff prepares the operations order.**

LL - Develop a preformatted order to use for written orders. [CALL Newsletter No. 93-3, p. 27]

LL - Organize reproduction by centralizing collection of the portions of the order and its production. [CALL Newsletter No. 93-3, p. 27]

LL - Select an area to reproduce the order that will not interfere with the staff's work. [CALL Newsletter No. 93-3, p. 27]

LL - Use a mimeograph or a photocopier to speed reproduction of order text. [CALL Newsletter No. 93-3, p. 27]

LL - Use a photocopier to reproduce graphics. [CALL Newsletter No. 93-3, p. 27]

LL - Allocate time to review and approve the order before it is reproduced and briefed. [CALL Newsletter No. 93-3, p. 28]

LL - Employ Engineer Execution Matrices: Engineer execution matrices and clear detailed commander's guidance, continually monitored by the TOC/command group, assures that responsibility stays fixed and receives command emphasis. [CALL Newsletter No. 88-3]

12. **The engineer battalion commander and staff issue the operations order.**

LL - When feasible, use a vantage point to brief the operations order. It will reduce distractions and allow subordinates to see the terrain. [CALL Newsletter No. 93-3, p. 31]

LL - Organize the briefing to follow the written order format. [CALL Newsletter No. 93-3, p. 31]

LL - Control the briefing to stop distractions. [CALL Newsletter No. 93-3, p. 31]

LL - Review your intent and address each subordinate directly to ensure that he understands how his mission relates to your intent. [CALL Newsletter No. 93-3, p. 31]

LL - Use graphic aids to better present the order. [CALL Newsletter No. 93-3, p. 31]

LL - Conduct confirmation briefs and back briefs with subordinates. [CALL Newsletter No. 93-3, p. 34]

LL - Conduct rehearsals to synchronize the efforts of the unit. [CALL Newsletter No. 93-3, p. 34]

LL - Utilize back briefs to check subordinate leaders' understanding of the overall plan and the commander's intent. [CALL Bulletin No. 90-9]

LL - The following procedures warrant special consideration:

- Warning orders enjoy greater emphasis.
- To the maximum degree possible, commanders and staffs should go forward to issue orders. This buys critical time for subordinate commanders.
- Don't drive when you can fly. Maximum use should be made of aviation assets to buy commanders time. This is true at all levels of command. [CALL Newsletter No. 90-8, p. 23]

LL - Battalions continue to emphasize brief backs and rehearsals and to improve communications. When they conduct effective brief backs and rehearsals, commanders ensure that subordinates understand the mission and their intent. They also improve unity of effort and identify problem areas. After the initial 48 hours, battalions communicate well and are able to control subordinate units. [CTC Bulletin No. 93-4, p. 9]

LL - Ensure that the succession of command is specified by SOP or OPORD; identify the primary location on the battlefield of the second in command. [CTC Bulletin No. 94-1, p. 19]

LL - Ensure that the unit knows the priority for command succession. [CTC Bulletin No. 94-1, p. 19]

LL - Ensure that personnel identified in the succession of command are thoroughly familiar with the mission and the commander's intent through use of back briefs and rehearsals. [CTC Bulletin No. 94-1, p. 19]

## GATE TASKS

This component identifies critical individual or collective tasks upon which each battlefield function (BF) task identified in the task list is dependent. In order to ensure efficient and safe training of the major task, the participants should have achieved a level of proficiency or understanding in these gate tasks.

| TASK | INDIVIDUAL/COLLECTIVE PROFICIENCIES |
|---|---|
| 1. **The engineer battalion commander and staff direct and lead the engineer battalion during planning for the battle.** | **Engr Bn Cdr**<br>[soldier's training publication (STP) 21-II-military qualification standards (MQS), Common Tasks]<br>- Communicate effectively as a commander or staff officer. [03-9001.12-0003]<br>- Solve problems using the military problem-solving process. [03-9001.13-0001]<br><br>**Engr Bn XO**<br>[STP 21-II-MQS, Common Tasks]<br>- Communicate effectively as a commander or staff officer. [03-9001.12-0003]<br>- Solve problems using the military problem-solving process. [03-9001.13-0001]<br><br>**Engr Bn Command Sergeant Major (CSM)**<br>[FM 5-71-3, Chap 2]<br>- Perform taskings assigned by the engineer battalion commander.<br>- Organize and lay out engineer battalion assembly area, as necessary.<br>- Monitor unit morale.<br>- Ensure that standards are enforced by noncommissioned officers of the battalion.<br><br>**Engr Bn S1**<br>[STP 21-II-MQS, Common Tasks]<br>- Communicate effectively as a commander or staff officer. [03-9001.12-0003] |

- Solve problems using the military problem-solving process. [03-9001.13-0001]

[STP 12-42II-MQS, Adjutant General]
- Manage casualty reporting system. [01-0160.01-1701]
- Manage personnel replacement system. [04-0160.01-1951]
- Manage officer personnel assignment operations. [03-0160.01-1401]
- Manage the personnel accounting and strength reporting system. [03-0160.01-1301]
- Manage postal operations. [01-0160.01-2054]
- Manage enlisted personnel assignment operations. [03-0160.01-1351]
- Manage unit postal operations. [03.0107.00-2002]
- Prepare the personnel estimate. [01-0160.01-2001]
- Recommend unit of assignment for junior enlisted and senior NCO. [03-0160.00-2103]
- Review the personnel summary, personnel requirement report, and battle roster for completeness. [01-0160.00-1001]

**Engr Bn Personnel Administrative Center Supervisor**
[ARTEP 71-3 MTP, personnel services non-commissioned officer (PSNCO)]
- Perform strength management. [71-3-100]
- Assist in conduct of replacement operations. [71-3-1003]
- Conduct by-name casualty reporting. [71-3-1004]
- Perform essential personnel actions. [71-3-1005]
- Coordinate essential financial service. [71-3-1006]
- Provide essential administrative service

support. [71-3-1007]
- Manage the awards and decorations program. [71-3-1011]
- Assist in the establishment of the rear command post. [71-3-1012]

**Engr Bn S1 Section**
[ARTEP 71-3 MTP]
- Assist in the establishment of the rear command post. [71-3-1012]
- Assist in conduct of replacement operations. [71-3-1003]
- Conduct by-name casualty reporting. [71-3-1004]
- Coordinate essential financial service. [71-3-1006]
- Manage the awards and decorations program. [71-3-1011]
- Perform strength management. [71-3-1002]
- Perform essential personnel actions. [71-3-1005]
- Provide essential administrative service support. [71-3-1007]

**Engr Bn S2**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

[STP 34-35II-MQS]
- Analyze intelligence and combat information. [013381.394004]
- Assist in preparing the intelligence annex. [013381.414001]
- Brief and debrief reconnaissance and surveillance assets. [013381.064012]
- Conduct battlefield area evaluation. [01-3381.01-4012]
- Conduct terrain and weather analysis. [01-3381.01-4013]

- Conduct threat evaluation. [01-3381.01-4014]
- Conduct intelligence liaison. [01-3381.166-5001]
- Conduct situation development. [01-3381.01-4016]
- Conduct target development. [01-3381.01-4017]
- Conduct all source intelligence analysis. [013381.414014]
- Direct collection management operations. [013381.445002]
- Direct analysis and dissemination of information. [013381.415002]
- Direct asset management. [013381.065001]
- Direct recording and evaluation of information. [013381.415001]
- Disseminate intelligence and combat information. [013381.394005]
- Participate in the development of the decision support template. [013381.015003]
- Participate in the threat integration process. [01-3381.01-4015]
- Participate in the development of intelligence requirements. [01-3381.01-5001]
- Plan reconnaissance operations. [013381.445001]
- Prepare order of battle (OB) studies. [01-3381.41-4015]
- Prepare intelligence taskings. [01-3381.39-4002]
- Prepare reconnaissance and surveillance plan. [01-3381.06-4011]
- Prepare the intelligence estimate. [01-3381.41-4004]
- Record intelligence and combat information. [01-3381.394003]

[STP 5-21II-MQS]

- Establish intelligence production requirements and essential elements of

terrain or engineer information. [01-2250.20-1004]
- Provide input to intelligence preparation of the battlefield. [01-2250.20-1006]
- Prepare engineer estimates. [01-2250.20-1001]

**Engr Bn Intelligence (Intel) Sergeant (Sgt)**
[STP 34-96B14-Soldier's Manual (SM)-Trainer's Guide (TG), Intelligence Analyst)
- Supervise preparation/maintenance of situation map by subordinate personnel. [301-336-3051]
- Supervise receipt/transfer/storage of classified material. [301-336-3201]
- Prepare intelligence reports and summaries. [301-336-3105]
- Disseminate intelligence reports and summaries. [301-336-3106]

**Engr Bn S3**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn S3 Operations (Ops) Officers**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]

[STP 17-12II-MQS, Armor]
- Perform duties as TOC shift officer. [01-1250.00-0006]

**Engr Bn S3 Ops Sgt**
[STP 21-24-soldier's manual of common tasks (SMCT), Common Tasks]
- Conduct operations security (OPSEC) procedures. [113-573-0002]

[ARTEP 71-3 MTP]
- Assist in site selection for command and control facilities to include splitting of CPs. [71-3-1501]

**Engr Bn S3 Section**

[STP 5-21II-MQS, Engineer]
- Advise supported units on engineer capabilities and employment. [01-2250.10-1002]
- Advise the commander on the use of terrain for combat operations. [01-2250.20-1008]
- Conduct engineer support for river-crossing operations. [01-1980.10-1001]
- Direct the reduction of complex obstacles. [01-1940.20-1002]
- Direct the clearance of complex obstacles. [01-1940.20-1003]
- Direct the construction of fords. [01-1980.10-1002]
- Direct the construction of combat roads and trails. [01-1990.10-1002]
- Establish intelligence production requirements and essential elements of terrain or engineer information. [01-2250.20-1004]
- Evaluate engineer intelligence for dissemination. [01-2250.20-1005]
- Plan engineer support for river-crossing operations. [01-2080.20-1001]
- Prepare engineer estimates. [01-2250.20-1001]
- Prepare engineer annexes. [01-2250.20-1002]
- Provide input to intelligence preparation of the battlefield. [01-2250.20-1006]

[STP 5-12B24-SM-TG, Engineer]
- Determine logistical requirements for fighting and protective positions. [051-195-4008]
- Determine logistical requirements for nonexplosive anti-vehicular obstacles.

[051-195-4009]
- Determine standard pattern minefield logistical requirements. [051-192-4041]
- Develop/prepare the engineer estimate. [051-195-4050]
- Prepare a route reconnaissance overlay. [051-196-3009]
- Prepare a tunnel reconnaissance report. [051-196-3031]
- Prepare a reconnaissance report. [051-196-3032]
- Prepare a bridge reconnaissance report. [051-196-3033]
- Prepare an engineer reconnaissance report. [051-196-3035]

**Engr Bn Chemical Officer (CMLO)**

[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

[STP 3-74II-MQS, Chemical]
- Identify operation and functions of chemical units and staffs. [S1-5060.02-2138]

[ARTEP 3-117-40 MTP, Chemical Sec and NBC Ctr]
- Coordinate chemical unit employment. [3-4-0005]
- Monitor the status of chemical units. [3-4-0006]
- Conduct chemical vulnerability analysis. [3-4-0007]
- Conduct biological vulnerability analysis. [3-4-0008]
- Conduct nuclear vulnerability analysis. [3-4-0009]
- Process NBC reports. [3-4-0010]
- Prepare predictions of contamination.

[3-4-0012]
- Plan and coordinate chemical/biological survey sampling operations. [3-4-0013]
- Plan and coordinate radiological survey operations. [3-4-0014]
- Coordinate with other staff sections on NBC related functions and operations. [3-4-0016]
- Prepare NBC plans and orders. [3-4-0017]

**Engr Bn Nuclear Biological Chemical (NBC) NCO**
[ARTEP 3-117-40 MTP, Chemical Sec and NBC Ctr]
- Process NBC reports. [3-4-0010]

**Assistant Brigade Engineer (ABE) section**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

[ARTEP 71-3 MTP]
- Conduct engineer operations staff supervision. [71-3-8005]

**Engr Bn S4**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

[STP 10-92ABDII-MQS, Quartermaster]
- Assess unit capabilities to support proposed operations. [S3-5101.00-0229]
- Determine Class V (conventional) requirements. [01-4000.11-1111]
- Determine and verify water requirements for a unit. [01-5103.00-0030]

- Direct receipt, storage, and issue of supplies. [03-5101.00-0018]
- Evaluate supply point operations. [01-5101.00-0194]
- Manage the receipt, issue, and storage of supplies. [03-5101.00-0287]
- Plan subsistence field operations and advise commander on subsistence operations. [03-5106.00-0130]
- Prepare command logistics plans, estimates, and orders. [03-5106.00-0166]
- Trace the flow of requests for and receipt of CL I, II, III, IV, V, VII, and IX supplies and identify field services available to divisional units. [S3-5101.00-0273]
- Supervise field feeding operations. [03-5105.00-0107]
- Supervise the receipt, storage, and distribution of petroleum products. [03-5103.00-0080]

[STP 55-88II-MQS, Transportation]
- Plan convoy operations. [01-7300.75-0500]
- Plan use of host-nation assets. [01-7320.70-0435]
- Plan highway net use. [01-7320.75-0535]
- Prepare unit load plan. [01-7220.65-0010]
- Request host-nation transportation support. [01-7320.70-0480]

**Engr Bn S4 Section**
[ARTEP 71-3 MTP]
- Maintain current status of maintenance and supplies. [71-3-4003]
- Assist in and activate the rear command post. [71-3-4004]

[STP 10-76Z5-SM-TG Senior Supply Sgt]
- Coordinate rear area protection plan. [101-522-5523]

- Evaluate procedures for reconciliation of supply requests and requisitions. [101-522-5510]
- Evaluate logistical procedures and provide technical assistance as needed. [101-522-5601]
- Evaluate supply support storage procedures. [101-522-5529]
- Monitor automated supply cycles. [101-522-5525]
- Monitor reports of survey. [101-522-5531]
- Provide logistics input for the administrative or logistics order. [101-522-5403]
- Review the flow of requests for supplies and the subsequent return of supplies to the using unit. [101-522-5506]
- Review road movement graphs and tables. [101-522-5503]

[STP 10-76X24-SM-TG, Subsistence Supply Specialist (Spec)]

- Review the basic daily food allowance (BDFA). [101-520-4154]
- Prepare the schedule of field ration issues. [101-520-4104]
- Plan a field storage layout. [101-520-4153]

[STP 10-92A35-SM-TG, Automated Log Spec]

- Check the accuracy of the PLL using the automated unit level logistics system (ULLS). [101-525-3015]
- Control and provide assistance in automated systems. [101-525-4001]
- Evaluate supply support procedures. [101-525-5003]
- Evaluate prescribed load list (PLL) procedures. [101-525-5005]
- Evaluate supply performance indicators. [101-525-5006]
- Provide logistics input for the

administrative or logistics order. [101-525-5008]
- Review materiel receipts and document processing procedures. [101-525-5004]
- Review stock status listings. [101-525-5007]
- Review the process and handling of hazardous materiel.[101-525-4008]

[STP 10-92Y24-SM-TG, Unit Supply Spec]
- Account for and adjust property records for bulk petroleum. [101-521-3151]
- Check accuracy of PLL records. [101-521-4107]
- Check accuracy of the army maintenance management system (TAMMS) maintenance and historical records. [101-521-4108]
- Compile logistical data for unit status report worksheet. [101-521-4151]
- Control helicopter landing and departure area. [101-521-3902]
- Control/supervise property administration in unit supported by manual/automated systems. [101-521-3252]
- Direct and control application of safety measures during external transport operations. [101-521-3904]
- Direct the rigging of external sling loads. [101-521-3901]
- Direct the maintenance of sling-loading equipment. [101-521-3903]
- Direct the planning and forecasting of supplies (Classes I, III, and V) at the unit level. [101-521-3254]
- Inspect and provide technical assistance to units. [101-521-4101]
- Plan for the storage of supplies (Classes I, III, and V). [101-521-2202]
- Prepare materiel condition status report. [101-521-4104]
- Prepare equipment transfer, loss, or gain report. [101-521-2252]
- Provide logistics input for the

administrative or logistics order. [101-522-5403]
- Request and turn in ammunition. [101-521-2161]
- Request and post changes to equipment portion of authorization documents. [101-521-4102]

[STP 10-94B25-SM-TG, Food Service Spec]
- Consult with preventive medicine activity. [101-524-4134]
- Coordinate with the surgeon or director of medical services. [101-524-5155]
- Coordinate with Class I operations. [101-524-5206]
- Coordinate with food advisor. [101-524-4105]
- Coordinate with troop issue subsistence activity. [101-524-4118]
- Determine requirements and establish procedures in support of field operations. [101-524-3279]
- Develop standing operating procedures (SOP) for dining facilities and field kitchens. [101-524-4131]
- Develop, elevate, and maintain field kitchen layout and field site. [101-524-4140]
- Direct personnel in the protection and decontamination of subsistence items in a nuclear, biological, or chemical (NBC) environment. [101-524-3281]
- Evaluate subsistence protection and decontamination procedures. [101-524-4132]
- Evaluate nutrition procedures in preparing, serving, and storage of food products. [101-524-5104]
- Evaluate the subsistence sanitation program. [101-524-5204]
- Monitor Army field feeding system requisitioning and accounting procedures. [101-524-5205]

- Provide assistance to officers and NCOs operating field kitchens. [101-524-5202]
- Review and monitor the requisition and turn-in of subsistence items under the Army field feeding system. [101-524-4141]

**Engr Bn Signal Officer (Bn SO)**
[STP 21-II-MQS]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

[STP 11-25II-MQS, Signal]
- Analyze battlefield spectrum management. [01-5701.07-0003]
- Direct a net control station (NCS) operation. [01-5704.04-0003]
- Employ communications system of a maneuver brigade or battalion. [01-5841.07-0001]
- Identify the data communications techniques used with tactical communications systems. [01-5769.04-0001]
- Implement communications system control element operations. [01-5753.07-002]
- Implement displacement of communications nodes. [01-5754.04-0002]
- Manage secure voice communications system. [01-5735.04-0001]
- Manage network traffic routing. [01-5710.07-002]
- Perform distribution management of communications variables for combat radio operations using battlefield CEOI system. [01-588.07-001]
- Prepare and review signal estimates, plans, and orders. [01-5765.04-9001]
- Provide communications support using

FM voice communications.
[01-5704.04-9001]

**Engr Bn Maintenance Officer (BMO)**
[STP 21-II-MQS]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

[STP 9-91 BCII-MQS, Ordinance]
- Evaluate Class IX performance. [01-4716.26-0002]
- Identify maintenance trends. [01-4710.26-0004]
- Interpret maintenance reports. [01-4730.27-0002]
- Plan logistics support for maintenance operations. [01-4720.26-0001]

[STP 55-88II-MQS, Transportation]
- Plan evacuation of equipment. [01-4999-.26-0001]

**Engr Bn HHC Cdr**
[STP 21-II-MQS]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Solve problems using the military problem-solving process. [03-9001.13-0001]
- Supervise the management of accident risk in unit operations. [03-9003.02-0001]

**Engr Co Cdrs**
[STP 21-II-MQS]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

- Supervise the management of accident risk in unit operations. [03-9003.02-0001]

**Subordinate Unit Cdrs**
[STP 21-II-MQS]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Solve problems using the military problem-solving process. [03-9001.13-0001]
- Supervise the management of accident risk in unit operations. [03-9003.02-0001]

2. **The engineer battalion commander and staff receive an order initiating a new mission from higher headquarters.**

**Engr Bn Cdr**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn XO**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn S1**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn S2**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

[STP 34-35II-MQS, Intelligence]
- Participate in the development of intelligence requirements. [01-3381.01-5001]
- Direct the intelligence portion of the IPB process. [01-3381.01-5002]

- Prepare the intelligence estimate. [01-3381.41-4004]

[STP 5-21II-MQS, Engineer]
- Establish intelligence production requirements and essential elements of terrain or engineer information. [01-2250.20-1004]
- Provide input to intelligence preparation of the battlefield. [01-2250.20-1006]
- Prepare engineer estimates. [01-2250.20-1001]

**Engr Bn Intel Sgt**
[STP 34-96B14-SM-TG, Intelligence Analyst]
- Review current intelligence holdings to identify gaps. [301-336-2004]
- Supervise preparation of intelligence estimate. [301-336-3104]

**Engr Bn S3**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**S3 Ops Officers**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**ABE**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn S4**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn BMO**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn CMLO**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn SO**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

3. **The engineer battalion commander and staff conducts mission analysis.**

**Engr Bn Cdr**
[STP 17-12II-MQS, Armor]
- Perform a map reconnaissance. [01-1250.00-0002]

**Engr Bn XO**
[STP 17-12II-MQS, Armor]
- Perform a map reconnaissance. [01-1250.00-0002]

**Engr Bn S2**
[STP 5-21II-MQS, Engineer]
- Establish intelligence production requirements and essential elements of terrain or engineer information. [01-2250.20-1004]
- Provide input to intelligence preparation of the battlefield. [01-2250.20-1006]

**Engr Bn Intel Sgt**
[STP 34-96B14-SM-TG, Intelligence Analyst]
- Recommend area of interest and operation based on METT-T. [301-336-4000]
- Supervise preparation of written analysis

of the battlefield area. [301-336-3100]
- Recommend PIR/IR. [301-336-3006]
- Prioritize avenues of approach according to size/directness/length. [301-336-2300]
- Determine air avenues of approach. [301-336-2301]
- Supervise organization and maintenance of order of battle information. [301-336-2001]
- Develop Doctrinal Templates. [301-336-2200]
- Develop situation templates for each avenue of avenue of approach. [301-33602250]
- Develop event templates based on situation templates. [301-336-2251]
- Develop event analysis matrix for each mobility corridor. [301-336-2252]
- Prioritize threat probable courses of action. [301-336-3250]
- Recommend area of interest and AO based on METT-T. [301-336-4000]
- Prepare draft orders/request to support collection effort. [301-336-2002]

**Engr Bn S3**
[STP 17-12II-MQS, Armor]
- Perform a map reconnaissance. [01-1250.00-0002]

**Engr Bn S3 Ops Officers**
[STP 17-12II-MQS, Armor]
- Perform a map reconnaissance. [01-1250.00-0002]

[STP 5-21II-MQS, Engineer]
- Establish intelligence production requirements and essential elements of terrain or engineer information. [01-2250.20-1004]
- Provide input to intelligence preparation of the battlefield. [01-2250.20-1006]

**ABE**
[STP 17-12II-MQS, Armor]
- Perform a map reconnaissance. [01-1250.00-0002]

[STP 5-21II-MQS, Engineer]
- Establish intelligence production requirements and essential elements of terrain or engineer information. [01-2250.20-1004]
- Provide input to intelligence preparation of the battlefield. [01-2250.20-1006]

**Engr Bn S4**
[STP 17-12II-MQS, Armor]
- Perform a map reconnaissance. [01-1250.00-0002]

**Engr Bn BMO**
[STP 17-12II-MQS, Armor]
- Perform a map reconnaissance. [01-1250.00-0002]

**Engr Bn CMLO**
[STP 17-12II-MQS, Armor]
- Perform a map reconnaissance. [01-1250.00-0002]

**Engr Bn SO**
[STP 17-12II-MQS, Armor]
- Perform a map reconnaissance. [01-1250.00-0002]

4. **The engineer battalion executive officer directs the staff in the preparation and issuance of an engineer battalion warning order.**

**Engr Bn Cdr**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn XO**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn S3**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

5. **The engineer battalion commander issues planning guidance.**

**Engr Bn Cdr**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]

6. **The engineer battalion commander and staff prepares staff estimates.**

**Engr Bn Cdr**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn XO**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn Intel Sgt**
[STP 34-96B14-SM-TG, Intelligence Analyst]
- Review current intelligence holdings to identify gaps. [301-336-2004]
- Supervise preparation of intelligence estimate. [301-336-3104]

**Engr Bn S3**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn S3 Ops Officers**
[STP 5-21II-MQS, Engineer]
- Prepare engineer estimates. [01-2250.20-1001]

**Engr Bn S3 Ops Sgt**
[ARTEP 71-3 MTP/STP 5-12B24-SM-TG]
- Develop/prepare the engineer estimate. [71-3-8001/051-195-4050]

[STP 5-12B24-SM-TG]
- Determine standard pattern minefield logistical requirements. [051-192-4041]
- Determine logistical requirements for fighting and protective positions. [051-195-4008]
- Determine logistical requirements for nonexplosive antivehicular obstacles. [051-195-4009]

**Engr Bn S3 section**
[ARTEP 71-3 MTP/STP 5-12B24-SM-TG]
- Develop/prepare the engineer estimate. [71-3-8001/051-195-4050]

[STP 5-12B24-SM-TG]
- Determine standard pattern minefield logistical requirements. [051-192-4041]
- Determine logistical requirements for fighting and protective positions. [051-195-4008]
- Determine logistical requirements for nonexplosive antivehicular obstacles. [051-195-4009]

**ABE**
[STP 5-21II-MQS, Engineer]
- Prepare engineer estimates. [01-2250.20-1001]

**Engr Bn S4**
[STP 10-92ABDII-MQS, Quartermaster]
- Prepare command logistics plans, estimates, and orders. [03-5106.00-0166]
- Determine Class V (Conventional) requirements. [01-4000.11-1111]
- Assess unit capabilities to support proposed operations. [S3-5101.00-0229]

**Engr Bn NBC NCO**
[ARTEP 3-117-40 MTP, Chemical Sec and NBC Ctr]
- Conduct chemical vulnerability analysis. [3-4-0007]
- Conduct biological vulnerability analysis. [3-4-0008]
- Conduct nuclear vulnerability analysis. [3-4-0009]

**Engr Bn SO**
[STP 11-25II-MQS, Signal]
- Prepare and review signal estimates, plans, and orders. [01-5765.04-9001]

7. **The engineer battalion commander and staff develop course(s) of action.**

**Engr Bn Cdr**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

8. **The engineer battalion commander and staff analyze course(s) of action.**

**Engr Bn Cdr**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn XO**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn S3**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn Intel Sgt**
[STP 34-96B14-SM-TG, Intelligence Analyst]
- Develop decision support template. [301-336-2100]

**Engr Bn SO**
[STP 11-25II-MQS, Signal]
- Prepare and review signal estimates, plans, and orders. [01-5765.04-9001]

9. **The engineer battalion staff compares courses of action.**

**Engr Bn XO**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process.

**Engr Bn S3**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13-0001]

**Engr Bn Intel Sgt**
[STP 34-96B14-SM-TG, Intelligence Analyst]
- Supervise preparation of intelligence estimate. [301-336-3104]

**Engr Bn S4**
[STP 10-92ABDII-MQS, Quartermaster]
- Prepare command logistics plans, estimates, and orders. [03-5106.00-0166]

**Engr Bn SO**
[STP 11-25II-MQS, Signal]
- Prepare and review signal estimates, plans, and orders. [01-5765.04-9001]

10. **The engineer battalion commander announces decision.**

**Engr Bn Cdr**
[STP 21-II-MQS, Common Tasks]
- Solve problems using the military problem-solving process. [03-9001.13.0001]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Brief to inform, persuade, or direct. [01.9007.01-0250]

11. **The engineer battalion staff prepares the operations order.**

**Engr Bn S4**
[STP 10-92ABDII-MQS, Quartermaster]
- Prepare command logistics plans, estimates, and orders. [03-5106.00-0166]

**Engr Bn SO**
[STP 11-25II-MQS, Signal]
- Prepare and review signal estimates, plans, and orders. [01.5765.04-9001]

12. **The engineer battalion commander and staff issue the operations order.**

**Engr Bn Cdr**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Brief to inform, persuade, or direct. [01-9007.01-0250]

**Engr Bn XO**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Brief to inform, persuade, or direct. [01-9007.01-0250]

**Engr Bn S1**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Brief to inform, persuade, or direct. [01-9007.01-0250]

**Engr Bn S2**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Brief to inform, persuade, or direct. [01-9007.01-0250]

**Engr Bn Intel Sgt**
[STP 34-96B14-SM-TG, Intelligence Analyst]
- Present intelligence briefings. [301-336-3101]

**Engr Bn S3**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Brief to inform, persuade, or direct. [01-9007.01-0250]

**Engr Bn S3 Ops Officers**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]

[STP 21-II-MQS, Common Tasks]
- Brief to inform, persuade, or direct. [01-9007.01-0250]

**Engr Bn S4**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Brief to inform, persuade, or direct. [01-9007.01-0250]

**Engr Bn BMO**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Brief to inform, persuade, or direct. [01-9007.01-0250

**Engr Bn CMLO**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Brief to inform, persuade, or direct. [01-9007.01-0250]

**Engr Bn SO**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Brief to inform, persuade, or direct. [01-9007.01-0250]

**Engr Bn HHC Cdr**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Brief to inform, persuade, or direct. [01-9007.01-0250

**All Subordinate Unit Cdrs**
[STP 21-II-MQS, Common Tasks]
- Communicate effectively as a commander or staff officer. [03-9001.12-0003]
- Brief to inform, persuade, or direct. [01-9007.01-0250]

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## Appendix A

## INDEX of
## BRIGADE COMBAT TEAM BATTLEFIELD FUNCTIONS
Grouped By Battlefield Operating System (BOS)

This component lists the thirty-nine (39) battlefield functions (BFs) for each battlefield operating system (BOS) which have been identified as relevant to U.S. Army tactical echelon units. These BFs were identified based on an analysis of Training and Doctrine Command (TRADOC) Pamphlet 11-9, "Blueprint of the Battlefield." The purpose of this component is to depict the BOS and the BF which define each BOS.

| | | |
|---|---|---|
| **INTELLIGENCE** | (1) | Conduct intelligence planning. |
| | (2) | Collect information. |
| | (3) | Process information. |
| | (4) | Disseminate intelligence. |
| **MANEUVER** | (5) | Conduct tactical movement. |
| | (6) | Engage enemy with direct fire and maneuver. |
| **AIR DEFENSE** | (16) | Take active air defense measures. |
| | (17) | Take passive air defense measures. |
| **FIRE SUPPORT** | (7) | Employ mortars. |
| | (8) | Employ field artillery. |
| | (9) | Employ close air support. |
| | (10) | Conduct electronic collection and electronic attack. |
| | (11) | Conduct battlefield psychological operations. |
| | (12) | ~~Employ chemical weapons~~.[1] |
| | (13) | Conduct counter target acquisition operations. |
| | (14) | Employ naval surface fires. |
| | (15) | Coordinate, synchronize and integrate fire support. |
| **MOBILITY AND SURVIVABILITY** | (21) | Overcome obstacles. |
| | (22) | Enhance movement. |
| | (23) | Provide countermobility. |
| | (24) | Enhance physical protection. |
| | (25) | Provide operations security. |
| | (26) | Conduct deception operations. |
| | (27) | Provide NBC defense. |

[1] Although U.S. national policy has renounced the use of chemical weapons, this BF is retained because it is a function which might be performed by other nations.

| | | |
|---|---|---|
| **COMMAND AND CONTROL** | (18) | Plan for combat operations. |
| | (19) | Direct and lead unit during preparation for the battle. |
| | (20) | Direct and lead units in execution of battle. |
| **COMBAT SERVICE SUPPORT** | (28) | Provide transport services. |
| | (29) | Conduct supply operations. |
| | (30) | Provide personnel services. |
| | (31) | Maintain weapons systems and equipment. |
| | (32) | Provide health services. |
| | (33) | Treat and evacuate battlefield casualties. |
| | (34) | Conduct enemy prisoners of war (EPW) operations. |
| | (35) | Conduct law and order operations. |
| | (36) | Conduct civil affairs operations. |
| | (37) | Provide sustainment engineering. |
| | (38) | Evacuate non-combatants from area of operations. |
| | (39) | Provide field services. |

## Appendix B

## STRUCTURE OF BATTLEFIELD FUNCTIONS (BFs) RELEVANT TO BRIGADE OPERATIONS

This component provides a description of each BF and the battlefield operating system (BOS) with which it is aligned. Included with each BF definition is a listing of major doctrinal topics and aspects addressed by the BF. These definitions provide the necessary framework required to understand the focus of each BF. Under most circumstances, heavy brigades will be involved in the accomplishment of some or all aspects of the BF. The involvement can vary from extensive, wherein the BF is a major focus, to minor, wherein the brigade headquarters only furnishes information. In the latter instances, the involvement may not be sufficient to warrant incorporation into a brigade's training program, although the brigade's responsibilities for the function are likely addressed in its SOP for tactical operations (TSOP). The BF definitions were extrapolated from TRADOC Pam 350-7 "Blueprint of the Battlefield," as well as other doctrinal publications relevant to the applicable BF or BOS.

1. **Intelligence BOS** - The ways and means of acquiring, analyzing, and using knowledge of the enemy, weather, and terrain required by a commander in planning, preparing, and conducting combat operations. These BFs are continuous throughout the planning, preparation, and execution phases of the battle.

   a. **BF (1) Conduct Intelligence Planning** - The developing and coordinating of information relative to the enemy, weather, and terrain prior to and during the development of the unit OPORD; the planning to collect information from battlefield sources and to acquire intelligence from other headquarters. Focus of this BF is the intelligence preparation of the battlefield (IPB). This BF addresses:

      1) Reconnaissance and surveillance plan (R&S Plan).

      2) Integrated threat templates (e.g., doctrinal, event, input to DST).

      3) Terrain and weather analysis.

   b. **BF (2) Collect Information** - Obtaining information in any manner from the heavy brigade's elements and from sources outside the heavy brigade (e.g., higher headquarters and adjacent units). This BF includes the tasks associated with managing the processes and activities necessary to collect battlefield information which may eventually be used to provide intelligence relative to the enemy, terrain, and weather. This BF addresses:

      1) Information collected as a result of the R & S Plan.

      2) Continuous information collection and acquisition from all sources.

c. **BF (3) Process Information** - Converting information into intelligence through collation, evaluation, analysis, integration, and interpretation in a continual process. This BF addresses:

1) Evaluation of threat information.

2) Evaluation of physical environment information.

3) Integration of intelligence information.

4) Development of enemy intentions.

5) Development of targeting information.

6) Preparation of intelligence reports.

7) Update of situational template.

8) Provision of battlefield area reports.

d. **BF (4) Disseminate Intelligence** - Transmitting of information by any means (verbal, written, electronic, etc.), from one person or place to another to provide timely dissemination of critical intelligence to all appropriate members of the combined arms team. This BF addresses:

1) The sending of processed intelligence in a timely manner to those on the combined arms team who can, by its receipt, take appropriate actions to accomplish the mission. This includes intelligence on the enemy, terrain, and weather.

2) The sending of raw intelligence directly from those responsible for reconnaissance and surveillance to the commander should that raw intelligence be time sensitive (and not be subject to receipt and processing by intelligence analysts).

3) Dissemination of battlefield reports.

2. **Maneuver BOS** - The employment of direct fire weapons, platforms, and systems through movement and fire and maneuver to achieve a position of advantage in respect to enemy ground forces, in order to accomplish the mission. The direct fire weapons are tank guns, Bradley Fighting Vehicle (BFV) 25mm, anti-tank guns and rockets, attack helicopter guns and rockets, small arms, crew-served weapons, and directed energy weapons systems.

a. **BF (5) Conduct Tactical Movement** - Planning for and directing the positioning of direct fire weapons systems relative to the enemy to secure or retain positional advantage, making full use of terrain and formations. Tactical movement occurs when

contact with the enemy is likely or imminent but direct fire engagement has not yet occurred. Units supporting maneuver units are included. This BF addresses:

1) Subordinate element OPORD preparation and dissemination.

2) Preparation for movement.

3) Movement, both mounted and dismounted, and on and off road.

4) Closure of movement to tactical assembly area or tactical positions.

5) Navigation.

6) Air movement.

b. **BF (6) Engage Enemy with Direct Fire and Maneuver** - Planning for and directing elements in ground combat with the enemy using direct fire and/or close combat in order to destroy the enemy or cause him to withdraw. This BF relates only to those direct fire weapons systems associated with the maneuver BOS. This BF addresses:

1) Preparation of engagement areas.

2) Rehearsals of battle plans.

3) Prevention of fratricide.

4) Conduct of close combat.

5) Integration of direct fire with maneuver.

6) Control of terrain.

7) Consolidation and reorganization.

3. **Fire Support BOS** - The collective, coordinated, and synchronized use of target acquisition data, indirect fire weapons, armed aircraft (less attack helicopters) and other lethal and non-lethal means against ground targets in support of maneuver force operations and to achieve the commander's intent and scheme of maneuver. The fire support BOS addresses these weapons: mortars, field artillery, close air support, electronic measures, and naval surface fires.

a. **BF (7) Employ Mortars** - Planning for and employment of mortars by the maneuver unit to place fires on the enemy or terrain to support the commander's concept and intent.

b. **BF (8) Employ Field Artillery** - Planning for and directing of indirect artillery fires to be placed on the enemy or terrain to support the commander's concept and intent. The fire support coordination tasks necessary to integrate the field artillery and the maneuver units are the primary focus. This BF does not address those field artillery tasks associated directly with those actions taken by the batteries of the artillery battalion in the conduct of their support mission such as fire direction center (FDC) operations, gun operations, etc. This BF addresses:

   1) Fire support - maneuver unit rehearsals.

   2) FSE operations during the preparation and execution phases of the battle.

   3) Positioning and movement within the maneuver unit sector or zone.

   4) Indirect fire missions in support of maneuver commander's concept and intent.

c. **BF (9) Employ Close Air Support** - Planning for, requesting, and employing armed aircraft (less attack helicopters) in coordination with other fire support (lethal and non-lethal) against ground targets in support of the brigade commander's concept and intent. This BF addresses:

   1) Air-ground attack requests.

   2) Air space coordination and management.

   3) Air liaison officer, forward air controller; other Army fire support coordination officers, United States Navy (USN)/United States Marine Corps (USMC) brigade team commander, supporting arms liaison team (SALT) and firepower control team (FCT) tasks that enable air-to-ground attacks.

d. **BF (10) Conduct Electronic Collection and Jamming**[1] - Planning for and directing actions taken to deny the enemy effective command, control, and communications of his own tactical force in support of maneuver commander's concept and intent. This BF includes jamming, deception, and collection.

e. **BF (11) Conduct Battlefield Psychological Operations** - Planning for and directing the conduct or support of psychological operations (when psychological operations units are available) as an integral part of combat operations to bring psychological pressure to bear on enemy forces and civilians under enemy control in the battle area, to assist in the achievement of tactical objectives in support of the brigade commander's concept and intent.

[1] Title and structure change to "Conduct electronic collection and electronic attack" are presently under consideration.

f. ~~**BF (12) Employ Chemical Weapons**~~[2] - Employing chemical agents or other means to degrade enemy capabilities in support of the brigade commander's concept and intent.

g. **BF (13) Conduct Counter Target Acquisition Operations** - Planning for and directing the suppression (e.g., using smoke or dazzling illumination) to degrade enemy direct observation, optics, radar, sensors, electronic direction finding (DF) equipment, and imaging systems in support of the commander's concept and intent.

h. **BF (14) Employ Naval Surface Fires** - Planning for and directing naval gunfire in support of the maneuver commander's concept and intent.

i. **BF (15) Coordinate, Synchronize, and Integrate Fire Support** - Coordinating all fire support means in support of the maneuver commanders' concepts and intents. The BF integrates BF 7-14.

4. **Air Defense BOS** - The means and measures organic or assigned to the maneuver commander which, when employed successfully, will nullify or reduce the effectiveness of attack by hostile aircraft or missiles after they are airborne.

a. **BF (16) Take Active Air Defense Measures** - Planning for and directing the application of firepower to destroy enemy air targets. This BF encompasses the coordinating tasks which enable the commander to successfully employ any attached or assigned air defense weapons system, as well as the tasks necessary to employ all organic weapons systems against enemy air targets. This BF addresses:

1) Employment of air defense artillery guns and missiles.

2) Employment of maneuver unit weapons systems such as small arms, automatic weapons, BFV 25 mm and tube-launched, optically-tracked, wire-guided missile (TOW), and tank main gun against enemy air.

3) Airspace management.

4) Early warning.

b. **BF (17) Take Passive Air Defense Measures** - Planning for and directing the protection of the unit from enemy air by means other than weapons. This BF addresses:

1) Early warning.

2) Dispersion.

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[2] Although U.S. national policy has renounced the use of chemical weapons, this BF is retained because it is a function which might be performed by other nations.

3) Deception.

5. **Command and Control BOS** - The ways and means a commander exercises authority and direction over organic and assigned combat power in the accomplishment of the mission.

a. **BF (18) Plan for Combat Operations** - The integration of all members of the unit in the coordinated development of an operations order which will guide the activities of the unit in conducting combat operations to accomplish assigned missions. The product/outcome of this BF is a briefed, understood OPORD. This BF addresses:

1) Receipt and analysis of higher HQ OPORD.

2) Issuance of warning order.

3) Restated mission statement.

4) Commander's estimate process/troop leading procedures.

5) Commander's guidance.

6) Mission analysis (includes course of action development).

7) Decision brief to commander.

8) Development of a synchronized OPORD.

9) Reproduction and distribution of OPORD to all participants.

10) Briefing of OPORD; understanding of order by participants.

11) FRAGO planning and issue.

b. **BF (19) Direct and Lead Unit during Preparation for the Battle** - The ways and means to prepare the unit so that it is ready to support the commander's concept and intent. This BF addresses:

1) Commander's actions and decisions.

2) Directing preparation for the battle.

3) Issuing orders.

4) Communicating information.

5) Confirmation briefs and backbriefs.

6) Rehearsals.

7) Maintaining and updating information and force status.

8) Decisions to act or change ongoing actions.

9) Confirming IPB through the reconnaissance effort.

10) Determining actions to implement decisions.

11) Synchronizing preparation (e.g., management of time).

12) TOC operations (e.g., staff integration).

13) Second in command (2IC) responsibilities.

14) Continuous and sustained operations.

15) Communications (e.g., planning, installation and operation of system, management, site election).

c. **BF (20) Direct and Lead Units in Execution of Battle** - The ways and means to command and control the unit's execution of the battle plan to accomplish the commander's concept and intent. This BF addresses:

1) Commander's actions and decisions.

2) Directing the conduct of the battle.

3) Issuing orders.

4) Information distribution.

5) Synchronizing tactical operations (e.g., use of DST).

6) TOC operations (includes CP displacement, security, survivability, battle tracking).

7) Continuity of command (e.g., C2 redundancy).

8) 2IC responsibilities.

9) Continuous and sustained operations.

10) Consolidation and reorganization.

6. **Mobility and Survivability BOS** - The ways and means that permit freedom of movement, relative to the enemy, while retaining the force's ability to fulfill its primary mission, as well as the measures the force takes to remain viable and functional by protection from the effects of enemy weapons systems and natural occurrences.

   a. **BF (21) Overcome Obstacles** - Planning for and directing actions to remove or clear/reduce natural and man-made obstacles.

   b. **BF (22) Enhance movement** - Planning for and coordinating elements providing mobility for the unit in its area of operations. This BF addresses:

      1) Construction and repair of combat roads and trails.*

      2) Facilitating movement on routes. (This includes control of road traffic and control of refugees and stragglers.)*

      3) Tracking status of routes.*

      4) Host nation support.*

   c. **BF (23) Provide Countermobility** - Planning for and directing actions to delay, channel, or stop enemy offensive movement consistent with the commander's concept and intent by enhancing the effectiveness of friendly direct and indirect weapons systems.

   d. **BF (24) Enhance Physical Protection** - Planning for and directing actions that provide protection of friendly forces on the battlefield by enhancing the physical protection of personnel, equipment and weapons systems, and supplies.

   e. **BF (25) Provide Operations Security** - Planning for and directing action to deny information to the enemy about friendly capabilities and intentions by identifying, controlling, and protecting indicators associated with planning and conducting military operations. This BF addresses:

      1) Analysis to determine key assets and threats to them.

      2) Monitoring of implementation of OPSEC measures.

      3) Physical security measures.

      4) Signal security.

      5) Electronic security.

* Normally accomplished by units supporting the division.

f. **BF (26) Conduct Deception Operations** - Taking actions in accordance with the division's or corps' deception plan to mask the objectives of tactical operations in order to delay effective enemy reaction. This BF addresses:

1) Physical deception.

2) Electronic deception.

g. **BF (27) Provide NBC Defense** - The avoidance of contamination; the protection of people, objects or areas from chemical or biological agents by absorbing, destroying, neutralizing, or otherwise rendering harmless or removing such agents; and the removal of radioactive material. This BF addresses:

1) Decontamination of individual soldiers and equipment.

2) Decontamination of weapon systems and supplies.

3) Hasty and deliberate decontamination.

4) Avoidance of contaminated areas.

5) NBC reconnaissance.

6) NBC defensive measures.

7) NBC warning.

7. **Combat Service Support BOS** - The support, assistance, and service provided to sustain forces, primarily in the area of logistics, personnel services, and health services.

a. **BF (28) Provide Transport Services** - Planning for and directing provision or coordination for transportation which will assure sustainment support operations in support of the unit. This BF addresses:

1) Movement of cargo, equipment, and personnel by surface or air.

2) Loading, transloading, and unloading material and supplies.

3) Reporting status.

b. **BF (29) Conduct Supply Operations** - Planning for and directing provision of the items necessary to equip, maintain, and operate the force during the preparation and execution phases of the battle. This BF addresses:

1) Requesting, receiving, procuring, storing, protecting, relocating, and issuing supplies to the specific elements of the force.

2) Providing munitions to weapons systems.

3) Providing fuel and petroleum products to equipment and weapons systems.

4) Reporting status.

c. **BF (30) Provide Personnel Services** - Planning for and directing all personnel-related matters to sustain the force. This BF addresses:

1) Personnel administrative services.

a) Replacement, casualty reporting.

b) Awards and decorations.

c) Postal operations.

d) Promotions, reductions.

2) Financial services.

3) Unit ministry team operations.

4) Legal services.

5) Public affairs services.

6) Preservation of the force through safety.

7) Management of stress.

8) Reporting status.

d. **BF (31) Maintain Weapons Systems and Equipment** - Planning for and directing preservation and repair of weapons systems and equipment. This BF includes the provision of repair parts and end items to all members of the unit before, during and after the battle. Included also is doctrinal echeloning of maintenance (organization, DS, GS). This BF addresses:

1) Recovery.

2) Diagnosis, substitution, exchange, repair and return of equipment and weapons systems to the combined arms force.

3) Reporting status.

e. **BF (32) Provide Health Services** -Planning for, directing and coordinating health services regardless of location, to promote, improve, conserve or restore the mental or physical well-being of individuals or groups. This BF addresses:

1) Preventive medicine.

2) Field sanitation.

3) Mental health.

f. **BF (33) Treat and Evacuate Battlefield Casualties** - Planning for and directing the application of medical procedures on battlefield casualties beginning with "buddy aid" through treatment by trained medical personnel. The BF includes movement of casualties from the forward edge of the battlefield back to division-level medical facilities. This BF addresses:

1) Triage of battlefield casualties.

2) Treatment and movement of casualties to rear (MEDEVAC).

3) Evacuation.

4) Handling and processing the remains of soldiers who have died of wounds.

5) Reporting status.

g. **BF (34) Conduct Enemy Prisoners of War (EPW) Operations** - Planning for and directing the collection, processing, evacuation, and safeguarding of enemy prisoners of war. This BF addresses:

1) Collecting and evacuating EPW.

2) Searching, segregating, safeguarding, silencing, and rapid rearward movement of EPW.

h. **BF (35) Conduct Law and Order Operations** - Enforcing laws and regulations and maintaining of unit and personnel discipline.

i. **BF (36) Conduct Civil Affairs Operations** - Planning for, directing, and/or coordinating assigned tasks to conduct activities which encompass the relationship

between the military forces and civil authorities and the citizens in a friendly or occupied country or area when U.S. military forces are present.

j. **BF (37) Provide Sustainment Engineering** - Planning for and coordinating the actions of elements (when in the unit area), providing repair and construction of facilities and lines of communication. This BF addresses:

1) Rear area restoration.*

2) Construction and maintenance of lines of communication (roads, railroads, ports, airfields).*

3) Construction support:

a) Marshaling, distribution and storage facilities.*

b) Pipelines.*

c) Fixed facilities.*

d) Well drilling.*

e) Dismantlement of fortifications.*

k. **BF (38) Evacuate Non-combatants from Area of Operations** - Planning for and directing the unit's participation in actions to use available military and host-nation resources for the evacuation of U.S. forces, dependents, U.S. government civilian employees, and private citizens (U.S. and other). This BF addresses:

1) Medical support.

2) Transportation.

3) Security.

4) Preparation of temporary shelters.

5) Operation of clothing exchange facilities.

6) Operation of bathing facilities.

7) Graves registration.

* Normally accomplished by units supporting the division.

8) Laundry.

9) Feeding.

l. **BF (39) Provide Field Services** - Planning for and coordinating the provision of service logistics functions by CSS elements*. This BF addresses:

1) Clothing exchange.

2) Shower facilities.

3) Graves registration.

4) Laundry and clothes renovation.

5) Bakeries.

6) Feeding (rations supply, kitchens).

7) Salvage.

* Normally accomplished by units supporting the division.

## Appendix C

## BFs LISTED BY ECHELON

This component depicts the identification of BFs to the echelon/type unit based on previous research and analysis.

| INTELLIGENCE BOS | | Bn TF | Bde | FA Bn | Eng Bn | FS Bn | ADA Btry |
|---|---|---|---|---|---|---|---|
| (1) | Conduct Intelligence Planning | X | X | X | X | X | |
| (2) | Collect Information | X | X | X | X | X | X |
| (3) | Process Information | X | X | X | X | X | X |
| (4) | Disseminate Information | X | X | X | X | X | X |

| MANEUVER BOS | | Bn TF | Bde | FA Bn | Eng Bn | FS Bn | ADA Btry |
|---|---|---|---|---|---|---|---|
| (5) | Conduct Tactical Movement | X | X | X | X | X | X |
| (6) | Engage the Enemy with Direct Fire and Maneuver | X | X[1] | | | | |

| FIRE SUPPORT BOS | | Bn TF | Bde | FA Bn | Eng Bn | FS Bn | ADA Btry |
|---|---|---|---|---|---|---|---|
| (7) | Employ Mortars | X | X | | | | |
| (8) | Employ Field Artillery | X | X | X | X | X | X |
| (9) | Employ Close Air Support | X | X | | | | |

[1] BF 6, as defined, concerns how units will engage the enemy through maneuver and direct fires. The function is performed by the element directly controlling the direct fire systems. Initial analysis indicates that this is accomplished by maneuver battalions, such as a mechanized infantry or armor Bn TF, and attack helicopter battalions. The brigade commander and brigade staff's involvement in the engagement of the enemy is through direction of the subordinate battalions. Hence, the brigade's control is not direct to the systems involved. Therefore, the brigade involvement is described within the context of BF 18, 19, and 20. Further analysis is required.

| **FIRE SUPPORT BOS** (cont.) | Bn TF | Bde | FA Bn | Eng Bn | FS Bn | ADA Btry |
|---|---|---|---|---|---|---|
| (10) Conduct Electronic Collection and Jamming[2] | | | | | | |
| (11) Conduct Battlefield Psychological Operations | | | | | | |
| ~~(12) Employ Chemical Weapons~~ [3] | | | | | | |
| (13) Conduct Counter Target Acquisition Operations | | | X | | | |
| (14) Employ Naval Surface Fires | X | X | | | | |
| (15) Coordinate, Synchronize, and Integrate Fire Support | X | X | X | X | X | |

| **AIR DEFENSE BOS** | Bn TF | Bde | FA Bn | Eng Bn | FS Bn | ADA Btry |
|---|---|---|---|---|---|---|
| (16) Take Active Air Defense Measures | X | X | | | | X |
| (17) Take Passive Air Defense Measures | X | X | X | X | X | X |

| **COMMAND AND CONTROL BOS** | Bn TF | Bde | FA Bn | Eng Bn | FS Bn | ADA Btry[4] |
|---|---|---|---|---|---|---|
| (18) Plan for Combat Operations | X | X | X | X | X | |
| (19) Direct and Lead Units During Preparation for Battle | X | X | X | X | X | |
| (20) Direct and Lead Units in Execution of Battle | X | X | X | X | X | |

[2] Title and focus change to "Conduct electronic collection and electronic attack" are presently under consideration.
[3] Although U.S. national policy has renounced the use of chemical weapons, this BF is retained because it is a function which could be performed by other nations.
[4] The battle phases of plan, prepare, and execute are inherent to the ADA battery's performance of BF 16, Take Active Air Defense Measures.

| MOBILITY AND SURVIVABILITY BOS | Bn TF | Bde | FA Bn | Eng Bn | FS Bn | ADA Btry |
|---|---|---|---|---|---|---|
| (21) Overcome Obstacles | X | X | | X | | |
| (22) Enhance Movement | | | | X | | |
| (23) Provide Countermobility | X | X | | X | | |
| (24) Enhance Physical Protection | X | X | X | X | X | X |
| (25) Provide Operations Security | X | X | X | X | X | X |
| (26) Conduct Deception Operations | | | | | | |
| (27) Provide NBC Defense | X | X | X | X | X | X |

| COMBAT SERVICE SUPPORT BOS | Bn TF | Bde | FA Bn | Eng Bn | FS Bn | ADA Btry |
|---|---|---|---|---|---|---|
| (28) Provide Transport Services | X | X | X | X | X | |
| (29) Conduct Supply Operations | X | X | X | X | X | X |
| (30) Provide Personnel Services | X | X | X | X | X | |
| (31) Maintain Weapons Systems and Equipment | X | X | X | X | X | X |
| (32) Provide Health Services | | X | | | X | |
| (33) Treat and Evacuate Battlefield Casualties | X | X | X | X | X | X |
| (34) Conduct Enemy Prisoner of War Operations | | X | | | X | |
| (35) Conduct Law and Order Operations | | | | | | |
| (36) Conduct Civil Affairs Operations | | | | | | |
| (37) Provide Sustainment Engineering | | | | | | |
| (38) Evacuate Non-combatants from Area of Operations | | | | | | |
| (39) Provide Field Services | | | | | X | |

## Appendix D

## USER'S GUIDE

This component is designed to facilitate use of the function analysis. The examples are based on the function analysis (FA) of BF 18--Plan for Combat Operations--as performed by the heavy brigade.

### Section 1 - Background on Functional Approach to Training and Battlefield Functions

Given the task-based nature of Army training, the tools for identifying, structuring, and organizing tasks critical for combat effectiveness are essential to realizing goals of Army training for the 21st century. Providing such tools has been a persistent effort in structuring assessment and planning of collective training. Army Training and Evaluation Program Mission Training Plans (ARTEP-MTPs), which list tasks by mission, represent one approach to provide that structure. A complementary approach has emerged in the use of functional areas.

Several initiatives have considered tasks in relation to functional areas rather than missions. One such approach was adopted at the Combat Training Centers (CTCs). The specific approach developed in the mid-1970s used Battlefield Operating Systems (BOSs) as the framework for after action reviews (AARs) and take home packages. The BOSs are seven functional areas which encompass tactical operations.

In addition, to enhance the utility of the BOS structure, the U.S. Army Training and Doctrine Command (TRADOC) developed the Blueprint of the Battlefield. That work used the BOS structure as a framework to describe the tactical level of war in terms of operating systems, functions, and generic tasks. While the functional hierarchy in the Blueprint of the Battlefield provided finer granularity than the BOS, the Blueprint of the Battlefield did not represent battlefield processes, critical sequences of events, procedural steps, and many of the tasks that must be accomplished.

This research product is part of an effort to improve further the functional structure for planning and assessing collective training through the identification and analysis of Battlefield Functions (BFs). Like the Blueprint of the Battlefield, the BFs orient on functions (activities and processes that occur over time) while retaining granularity that supports task-based training. The BF analyses extend the Blueprint of the Battlefield in two ways:

- Identify relationships among BOSs, tasks, echelons, and people required to achieve identified outcomes, thus improving representation of battlefield processes and sequences of events.
- Provide explicit ties to tasks derived from ARTEP-MTPs and doctrine, tactics, techniques, and procedures described in doctrinal manuals, applied at CTCs, or identified by experienced field commanders, thus improving representation of procedural steps and tasks that must be accomplished.

FAs of BFs have been conducted at a level of detail that supports a functional approach to training. The functional approach uses battlefield functions performed by units as the basis for assessing proficiency and planning training. The BF FAs provide content and a framework to apply the functional approach to training. Thirty-nine (39) BFs (Appendix A) are relevant to tactical operations at echelons from battalion through corps. Association of specific BFs to particular type units indicates that those BFs are germane to the unit's training program.

## Section 2 - Overview of Components to a BF Function Analysis

The BF FA conducted as part of this project (Innovative Tools and Techniques for Brigade and Below Staff Training (ITTBBST)) contains seventeen (17) components including this User's Guide. The components allow BF FA users the capability to use the BF FA for a variety of purposes, some of which are described in Section 3 below. The title and a brief description of each BF FA component follow.

Preface: Information is provided concerning the presentation of the BF FA components, the table of organization and equipment (TO&E) of the type unit for which the BF FA is relevant, and the context in which the FA was developed. The information provides an overview of the analytical approach used for the FA.

Purpose and Outcomes: The overall end result which the BF is supposed to accomplish, termed the purpose, is identified. This component also identifies the endstates or bottom line results necessary to achieve the purpose, termed outcomes.

Flow Charts by Battle Phase (Plan, Prepare, Execute): This graphical description portrays the sequence of BF tasks within the framework of tactical battle phases (i.e., planning, preparation, execution). This component describes the flow of tasks during each battle phase, the vertical task linkages (to higher and lower echelon units), and horizontal linkages to other BFs for the echelon being analyzed. It also depicts information flow which affects the tasks.

Task Linkages to Other BFs/Units: Tasks performed in other BFs or by other units are described as they relate (i.e., are linked) to the tasks of the BF being analyzed. These descriptions provide verbal details of the relationships portrayed graphically by the Flow Charts. The purpose of this component is to allow the user to incorporate related tasks and participants into a training exercise for this BF. Tasks which link to this analysis have been extracted for BFs or units for which FAs have been accomplished and extrapolated for FAs which have not yet been developed.

Key Participants by Task: The participants required to perform the tasks are identified. Identification is based on the appropriate echelon/type unit TO&E. It includes special staff members who are critical for task accomplishment.

Key Inputs and Outputs: The critical information required and generated by participants to successfully accomplish the BF is identified. Where information results from the performance of the BF tasks, BF information output is identified. One BF's information output normally is provided as another BF's input. Critical input and output are organized by the specific part of the doctrinal product or means used to communicate it. The source of critical information is specific only to the BF echelon and function being analyzed, and is not intended to reflect all the information the product may contain. The linkages of inputs and outputs to specific tasks are depicted in the Flow Charts component.

Task List Summary: The tasks which are described in detail in the Task List are summarized and numbered. The numbers allow cross referencing among BF FA components.

Task Lists: Tasks and supporting tasks necessary to perform the function are listed by battle phase. Normally, the task identifies the primary participants responsible for performing the tasks. The tasks have been extracted from the appropriate ARTEP-MTPs, echelon and functional area field manuals (FMs), and proponent school special texts. The specific sources of references for each task and subtask are shown in brackets [ ] following the task. Tasks derived from ARTEP-MTPs are referenced with the ARTEP-MTP number and task number, such as [ARTEP 5-145-MTP, Task 05-1-0002/1]. Tasks derived from FMs are referenced with the FM number and page number, such as [FM 5-71-3, p. 2-11]. Tasks identified during interviews with TRADOC school proponent subject matter experts (SMEs), CTC Operations Groups, and Army Forces Command units are referenced as field notes (FN) and the source is reflected, such as [FN-NTC CSS OCs]. Tasks derived from the Center for Army Lessons Learned (CALL) are referenced with the notation LL for lessons learned; the CALL publication number and page number are included, such as [LL-CALL Newsletter 95-6, p. 16]. In some cases, the analysis of the BF resulted in identification of tasks for which no doctrinal references could be identified. Such tasks were selected based on author experience and relevant doctrine. These tasks are referenced as author notes [AN]. The references facilitate review of original source material for further detail and context.

Tasks Organized by Outcomes: Tasks and supporting tasks necessary to perform the function are listed by outcome. The component supports analysis of performance related to outcomes to identify tasks for sustainment or remediation training.

Lessons Learned Integrated into the Task List: The lessons learned extracted from the CALL publications relevant to performing this BF are identified. They are organized and listed by the appropriate task from the Task List component. The purpose of this component is to provide the user with recent tactics, techniques, and procedures (TTP) associated with the performance of the tasks in this BF.

Gate Tasks: Critical individual or collective tasks which BF participants must be able to perform prior to engaging in the identified BF tasks are listed so that the training can be conducted efficiently and safely.

References: The references and sources used by the analyst are identified.

Index of Battlefield Functions: The thirty-nine (39) BFs relevant to Army tactical echelon units, organized by the BOS they compose, as derived from TRADOC Pamphlet 11-9, Blueprint of the Battlefield, are identified.

Structure of Battlefield Functions: Definitions for the 39 BFs and BOSs they compose are provided.

BFs Listed by Echelon: The occurrences of BFs relevant to training according to echelon/type units are listed. This list is subject to change as research into the relevance of functions continues.

Acronyms and Abbreviations: The acronyms and abbreviations used in the analysis are listed. The acronyms and abbreviations were taken from relevant doctrinal references.

User's Guide: Descriptions are provided of the background of BFs and the Functional Approach to training (Section 1), the components of a BF FA (in this section), and approaches to exploit the flexibility of the BF FA to support multiple Army uses and users (Section 3).

**Section 3 - Use of the BF Function Analysis**

The analysis of a function contained in each BF FA can support a variety of purposes. General purposes and information needs will be suggested for force developers, materiel developers, doctrine developers, training developers, and unit commanders.

- Force Developers: Develop personnel systems and organizational structures to support the force. Purpose and Outcomes and Task Lists components, for example, could support identification of required capabilities and tasks that a particular unit or organization must be able to perform. The Flow Charts component could support delineation of a new organizational design.

- Materiel Developers: Develop requirements for new systems to ease performance activities of soldiers and to accomplish new battlefield requirements. Through the identification of requirements, new technologies and processes can be applied to support force needs. The Flow Charts component, for example, could be used to illustrate opportunities to revise procedures to take advantage of enhancements in areas such as information dissemination.

- Doctrine Developers: Develop new and modify existing doctrine to integrate emerging technologies and to implement changing Army missions and priorities. TTP will evolve to meet new battlefield conditions and requirements as well as to guide combined arms, joint service, and multinational operations. The emphasis in BF FAs on interrelationships can identify gaps in task coverage which should be addressed through revisions to publications such as ARTEP-MTPs.

- Training Developers: Develop new and modify existing training programs to support new doctrine, emerging technologies, changes in organization, and reduced resources and training environments. Potential uses of a BF FA to support areas such as development of training support packages (TSP) and development of training aids, devices, simulators, and simulations (TADSS) are discussed in Section 4.

- Unit Commanders: Assess training effectiveness, develop training plans, and execute training. BF FA support for training assessment and planning training events is discussed in Section 4.

Developers and commanders often begin by performing or examining one or more front end analyses (FEAs) to gain an understanding of a relevant issue. Whether they perform FEAs themselves or draw from available analyses (like the BF FAs), information is sought on many topics. Likely topics include the following (with relevant BF FA components):

- What are the objectives/missions of the system? (Purpose and Outcomes)

- What are the vertical and horizontal linkages between elements, and what are the information inputs and outputs associated with these? (Flow Charts, Tasks Linked to Other BFs/Units, and Key Inputs and Outputs)

- What are the processes and tasks being performed within each element? (Task Lists, Tasks Organized by Outcomes, and Flow Charts)

- Who are the players and/or target audience? (Key Participants by Task)

- What enabling and objective knowledge and skills are required? (Gate Tasks)

- Are there any experiences and lessons learned that would be helpful? (Task Lists and Lessons Learned Integrated into the Task List)

Two detailed examples of BF FA usage are presented in Section 4 below. These examples demonstrate, first, how unit commanders and, second, how training developers can use BF FAs. The examples should serve as a guide for potential BF FA users in that generic information within the BF FAs is transferable to the other applications.

## Section 4 - Unit Commander and Training Developer Use of a BF Task Analysis

### Unit Commanders

Unit commanders use published Army doctrine as contained in FM 25-100, Training the Force, and FM 25-101, Battle Focused Training to assess training effectiveness and to plan training events. The BF FAs provide relevant information for assessment and planning within the intent of those documents. The added information supports functional training which uses proficiency related to functions as the basis for identifying tasks to be trained and structuring training on those tasks. The BF FAs supplement the training and assessment systems and processes already in use by commanders.

#### 1. Conduct Training Assessment

The commander assesses the mission essential task list (METL) to identify functions that require attention, to select outcomes for training focus, and to provide specific guidance for training. This functional training assessment allows the commander to perform an analysis across several layers with a successively narrow focus:

a. METL tasks.

b. Each BOS for each METL task that requires remediation or sustainment.

c. Relevant BFs for each BOS that requires remediation or sustainment.

d. Relevant outcomes for each BF that requires remediation or sustainment.

The commander assesses BF performance in the context of the unit METL and the BOS by using the Purpose and Outcomes component. To support the assessment, commanders could develop and complete a worksheet which relates BFs and the outcomes to the METL and BOS, as depicted in Figure 1, which presents a completed assessment worksheet for BF 18.

BF 18 Outcomes (extracted from the function analysis):

1. Complete, concise, feasible, suitable, acceptable, and tactically sound brigade orders that conform to doctrinal standards are issued.
2. Brigade orders are received in no more than 1/3 of the available time and understood by key participants and subordinates.
3. Sufficient hard copies of the brigade order and all key accompanying documents are provided to key personnel in accordance with TSOP.
4. Brigade operations, command, and control continue during planning process.

<table>
<tr><td rowspan="5">Mission Essential Tasks</td><td colspan="5">CURRENT TRAINING STATUS</td><td>Overall METL Status</td></tr>
<tr><td colspan="5">BOS: Command and Control</td><td rowspan="3"></td></tr>
<tr><td colspan="5">BF: 18- Plan for Combat Operations</td></tr>
<tr><td>Outcomes</td><td>1</td><td>2</td><td>3</td><td>4</td></tr>
<tr><td rowspan="2"></td><td>P</td><td>P</td><td>T</td><td>P</td><td>P</td></tr>
<tr><td>Defend</td><td colspan="5"><u>Outcome 1</u>: OPORD generally very good; need more detail on control measures (excessive risk of fratricide).<br><u>Outcome 2</u>: Too slow getting information to supporting battalions--FSB especially needs support requirements earlier.<br><u>Outcome 3</u>: Dissemination is very smooth.<br><u>Outcome 4</u>: Weak communications between main CP and adjacent units.</td></tr>
<tr><td rowspan="2">Attack; Movement to Contact</td><td></td><td>P</td><td>U</td><td>T</td><td>P</td><td>P</td></tr>
<tr><td colspan="5"><u>Outcome 1</u>: Accuracy of graphics questionable--MCOO inaccurate or unclear--not sure which, may be both.<br><u>Outcome 2</u>: Adjacent units never received initial WARNO.<br><u>Outcome 3</u>: OPORD distribution continued to be a strength.<br><u>Outcome 4</u>: Rear CP: SITMAP and information displays of tactical situation were not current.</td></tr>
<tr><td colspan="4">Overall BF Status: BF 18 = P</td><td colspan="2">BOS Status = P</td></tr>
</table>

Note: Italics indicate entries made by hypothetical commander.

Figure D-1. Assessment worksheet for heavy brigade performance of BF 18.

## 2. Plan Training Events

The BF FA supports four steps related to planning a training event. The use of BF FAs to perform each of these tasks is described below.

### a. Selecting Tasks and Supporting Tasks To Be Trained

1) Selection of tasks by outcome or battle phase. When the training assessment identifies outcomes to be achieved, trainers can focus their attention on particular tasks that support the outcome. This process can be streamlined by referring to the Tasks Organized by Outcomes component of a BF FA. The tasks relevant to each outcomes for the BF 18 FA are shown in Figure 2. While many of the tasks are required by more than one outcome, the supporting tasks will usually vary between the outcomes.

If trainers have no basis for identifying an outcome within the BF or if the training is to focus on a single battle phase, they can select tasks from the Task List Summary component. For most BFs, this component is organized by the battle phases--plan, prepare, and execute--supported by the Flow Chart. The exceptions to that organization are BFs 1 through 4, which cover the Intelligence BOS, and BFs 18 through 20, which cover the command and control BOS by battle phase. The Intelligence BFs reflect the continuous nature of the intelligence cycle.

BF 18 Outcomes (OC):

1. Complete, concise, feasible, suitable, acceptable, and tactically sound brigade orders that conform to doctrinal standards are issued.
2. Brigade orders are received in no more than 1/3 of the available time and understood by key participants and subordinates.
3. Sufficient hard copies of the brigade order and all key accompanying documents are provided to key personnel in accordance with TSOP.
4. Brigade operations, command, and control continue during planning process.

| Tasks (from the Task List) | OC 1 | OC 2 | OC 3 | OC 4 |
|---|---|---|---|---|
| 1. The brigade commander and staff direct and lead the brigade during planning for the battle. | | | | X |
| 2. The brigade receives an order initiating a new mission from higher headquarters. | X | X | | |
| 3. The brigade commander and staff conduct mission analysis. | X | X | | |
| 4. The brigade executive officer directs the staff in the preparation and issuance of a brigade warning order. | X | | | |
| 5. The brigade commander issues initial planning guidance. | X | X | | |
| 6. The brigade commander and staff prepare estimates. | X | | | |
| 7. The brigade commander and staff develop course(s) of action. | X | | | |
| 8. The brigade commander and staff analyze course(s) of action. | X | | | |
| 9. The brigade staff compares course(s) of action. | X | | | |
| 10. The brigade commander announces decision. | X | | | |
| 11. The brigade staff prepares the operations order. | X | X | X | |
| 12. The brigade commander and staff issue the operations order. | X | X | X | |

Figure D-2. Overview of tasks by outcomes for BF 18 FA.

2) Selection of supporting tasks. Trainers must also select supporting tasks. Supporting tasks are blocks of performance required by the task. Each task and supporting task is structured to describe actions to be performed (e.g., steps) or the end states of the task (i.e., aspects of the standard). The detailed description for each task and supporting task is contained in the Task List component. An excerpt from that component of the BF 18 FA is shown in Figure 3.

5. **The brigade commander issues initial planning guidance.** [FM 101-5, Chap 4, p. 4-15]

a. The brigade commander develops planning guidance: [FM 101-5, p. 4-16; FM 71-3, p. 3-3]

1) Using the results of his own mission analysis and his METT-T assessment. [FM 101-5, p. 4-16]

2) Using the results of the brigade staff's mission analysis. [FM 6-20-40, p. 2-1; FM 6-20-50, p. 2-1; FM 6-20-10, p. 1-5; FN-JRTC; FN-194 AR]

b. The brigade XO prepares the brigade staff to receive the brigade commander's guidance. [FM 101-5, p. 4-15; ARTEP 71-3 MTP, Task 71-3-0001/2]

1) Determines who must be present at the commander's guidance briefing, if not SOP (e.g., engineer battalion Cdr, FSCOORD, MP platoon leader).

2) Ensures staff is prepared to take notes on guidance issued (depending on the level of detail and specificity of guidance).

c. The brigade commander issues planning guidance to the brigade staff, which may include: [FM 101-5, p. 4-17; FM 6-20-40, p. 2-1, 2-3; FM 6-20-50, p. 2-1, 2-3; FM 6-20-10, p. 1-7; ARTEP 71-3 MTP, Task 71-3-0001/3]

1) Enemy COA. [FM 101-5, p. 4-17]

2) Restated mission. [FM 101-5, p. 4-18]

Figure D-3. Example of supporting tasks extracted from the Task List of BF 18 FA.

3) Identification of references. As Figure 3 also illustrates, the doctrinal source (publication number and task number or page number), in brackets, is included with the listing of each task and supporting task. Trainers can refer to the References component to determine the doctrinal publication title and publication date. They can then refer to doctrinal source material for further detail and context, if desired. Figure 4 provides examples taken from the References component of BF 18.

**Field Manuals (FMs)**

| | |
|---|---|
| 6-20-40 | Tactics, Techniques, and Procedures for Fire Support for Brigade Operations (Heavy), January 1990 |
| 6-20-50 | Tactics, Techniques, and Procedures for Fire Support for Brigade Operations (Light), January 1990 |
| 71-3 | The Armored and Mechanized Infantry Brigade - January 1996 |
| 101-5 | Command and Control for Commanders and Staff (Draft), August 1993 |

**Army Training and Evaluation Program (ARTEPs)**

| | |
|---|---|
| 71-3 MTP | Mission Training Plan for the Heavy Brigade Command Group and Staff, April 1988 |

Figure D-4. Excerpt from References component of BF 18 FA.

4) Identification of techniques and useful training information. As part of the task selection process and the planning of the training event, trainers can refer to the Lessons Learned component. This component identifies lessons learned extracted from the CALL publications. This component also provides information not necessarily contained in the applicable doctrinal references but determined to be relevant to training of the function based on performance history of brigades at the CTCs. In other cases, lessons learned at CTCs may provide a clearer definition of how tasks should be performed and the conditions under which they must be performed. An excerpt from that component of the BF 18 FA is shown in Figure 5.

| |
|---|
| 5. **The brigade commander issues initial planning guidance.**<br><br>LL - Determine the amount of planning guidance the staff requires to develop the plan. [CALL Newsletter No. 93-3: The Battalion and Brigade Battle Staff - Jul 93, p. 9]<br>LL - Do not suppress the staff's ability to plan by providing excessive planning guidance. [CALL Newsletter No. 93-3: The Battalion and Brigade Battle Staff - Jul 93, p. 9]<br>LL - Sketch the initial concept of the operation for the staff. [CALL Newsletter No. 93-3: The Battalion and Brigade Battle Staff - Jul 93, p. 9] |

Figure D-5. Excerpt from Lessons Learned Integrated into the Task List component of BF 18 FA.

b. Selecting the Training Audience. After determining which tasks must be trained, trainers should next identify the training audience. The Key Participants by Task component of the BF FA supports that analysis. This component, based on the unit's TO&E, specifies the participants required to perform the tasks selected for training. One potential result of this review is that trainers may have to coordinate (through the appropriate commanders) with external units to have a specific special staff member participate in the training event. Figure 6 depicts an example of that component of the BF 18 FA.

| |
|---|
| **Tasks**<br>5. **The brigade commander issues initial planning guidance.**<br><br>**Participants**<br>Bde Cdr, Bde XO, Bde CSM, Bde S2, DS MI Co Cdr, Bde S3, Bde S3-Air, Bde S3 Ops Sgt, CMLO, FSCOORD, FSO, Engr Bn Cdr, ABE, ADLO, AVLO, ALO, Bde S1, Bde Chaplain, Bde Surgeon, MP Plt Ldr, Bde S4, BSO, Bde HQ Co Cmdt, Bde S5 (if assigned) |

Figure D-6. Excerpt from Key Participants by Task component of BF 18.

c. Identifying Task Training Sequences and Products To Support Training. Unit trainers must also decide which products and information sources must be replicated or emulated to introduce external stimuli to the training events. The Flow Charts and Key Inputs and Outputs components help determine that information.

The flow charts are used to determine: (a) the flow of tasks during each battle phase; (b) vertical task linkages (to higher and lower echelon units); (c) horizontal task linkages (to tasks in other BFs for the echelon being analyzed); and (d) information input and output which affect relevant tasks. The flow charts provide a graphical description of tasks as they are sequenced within the framework of the battle phases. Although the sequencing of tasks throughout each battle phase is intended to reflect the flow of tasks, tasks may be performed concurrently or may interact with preceding or subsequent tasks.

The Inputs section of the Key Inputs and Outputs component contains critical information, organized by the doctrinal product or means used to communicate it, required by participants to achieve the purpose of the BF. The information and products described must be replicated to drive training events. The Lessons Learned Integrated into the Task List component can also support identification of conditions to be replicated.

The Outputs section of the Key Inputs and Outputs component describes information which results from the performance of the BF tasks. The Outputs should be covered by performance standards and should usually be covered during the after action review (AAR). An excerpt from the Key Inputs and Outputs component of the BF 18 FA is shown in Figure 7.

**KEY INPUTS**

**D - 4** **GUIDANCE AND INFORMATION FROM THE DIVISION COMMANDER AND STAFF.**

a. Division commanders verbal or written guidance.
b. Operational situation reports (OPSITREPs).
c. Periodic personnel report (PPREPT).
d. Periodic intelligence report (PERINTREP).
e. Periodic operation report (PEROPRPT).
f. Periodic logistics report (PERLOGRPT).
g. Periodic civil affairs report (PERCARPT).
h. Engineer reports.
i. Field artillery reports.
j. Air defense artillery reports.
k. Other reports of planning or critical combat information of interest to the brigades.

**KEY OUTPUTS**

**Bde - 3** **BRIGADE WARNING ORDER**

a. Mission, intent, and CCIR of brigade commander.
b. Graphics.
c. Types of fire support munitions available, including CSR and RSR.
d. Enemy situation.
e. Assets available for collection of information and intelligence.
f. Task organization.

Figure D-7. Excerpt from Key Inputs and Outputs component of BF 18 FA.

d. Determining Prerequisite Training Tasks. If units are to obtain full benefit from training, participants must have previously achieved a level of proficiency in the individual and collective tasks required to enable safe and effective training of the selected tasks. Identification of such prerequisite tasks is accomplished by analyzing the Gate Tasks component. Trainers use this information to provide focus for individual training, subordinate echelon collective training, and staff training. An excerpt from the Gate Tasks component for the BF 1 FA contained in this research product is shown in Figure 9.

**5.The brigade commander issues initial planning guidance.**

**S2**

[STP 34-35II-MQS, Intelligence]

- Conduct situation development [01-3381.01-4016].

**Officer Common Tasks:**

[STP 21-II-MQS, Common Tasks]

- Brief to Inform, Persuade, or Direct [01-9007.01-0250]
- Communicate effectively as a commander or staff officer [03-9001.12-0003]

**NCO Common Tasks for: All Primary and Special Staff NCOs**

[STP 21-24-SMCT, Common tasks]

- Prepare situation report [SITREP] [071-332-5022].
- Prepare a strip map [551-721-3359].
- Prepare an operation overlay [071-332-5000/ 71-3-3002[2] MTP 71-3].
- Conduct operations security [OPSEC] procedures [113-573-0002].
- Integrate risk management into mission [850-001-4001].

[ARTEP 71-3-MTP]

- Perform duties in a tactical operations center or admin/log command post [7-1-3904/3036].
- Analyze tactical mission statement [ARTEP 71-3 MTP, Task 71-3-3001].
- Prepare plans/orders/annexes IN ACCORDANCE WITH FM's 71-2 and 101-5 [7-1-3904[9] / 71-3-3002].
- Prepare operational journals [ARTEP 71-3 MTP, Task 71-3-2006[2]].
- Advise and assist staff on elements of BOS that support/impact their staff function [ARTEP 71-3 MTP, Task 71-3-0001].
- Maintain the current situation (71-3-3003).

Figure D-8. Excerpt from Gate Tasks component of BF 18 FA.

**Training Developers**

The TRADOC service schools (proponents) develop training materials to guide individual and collective training. Training development is conducted within the framework of the systems approach to training. The BF FAs support the systems approach for collective training by identifying not only the tasks for each type of unit, but also horizontal and vertical relationships within each BOS, relationships among BOS, and relevant details about the relationships. The descriptions of interrelationships, which describe the scope of required synchronization plus details about tasks and supporting tasks, provide training developers with information about the content of training which they are supporting.

Within TRADOC, current training development supports Force XXI. The BF FAs are especially germane to the WARFIGHTER XXI (collective) emphasis. The information in each BF FA can be applied within each of the five WARFIGHTER XXI components:

- Standard Army Training System (SATS)
- TSPs
- TADSS
- Standard After Action Review System (STAARS)
- Army Training Digital Library (ATDL)

### 1. Standard Army Training System

The SATS is a computer-based software system that automates training management doctrine. The most direct connection of BF FAs to SATS is through the Combined Arms Training Strategy (CATS). This is the mechanism for establishing long-range and short-range unit training strategies. Each CATS identifies tasks, drills and exercises, TADSS, and resources to support training for each unit type. The BF FA components help developers identify tasks to be addressed by the strategy; the FAs are especially useful for identifying staff tasks that are not currently included in ARTEP-MTPs. In addition, BF FAs directly support two elements of the CATS--Training Unit Audience and Prerequisite Training Gates. Training developers can extract information about the audience for training from the Key Participants by Task component. They can find prerequisites for the tasks in the Gate Tasks component. Figure 9 shows extracts from the CATS for the Armor Battalion Task Force that were based on the BF FAs for the battalion task force.

| **Training Unit Audience** | **Prerequisite Training Gates** |
|---|---|
| MOVEMENT TO CONTACT | |
| Full TF, including Slice (includes FSO/FSE, CEWI Assets, Engineer, ADA, TACP, TF Combat/Field Trains (BSA)) | **TF Command Posts, Staff and Slice (Attached units, staff elements, and LNOs)** - Assessed at "T" level task proficiency in the performance of BOS functions and supporting tasks: 7-1-3003, 4, 5, 6, 7, 8, 9, 14, 15, 18, 19, 21, 22, 23 24, 27. . . |

Figure D-9. Extract from CATS for battalion task force.

### 2. Training Support Packages

A TSP for collective training integrates training products, materials, and information necessary to train one or more tasks. The BF FAs support development of unit preparation materials, tactical materials, and trainer materials. Examples of how the components can contribute to development of TSPs include:

- The Task Lists component or Tasks Organized by Outcomes component can be a useful first draft for a training and evaluation outline. Since both lists may include tasks that are not explicitly described in ARTEP-MTPs, they are especially valuable in designing staff training.
- Training developers can augment the training and evaluation outline by providing tactics, techniques, and procedures drawn from Lessons Learned Integrated into the Task List component.
- Several components work together to specify conditions that must be replicated for realistic training. The Flow Charts and Key Participants by Task components show the type of horizontal and vertical interactions that should be built into the scenario. The Task Lists and Key Inputs and Outputs components describe the scope of those interactions. The inputs and outputs can be especially useful in packaging required information to train particular tasks.
- In addition to setting out the conditions, the Purpose and Outcomes and Key Inputs and Outputs components can be the basis for building "A Way" demonstrations of how the various units, sections, and individuals are synchronized during the operation and what results the event/exercise should produce.
- The Purpose and Outcomes component can be a guide for organizing an AAR. Once an OC identifies an outcome to be sustained or improved, the Tasks Organized by Outcomes component can be used to identify particular tasks and supporting tasks to address in the AAR.

### 3. Training Aids, Devices, Simulators, and Simulations

BF FAs support TADSS development by defining requirements in terms of tasks which should be performed. In other words, the BF FAs describe the "what" of training so that TADSS developers can develop the "how." The FAs are especially valuable for specifying interactions between echelons and among units. Three components give such information: Flow Charts, Tasks Linked to Other BFs/Units, and Key Participants by Task.

### 4. Standard After Action Review System

The STAARS will be linked to live, virtual, and constructive exercises and operations with the intent of translating lessons learned into leader development and collective training concepts,

methods, and strategies. Since BF FAs structure assessments at successively precise levels (mission, BOS, BF, outcome, and task), they would be well suited to an automated feedback system. The BF FAs can also provide a useful level for aggregating CTC-based lessons learned between the task and BOS levels. In the same way that the Purpose and Outcomes component can facilitate AARs by CTC OCs, the information in that component can structure lessons learned.

### 5. Army Training Digital Library

The ATDL is a repository of digital information related to training. BF FAs are compatible with ATDL formats and some FAs have been partially formatted into the Automated Systems Approach to Training. ATDL makes it possible to share the information from BF FA components with commanders in the field through the interactive electronic "library without walls" that provides digitized access to training information. In addition, the BF and outcome structure could be useful in organizing task-related information within ATDL.

## Appendix E

## ACRONYMS AND ABBREVIATIONS

This component identifies the acronyms used by the authors in the function analysis. Acronyms were derived from relevant doctrinal publications.

| | |
|---|---|
| 1SG | first sergeant |
| 2IC | second in command |
| A2C2 | Army airspace command and control |
| AAR | after-action review |
| ABCS | Army battle command system |
| ABE | assistant brigade engineer |
| AD | air defense |
| ADA | air defense artillery |
| ADC | area damage control |
| ADLO | air defense liaison officer |
| ADW | air defense warning |
| AGM | attack-guidance matrix |
| AI | air interdiction |
| ALO | air liaison officer |
| AN | author note |
| AO | area of operations |
| ARI | Army Research Institute |
| ARTEP | Army Training and Evaluation Program |

| | |
|---|---|
| ASP | ammunition supply point |
| ASR | alternate supply route |
| ATDL | Army Training Digital Library |
| ATO | air tasking order |
| ATP | ammunition transfer point |
| AVLO | aviation liaison officer |
| AXP | ambulance exchange point |
| BCBL | Battle Command Battle Laboratory |
| BCC | battlefield circulation control |
| Bde | brigade |
| BDFA | basic daily food allowance |
| BF | battlefield function |
| BFV | Bradley Fighting Vehicle (M2/M3) |
| BMO | battalion maintenance officer |
| BMT | battalion maintenance technician |
| Bn | battalion |
| BOS | battlefield operating system(s) |
| BSA | brigade support area |
| BSO | battalion support operations |
| BSFV | Bradley Stinger fighting vehicle |
| C2 | command and control |

| | |
|---|---|
| C2W | command and control warfare |
| CALL | Center for Army Lessons Learned |
| CAS | close air support |
| CATS | Combined Arms Training Strategy |
| CCF | critical combat function(s) |
| CCIR | commander's critical information requirements |
| Cdr | commander |
| CEB | clothing exchange and bath |
| CEOI | communications electronics operating instructions |
| CEWI | combat electronic warfare and intelligence |
| CGSC | Command and General Staff College |
| CHS | combat health support |
| CI | counterintelligence |
| CL | class |
| CL I | subsistence items |
| CL II | individual equipment, clothing, tool sets, house keeping supplies |
| CL III | petroleum, oils, lubricants |
| CL IV | construction and barrier material |
| CL V | ammunition |
| CL VII | major end items |
| CL VIII | medical material |
| CL IX | repair parts and components |

| | |
|---|---|
| Cmdt | commandant |
| CMLO | chemical officer |
| CMO | civil-military operations |
| Co | company |
| COA | course of action |
| commo | communications |
| COMSEC | communications security |
| COSCOM | corps support command |
| CP | command post |
| CSM | command sergeant major |
| CSR | controlled supply rate |
| CSS | combat service support |
| CTC | combat training center |
| | |
| DA | Department of the Army |
| DF | direction finding |
| DISCOM | division support command |
| DIVEN | division engineer |
| DP | decision point |
| DS | direct support |
| DST | decision support template |
| DTDD | Directorate of Training Doctrine and Development |

| | |
|---|---|
| DTTP | doctrine, tactics, techniques, and procedures |
| EAC | echelons above corps |
| EBA | engineer battlefield assessment |
| EC | electronic combat |
| EEFI | essential elements of friendly information |
| EMP | electromagnetic pulse |
| Engr | engineer |
| EPW | enemy prisoner(s) of war |
| EW | electronic warfare |
| FA | field artillery; function analysis |
| FCT | firepower control team |
| FDC | fire direction center |
| FEA | front end analysis |
| FFIR | friendly forces information requirements |
| FIST | fire support team |
| FM | field manual |
| FM | frequency modulated |
| FN | field note |
| FORSCOM | U.S. Army Forces Command |
| FRAGO | fragmentary order |
| FSB | forward support battalion |

| | |
|---|---|
| FSCM | fire support coordinating measure |
| FSCOORD | fire support coordinator |
| FSE | fire support element |
| FSEM | fire support execution matrix |
| FSO | fire support officer |
| GRREG | graves registration |
| GS | general support |
| HHC | headquarters and headquarters company |
| HN | host nation |
| HNS | host nation support |
| HPTL | high payoff target list |
| HQ | headquarters |
| HSS | health service support |
| IAW | in accordance with |
| IEW | intelligence and electronic warfare |
| IFF | identification, friend, or foe |
| intel | intelligence |
| IPB | intelligence preparation of the battlefield |
| ITTBBST | Innovative Tools and Techniques for Brigade and Below Staff Training |
| JRFL | joint restricted fires list |

| | |
|---|---|
| LADW | local air defense warning |
| LAN | local area network |
| Ldr | leader |
| LL | lessons learned |
| LLTR | low level transit route |
| LNO | liaison officer |
| LOGPAC | logistics package |
| LP | listening posts |
| MCI | minimum critical information |
| M/CM/S | mobility/counter-mobility/survivability |
| MCOO | modified combined obstacle overlay |
| MDMP | military decision-making process |
| MEDEVAC | medical evacuation |
| METL | mission essential task list |
| METT-T | mission, enemy, terrain, troops, and time available |
| MI | military intelligence |
| MICLIC | mine clearing line charge |
| MIJI | meaconing, intrusion, jamming, and interference |
| MOPP | mission-oriented protective posture |
| MP | military police |
| MQS | military qualification standards |

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|---|---|
| MSR | main supply route |
| MTP | mission training plan |
| NAI | named area of interest |
| NBC | nuclear, biological, and chemical |
| NCO | noncommissioned officer |
| NCS | net control station |
| NSF | naval surface fires |
| NTC | National Training Center |
| OB | order of battle |
| OBSTINTEL | obstacle intelligence |
| OC | observer-controller; outcome |
| OEG | operational exposure guide |
| O&I | operations and intelligence |
| OIC | officer in charge |
| OP | observation post |
| OPCON | operational control |
| ops | operations |
| OPORD | operations order |
| OPSEC | operations security |
| OPSITREP | operational situation report |

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|---|---|
| PAC | personnel and administration center |
| Pam | pamphlet |
| PERCARPT | periodic civil affairs report |
| PERINTREP | periodic intelligence report |
| PERLOGRPT | periodic logistic report |
| PEROPRPT | periodic operation report |
| PIR | priority intelligence requirements |
| PLL | prescribed load list |
| Plt | platoon |
| PM | provost marshal |
| POC | point of contact |
| PPREPT | periodic personnel report |
| PRF | pulse repetition frequency |
| PSNCO | personnel services non-commissioned officer |
| PSYOP | psychological operations |
| | |
| R&S | reconnaissance and surveillance |
| RDO | radar deployment order |
| ROE | rules of engagement |
| ROM | refuel-on-the-move |
| ROZ | restricted operations zone |
| RSR | required supply rate |

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|---|---|
| S1 | adjutant/personnel officer, brigade and battalion staff |
| S2 | intelligence officer, brigade and battalion staff |
| S3 | operations and training officer, brigade and battalion staff |
| S3 Air | operations and training officer - air operations, brigade and battalion staff |
| S4 | supply/logistics officer, brigade and battalion staff |
| S5 | civil-military operations, brigade and battalion staff |
| SALT | supporting arms liaison team |
| SATS | Standard Army Training System |
| SCATMINE | scatterable mine |
| sgt | sergeant |
| SITMAP | situation map |
| SITREP | situation report |
| SIT TEMP | situation template |
| SM | soldier's manual |
| SMCT | soldier's manual of common tasks |
| SME | subject matter experts |
| SO | signal officer; signal operations |
| SOEO | scheme of engineer operations |
| SOF | special operations forces |
| SOI | signal operating instructions |
| SOP | standing operating procedures |
| SOR | specific orders and requests |

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|---|---|
| Spec | specialist |
| SPOTREP | spot report |
| STAARS | standard after action review system |
| STP | soldier's training publication |
| supv | supervisor |
| SYSCON | systems control |
| TA | task analysis |
| TAC | tactical |
| TAC CP | tactical command post |
| TACP | tactical air control party |
| TADSS | training aids, devices, simulators, and simulations |
| TAI | targeted area of interest |
| TAMMS | The Army Maintenance Management System |
| TCF | tactical combat force |
| TCP | traffic control point |
| TF | task force |
| TG | Trainer's Guide |
| TOC | tactical operations center |
| TOE | tables of organization and equipment |
| TOW | tube-launched, optically tracked, wire-guided missile |
| TRADOC | U.S. Army Training and Doctrine Command |

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|---|---|
| TSOP | tactical standing operating procedures |
| TSP | training support package |
| TSS | target selection standards |
| TTP | tactics, techniques, and procedures |
| UAV | unmanned aerial vehicle |
| ULLS | unit level logistics systems |
| UMCP | unit maintenance collection point |
| USAARMC | United States Army Armor Center |
| USAARMS | United Stated Army Armor School |
| USAES | United States Army Engineer School |
| USMC | United States Marine Corps |
| USN | United States Navy |
| WARNO | warning order |
| WCS | weapons control status |
| XO | executive officer |