

# **CORA TASK #162**

## **Support to experimentation**

*Vignette and data sets*

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**CORA TASK #162**  
**SUPPORT TO EXPERIMENTATION:**  
**VIGNETTE & DATA SETS**

*FOR*

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## EXECUTIVE SUMMARY

Defence Research and Development Canada (DRDC Valcartier) is seeking to identify functionalities and concepts to support dynamic planning and execution management for Command and Control (C2) operations. The provision of computer-based decision-aids to improve the development of operation and mission plans, combined with an integrated C2 approach at the operational level is expected to improve the interaction between operational and tactical levels. It is anticipated that tools based on C2 integration should lead to improved collaboration/synchronization amongst the different agents of a coalition as well as amongst the different levels of operations (tactical and operational).

To support DRDC Valcartier, CAE Integrated Enterprise Solutions (CAE IES) was contracted to refine a land force vignette based on a tactical mission: Reconnaissance in Force Patrols. The vignette and related data sets will be used to support a future demonstration and experimentation design of a computer-based prototype currently under development, called Tactical Planning and Execution Management Decision Aids (TPEM). The prototype was designed by DRDC-Valcartier to provide C2 support to the Canadian Forces at a more tactical level. This work was conducted under CORA Task #162, "Support to Experimentation" for DRDC Valcartier by CAE IES, contract # W7714-083663.

The objective of this work was to review and refine a previous mission scenario to fit the information needs to TPEM. Part of this effort included integrating the necessary data sets and preparing the current report. The report deliverables encompass the main sections provided in DRDC Valcartier's Reconnaissance in Force Patrols vignette. The data sets include maps, intelligence reports, a list of actions and events with times of occurrence and time durations, and resources (types, capacities, and main operational parameters). The vignette and data sets included in this report will be integrated into the TPEM stimulator at DRDC Valcartier used to run the demonstration.

The refined vignette describes an Improvised Explosive Device (IED) that is detonated by a West Isle civilian vehicle. There are two very seriously injured civilians who need medical evacuation (MEDEVAC) by air. A component of the Combat Team is tasked to respond to the IED scene. After the MEDEVAC helicopter departs the military force is ambushed by insurgents and fights their way through the ambush. There are no personnel casualties but one LAV 3 has a bullet hole in the radiator which requires a short stop on the way back to the HQ location to top up coolant.

The next steps are for CAE to develop an approach and the material required to execute the demonstration to showcase TPEM's capability to military personnel.

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## 1 INTRODUCTION

This document presents the revised vignette and data sets for the tactical mission Reconnaissance in Force Patrols. The intent of this information is to support the demonstration and experimentation design of a computer-based prototype currently under development, called Tactical Planning and Execution Management Decision Aids (TPEM). The prototype was designed by Defence Research and Development Canada, Valcartier (DRDC Valcartier) to provide Command and Control (C2) support to the Canadian Forces at a more tactical level. This work was conducted under CORA Task #162, "Support to Experimentation" for DRDC Valcartier by CAE Inc. (CAE), contract # W7714-083663.

### 1.1 Background

The increasing complexity of future security environments will require that command and control in Canadian Forces evolves into a comprehensive approach to operations. Accordingly, the command and control operating concept emphasizes the need to have an organization that will be efficient, flexible and adaptable. To do so, people, process, technology will require having a greater horizontal integration, while being able to coordinate up and down in the different chains of command. Command, control, communications and computers with intelligence, surveillance and reconnaissance (C4ISR) will then be required to support joint operations considering that the CF is one of the contributors to the overall Government strategy.

The planning of operations associated with the execution management of operations is key to achieve CF desired end state. The Canadian Forces Operational Planning Process (CFOPP) is the current structured way used by the Canadian Forces to perform military planning and problem solving. The CFOPP has been developed to cover two categories of planning: Deliberate Planning and Crisis Action Planning.

- Deliberate planning consists of initiating and developing plans in anticipation of a known or anticipated future event or circumstance that Canada will or might face. It is not subject to the immediate pressures of time or prevailing threats.
- Crisis action planning consists of initiating and developing plans in response to a current or developing crisis. It requires an expeditious co-ordination and approval.

In anticipation of future tactical requirements, Canadian Army has produced the Army of Tomorrow (AoT) conceptual framework which is intended to guide the development of the Land Forces (LF) through to the year 2021. The AoT framework provides the basis for the Adaptive Dispersed Operations (ADO) concept; the ADO concept is concerned with the manner in which an adaptive and dispersed LF can be developed and deployed across the full spectrum of operations and will work within the Joint Interagency Multinational and Public (JIMP) context. The concept of Adaptive Dispersed Operations (ADO) represents "the ability to conduct coordinated interdependent, full spectrum actions by widely dispersed teams throughout the width and depth of the battle space; ordered and connected within an operation design created to achieve the desired end state." Agile forces are capable of planning, making decisions, and conducting tactical actions faster than the enemy can respond or adapt to.



The implementation of ADO requires the investigation and implementation of novel planning, collaboration and decision aid tools to enhance CF Command and Control Systems of the future. All levels Commanders and their staff will be engaged simultaneously in planning, synchronization and execution of operations. Commanding LF operations at the tactical level, which confronts the direct impact of asymmetric activities, requires a comprehensive approach to commanding operations within environments that are significantly affected by the physical, moral, social, cultural and psychological impacts brought about by asymmetrical warfare. ADO-capable CF requires that commanders at all levels be supported by a robust Command and Control Information System (C2IS) that is suited to their unique command requirements so that the information is filtered appropriately and can solicit a valuable response. Future CF C2IS should facilitate collaboration, coordination, de-confliction, synchronization and mutual protection/reinforcement.

Computer-based tools should support dynamic planning and execution management by providing decision-aids to improve and fasten the development of operation plans and mission plans, as well as facilitating an integrated approach of C2 at the operational level and a better interaction between operational and tactical levels, which will lead to improve the collaboration/synchronization amongst the different agents of a coalition as well as amongst the different levels of operations (tactical and operational). DRDC Valcartier is conducting R&D activities to identify those functionalities and concepts that should be part of a C4ISR environment to improve planning and operation execution management. These have been concretized into different computer-based prototypes. First, there is Collaborative Operations Planning System (COPlanS). COPlanS provide the ability to plan an operation in a net-centric environment with integrated collaborative tools. COPlanS is an integrated flexible suite of planning, decision-aid and workflow management tools aimed at supporting a distributed team involved in the Military Operations Planning Process (e.g., CF OPP). The prototype offers functions to design and manage multiple concurrent distributed battle rhythms at different planning levels. While COPlanS was dedicated to address requirements at the operational level, another computer-based prototype is under development to provide support at a more tactical level. This prototype is called TPEM for Tactical Planning and Execution Management Decision Aids.

## 1.2 Objective

The objective of this work is to:

- Develop an experimental plan that serves to guide both a demonstration and two experiments for computer-based tools aiming at supporting planning and execution management;
- Develop the required material to support the demonstration; and
- Facilitate the demonstration with land force personnel.

### 1.3 This Document

This document presents the Task II deliverables as stated in the Technical Information Package (TIP). Tasks included reviewing and refining the current mission scenario, integrating the necessary data sets and preparing the current report.

The report deliverables are organized according to the sections provided in DRDC Valcartier's initial vignette, Reconnaissance in Force Patrols, supplemented by extra information provided by the SME deemed pertinent for the scenario. The actual data sets are housed within the labeled appendices. The document is organized as follows:

1. Introduction – this section includes DRDC Valcartier's project background and introduced the TPEM prototype; it also includes the overall scope and objectives of the work
2. Approach – this section describes the approach taken to revise the vignette and produce the data sets for TPEM;
3. Results – this section provides a detailed description of the refined vignette information and the accompanying data sets that are included in the Appendices;
4. Conclusion and next steps - this section describes the plans for the upcoming demonstration and experimental plan.
5. References – provides any references used in the document; and
6. Appendices – provides the main data sets for the vignette to be used in the TPEM demo; all appendices are hyperlinked either within the document or to external files accompanying this report.

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## 2 APPROACH

CAE IES reviewed previous project documentation (Lamoureux, Kelsey & Scipione, 2013) in order to refine an existing tactical mission scenario provided by DRDC Valcartier to support the demonstration and the experimentation design.

To ensure that the proposed scenario and data sets complies with military tactical realism, CAE IES relied on the services of a subject matter expert (SME). The SME is a defence and security professional with over 38 years of experience in land force defence, security, training, and management fields. Experienced in defence and security policy development, concepts and doctrine development, interdepartmental collaboration, and high-level military training, highlights of the SME's experience include serving on numerous international defence committees such as the Permanent Joint Board of Defence, CANUS Military Cooperation Committee, Conference of the Armies of America, Pacific Armies Management Seminar, CANUS Staff Talks, and the NATO Training Group Army Sub Group.

The existing tactical scenario was updated by the SME using The Contemporary Common Training Scenario (CCTS). CCTS is designed to provide a relevant and robust generic background for all Army collective training, as well as joint training events. Although designed primarily for Army use, the documentation offers sufficient depth to incorporate joint and whole-of-government/Comprehensive Approach participation, reflecting the contemporary operating environment. Responsibility for the continuing review and amendment of the CCTS rests with Commander Canadian Army Doctrine and Training Centre. This scenario is fictitious. It is based on the island of Hispaniola, which provides geospatial data for realism, but the historical, political, social and other information has been changed for training purposes.

The scenario update included the provision of several additional sources of information, including Land Campaign Plan, Brigade Orders, Battle Group Orders and Combat Team Orders. The produced data sets will be integrated into a stimulator used to run a demonstration planned for early February, 2014. The data sets include maps, intelligence reports, a list of actions and events with times of occurrence and time durations, and resources (types, capacities, and main operational parameters).

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### 3 RESULTS: LEGEND TO VIGNETTE AND DATA SETS

The following is a complete list of the vignette and data set deliverables contained in the Appendices. All items are hyperlinked (i.e., clickable) to the relevant information.

- **Appendix A: Vignette – Reconnaissance in Force Patrols**
  - Appendix A provides the highest level view of the scenario details, including the Land Component Campaign Plan and the Concept of Operation, which were revised based on the vignette entitled “Reconnaissance in Force Patrols”.
  - **A.1 - Land Component Campaign Plan (LCC Plan):** The key points of the LCC Plan are to extract are the Mission, Commander’s Intent and Concept of Operations for contingency operation (CONOP) OSPREY. The Campaign Plan is typically written before the operation.
  - **A.2 - Concept of Operations :** The concept of operations describes how arrayed forces will accomplish the mission within the commander’s intent. It concisely expresses the “how” of the commander’s visualization and governs the design of supporting plans or annexes.
- **Appendix B : Mission Planning**
  - Appendix B includes information necessary for the Mission planning and Tactical process, including operational planning and a number of Operation Orders (e.g., Brigade orders and intelligence report).
  - **B.1 - Operational Planning :** An Operations Order (Op-O) is an executable plan that directs a unit to conduct a military operation. An Op-O will describe the situation facing the unit, the mission of the unit, and what activities the unit will conduct to achieve the mission goals. Normally an Op-O will be generated at a regiment/battalion, brigade, division, or corps headquarters and then given to lower echelons to implement.
  - Each lower echelon as they receive an operations order will in turn develop their own Op-O which removes extraneous detail and adds details focused on what and how that subunit will implement the higher level Order. An Op-O at a particular level of the military organization will trigger units involved in the operation to develop their own Op-O which will borrow from the Op-O given them so far as the situation and mission but will then add additional details for the activities a specific unit is to conduct.
  - **B.1.1 - Brigade Orders :** The Brigade orders are presented as a Fragmentary Order (Frag-O). Frag-Os are used when the situation changes before or during the mission and the Op-O must be modified. The commander will issue a Frag-O to state exactly how the situation and/or, mission has been changed and what must be done.
  - **B.1.2 - Intelligence Report (Environment View) :** The following presents the Intelligence Report (IntRep) used for the planned scenario. The IntRep includes the threat assessment (site location,

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risk level), weak sites along/near route (e.g., infrastructures such as bridges (location)) and lessons learned (e.g., pattern of opposing forces; deployment of IEDs).

- **B.2 – Tactical Planning:** Tactical mission planning leads to specific information that could be captured in TPEM, if deemed necessary (Section B.2.1 to Section Appendix E). The tactical planning section contains the information necessary for TPEM's tactical planning including the Company Combat Team Orders, Battle Group Orders and Intelligence Report.
- **B.2.1 - Battle Group Orders:** Battle Group Frag-O incorporates the Reconnaissance in Force mission and a Logistic mission.
- **B.2.2 – Combat Team Orders:** This section presents the 'A' Company Combat Team Orders that are used to guide the planned scenario.
- **Appendix C: Ground Data: Mission Named Areas of Interest (NAI) and Routing**
  - Appendix C contains the map location in the spatial view, including latitude and longitude of characteristic points on the MSR's DIAMOND and BEAR routes. The maps and areas of responsibility (AOR) are based on the Contemporary Common Training Scenario (CCTS). CCTS is designed to provide a relevant and robust generic background for all Army collective training, as well as joint training events.
  - **C.1 - Areas of Responsibility (AOR):** This section contains a Google Earth screen capture that shows the International Boundaries of the Canadian Brigade.
  - **C.2 - DIAMOND Route:** This section provides the map representation of the DIAMOND route as well as the built-up areas.
  - **C.3- BEAR Route:** This section presents the BEAR route as well as the total distance of DIAMOND and BEAR Routes. The information details the relevant latitude and longitude coordinates of those routes.
  - **C.4 - Route Concerns:** This section provides the coordinates of the relevant route concerns for the DIAMOND and BEAR routes.
- **Appendix D: System configuration and settings (capability view)**
  - Appendix D contains information on Blue and Red Forces resources and capabilities as well as neutral organizations, unknown organizations, and weather affecting the mission.
  - **D.1 - Blue:** This section shows the categorization of resources used by land units and Table D-2 shows the categorization of resources used by air supports. Resource tables include the unit, vehicle category and quantity, the location coordinates (lat/long) and the relative capacity (e.g., fuel, required).
  - **D.2 - Red:** This section defines the red resources (vehicle, ammo) along with capacity estimates and positions (lat/long).

- **D.3 - Neutral Organizations** : This section defines the resources (vehicles), capacities, locations (lat/long), and NAIs of the neutral organizations.
- **D.4 - Unknown Organizations** : This section defines the resources (vehicles), capacities, locations (lat/long), and NAIs of the Unknown organizations.
- **D.5 - Weather Forecast (Environment View)** : This section provides the weather report for the AOR to highlights the thunderstorm and fog conditions expected the next day.
- **Appendix E : Planned Scenario**
  - This section contains the Company Combat Team Orders, and the nominal planned scenario (i.e., no expected contingencies). The original two branch plan scenarios (i.e., increased risk near bridge and increased presence of IEDs) are not included in this report.
  - **E.1 - Nominal Planned Scenario** : This section provides the planned scenario events and the time schedule of the scenario's main tasks. This includes the event identification number, a time stamp, the event action, the event description, the linked military report, and linked to other relevant reports.
  - **E.2 - Nominal Scenario Injects (Reports)** : This section includes the complete list of military reports referenced in the event schedule of the nominal planned scenario.
- **Appendix F : Mission Execution**
  - This section provides the Mission Execution scenario which includes a time schedule of the scenario's main tasks. This includes the event identification number, a time stamp, the event action, the event description, the linked military report, and linked to other relevant reports.
  - **F.1 - Mission Scenario Injects (Reports)**: This section includes the complete list of military reports referenced in the event schedule of the mission scenario.
- **Appendix G: Scenario Timeline**
  - This section provides a link to a PPT presentation that provides an additional step-by-step description of the Nominal and Mission Execution scenario events using a chronological timeline the accompanying section of the vignette sketches.

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## 4 CONCLUSIONS AND NEXT STEPS

This document presented the results of a refined existing tactical scenario to support the demonstration and experimental design of the TPEM evaluation. The vignette information and data sets include maps, intelligence reports, and lists of actions and events, time durations, and resources (types, capacities, and main operational parameters). This data has been developed to support the scenario execution of the TPEM stimulator at DRDC Valcartier, and eventually effectiveness experimentation. Note the experiments are not conducted under this contract.

The next steps are for CAE IES to develop an approach for the demonstration. The purpose of this demonstration is to provide systematic, useful and timely user feedback to the design team at DRDC Valcartier to enhance the utility and functionality of TPEM's C2 integration capability, and to assist with the direction of future system developments. The objectives of the demonstration are to:

- Provide user feedback on the utility of the features TPEM as they apply to various combat team levels of command, and
- Provide user feedback on the ease of use of the system's interface and functionality.

Prior to the final demonstration, CAE IES will develop the material required to execute the demonstration (e.g., consent forms, presentation materials, quantitative and qualitative data collection forms, mission scenario). To prepare and provide additional feedback, CAE IES will attend two internal demonstration support meetings at DRDC Valcartier. The first is planned for December 19<sup>th</sup> 2013, and the second meeting will occur in the end of February 3<sup>rd</sup>, 2014. The purpose of the 'preliminary demonstrations' will be to provide operation, design and experimental feedback to DRDC Valcartier.

The final demonstration will be held in Ottawa and is schedule for February 13th, 2014. One day prior, CAE IES and DRDC Valcartier team will execute a 'trial-run' of the demonstration to make any necessary revisions to ensure a smooth conduct of operations.

The final steps are for CAE IES to develop an experimental design to assess the C2 Integration capability of the TPEM prototype. These will be included as a high level guideline in the appendix of the demonstration outcomes report. The study designs will include a detailed experimental protocol and data collection tools. Once the experimental designs have been finalized, the CAE IES team will develop an experimental plan that outlines the details of each experiment, which may include:

- Experimental methodology/protocols;
- Participants;
- Materials and equipment;
- MOPs and MOEs;
- Data collection tools; and

- Proposed data collection and analysis.

Final submission of the Experimental Plan will be contingent on the completion of the prototype development.



## 5 REFERENCES

Lamoureux, T., Kelsey, S., & Scipione, A. (2013). Measures of performance related to the concepts of integrated C2. *Contract report to DRDC Valcartier (Contract # W7714-08-3663, CORA task 148)*.

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## APPENDIX A VIGNETTE: RECONNAISSANCE IN FORCE PATROLS

### A.1 Land Component Campaign Plan

- i) The following Campaign Plan was developed prior to the deployment of troops to East Isle. Subsequent to the issue of this document, the Government and Defence Forces of West Isle cooperated with The International Conference for West Isle (ICFWI), and CONOP OSPREY was initiated. The Canadian Brigade Group is employed in Phase II of the operation, with the 3 RCR Battle Group (TF1) working in BAHORUCO Department.

Note the development of the LCC Plan appendices was beyond the scope of this work, but are noted as 'to be implemented' (TBI) placeholders in the following section in the case of future development.

#### 1. SITUATION

##### a. Background

- i) The current government of West Isle and its security apparatus has lost their legitimacy with the majority of the Westilian population. The transition to a representative government and complementary national institutions acceptable to the Westilian population as a whole and to the international community will be a lengthy process. This nation building process will require the full engagement of the factions, the coalition members, their partners and the wider international community.
- ii) The International Conference for West Isle (ICFWI) has undertaken to end the continuing human crisis in West Isle through the deployment of the Combined Joint Task Force West Isle (CJTF WI), operating under the authority of the UNSCR 9000.

- b. Command Relationships. The CJTF WI is a United Nations sanctioned coalition with a single force commander. The Land Component (LC), 8 (MN) Div, will be comprised of three brigades; division support troops; and a division level headquarters. The Lead Nation (LN) is the United Kingdom and Troop Contributing Nations (TCNs) are Australia, Canada, New Zealand and the United States. Commander 8 (MN) Div will serve as the Land Component Commander (LCC). Assigned forces are OPCON to 8 (MN) Div.

- c. Strategic Guidance. An estimated 60 days are required to build-up the CJTF WI forces in East Isle prior to operations. CJTF WI and national ROEs are to be in place prior to operations in West Isle. ICFWI ROEs are at Annex E. The SOFA between East Isle and ICFWI will be the source document for all activities conducted on East Isle territory. This operation will be conducted in three phases:

- i) Phase I - Deployment and Deterrence Operations.
- ii) Phase II – Conduct Ground, Air and Maritime Operations.
- iii) Phase III – Redeployment.

- d. Armed Factions. TBI.
- e. Friendly Forces.
  - i) 8 (MN) Div Organization Matrix. TBI.
  - ii) IOs and NGOs. TBI.

## **2. MISSION**

On order, the Land Component Command establishes a safe and secure environment in West Isle from which humanitarian operations can be conducted and to allow for the development of representative government institutions and the promotion of economic well-being and human rights.

## **3. EXECUTION**

- a. Commanders Intent. My intent is to establish a safe and secure environment in the territory of West Isle in order to set the conditions for the unfettered operation of international humanitarian, development, and political reform organizations and agencies. Operations in West Isle will be complicated due to the political and ethnic diversity of the population, the fact that the Government does not have full control over its territory and the presence of four main insurgent groups that are themselves, in some cases, fractionalized. Our forces must be cognizant of this diversity and tailor regional operations accordingly. In some regions of the country, these forces are the de facto authority. Although the long term objective will be the neutralization and disarmament of all insurgent groups, it is likely that that our forces may have to work in collaboration with one or more of them in order to end armed conflict so as to create a safe and secure environment as an essential first step in the transformation of West Isle. Throughout we must be, and be seen to be, impartial, fair and decisive. Armed opposition by the West Isle Defence Forces, its internal security apparatus or any insurgent group will be met with precisely targeted and overwhelming force. Key to our success will be winning the hearts and minds of the civilian population. It is the principal source of human intelligence that will lead our operations.
- b. Concept of Operations. Land operations in West Isle will be conducted with or without the cooperation of the West Isle Government. Should CJTF WI Influence Activities be successful in gaining the cooperation of the West Isle Government, opposition by the West Isle Defence Forces becomes unlikely and the areas of the country under government control will be relatively secure at the outset. Humanitarian aid to these areas could be expedited; however, other areas of the country will still need to be secured before the conditions for the delivery of humanitarian aid can be met. To achieve the latter, it is essential that our forces not be viewed in other areas as acting as an agent of the government, but as an agent of the international community. This contingency is CONOP OSPREY. Should the Government of West Isle continue to be non-compliant with the demands of the international community then we will conduct a forced entry into West Isle to compel its Government to comply with the provisions of UNSCR 9000 while concurrently establishing a safe and secure environment for the delivery of essential humanitarian aid. This contingency is CONOP CONDOR.

- 
- i) CONOP OSPREY. Under this contingency, the cooperation of the Government and its Defence Forces is assumed. We will advance into West Isle along two corridors, with a brigade operating to secure a line of communications on each. The southern corridor extends from Barahona to Port-au-Prince. Potential armed factions in this corridor are the People's Liberation Army (PLA) operating to the north, the West Isle Association (WIA) and the Peoples Force (PF), both operating from the corridor itself. The second corridor runs along the north coast from the East Isle border through to Cap-Haïtien. Potential armed factions in this corridor are the PLA operating from the south, the WIA and the Internal Solidarity Movement (ISM), both operating from within the corridor. Subsequent operations will secure the remainder of the country. For the Phase II security/stability operations I intend to designate Brigade Areas of Responsibility based on the West Isle Department boundaries.
  - ii) CONOP CONDOR. This contingency assumes that the Government of West Isle remains non-compliant. Under this contingency, land operations will be preceded by air and maritime operations, supported by special operations forces, to destroy West Isle Defence Forces critical assets and command and control infrastructure. The rapid seizure of Port-au-Prince concurrent with an advance on the southern corridor to conduct a link-up to secure the capital and unseat the Government. Initially, operations will be focused exclusively against the West Isle Defence Forces until they have been defeated and the government removed from power. Thereafter we will secure the southern corridor to facilitate the flow of humanitarian aid. Subsequent operations will secure the northern corridor and the remainder of the country. For the Phase II security/stability operations I intend to designate Brigade Areas of Responsibility based on the West Isle Department boundaries.
- c. Influence Activities. TBI.
  - d. Civil Military Cooperation (CIMIC). TBI.
  - e. Coordinating Instructions.
  - f. TOA all TCN units to be complete NLT [insert date]. TBI
    - i) 8 (MN) Div units deployed to forward operating locations on the border by [insert date]. TBI
    - ii) 8 (MN) Div operational NLT [insert date] TBI

#### 4. SERVICE SUPPORT

- a. General. Preliminary force build-up will be through Rio Haina (SPOD) and the Las Americas International Airport at Santa Domingo (APOD) in East Isle.
- b. Logistic Concept. As a general concept, TCNs remain responsible for their own logistic and administrative support via their National Support Elements (NSEs). Mutual support arrangements will be used to the extent possible to achieve economies and efficiencies. CJTF WI will establish a Multinational Joint Logistics Centre (MJLC) to provide overall coordination of support in the Joint Area of Operations (JOA) including coordination

between TCNs and Host Nation. The Theatre Logistic Base (TLB) will be established in the Santo Domingo area. Forward Logistic Bases (FLB) will be established in the cities of Azua and Santiago. The logistic footprint in the TLB and FLBs and the siting of NSEs will be determined by the MJLC. 8 (MN) Div Logistics and Movements details will be covered in Annexes R and S respectively. In Phases II and III maximum use of airports and seaports in the West Isle major urban centres will be utilized, and Main Supply Routes (MSRs) will be designated.

- c. Medical. Role 1 and Role 2 Health Services Support (HSS) will be provided by TCNs. Role 3 HSS will be provided by the UK Field Hospital for 8 (MN) Div units. Further details on HSS issues will be covered in Annex K.

## 5. COMMAND AND SIGNALS

- a. Command
  - i) Commander 8 (MN) Div is designated the LCC.
  - ii) 3 CDO (MN) Brigade is designated the alternate LCC HQ and its Commander as the alternate Commander 8 (MN) Div and the alternate LCC.
- b. LCC HQ will initially be located at SANTA DOMINGO.
- c. Signal TBI
- d. Communications
  - i) CJTF WI communications links will be the responsibility of higher headquarters downwards.
  - ii) National communications are the responsibility of each national contingent to include all internal and strategic communication systems and links.

## A.2 Concept of Operations

Start time: 0800 HRS

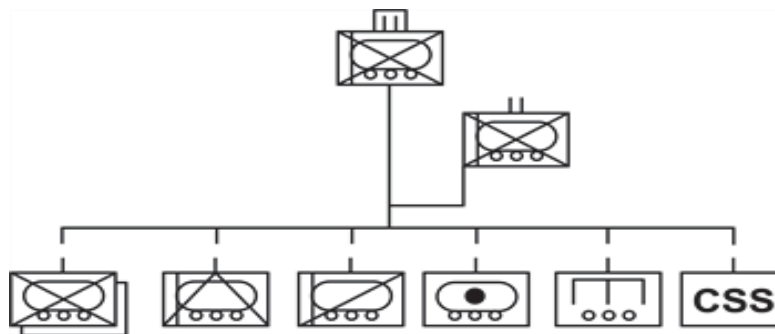
Organization: Battle group

Situation:

The International Conference for West Isle (ICFWI – including Australia, Canada, France, New Zealand, Spain, Russia, the United Kingdom and the United States) undertakes to end the continuing humanitarian crisis in West Isle. United Nations Security Council Resolution (UNSCR) 9000 sanctions the ICFWI military action in West Isle. The essential first step is the deployment of a coalition force to establish a safe and secure environment in which the UN and other institutions can provide humanitarian assistance, promote human rights and the development of the rule of law, and assist in promoting a democratic process of governance.

The Coalition Force is known as Combined Joint Task Force West Isle (CJTF WI) and consists of land, sea, air and special operations components. The Canadian contribution to the Land Component is a Brigade Group (-)<sup>1</sup> 2 CMBG, with two Battle Groups (BGs) and brigade enablers. The UK and the US also have a brigade-sized organization deployed in West Isle. The Canadian brigade is responsible for BAHORUCO and INDEPENDENCIA Departments, with populations of 97,000 and 52,589 respectively.

As part of the initial stages a UN led Chapter VII Task Force (Roto 0) of a stability operation, the Canadian Brigade is responsible for the security of an area of 3,288 square kilometres. 3 RCR BG, designated as TF1, is responsible for BAHORUCO Department and 1 RCR BG, designated as TF2, is responsible for INDEPENDENCIA Department. An example of a battle group structure is shown in. The security posture within the area is deteriorating and the West Isle Defence Force is ineffective. Very few IOs/NGOs are operating in the region as kidnapping and ransom is a real threat. A large number of Internally Displaced Persons (IDPs) continue to stream EAST and seek refuge in East Isle. There is an insurgent threat to military and IOs/NGOs operating in West Isle. Combat Team Commanders are ready to assume the planning and execution of the sub-unit's standing tasks in accordance with the Battle Group and Brigade Orders for this Operation. Tasks include but are not limited to conducting: Support to West Isle Defence Forces, Convoy Escort Operations, Security Patrols (Screen/Route/Area/Zone/Flank), Road Block/Check Point Security, Cordon and Search operations, Force Protection, Establish and Occupy a Patrol Base, and Respond to an Ambush/IED Strike. Limited information about the various armed factions is available and the cbt tm's higher headquarters desires more specific information on the enemy.



**Figure A-1: Example of a Mechanized Battle Group**

'A' Coy Cbt Tm is tasked to execute a Reconnaissance in Force Patrol also as "show of force" activity along several patrol routes (both cleared and non-cleared), augmented by a platoon from 'C' Coy (QRF), two troops from the Recce Sqn (RCD) and a troop of Field Engr (elms of 5 RGC) in West Isle border region with East Isle in a region that has been struggling with insurgency and unrest. The Cbt Tm is tasked to "CLEAR" the two patrol routes, DIAMOND and BEAR. The Battle Group Commander and his Commander's Tactical Team will join in on this task. The patrol will also deliver supplies and military equipment to the B Coy forward operating base (FOB).

<sup>1</sup> (-) 2 CMBG: (minus) infers that not all of 2 CMBG is in theatre.

## **APPENDIX B MISSION PLANNING**

This section includes information necessary for the Mission planning process, including operational planning and a number of Operation Orders (e.g., Brigade and Intelligence report). The following sections describe the type of operational planning information that would be obtained by TPEM through COPLANS.

### **B.1 Operational Planning**

The operational planning capability of TPEM is accomplished by uploading operational data defined in COPLANS (Collaborative Operations Planning Systems). To further support the operational data planning aspect of TPEM, CAE developed two additional military operations orders, including a Land Component Campaign Plan (LCC Plan) and Brigade Orders (Bde Orders) in accordance with the refined vignette. Note that Battle Group orders are provided in the tactical planning section B.2.1.

#### **B.1.1 Brigade Orders**

The Brigade Orders Frag-O was issued to the Brigade units, flanking coalition brigades and to the multi-national division headquarters. Brigade orders include the Reconnaissance in Force mission and a Logistic mission, and information on the situation, execution, service support and command and signals as follows:

- a. Situation
  - i) Enemy forces, friendly forces;
  - ii) Commander intent: scheme of manoeuvre; main effort;
  - iii) Air
  - iv) Attachments and detachments (Atts and Dets)
- b. Mission
  - i) Who, What, Where, When, Why
- c. Execution
  - i) Concept of operation: scheme of manoeuvre; main effort; end state
  - ii) Grouping and tasks: battle group (TF1)
  - iii) Coordinating instructions
- d. Service support
- e. Command and signal

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The complete Brigade Orders Frag-O is contained in the report deliverables folder, entitled "Bde Gp Frag-O 001". The Frag-O is summarized as follows:

- Mission:
  - 2 CMBG will CLEAR MSR's in the Bde AOR with a view to ensuring unimpeded military and humanitarian operations along those routes.
- Intent:
  - To clear MSR's HEART and DIAMOND of armed factions and to retain freedom of movement on these routes.
- Scheme of Manoeuvre:
  - 2 CMBG will conduct a simultaneous two Battle Group clearance of the two MSR's, which is in effect a reconnaissance in force task. Logistics resupply of dispersed troops should also take place at the same time.
- 3 RCR – Tasks:
  - CLEAR DIAMOND route within boundaries. Conduct resupply of dispersed troops.

### **B.1.2 Intelligence Report (Environment View)**

The following presents the Intelligence Report (IntRep) used for the planned scenario. The IntRep includes the threat assessment (site location, risk level), weak sites along/near route (e.g., infrastructures such as bridges (location)) and lessons learned (e.g., pattern of opposing forces; deployment of IEDs).

#### **INTREP 001**

#### **DTG**

#### **SUBJECT: RTE DIAMOND INTIMIDATION**

#### **Insurgent Background - General:**

Armed factions suspected of working in the 2 CMBG AOR are the People's Liberation Army (PLA) and to a lesser extent the Peoples Force (PF).

#### **PLA:**

The PLA's roots and main support base are in the San Juan, Elias Pina and Santiago Rodriguez departments of the central and eastern highlands. However, PLA operations and support range from as far south as the Port-Au-Prince/Barahona lowland corridor, to as far north as the northern coast, and as far west as the YS 60 easting (72°30' E Longitude).



Mobile training and support camps are known to exist in the mountainous border region inside East Isle with covert support cells also operating within the East Isle cities of Santiago and La Vega. Support lines make use of clandestine agencies to ferry weapons directly to coastal drop-off points within West Isle, overland from East Isle centres and through air-landed/air-dropped resupply typically in the highlands on both sides of the border.

The PLA generally has a typical army structure of battalions, companies and platoons. There are believed to be between 30 and 40 PLA battalions, although not all of these battalions are assessed to be operationally capable. A number of units are likely utilized as cadre or training units that support or replace active units. The size and composition of the units and sub-units varies dramatically depending on the region and nature of operations.

The fighting force is assessed to be a very capable force that has effectively matched or defeated WIDF elements. Training is considered a critical component to success and great efforts are expended in conducting training at all levels within the safe confines of PLA areas. Wherever possible, significant efforts are made to coordinate training between regional commanders for large scale operations to familiarize units with the personalities and tactics of neighboring PLA units.

Units are primarily armed with light Contatian<sup>2</sup> weaponry, with an assortment of rifles and machine guns widely used. Most units have access to light mortars to assist in operations. As necessary, PLA fire support elements will augment these units for larger scale operations. The PLA is very adept at typical insurgent tactics, such as conducting raids, ambushes and harassment. They have demonstrated a very good ability to adjust tactics quickly to suit the environment and threats encountered. Over the years, the PLA capability has developed considerably; it is able to confront WI forces with great effectiveness. Attacks on WIDF military outposts and patrols have been very successful, often resulting in the acquisition of WIDF equipment. The PLA continues to expand its repertoire of tactics and capabilities with the addition of heavier weaponry; however, greatly expanded capabilities have yet to be demonstrated.

The PLA is mostly lightly armed with Contatian weaponry. It has Norinco CQ, QBZ97A and 7.62 mm AK-47 rifles, 7.62 mm M60, 5.45 mm RPK-74, .50 cal and 12.7 mm machine guns, 60 and 81 mm mortars, RPG-7, M72 and Carl Gustav anti-tank weapons, a few mixed anti-tank missile systems, improvised rocket launcher systems using 2.75" Mk 4 aerial rockets, SA-7 anti-aircraft missiles and possibly a few Stinger anti-aircraft missiles. The PLA uses an assortment of commercial-patterned wheeled vehicles for mobility and to mount the rocket launchers and has extensive skill in the use of mines, demolitions and improvised explosive devices. Attacks have proven to be well planned and typically employ conventional and IED enabled ambushes or raid tactics.

The PLA has recently captured two AT-3 anti-tank missile systems, but these have not yet appeared in action. They are believed to have acquired approximately five light howitzers and are attempting to obtain more sophisticated missile and gun systems, as well as 20-25 mm cannon systems to mount on vehicles. The success of these acquisitions has not been confirmed. These weapons are likely considered high-value weapons and would be used by

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<sup>2</sup> Contatian is North Korean, Chinese and Russian-style equipment.

PLA members proficient in their use under controlled circumstances that would enable operational success while promoting their survival.

In the past week the PLA have placed pressure-release IEDs on DIAMOND and HEART MSR, specifically at LAS CLAVELLINAS (18.5042N – 71.5555W) on DIAMOND Route and DUVERGE (18.3786N – 71.5237W) on HEART Route. In both cases they were successful in disrupting either WIDF or civilian use of the MSRs, and fled the scene once security forces arrived. Repairs have been made to the two MSRs.

**PF:**

The PF's main operating area has been in the southern half of the country with particular emphasis on urban areas and military sites in and around Port-Au-Prince, Barahona (south-east), Les Cayes (south-west), and Gonaïves (north-west).

The basic fighting force is based at squad level, with groups of 6 to 10 personnel conducting most operations. These highly skilled groups are responsible for conducting raids, ambushes and harassment as directed by local PF leaders. Squads are known to be broken down into direct action cells as determined by the task. PF squads usually perform their own final target reconnaissance although they can be augmented with support staff for larger operations. Squads/cells are both rural- and urban-based, and remain separate from each other until required to prepare jointly for specific missions. The majority of squads/cells are detailed as raiding teams with general assault and explosives skills. The PF has a number of larger squads that are dedicated to more complex missions that require larger weapons, more complex demolition projects, specialized communication equipment or intelligence specialists.

The PF is very selective in determining targets, taking great care to ensure mission success, minimize casualties and inflict the appropriate amount of damage to government forces. Unlike the PLA, PF tactics avoid direct confrontation with West Isle field forces, preferring to rely on hit-and-run attacks on lines of communication, weakly protected military support facilities, government controlled infrastructure, and political targets selected to generate support from the rural, working and intellectual classes.

Tactics emphasize total surprise; the PF seldom conducts similar attacks on related targets. Diversionary operations and the conduct of simultaneous attacks have enabled the PF to increase its effects by dispersing security force defences. Occasionally, the PF has coordinated with the PLA to conduct attacks on lines of communication in support of larger PLA operations against government forces and militias.

Most of the PF's arms were captured from the Contatian-equipped West Isle Land Force or purchased from arms dealers. The PF is lightly armed with M-16, and AK-47 rifles of both Russian and Chinese origin, M203 Grenade Launchers, machine guns, 60, 81 and 82mm mortars, RPG-7 anti-tank weapons, and an assortment of mines, demolitions and improvised explosive devices (IEDs). IEDs tend to be remote-controlled IEDs (RCIED) in nature. Reports indicate the availability of HN-5 MANPADS to the PF, but this has not been confirmed. PF use of rudimentary Remotely Operated Vehicles (ROV) to conduct attacks on both land and sea has been confirmed. These ROVs have also been used to collect intelligence. The PF is equipped and well-trained to conduct precision night operations and has the technical ability to manufacture sophisticated RCIEDs.

**DIAMOND Route Intimidation:**

Credible HUMINT sources have indicated the PLA is stopping Local Nationals (LNs) travelling to and from LA DESCUBJERTA (18.58N – 71.72W) this morning on Rte DIAMOND at 18.5682N – 71.7170W. The size of the enemy force was variably described as having between 30 and 60 fighters, and six or seven wheeled vehicles with heavy machine guns mounted on the back.

Several LNs were dragged from their vehicles and beaten. One HUMINT source advised that gunfire erupted at the scene when one civilian vehicle attempted to flee the vehicle blocking the road.

Comment: This is the third consecutive day that credible reporting has been received of temporary checkpoints established by insurgents of about two platoons in strength in that area of Rte DIAMOND. It is probable that a PLA platoon assessed to be operating in the area will continue to interfere with civilian and logistics movement along Rte DIAMOND and intimidate LNs. Intimidation practices are probably intended to both draw shelter and logistic support for enemy forces, while deterring LNs from cooperating with Coalition forces operating in the area. It is probable that a second PLA platoon is operating along Rte DIAMOND with the intent of interfering with civilian and coalition logistics movement. Comment ends.

**BEAR Route:**

Credible HUMINT sources reported two sections of PLA travelling near BEAR Route yesterday, IVO LA CUCHILLA (18.3935N – 71.2777W) to 18.4186N – 71.2969W. They appear to be based out of LA CUCHILLA. The size of the force was described of up to 20 fighters in two wheeled vehicles with heavy machine guns mounted on the back.

Comment: This is the first 2 CMBG reporting of PLA near the 3 RCR AOR. It is probable that a PLA platoon (-) is operating in the area with the intent to interfere with civilian and logistics movement along BEAR Route, and possibly DIAMOND Route. This sighting is near a bridge on BEAR Route. Comment ends.

## **B.2 Tactical Planning**

Tactical mission planning information can be captured in TPEM, if deemed necessary (Section B.2.1 to Section Appendix E). The following tactical planning section contains the information necessary for TPEM's tactical planning, according to the sequence specified in the operational planning process (OPP) including the Battle Group Orders and the Combat Team Orders.

### **B.2.1 Battle Group Orders**

The Battle Group Frag-O incorporate the Reconnaissance in Force mission and a Logistic mission, and can be found in the project deliverables folder, entitled "Battle Gp Frag-O 001". The Battle Group Frao-O is summarized below:

- Mission:
  - 3 RCR will CLEAR DIAMOND and BEAR MSR's with a view to ensuring unimpeded military and humanitarian operations along those routes.
- Intent:
  - To clear MSR's DIAMOND and BEAR of armed factions and to retain freedom of movement on these routes. BEAR Route is a presence patrolling dirt road that I want to establish as an alternate MSR to DIAMOND Route. 1 RCR will be conducting a simultaneous CLEAR operation on DIAMOND and HEART Routes, within their AOR.
- Scheme of Manoeuvre:
  - 3 RCR will conduct a large combat team clearance of the two MSR's, which is in effect a reconnaissance in force task. Logistics resupply of B Coy will also take place at the same time.
- A Coy Combat Team Groupings and Tasks:
  - Platoon from C Coy (QRF), two (2) troops from B Sqn RCD, Engr Troop 52 Sqn 5 RGC, and four (4) resupply vehicles and wrecker from CSS Coy.
  - CLEAR DIAMOND and BEAR Routes within boundaries. Conduct resupply of B Coy.

### **B.2.2 Combat Team Orders**

The following presents the 'A' Company Combat Team Orders that are used to guide the planned scenario.

#### **1. SITUATION**

- a. Enemy Forces: Platoon-sized elements of the PLA are operating in the 1 RCR AOR on DIAMOND Route and it is assessed that they are capable of blocking DIAMOND Route in the 3 RCR AOR. They have been known to use IEDs and block the roads with hasty

check points. Yesterday two sections of PLA were sighted IVO LA CUCHILLA, near BEAR Route, travelling from 18.3863N – 71.2705W to 18.4189N – 71.2974W. Their strength was up to 20 fighters, in two wheeled vehicles with HMGs. It is probable that a PLA platoon (-) is operating on BEAR Route, with the intent to interfere with civilian and logistics movement along this MSR.

b. Friendly Forces:

- i) 2 CMBG Comd's intent. To CLEAR HEART and DIAMOND Routes of armed factions to retain freedom of movement on these routes.
- ii) Battle Gp Comd's CONOPs. Conduct a large combat team clearance of MSRs DIAMOND and BEAR, while also conducting a resupply of B Coy. He wants to establish BEAR Route as another MSR. This is in effect a combination of a reconnaissance in force and a convoy escort task.
- iii) We should not encounter any other friendly forces on DIAMOND Route, except for where DIAMOND passes into the 1 RCR AOR at Junction Point AB.
- iv) We can expect IDPs along the route making their way to an IDP camp North of GALVAN.
- v) DIAMOND Route is paved and is in good condition, based on presence patrolling reports. BEAR Route is a dirt road that has been used by B Sqn RCD. It is generally in good condition and passes over many culverts and bridges.

c. Atts & Dets:

- i) The vehicle column will consist of A Coy and A1 Ech, a QRF platoon from C Coy, three (3) HLVW cargo vehs, one (1) HLVW POL – FARS, a HLVW Recovery Wrecker, two troops from B Sqn RCD using the tunnel method, a troop from 52 Sqn, a FOO, and 9 Tac with BC B Bty.
- ii) A Div UAV is avail for 120 mins in the afternoon for over watch.

## 2. MISSION

A Company Cbt Tm will CLEAR DIAMOND and BEAR Routes to ensure unimpeded military and humanitarian operations along these routes.

## 3. EXECUTION

a. Concept of Ops

- i) Intent. The two recce tps will be in advance of the main column and a pl from A Coy will be the escort for the Coy A1 Ech, CSS Coy vehs and 9 Tac party. The QRF and engr tp will respond to any IEDs encountered enroute.
- ii) Scheme of manoeuvre. The main body will physically track on the two routes while the two recce tps conduct the tunnel method of security. We will stop for an hour at

the B Coy FOB with the Close Protection Group, while the main body continues the clearance of DIAMOND Rte and back-track to NEIBA to clear BEAR Rte. The Close Protection Group will re-join the combat team at this point for the clearance of BEAR Rte. Critical points along the route are:

- TAMAYO
- EL PALMAR.
- GALVAN.
- NEIBA both entering the B Coy FOB and the built-up area.
- LOS RIOS.
- Junction Point AB with 1 RCR.
- NEIBA – the turn from DIAMOND Rte South onto BEAR Rte.
- Start of the dirt portion of BEAR off of Rte 535.
- Junction of BEAR with DIAMOND Rte IVO EL PALMAR.
- TAMAYA.
- 13 bridges/culverts along DIAMOND and Bear Routes:
  - TAMAYO (start of DIAMOND) 18.3975N – 71.1860W
  - TAMAYO 18.3933N – 71.2052W
  - SE GALVAN 18.4596N – 71.2993
  - SE GALVAN 18.4843N – 71.3261W
  - W GALVAN 18.50003N – 71.3495W
  - W GALVAN 18.4912N – 71.3837W
  - EL ESTERO 18.4832N – 71.4532W
  - W VILLA JARAGUA 18.4919N – 71.5046W
  - W VILLA JARAGUA 18.4959N – 71.5258W
  - W VILLA JARAGUA 18.4979N – 71.5373W
  - LAS CLAVELLINAS 18.5042N – 71.5555W (targeted by PLA IED last week)

- LOS RIOS 18.5193N – 71.5863W
  - NW LA CUCHILLA 18.4196N – 71.3211W
  - iii) Main effort. Clearance of DIAMOND and BEAR Rtes.
  - iv) End state. Both MSRr are secure for use by Coalition and humanitarian partners.
- b. Groupings and Tasks:
- i) Column:
    - Composition. O of M will be:
      - Security Elements. Recce Tps Call Sign (C/S) T41 and T42 will precede the column using the tunnel method.
      - Advance Gp. C/S 11, 1 and G21, 31 (QRF), and E21.
      - Close Protection Gp. C/S 12, A Coy A1 Ech, 9 Tac party, and CSS Coy vehs.
      - Reserve Gp. C/S 13.
    - Method of movement. Non-aggressive (follow West Isle rules of the road) convoy discipline with an average speed of 20 KPH. We will maintain 2 km or 5 min separation<sup>3</sup> from the two recce tps. Upon contact, the column will adopt tactical movement. The QRF and C/S E21 are to be prepared to react to and neutralize IED threats.
    - Priority of work at B Coy. Close Protection Gp assist B Coy conduct the offload of stores and POL.
    - Cargo Loading. Cargo veh #1 rations; Cargo veh #2 ammunition; Cargo veh #3 gen stores; and HLVW POL – FARS 10,000 litres diesel.
  - ii) Escort. C/S 12 is the escort/close protection for 9 Tac party, A Coy A1 Ech and the CSS Coy vehs; with two vehs either side of that packet.
  - iii) Security elements. Recce tps to use tactical movement and to recce all 13 bridges/culverts. Upon contact identify and develop the enemy, and find bypass routes around the contacts.
- c. Coordinating Instructions:
- i) Timings:

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<sup>3</sup> A 2-km separation with an average speed of 20 km/h give a 6-min separation: DRDC implemented the 5-min separation in TPEM.

- H-hr Security Elms. 0800 hrs.
  - H-hr column. 0815 hrs.
  - ETA at B Coy FOB. 1130 hrs.
  - Spacing between adv, close protection and res gps. 500 metres.
  - Resupply of B Coy. To be conducted in the window of 1130-1230 hrs and to be completed NLT 1300 hrs.
  - Clearance task complete. NLT 1600 hrs.
  - Escort to be released. NLT 1800 hrs.
- ii) Routes: DIAMOND and BEAR IAW trace (Figure 3).
- iii) Halts: I plan to conduct three halts while conducting the CLEAR task and all round defence will be done at:
- SE of GALVAN at 18.4860N – 71.3278W.
  - W of GALVAN at 18.4915N – 71.3814W.
  - S of NEIBA at 18.4330N – 71.4331W.
- iv) Control Measures. Junction Point AB will be manned by 1 RCR.
- v) “Action On” drills. Ambush, indirect fire, roadblock, check point, civilian crowd, vehicle accidents, vehicle breakdowns, halts, separation from convoy, QRF link-up procedures, IFF, media plan, and close support fire plan would be discussed in detail at the O Gp.
4. SERVICE SUPPORT
- a. Ammo. Normal basic load.
  - b. POL. Normal basic load.
  - c. Maintenance and Recovery. A Coy MRT and CSS Coy Wrecker will be with the Cbt Tm.
  - d. Medical. A Coy Ambulance will be with the Cbt Tm. A medical helicopter is on call from BARAHONA airfield, a minimum of 20 kms from the 3 RCR AOR.
  - e. Detainees. To be transported either to Bn HQ or B Coy location, whichever is closer.
  - f. Rations/Water. An additional one day basic load to be carried on all vehs.
5. COMMAND AND SIGNALS





- a. Cbt Tm Comd. OC A Coy.
- b. Altn Cbt Tm Comd. 2IC A Coy.
- c. C/S 9 and G29 are "in location" with the Cbt Tm.
- d. Frequencies. TBI
- e. Hand Signals and visual signs. To be discussed at the O Gp.

## **APPENDIX C    GROUND DATA: MISSION NAMED AREAS OF INTEREST (NAI) AND ROUTING**

This section contains the map location in the spatial view, including latitude and longitude of characteristic points on the MSR DIAMOND and BEAR routes.

The following maps and areas of responsibility (AOR) are based on The Contemporary Common Training Scenario (CCTS). CCTS is designed to provide a relevant and robust generic background for all Army collective training, as well as joint training events.

Although designed primarily for Army use, the documentation offers sufficient depth to incorporate joint and whole-of-government/Comprehensive Approach participation, reflecting the contemporary operating environment. Responsibility for the continuing review and amendment of the CCTS rests with Commander Canadian Army Doctrine and Training Centre. This scenario is fictitious. It is based on the island of Hispaniola, which provides geospatial data for realism, but the historical, political, social and other information has been changed for training purposes.

### **C.1    Areas of Responsibility (AOR)**

The Google Earth screen capture in Figure C-1 shows the International Boundary with the BLUE dash/dot line. As shown in Figure C-1, the West Isle Departments are depicted by BLUE dotted lines. The Canadian Brigade is responsible for security in BAHORUCO and INDEPENDENCIA Departments. 3 RCR Battle Group (TF1) is responsible for the BAHORUCO Department which has an area of 1,282 square km, a total population of 119,000 people, and five towns. There are 65,000 people living in urban areas and 54,000 living in rural areas.

1 RCR Battle Gp (TF2) is notional but is part of the Canadian Brigade. TF2 is responsible for INDEPENDENCIA Department that has an area of 2,006 square km, a population of 52,589 people, and six towns.

The Division has designated two Main Supply Routes (MSRs) through the Canadian sector: DIAMOND and HEART. DIAMOND passes through the 3 RCR (TF1) Area of Responsibility. DIAMOND route is approximately 66 kms in length and is paved. Branching off of DIAMOND is a 3 RCR MSR called BEAR and it is 46 kms in length (16 kms paved/30 kms dirt).



Figure C-1: Overview of International and Department Boundaries.

## C.2 DIAMOND Route

Figure C-2 shows the map representation of the Diamond route as well as the built-up areas. Total distance to clear is 142 km. DIAMOND Route is paved and generally flat for a total distance of 96 km. The following information details the relevant latitude and longitude coordinates of this route.

- Start: Bridge @ 18.3975N – 71.1860W
- End: Junction Point AB @ 18.5339N – 71.6197W
- Kms: 66 kms (To Jct Pt AB)
- Back-track to NEIBA: 22 kms
- EL PALMAR – E to TAMAYO: 8 km

- Total Kms: 96 km (paved)

Built-up areas:

- TAMAYO (10K pers): FOB @ 18.3999N – 71.1963W
- EL PALMAR/BATEY TRES: 18.4106N – 71.2566W
- GALVAN (7.5K pers): 18.5035N – 71.3402W
- NEIBA (40K pers): FOB @ 18.4798N – 71.4144W
- VILLA JARAGUA: (10.5K pers) 18.4901N – 71.4876W
- LAS CLAVELLINAS: 18.5088 – 71.5580W
- LOS RIOS (4K pers): 18.5191N – 71.5844W

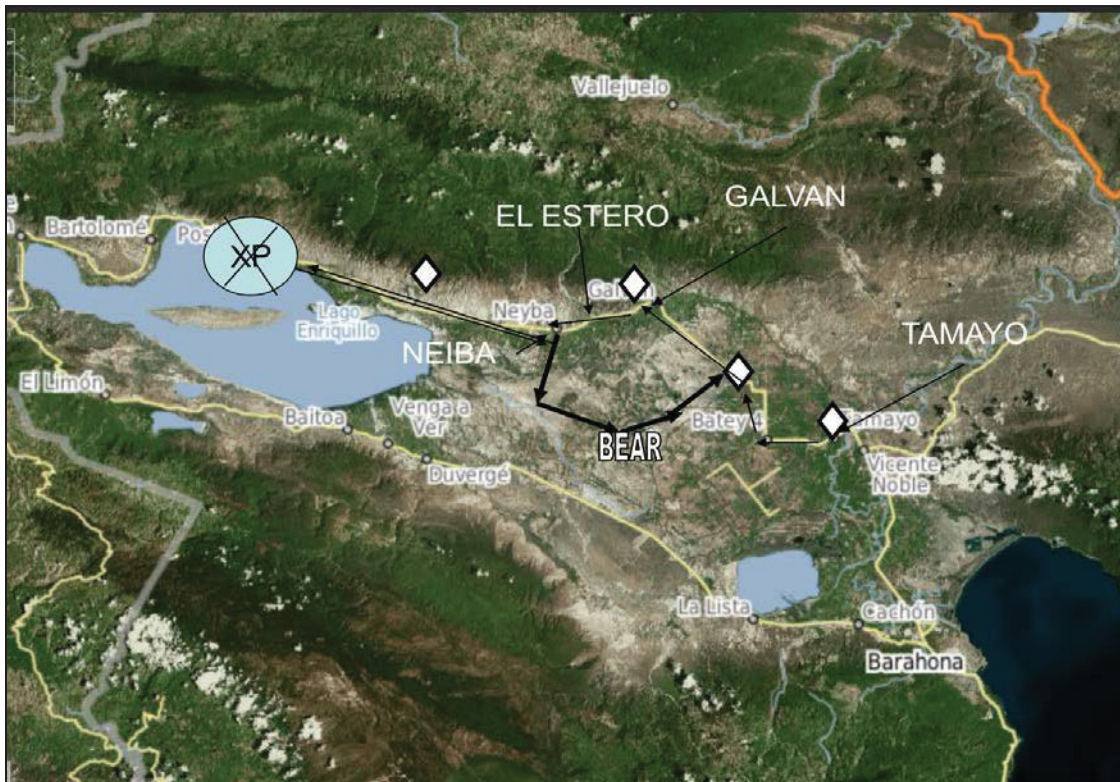


Figure C-2: Map showing Diamond Route and Built-up areas (3 RCR MSR & Villages).

### C.3 BEAR Route

Figure C-3 presents the Bear route as well as the total distance of Diamond and Bear Routes. BEAR Route is both paved (16 km) and dirt (30 km) and undulating for a total distance of 46 km. The following information details the relevant latitude and longitude coordinates of those routes.

- Start: Jct of DIAMOND and Route 535 @ 18.4797N – 71.4212W
- Turn point: 18.4330N – 71.4331W
- Note: Dirt roads to the end point
- Way points:
  - 18.4141N – 71.3958W
  - 18.4152N – 71.3615W
- End point: 18.4532N – 71.2925W
- Kms: 46 (16 km paved, 30 km dirt)
- Built-up areas: Nil
- Bridges/culverts: Numerous culverts but bridge at 18.4196N – 71.3211W

Total Km (DIAMOND & BEAR): 142 Km

- Halts/Waiting Area (WAs):
  - #1 SE GALVAN 18.4860N – 71.3278W
  - #2 W GALVAN 18.4915N – 71.3814W
  - #3 Turn point on BEAR 18.4330N – 71.4331W



Figure C-3: Map showing Bear route

## C.4 Route Concerns

This section provides the coordinates of the relevant route concerns for the Diamond and Bear routes.

- **Built-up areas**

- TAMAYO (10K pers): FOB @ 18.3999N – 71.1963W
- EL PALMAR/BATEY TRES: 18.4106N – 71.2566W
- GALVAN (7.5K pers): 18.5035N – 71.3402W
- NEIBA (40K pers): FOB @ 18.4798N – 71.4144W
- EL ESTEROS (abandoned village): 18.4832N – 71.4532W
- VILLA JARAGUA: (10.5K pers) 18.4901N – 71.4876W
- LAS CLAVELLINAS: 18.5088 – 71.5580W
- LOS RIOS (4K pers): 18.5191N – 71.5844W

- **Bridges/culverts**

- 
- TAMAYO (start of DIAMOND) 18.3975N – 71.1860W
  - TAMAYO 18.3933N – 71.2052W
  - SE GALVAN 18.4596N – 71.2993
  - SE GALVAN 18.4843N – 71.3261W
  - W GALVAN 18.50003N – 71.3495W
  - W GALVAN 18.4912N – 71.3837W
  - EL ESTERO 18.4832N – 71.4532W
  - W VILLA JARAGUA 18.4919N – 71.5046W
  - W VILLA JARAGUA 18.4959N – 71.5258W
  - W VILLA JARAGUA 18.4979N – 71.5373W
  - LAS CLAVELLINAS 18.5042N – 71.5555W
  - LOS RIOS 18.5193N – 71.5863W
  - NW LA CUCHILLA 18.4196N – 71.3211W
  - **Halts/Waiting Area (WAs)**
    - #1 SE GALVAN 18.4860N – 71.3278W
    - #2 W GALVAN 18.4915N – 71.3814W
    - #3 Turn point on BEAR 18.4330N – 71.4331W
  - **Junction Point AB (with 1 RCR):**
    - 18.5339N – 71.6197W

**NOTE:** A Jct Pt is a position on the map chosen to coordinate information with flanking units, in this case 1 RCR. One unit would be tasked to man the Jct Pt and the other unit approaches this secure location, and the information is then passed between the two units.

- **IDP Camp (N of GALVAN):**
  - 18.5085N – 71.3473W
  - Approx 5,000 IDPs

- IOs: UNHCR
- NGOs: MSF
- **Enemy**
  - The Int Sum 001 reports a PLA platoon blocking DIAMOND Route at 18.5682N – 71.7170W in the 1 RCR AOR.
  - This is **12 km** from Jct Pt AB on DIAMOND Rte.
  - Int Sum 001 also reports two sections of PLA operating near BEAR Route IVO of LA CUCHILLA 18.4189N – 71.2974W.
  - This is less than **2 km** from the 3 RCR AOR and BEAR Rte.



## APPENDIX D    SYSTEM CONFIGURATION AND SETTINGS (CAPABILITY VIEW)

This section contains information on Blue and Red Forces resources and capabilities as well as neutral organizations, unknown organizations, and weather affecting the mission.

### D.1 Blue

Table D-1 shows the categorization of resources used by land units and Table D-2 shows the categorization of resources used by air supports. Resource tables include the unit, vehicle category and quantity, the location coordinates (lat/long) and the relative capacity (e.g., fuel, required).

**Table D-1: Land Resources**

Unit	Vehicle category and quantity	Location (lat/long)	Capacity
A Coy (C/S 1)	LAV 3 ISC (12) LAV 3 ICV (3) Bison Amb (1) Bison MRT (1) LAV 3 FOO/FC (1)	TAMAYO 18.3999N – 71.1963W	IAW Sustain Planner there is sufficient fuel capacity to accomplish 142 km of administrative movement, and they will top up once back at their HQ location.  Note: The Reserve Group, the third platoon from A Coy (C/S 13), is listed below in the table and its numbers are included in the overall company number of LAV 3 ISC.
PI C Coy (C/S 31)	LAV 3 TUA (4)	TAMAYO 18.3999N – 71.1963W	IAW Sustain Planner there is sufficient fuel capacity to accomplish 142 km of administrative movement, and they will top up once back at their HQ location.
Recce Sqn Tps x 2 (C/S T41 & T42)	WLAV TAPV Mast (8) WLAV TAPV Ground System (8)	TAMAYO 18.3999N – 71.1963W	IAW Sustain Planner there is sufficient fuel capacity to accomplish the minimum of 142 km of tactical movement, and they will top up once back at their HQ location.
Field Engr Tp (C/S E21)	LAV 3 Pnr (4)	TAMAYO 18.3999N – 71.1963W	IAW Sustain Planner there is sufficient fuel capacity to accomplish 142 km of administrative movement, and they will top up once back at their HQ location.
Transport trucks (C/S 83A-83C for Cargo Vehs, C/S 83H for POL Veh, and C/S 88E for Recovery)	HLVW Cargo (3) HLVW POL – FARS (1) HLVW	TAMAYO 18.3999N – 71.1963W	Cargo #1 – 4 pallets hard rations and 4 pallets water. Cargo #2 – 3 pallets 25 mm ammo and 1 pallet common user ammo, with spare capacity available.

Unit	Vehicle category and quantity	Location (lat/long)	Capacity
	Recovery Wrecker (1)		Cargo #3 – 1 pallet G&T, 2 pallets repair parts, 1 pallet defensive stores, 1 pallet medical supplies, 1 pallet amenities, and 2 pallets misc. POL products. IAW Sustain Planner there is sufficient fuel capacity to accomplish 142 km of administrative movement, and they will top up once back at their HQ location.
9 Tac Party (CO and Battery Comd)	LAV 3 ICV (2)	TAMAYO 18.3999N – 71.1963W	IAW Sustain Planner there is sufficient fuel capacity to accomplish 142 km of administrative movement, and they will top up once back at their HQ location.
Close Protection Group (CPG)	Fourteen vehicles as noted in the Capacity column	TAMAYO 18.3999N – 71.1963W	The CPG is a LAV 3 platoon C/S 12 (4 x LAV 3s) providing protection for the A Coy A1 Echelon (LAV 3 ICV, Bison Amb and Bison MRT), 9 Tac Party (2 x LAV 3 ICV) and CSS Coy vehicles (3 x HLWV Cargo, HLWV POL - FARS and HLWV Wrecker).
Reserve Group (Gp) (C/S 13)	Platoon consisting of 4 LAV ISV	TAMAYO 18.3999N – 71.1963W	The Reserve Gp is a platoon designated with no specific tasks during this operation, except to be the Combat Team Commander's spare resources that can be used in any contingency.

**NOTES:**

1. A Coy Cbt Tm total vehicles 49.
2. B Coy at NEIBA has a strength of 151 personnel, 15 LAV 3 and 8 miscellaneous wheeled vehicles. This is the focus of the resupply mission.
3. HLWV Cargo is equipped with a material handling crane (MHC) and can carry 8 pallets and a maximum load of 10 tons.
4. HLWV POL – FARS carries 10,000 litres of diesel.

**Table D-2: Air Support**

Support	Vehicle category and quantity	Location (lat/long)	Capacity
Medical assistance/evacuation	Blackhawk UH60 (2)	BARAHONA Airfield 18.2523N – 71.1220W	6 stretchers, speed 150kt
Div UAV	Heron (1)	BARAHONA Airfield 18.2523N – 71.1220W	120 mins duration on station, in the PM only. 113kts max speed

**NOTES:**

BARAHONA Airfield is 20 km from TAMAYO.

Max/min/cruise speed (km/h): A Convoy is 60/10/20 km/h

A Coy Cbt Tm will use tactical movement speed, not convoy speed. The Cbt Tm Comd estimates average speed of 20 km/h, with the recce troops stopping at all bridges/culverts.

Air support:

150kt UH60

113 kt Heron UAV

A Coy Cbt Tm will also have an integral Bison Amb.

Communication requirements: C2 comms; translators/interpreters (communicate with the locals):

A Coy Cbt Tm will be fully LCSS equipped. A WIDF LO will also travel with the Cbt Tm Comd to act as an interpreter.

## **D.2 Red**

The following defines the red resources (vehicle, ammo) along with capacity estimates and positions (lat/long):

In the past week insurgents have used pressure-release IEDs on DIAMOND Route IVO LAS CLAVELLINAS (18.5042N – 71.5555W). The Int Rep/Sum 001 (Appendix B.1.2) reports a PLA platoon blocking DIAMOND Route in the 1 RCR AOR at 18.5682N – 71.7170W, which is 12 km from Junction Point AB on DIAMOND Route.

HUMINT reporting of 1-2 sections of PLA travelling yesterday in wheeled vehicles near BEAR Route between 18.3935N – 71.2777W and 18.4186N – 71.2969W. They are equipped with wheeled vehicles and heavy machine guns mounted on the back.

## **D.3 Neutral Organizations**

The following defines the resources (vehicles), capacities, locations (lat/long), and NAIs.

- IDP Camp (North of GALVAN) at 18.5085N – 71.3473W with approximately 5,000 IDPs, minimal tent age, minimal food and non-potable water only.
- IOs: UNHCR has a small staff of 50 people and five (5) 3T trucks. They rely on UNHCR convoys from East Isle, which have not run in 5 days.
- NGOs: MSF have a staff of 10 people and are in three (3) SUVs.

## D.4 Unknown Organizations

The following defines the resources (vehicles), capacities, locations (lat/long), and NAIs.

The WIDF have been ineffective in maintaining a secure environment in BAHORUCO Department and they are garrisoned at two FOB locations:

- TAMAYO (18.3999N – 71.1963W):
- 1<sup>st</sup> Bn HQ/F Bde (40 pers and 7 x BTR 60P) and Recce PI (20 pers and 6 x BRDM 1)
- NEIBA (18.4798N – 71.4144W):
- A Coy/1/F (50 pers and 5 x BTR 60P)

**NOTE:** 3 RCR Battle Group (-) is co-located with the WIDF at TAMAYO and B Coy 3 RCR is co-located with the WIDF at NEIBA.

## D.5 Weather Forecast (Environment View)

The weather report for the AOR to highlights the benign/favourable conditions expected the next day. The weather forecast (Table D-3) is based on the following information:

- In January and February the temperature range is 21 – 28 C, with 9 and 10 hours of daylight respectively.
- Unlikely to have a sandstorm in Hispaniola, more likely to have a tropical storm.

**Table D-3: METREP for Tomorrow**

CATEGORY	FORECAST
Temperature (min)	23C
Temperature (max)	28C
Surface temperature	22-29C
6000 ft temperature	11-16C
Surface humidity	49%
Sun rise	0632 hrs
Sun set	1614 hrs
Moon rise	0719 hrs
Moon set	1951 hrs

CATEGORY	FORECAST
Illumination	5%
Wind speed (max)	10-15 km/h in the PM
Wind direction	SE
Impacted resources	Nil

## APPENDIX E PLANNED SCENARIO

This section contains the Company Combat Team Orders, and the nominal planned scenario (i.e., no expected contingencies). The original two branch plan scenarios (i.e., increased risk near bridge and increased presence of IEDs) are not included in this report.

### E.1 Nominal Planned Scenario

The planned scenario is defined in Table E-1 and illustrated in Figure E-1. The scenario is the reconnaissance in force of two routes (DIAMOND and BEAR) and the resupply of a 3 RCR company in a Forward Operating Base (FOB). The time schedule of the scenario's main tasks is shown in Figure E-2. Table E-1 includes the event identification number, a time stamp, the event action, the event description, the linked military report, and linked to other relevant reports. Note: CAE has included linked Military Reports (MR) in Figure E-1, however the 'other reports' were outside of the current scope, and completed by DRDC Valcartier.

The following is a list of acronyms used throughout the planned and execution (section Appendix F) scenarios:

- TC: Time constraint
- IR: Intelligence report
- S: Spatial view
- T: Temporal view
- E: Environment view
- C: Capacity view
- SR1: Secure route 1 (From HQ to FOB; i.e., Diamond route)
- SR2: Secure route 2 (From FOB to HQ, i.e., Bear route)

Report Types:

- Situation Report (SitRep): A SitRep provides a description of situational changes occurring at some time instants and positions and related to the tactical mission.
- Intelligence report (IntRep): an IntRep is delivered at some time instant and position (lat/long), and consists of a statement about the description, risk assessment, and other information concerning any possible critical events and any changes in situation/context that have occurred, is occurring, or will be likely to occur at or near a spatial object such as a NAI or a waypoint.

- Progress report (PR): PR provides the state of a task at some time instant. State variables range from 0% to 100% depending on the completion of a task. A PR is emitted at some time instant, called report time. The time associated with the object (task, action, resource) the report refers to may be different from the report time.
- State report (SR): SR provides the state of an object at some time instant. SR is instrumental in estimating the ground truth.

**Table E-1: Nominal Planned Scenario<sup>4</sup>**

#	Time	Event	Description	Military Reports	Other Reports <sup>5</sup> (Progress, tracking, status, weather)
1	0800	Leaves main camp, Recce Tps leading and remainder of column leaves at 0815 hrs	Heads West on DIAMOND Rte (SR1)/Conduct comms check/Conducts recce of all bridges & culverts on DIAMOND	SitRep (MR001)	Progress Report (PR001) (Start of Recce mission) Tracking Report (TR001) Weather Report (WR001)
2	0800-0840	Clears and travels along DIAMOND Rte (SR1)	Start of CLEAR DIAMOND task.		Progress Report (PR002) (Start of Secure Route 1)
3	0840	Stops at WA #1 (CP1)	Secure route/reconnaissance (20 min)	SitRep (MR002)	Tracking Report (TR002)
4	0900	Reconnaissance by Recce Tps to GALVAN	50% DIAMOND task completed		Progress Report if subtasks are modeled
5	0900	Departs WA #1 (CP1)	Travel along DIAMOND Rte (SR1) through Galvan		Tracking Report (TR003)
6	1010	Stops at WA #2 (CP2)	Clear route /reconnaissance	IntRep (MR003) (Initial info on BEAR Rte)	Tracking Report (TR004)
7	1025	Departs WA #2 (CP2)	Travel along DIAMOND Rte (SR1)	SitRep (MR004)	Tracking Report (TR005)
8	1130	Arrives at FOB	Resupply vehicles, escort platoon and 9 Tac party remain at FOB while remainder of Cbt Tm clears DIAMOND Rte	SitRep (MR005)	Tracking Report (TR006?)

<sup>4</sup> Time and space was dictated by SME expertise of terrain vs. a pre-determined speed.

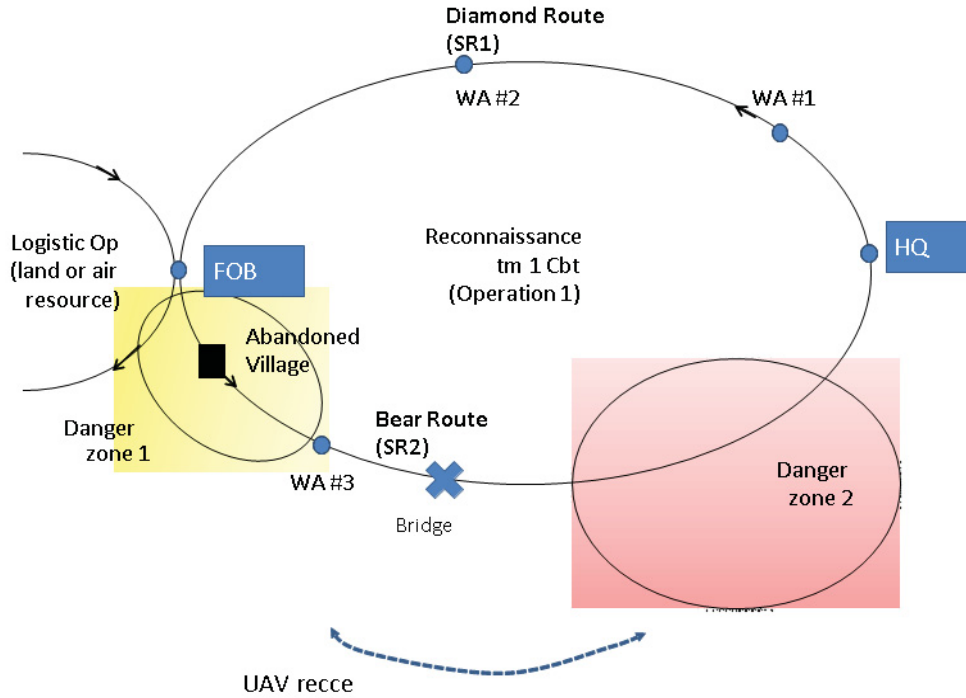
<sup>5</sup> The tracking report numbers may not exactly be the same as those used in the stimulator (as the mission will actually unfold during the demo); DRDC VC may have some further modifications by February and requested status quo.

#	Time	Event	Description	Military Reports	Other Reports <sup>5</sup> (Progress, tracking, status, weather)
9	1135	FOB supplying begins  -Off-load/load supplies -Refueling -Issues revised	-Transport trucks: supplies for FOB (30 min) and equipment for supply mission (30 min) - Equipment must be available at 1300 (hard time constraint) so that it can be loaded in the vehicles of a supply mission (S2) -Refuel all vehicles -Possible re-planning/liaise with HQ	IntRep (MR006) (Update info on BEAR Rte (SR2))	Progress Report (PR003) (FOB supplying task)
10	1140	Enters abandoned village (EL ESTERO) LIMITS	Travel through built up area/Convoy slows down		Tracking Report (TR007?)
11	1145	Travel through built up area	80% DIAMOND task completed		Tracking Report (TR007?)
12	1155	Leaves village limits	Convoy travels along DIAMOND Rte (SR1) using normal/tactical speed		Tracking Report (TR008?)
13	1215	FOB supplying (cont'd)	60% supply task completed		Progress Report (PR004)
14	1230	Supply B Coy/3 RCR	End B Coy supplying		Progress Report (PR005) (Supply 1RCR task)
15	1300	Convoy departs FOB for junction of DIAMOND and BEAR Rtes, to join up with the Cbt Tm that has cleared DIAMOND and is now proceeding East on DIAMOND	Head West on DIAMOND (SR1). Close Protection group will adopt all round defence until the remainder of the Cbt Tm arrives.	SitRep (MR007)	Progress Report (PR006) (Secure Route 2 task)
16	1300	Request for UAV support	On the bridge, the convoy will be exposed to high risk. UAV flies back to HQ when the convoy leaves the bridge. UAV may loiter above danger zone 2, if required (UAV autonomy is 120 min).	This request is built in to MR007	Progress Report (PR007) (UAV task) Tracking Report (TR009) (UAV)
17	1310	Entire Cbt Tm begins CLEAR task on BEAR	Cbt Tm marry-up with		



#	Time	Event	Description	Military Reports	Other Reports <sup>5</sup> (Progress, tracking, status, weather)
		Rte (SR2)	resupply/escort vehicles		
18	1340	Stops at WA #3 (CP3)	-Secure route/reconnaissance -IR from UAV about bridge	SitRep (MR008)	Tracking Report (TR010)
19	1350	Departs WA #3 (CP3)	Travel along BEAR Rte (SR2)		Tracking Report (TR011)
20	1420	Approaches/crosses a bridge	-Slow down on the approach to the bridge	SitRep (MR009)	Tracking Report (TR012)
21	1430	Leaves bridge area	Travel along BEAR (SR2)		Tracking Report (TR013)
22	1450	Leaves high risk zone	About to finish the CLEAR task on BEAR Rte and turn onto DIAMOND Rte		
23	1500	Returns to main camp	Travel along DIAMOND Rte (SR1) (45 min)	SitRep (MR010)	Progress Report (PR010) End of Mission (Secure Route 2)
24	1600	Arrives main camp	-Debrief convoy -Update CP and intelligence cell	-Use TPEM in play back mode to debrief the troops for lessons learned -Download route recce report captured by TPEM (patrol report in environment view)	

Remark: At FOB, two types of goods are off-loaded from the convoy's trucks. They include goods supplying FOB and goods that will be transported by the logistic operation vehicle (LO). The latter is constrained by a time window, whose upper bound is 1300.



**Figure E-1: Vignette Sketch – Nominal Planned Scenario showing Diamond and Bear Routes**

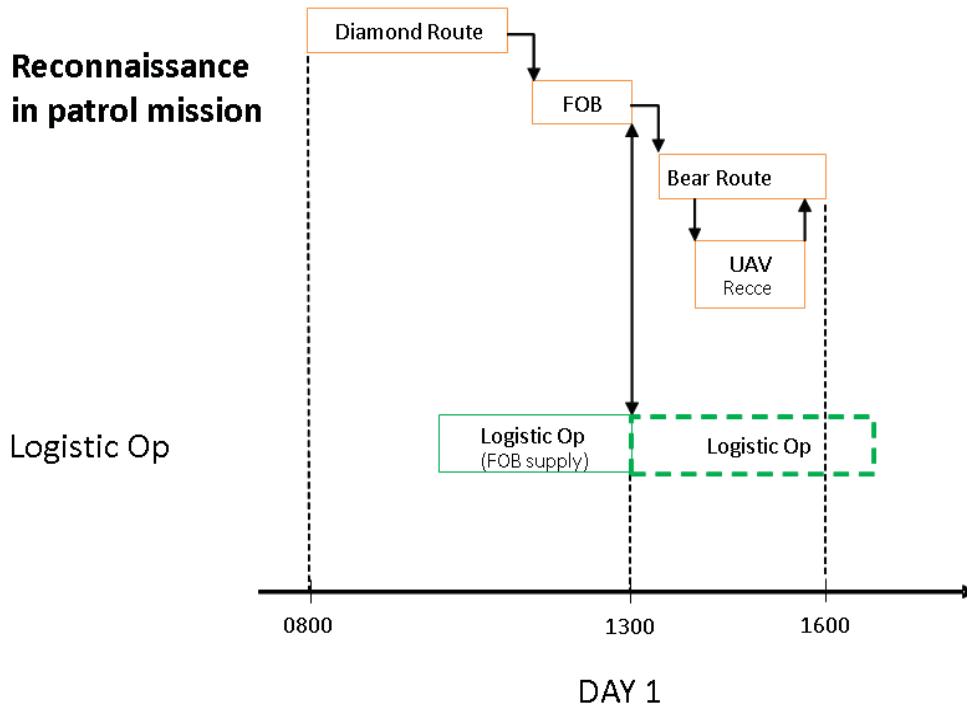


Figure E-2: Time Schedule of the Scenario's Main Tasks

## E.2 Nominal Scenario Injects (Reports)

The scenario injects that advance the scenario activity (SitReps and IntReps) used in Table E-1 are contained in the project deliverables folder, entitled "Military Reports table E1". SitReps contain summarized information of the current situation, including adversary, friendly, administration and general reporting. IntReps contain summarized information from intelligence reports, including enemy activity, assessment, comments, reliability, deductions, and conclusions. An example of the Nominal Scenario SitReps and IntRep reports are shown below Table E-1 and Table E-2, respectively:

Table E-2: Example SitRep for Nominal Scenario (MR005)

FOB		
SITREP		
A	ADVERSARY	Nil
B	FRIENDLY	Main body has arrived at B Coy FOB (18.4789N - 71.4144W). The Close Protection Gp will begin offload of supplies while the remainder of the column to CLEAR DIAMOND Rte to Junction Point AB.
C	ADMINISTRATION	With B Coy manpower the resupply mission will be complete by 1230 hrs.

FOB		
SITREP		
D	GENERAL	Continued civilian traffic on the road as well as approximately 100 IDPs proceeding East on DIAMOND toward GALVAN. The village of EL ESTERO (18.4832N - 71.4523W) was vacant and heavily damaged in recent fighting.

**Table E-3: Example IntRep from Nominal Scenario (MR003)**

INT REP		
A	ENEMY ACTIVITY	HUMINT reporting PLA activity IVO of LA CUCHILLA (18.3863N - 71.2705W)
B	ASSESSMENT	This corresponds to IntRep 001 indications of two sections of PLA operating near BEAR Rte.
C	COMMENT	15-20 fighters were reported in two vehicles with heavy weapons, camped overnight in the village.
D	RELIABILITY	Highly reliable
E	DEDUCTIONS	PLA plans to disrupt movement on BEAR and/or DIAMOND routes.
F	CONCLUSIONS	This is of concern to 3 RCR and their present mission.

## APPENDIX F MISSION EXECUTION

The Mission Execution scenario (see Table F-1 and Figure F-1) describes an IED that is detonated by a West Isle civilian vehicle. There are two very seriously injured civilians who need medical evacuation (MEDEVAC) by air. A component of the Combat Team is tasked to respond to the IED scene. After the MEDEVAC helicopter departs the military force is ambushed by insurgents and fights their way through the ambush. There are no personnel casualties but one LAV 3 has a bullet hole in the radiator which requires a short stop on the way back to the HQ location to top up coolant. Refer to Appendix E.1 for a list of acronyms used.

**Table F-1: Execution Scenario**

#	Time	Event	Description	Military Reports	Other Reports (Progress, tracking, status, weather)
1	0800	Leaves main camp, Recce Tps leading and remainder of column leaves at 0815 hrs	Heads West on DIAMOND Rte (SR1)/Conduct comms check/Conducts recce of all bridges & culverts on DIAMOND	SitRep (MR001)	Progress Report (PR001) (Start of Recce mission) Tracking Report (TR001) Weather Report (WR001)
2	0800-0840	Clears and travels along DIAMOND Rte (SR1)	Start of CLEAR DIAMOND task.		Progress Report (PR002) (Start of Secure Route 1)
3	0840	Stops at WA #1 (CP1)	Secure route/reconnaissance (20 min)	SitRep (MR002)	Tracking Report (TR002)
4	0900	Reconnaissance by Recce Tps to GALVAN	50% DIAMOND task completed		Progress Report if subtasks are modeled
5	0900	Departs WA #1 (CP1)	Travel along DIAMOND Rte (SR1) through Galvan		Tracking Report (TR003)
6	1010	Stops at WA #2 (CP2)	Clear route /reconnaissance	IntRep (MR003) (Initial info on BEAR Rte)	Tracking Report (TR004)
7	1025	Departs WA #2 (CP2)	Travel along DIAMOND Rte (SR1)	SitRep (MR004)	Tracking Report (TR005)
8	1130	Arrives at FOB	Resupply vehicles, escort platoon and 9 Tac party remain at FOB while remainder of Cbt Tm clears DIAMOND Rte	SitRep (MR005)	Tracking Report (TR008)
9	1135	FOB supplying begins	-Transport trucks: supplies for FOB (30 min) and equipment	IntRep (MR006) (Update info on	Progress Report (PR003)

#	Time	Event	Description	Military Reports	Other Reports (Progress, tracking, status, weather)
		-Off-load/load supplies -Refueling -Issues revised	for supply mission (30 min) - Equipment must be available at 1300 (hard time constraint) so that it can be loaded in the vehicles of a supply mission (S2) -Refuel all vehicles -Possible re-planning/liaise with HQ	BEAR Rte (SR2))	(FOB supplying task)
10	1140	Enters abandoned village (EL ESTERO) LIMITS	Travel through built up area/Convoy slows down		Tracking Report (TR007?)
11	1145	Travel through built up area	80% DIAMOND task completed		Tracking Report (TR007?)
12	1155	Leaves village limits	Convoy travels along DIAMOND Rte (SR1) using normal/tactical speed		Tracking Report (TR008?)
13	1215	FOB supplying (cont'd)	60% supply task completed		Progress Report (PR004)
14	1230	Supply B Coy/3 RCR	End B Coy supplying		Progress Report (PR005) (Supply 1RCR task)
15	1300	Convoy departs FOB for junction of DIAMOND and BEAR Rtes, to join up with the Cbt Tm that has cleared DIAMOND and is now proceeding East on DIAMOND	Head West on DIAMOND (SR1). Close Protection group will adopt all round defence until the remainder of the Cbt Tm arrives.	SitRep (MR007)	Progress Report (PR006) (Secure Route 2 task)
16	1300	Request for UAV support	On the bridge, the convoy will be exposed to high risk. UAV flies back to HQ when the convoy leaves the bridge. UAV may loiter above danger zone 2, if required (UAV autonomy is 120 min). IntRep is delivered near the bridge.	This request is built in to MR007	Progress Report (PR007) (UAV task) Tracking Report (TR009) (UAV)
17	1310	Entire Cbt Tm begins CLEAR task on BEAR	Cbt Tm marry-up with resupply/escort vehicles		

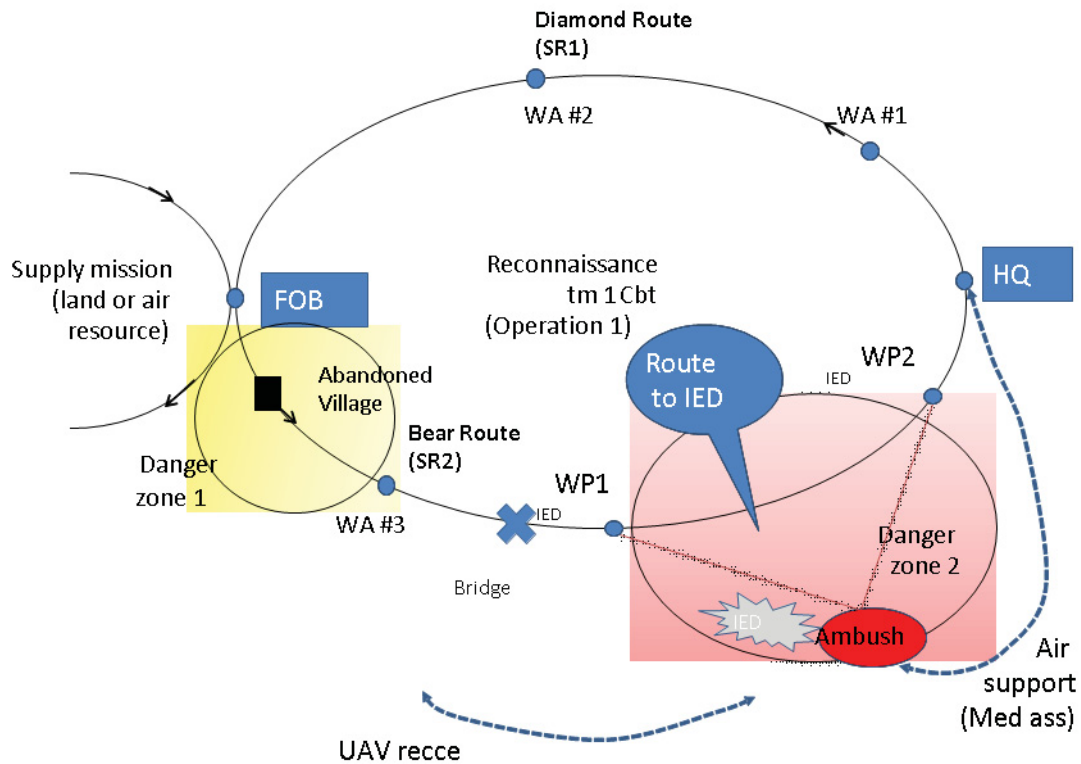
#	Time	Event	Description	Military Reports	Other Reports (Progress, tracking, status, weather)
		Rte (SR2)			
18	1340	Stops at WA #3 (CP3)	-Secure route/reconnaissance -IR from UAV about bridge	SitRep (MR008)	Tracking Report (TR010)
19	1350	Departs WA #3 (CP3)	Travel along BEAR Rte (SR2)		Tracking Report (TR011)
20	1420	Approaches/crosses a bridge	-Slow down on the approach to the bridge	SitRep (MR009)	Tracking Report (TR012)
21	1430	Leaves bridge area	Travel along BEAR (SR2)		Tracking Report (TR013)
22	1450	Arrives at WP1 <sub>IED</sub>	-Receive task from HQ to investigate civilian vehicle with IED incident on DIAMOND Rte (18.4387N – 71.2768W) -Platoon-sized patrol, with a Recce Tp, is tasked to investigate -Remainder of Cbt Tm will continue to CLEAR along BEAR Rte (SR2) -Assess uncharted route to vehicle accident (WP1 <sub>IED</sub> -Acc site-WP2 <sub>IED</sub> ) -Patrol rejoin Cbt tm at WP2 <sub>IED</sub> -UAV support is required (20 min)	IntRep (MR010) from UAV data SitRep (MR011)	Tracking Report (TR014)
23	1500	Cbt tm/Platoon leave WP1 <sub>IED</sub>	-Cbt tm travels along DIAMOND Rte (SR1) to WP2 <sub>IED</sub> -Platoon/Recce Tp travels to accident site on alternate rte		Tracking Report (TR015)
24	1515	Platoon reaches accident site	-Secure area and assess accident site; -Take control of the situation (10 min)	SitRep (MR012)  IntRep (MR013) -Ambush highly probable	Tracking Report (TR016)
25	1525	Request for medical assistance	-Air support for medical assistance.	MEDEVAC (MR014)	

#	Time	Event	Description	Military Reports	Other Reports (Progress, tracking, status, weather)
			-Transit time (15 min) -Assistance (25 min) (Total=40 min)	Confirm landing zone that can be secured within the area (terrain, fields of fire)	
26	1535	Air support leaves Barahona airfield	Transit flight to accident site		Progress Report (PR008)
27	1550	Air support lands	Medical evacuation (10 min)		
28	1600	Air support takes off	-Returns to Barahona airfield -PI sends SITREP to advise they are about to move to WP2.	SitRep (MR015)	Progress Report (PR009)
29	1605	Patrol is ambushed	-Commander (Cbt tm) decides to rejoin the patrol: IR indicates routes via WP1 <sub>IED</sub> or WP2 <sub>IED</sub> -Commander is notified of the estimated time of arrival of the combat team -Patrol fights through ambush (15 min)	ContactRep (MR016)	Tracking Report (TR017)
30	1630	Remainder of Cbt tm rejoins patrol	-Convoy leaves the accident/ambush site	SitRep (MR017)	Tracking Report (TR018)
31	1640	State report	-A Cbt tm veh cooling syst damaged (during ambush); Require coolant		Status Report (SR001) Tracking Report (TR019)
32	1700	Leaves high-risk zone	Travel along DIAMOND Rte (SR1) (5 min)		Tracking Report (TR020)
33	1705	Convoy Stops	-Top up coolant (5 min)	Sitrep (MR018)	Tracking Report (TR021)
34	1710	Returns to main camp	Travel along DIAMOND Rte (SR1) (25 min)		Progress Report (PR010) End of Mission (Secure Route 2)
35	1800	Arrives main camp	-Debrief convoy -Update CP and intelligence cell	-Use TPEM in play back mode to debrief the troops for lessons learned -Download route recce report captured by TPEM (patrol report in environment view)	



**NOTE 1:** Report ID (e.g. PR001) is indicated in parentheses.

**NOTE 2:** Gray-colored rows correspond to deviation from the nominal plan in Table F-1.



**Figure F-1: Vignette Sketch – Execution Scenario**

### F.1 Mission Scenario Injects (Reports)

The complete set of military reports (SitReps, IntReps, MedEvac and ContactRep) used in Table F-1 are contained in the project deliverables folder, entitled “Military Reports table F1”. MedEvacs contain nine lines of relevant medical evacuation information including: the location of the pickup site, the call sign and radio frequency, the number of patients by precedence, any special equipment required, the number of patients to be carried out, the level of security at the pickup zone, the pickup zone marking method, the number of patients by nationality and status, and the pickup zone terrain and possible obstacles. ContactReps contain information on blue/red force interceptions, including lat/long grid coordinates, adversary strength, blue force own action, and time of contact. An example of the Execution Scenario 9 Line MedEvac and ContactRep reports are shown below in Table F-2 and Table F-3.

**Table F-2: Example MedEvac from Execution Scenario**

9 LINE MEDEVAC		
1	<b>LOCATION (GRID OF PICK UP SITE)</b>	18.4193N - 71.3041W
2	<b>CALL SIGN AND RADIO FREQUENCY</b>	13/FREQ 2
3	<b>NUMBER OF PATIENTS BY PRECEDENCE</b>	CAT A. X 2
4	<b>SPECIAL EQUIPMENT REQUIRED FOR EVAC</b>	A. NONE
5	<b>NUMBER TO BE CARRIED/ LYING/ SITTING</b>	A. AMBULATORY X2
6	<b>SECURITY AT PICK UP ZONE</b>	P. POSSIBLE ADVERSARY
7	<b>PICK UP ZONE MARKING METHOD</b>	A. PANELS
		C. SMOKE (YELLOW)
8	<b>NUMBER OF PATIENTS BY NATIONALITY AND STATUS</b>	D. NON-COALITION CIVILIAN X 2
9	<b>PICKUP ZONE TERRAIN/OBSTACLES</b>	Road with no obstacles. Recommend approach from the NE.
<b>DO NOT DELAY LAUNCH OF MEDEVAC – SUPPLY FURTHER INFORMATION ONCE AVAILABLE</b>		

**Table F-3: Example Contact Report from Execution Scenario**

CONTACT REPORT		
A	<b>GRID</b>	18.4159N - 71.2950W
B	<b>ADVERSARY STRENGTH</b>	5-7 dismounted insurgents with HMGs ambushed C/S 13 as they initially moved off from the IED strike. The two vehicles sighted in the copse of woods are stationary and are positively ID to be insurgent.
C	<b>OWN ACTION</b>	C/S 13 is fighting his way through the ambush and is cleared to use arty fire on dismounts and vehicles. The majority of the Cbt Tm is proceeding West from WP2 to provide assistance to C/S 13 and will be linked up by 1630 hrs. Close Protection Gp will remain at WP2.
D	<b>TIME OF CONTACT</b>	1604 hrs

## APPENDIX G SCENARIO TIMELINE

### G.1 Nominal & Scenario

The nominal and Mission Execution Scenario Timelines are provided in a PowerPoint presentation included in the project deliverable folder entitled "Vignette Walkthrough Timeline". An example figure from the Nominal and Execution Scenario walkthroughs are shown below in Figure G-1 and Figure G-2. The scenario events are listed on the left hand side, the time progression is shown on the bottom, while the schematic of scenario activity is provided on the right.

#### 1. 0800

- Leaves main camp, Recce Tps leading and remainder of column leaves at 0815 hrs
- Heads West on DIAMOND Rte (SR1)/Conduct comms check/Conducts recce of all bridges & culverts on DIAMOND

#### 2. 0800-0840

- Clears and travels along DIAMOND Rte (SR1)
- Start of CLEAR DIAMOND task.

#### 3. 0840

- Stops at WA #1 (CP1)
- Secure route/reconnaissance (30 min)

#### 4. 0900

- Reconnaissance by Recce Tps to GALVAN
- 50% DIAMOND task completed

#### 5. 0900

- Departs WA #1 (CP1)
- Travel along DIAMOND Rte (SR1) through Galvan

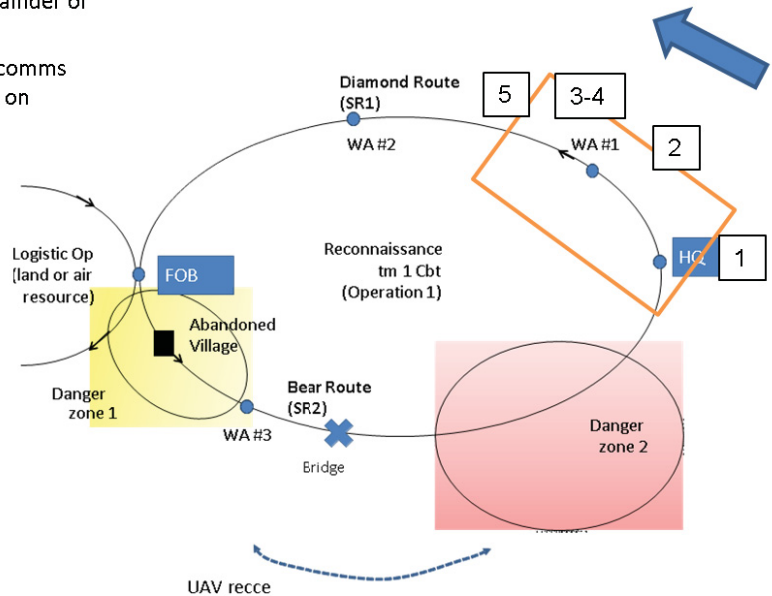
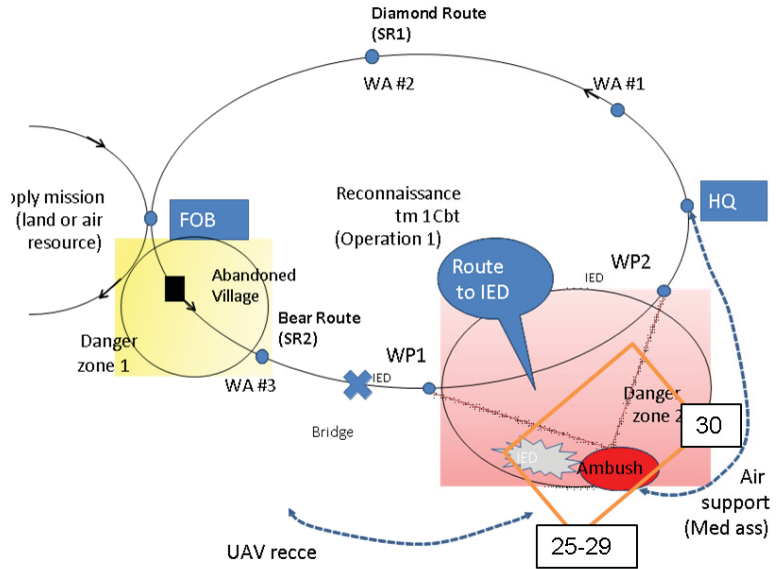


Figure G-1: Example of Vignette Walkthrough Illustration from Nominal Scenario

- 25. 1525
  - Request Medical Assistance
- 26. Air support leaves Barahona Airfield
- 27. 1550
  - Air support lands
  - Medical evacuation
- 28. 1600
  - Air support takes off
  - Returns to Barahona airfield
  - PI sends SITREP to advise they are about to move to WP2.
- 29. 1605
  - Patrol is ambushed
  - Commander (Cbt tm) decides to rejoin the patrol: IR indicates routes via WP1IED or WP2IED
  - Commander is notified of the estimated time of arrival of the combat team
  - Patrol fights through ambush
- 30. 1630
  - Remainder of Cbt tm rejoins patrol
  - Convoy leaves the accident/ambush site



**Figure G-2: Example of Vignette Walkthrough Illustration from Mission Execution Scenario**