



Cambodian Mine Action Standards (CMAS)

Chapter 15

LAND RELEASE

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|-----------------------------------------------------------------------|----------|
| <b>Contents</b> .....                                                 | <b>A</b> |
| CMAA Land Release Policy .....                                        | 1        |
| Introduction.....                                                     | 1        |
| 1. Scope .....                                                        | 3        |
| 2. Normative References .....                                         | 3        |
| 3. Terms and Definitions .....                                        | 3        |
| 4. Land Release Principles .....                                      | 4        |
| 5. Conduct of Technical Survey .....                                  | 5        |
| 6. Clearance .....                                                    | 5        |
| 7. Confidence in Released Land.....                                   | 5        |
| 8. Quality Management of Land Release.....                            | 6        |
| 9. Risks and Liability .....                                          | 6        |
| 10. Documentation .....                                               | 7        |
| 11. Post Land Release Actions.....                                    | 9        |
| 12. Responsibilities and Obligations .....                            | 9        |
| Annex A: Normative References .....                                   | 10       |
| Annex B: Land Release Process .....                                   | 11       |
| Annex C: Land Classification Standard.....                            | 12       |
| Annex D: Land Release Report Form .....                               | 13       |
| Annex E: Map Symbol.....                                              | 17       |
| Annex F: Criteria for cancellation through non-technical survey ..... | 18       |
| Annex G: Conduct of Technical Survey.....                             | 19       |
| Annex H: Guide on Application of Land Release Techniques .....        | 21       |

# CMAA Land Release Policy

## Introduction

In Cambodia, a substantial proportion of what had been reported as suspected hazard areas in a 2002 Level 1 Survey are areas that did not or do not contain anti-personnel mines or other explosive hazards and did not or do not require clearance. In addition, Cambodia saw rapid internal migration of the population after the conflict ceased which had a dramatic impact on the settlement and use of land. As a result, the land reclamation by local people and new settlers is extremely large especially in the northwest provinces. In May 2006, CMAA adopted an Area Reduction Policy in order to recognize previously suspected land which had been returned to productive use without current evidence of threat by reclassifying them in the national database as reclaimed land. While that policy enabled reclassifying land into end-state land that no longer require the allocation of clearance resources, it did not provide enough encouragement for stakeholders in the country to better target resources where the threat had been confirmed and to apply the full range of available methods to release contaminated and suspected land from suspicion.

This CMAS provides guidance on the overall land release policy and supersedes the 2006 Area Reduction Policy. Land release is the process of applying all reasonable effort to identify, define and remove all presence and suspicion of mines/ERW through non-technical survey, technical survey and/or clearance.

The land release process and its sub components shall inform the development of standard operating procedures for all mine action operators in Cambodia. Cambodia is a State Party to the Anti Personnel Mine Ban Convention and as such it is anticipated that the employment of the land release process and the full range of associated methodologies shall assist Cambodia in quickly meeting its obligation. Furthermore, as mine clearance resources continue to be scarce, the Land Release Policy is designed to target the available resources onto the areas with the greatest need through clearly defining the actual contamination status.

The CMAS should be read in conjunction with CMAS 6 Clearance Requirements Demining, CMAS 7 Clearance Requirements - ERW and CMAS 14 Baseline Survey.

In order to ensure the most effective use of mine action resources in Cambodia the CMAA requires the maximum use of Land Release methodology. The CMAA requires operators to adopt the most efficient use of the three actions, or combinations of these actions, to release land that has been recorded as suspected of containing a mine/ERW hazard:

1. Cancellation through non-technical survey. As defined in IMAS 07.11 The term "Non-technical Survey" refers to the collection and analysis of data, without the use of technical interventions, about the presence, type, distribution and surrounding environment of mine/ERW contamination, in order to define better where mine/ERW contamination is present, and where it is not, and to support land release prioritisation and decision-making processes through the provision of evidence. The aim is to confirm if there is evidence of a suspected hazard or not and the extent of the suspected hazardous area. A non-technical survey cancels any previous survey of an area and can also release land from suspicion if it is used to follow up a previous non-technical survey of the area. The Baseline Survey information shall be routinely updated as part of the annual planning

process and pre assessment checks, accordingly the national database shall be updated.

Criteria for cancellation are detailed in Annex F

2. Reduction through technical survey. The detailed topographical and technical investigation of an area suspected of containing a mine/ERW hazard in order to determine any area requiring clearance and to release from suspicion the balance of the area determined to not contain a mine/ERW hazard.

Examples would include:

- Land within a recorded hazardous area gridded by manual deminers to assess the likelihood of threat
  - Land within a recorded hazardous area which was processed using mechanical verification assets (e.g. flair, tiller, roller, etc)
  - Land within a recorded hazardous area that is assessed by Explosive Detection Animals (EDA)
3. Land released through clearance. The physical processing of an area to a specified depth in accordance with CMAS 06 – Clearance Requirements and CMAS 07 – Clearance Requirements - ERW.

Land Release in Cambodia shall apply the following process or actions, which shall be clearly defined in this CMAS and accredited standard operating procedures:

1. A formal well documented and recorded process for investigation in accordance with accredited SOPs into the mine/ERW problem;
2. Well defined and objective criteria for the reclassification of land that is used to inform the planning and prioritisation systems;
3. An external Quality Management process implemented by CMAA
4. A high degree of community involvement and acceptance of decision making;
5. A formal process of handover of land prior to the release of land;
6. An on-going monitoring mechanism after the handover has taken place.

The RGC accepts that no liability shall rest with an accredited operator for land that is released as long as the process of releasing the land (whether through non-technical survey, technical survey or clearance) has fully complied with the CMAS, has been conducted by an accredited operator using accredited standard operating procedures and has been subjected to quality assurance by CMAA.

# Land Release

## 1. Scope

This standard provides guidance on the process of land release to enable the development of standard operating procedures and outlines the responsibilities and obligations of all demining organisations and agencies in Cambodia.

## 2. Normative References

A list of normative references is given in Annex A. Normative references are important documents to which reference is made in this standard or which form part of the provisions of this standard.

## 3. Terms and Definitions

The term “**Land Release**” (IMAS 7.11) describes the process of applying all reasonable effort to identify, define and remove all presence and suspicion of mines/ERW through non-technical survey, technical survey and/or clearance.

The purpose of “**Non-Technical Survey**” is to confirm whether there is evidence of a hazard or not, to identify the type and extent of hazards and to define, as far as is possible, the perimeter of the suspect hazardous areas *without* physical intervention. It is the first step in the conversion of land to end state land and may result in hazardous areas being recorded as cancelled (C1) without any further clearance requirement. The products of a non-technical survey are polygons defined using the land classification standard contained at Annex C. Nontechnical survey in Cambodia is a stage that shall be used to maintain the most up to date understanding of the state of contamination. As part of the annual planning process the status of each polygon shall be confirmed prior to the commencement of any further technical survey or clearance.

“**Reclaimed Land**” is previously suspected land that has been put back into productive use involving ground-intrusive activity and ploughed a minimum of 3 times or more if stipulated by operational requirements and agreed by the CMAA, without accident or evidence of mine. Reclaimed land is included in the land classification standard as C1.

“**Cancelled land**” is previously suspected land that has been incorrectly surveyed and where subsequent non-technical survey established that there is no evidence of a hazard.

“**Technical Survey**” should confirm the presence of mines/ERW leading to the further definition of land using the land classification standard. Technical Survey may follow non-technical survey or it can be part of the clearance process so that assets can be targeted to where there is greater need. Technical survey may result in hazardous areas being reduced (defined as C2) so that no further clearance effort is necessary. Technical survey can assist in informing the planning process to target full clearance to areas where there is the greatest need, in most cases this shall be the A areas as per the land classification standard.

The term “**Suspect Hazardous Area**” (**SHA**) refers to an area suspected of having a mine/ERW hazard (A1-B2). Before an SHA is accepted onto the national database it must be defined using the land classification standard. The purpose of an SHA is to clearly define and mark an area so that any potential users of the land know of the

hazard. The definition of an SHA should also assist in identifying what further effort is required for converting the land to end state.

“**Clearance**” is regulated through CMAS 6. The application of full clearance should only be conducted once other survey methodologies have been exhausted, or are no longer viable, and the best available information has defined the hazard area as per the land classification standard. It is likely that full clearance should only occur in A areas.

The term “**Baseline Survey**” is covered in detail in CMAS 14. It is the non-technical survey methodology used in Cambodia.

“**MAPU**” refers to the Mine Action Planning Unit established at the provincial level to coordinate mine clearance planning process in most mine affected provinces. The MAPU should be knowledgeable of land classification standard and in tracking released land so that workplans can be updated and assets applied in the most effective and efficient manner possible.

#### **4. Land Release Principles**

The process of releasing land is an evidence based information assessment process that can assist in determining with confidence which land needs to be cleared and which does not. The following principles apply to land release in Cambodia:

- a) Land Classification. The Land Classification standard is contained at Annex C. Any SHA polygon entered into the national database shall be defined using the standard. The process for classifying a polygon should follow the guidelines presented in CMAS 14 BLS. A polygon shall not be entered into the database when there is insufficient evidence to support the classification or the perimeter coordinates.
- b) Any non-technical survey shall follow the guideline contained in CMAS 14.
- c) Full Clearance should only be applied once survey methodologies have been exhausted and the smallest polygon achievable has been defined. It is entirely possible that the polygon may be so well defined after non-technical survey that Clearance can proceed without further technical survey as per Annex B.
- d) Land shall only be released once at least 2 informants have agreed with the classification of the land and the Land Release Form is completed satisfactorily. This is deemed as reasonable evidence by the RGC for the release of land and that there is sufficient confidence that the land is safe to use.

Informants or sources of information may include

- Village/commune chiefs and deputies
- Former soldiers or militia who may have been involved in laying the mines
- Villagers who have been injured in the suspect area
- Villagers who have had family members or livestock killed in the suspect area
- Aerial photographs of target area
- Local officials responsible for environmental areas
- Any other locals who have been into or near the mined area.

## **5. Conduct of Technical Survey**

Technical Survey may be conducted in SHAs (A1-B2) once a Non-technical survey has resulted in the classification of an A or B area. Technical survey assets should primarily target the A areas in an attempt to further define the hazardous area. Any breach lanes utilised within the technical survey process shall apply full clearance methodology requirements for the assets used. Breach lanes shall not be cleared at intervals greater than 25m, and this should be reduced further in lower density minefields. The techniques employed should follow the principle of targeting the identification of the mined area and then employ breaching lanes into the mined area and then clear outwards till fade out has been achieved. As a guide fade out should be at least 25 metres from the last mine but this may vary depending on each individual site.

Guidance on the conduct of Technical Survey is included at Annex G

## **6. Clearance**

The conditions for Clearance are defined in CMAS 06 and 07. The application of demining assets into a Clearance role is an expensive commitment, and the appropriate use and effectiveness must be monitored. As part of the Land Release Process, Clearance shall be conducted in the following instances:

- a. BLS has classified the Land as per Land Classifications Standard and the SHA appears in the MAPU work plan.
- b. Technical Survey has occurred and the existing polygon further defined as per the Land Classification standard. The polygon shall be reviewed by the MAPU and an assessment made to confirm if the area remains as a priority, and the MAPU work plan updated as appropriate.
- c. On occasions clearance may occur directly when the polygon is well defined (such as with the K5 minefield) or very small, hence making technical survey an unnecessary activity.

If during Clearance demining assets are failing to identify mines, the methodology shall be reviewed and the polygon subjected to further technical survey in order to confirm the presence of any further hazard or release land as appropriate.

## **7. Confidence in Released Land**

Before land can be released from suspicion, it should be established, with a sufficiently high level of confidence, that there is no longer any evidence that the area contains any explosive hazards. This confidence can only be achieved once a community has stated that it is confident to use the land and Form III is completed. It is likely that the community will have confidence once they believe that it is unlikely that any further contamination will be found or any casualties will occur. To gain this confidence, operators shall conduct the land release process maintaining a strong level of engagement from the community or the land end user and other community mine action actors. This level of engagement is essential in instances where technical ERW evidence, as a result of survey, shows that the suspicion of contamination does not remain and yet the community are still fearful and will not use the land. It is likely that this situation may develop around land that is classified as B2 or C2.

On a case by case basis, if a community still has fear concerning an area and a Form III cannot be completed, then CMAA reserves the right, to further consult with the

community and respective operator, and may request the operator to conduct some further confidence building measure. In the same instance if an operator believes that it has undertaken reasonable steps and a community refuses to sign a Form III the operator may request assistance from the CMAA to intervene in order to reach a consensus that can result in the land being released and database subsequently updated.

## **8. Quality Management of Land Release**

Land Released through cancellation, reduction and clearance shall be subject to quality assurance in accordance with CMAS 02 and 03.

Land that is released as C2 shall be subject to a Quality Control Check by the CMAA prior to the handover of land back to the community. An operator should inform MAPU of the C2 status and MAPU shall contact the CMAA to arrange for the Quality Control Check. When a Quality Control Check is required the Land Release Form shall be completed accordingly.

## **9. Risks and Liability**

A potential concern is that land released through cancellation and, to a lesser extent, reduction carries a greater risk of explosive hazards being found than areas that have been cleared. Liability in Cambodia is linked to non-compliance with an agreed policy or procedure. If the process to release land has complied with CMAA policy, CMAS, and the accredited standard operating procedures of the operator then liability shall not be borne by the operator. If an operator is found not to have complied with CMAS, or the intent of CMAS, then CMAA reserve the right to review the accreditation status which may result in the organisation losing its accreditation.

In most instances the following principles apply:

1. Mines/ERW are primarily and ultimately a national responsibility and, as such, the Royal Government of Cambodia has a responsibility to accept accountability and liability for victims in all areas affected by mines/ERW.
2. If explosive hazards are found in areas that have previously been released it does not automatically imply that the organisation should be held liable. An investigation shall occur in accordance with CMAS 5 and liability or not ascertained.
3. An organisation will in principle be liable in cases of accidents caused by missed mines/ERW if investigation shows that:
  - i) the accident was caused by wilful or criminal misconduct, gross negligence, reckless misconduct or a conscious, flagrant indifference to the rights or safety of the individual(s) harmed;
  - ii) the organisation was not licensed, certified or authorised to carry out acts leading to the erroneous land release decision;
  - iii) the organisation has conducted gross procedural errors or grossly deviated from the agreed CMAS.

Failure to comply with the conditions stated in CMAS may result in the suspension of accreditation. Any resulting liability or compensation claims as a result of a missed mine as described in para. 12 C shall be the responsibility of the organisation involved.

## 10. Documentation

The purpose of land release is to convert land to end state status. In order to achieve this complete documentation is essential. All documentation requirements shall be fulfilled prior to any land being classified within the end state classification. For land to be cancelled through non-technical survey, reduced through technical survey and/or released through clearance, the Land Release Form at Annex D must be completed and included in the appropriate task dossier. Completion of the Land Release Form shall confirm that the relevant authorities and/or end land users are confident in the process followed. The Land Release Form shall form an important document for any subsequent investigation if an explosive hazard is found in a released area.

A Land Release Form shall be required for each BLS hazardous area polygon that is worked on in a task, even if it contains several polygons. In close consultation with MAPU, operators are to identify the extent of the task site and incorporate any polygons as appropriate. It is entirely reasonable to expect that a task may include multiple polygons.

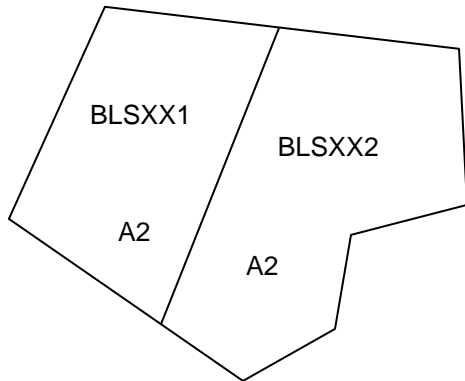
It is also anticipated that in some instances a complete polygon may not be cleared as part of a task. In this instance any remaining polygon should be resized and potentially reclassified using the Form II in BLS 14. Operators shall coordinate with MAPU should they wish to clear more than half a hectare outside of the original MAPU request. When resizing a polygon the Status portion of the Land Release Form shall be filled in as appropriate. The task will either be:

- a) Completed. This means that the original BLS polygon area has been released and converted to C Land in entirety.
- b) Suspended. This means that the task has stopped for whatever reason but that within 3 months the team will be able to recommence the work.
- c) Aborted. Means the task was not completed in accordance with the MAPU required area or a suspension has been longer than 3 months. The remaining BLS polygon shall be rescheduled for clearance by MAPU.

Wherever possible the release (clearance and/or reduction and/or cancellation) of a complete BLS polygon is strongly encouraged but when this is not possible the operator shall need to conduct a resize of the BLS polygon based on the land already released. It is not intended that the operator carry out a resurvey however the BLS Form 2 shall be updated with a new sketch map and dimensions as necessary so that records can be maintained in an effective manner.

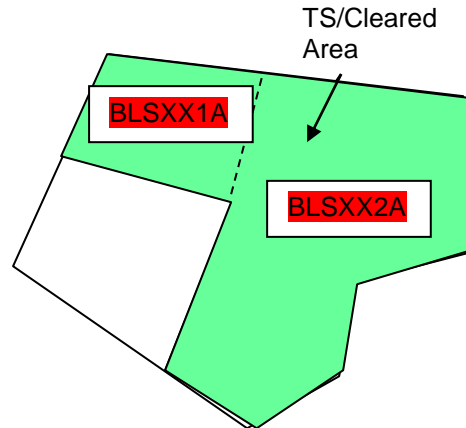
The following diagrams provide a guideline of the resizing steps:

Step 1 Task assigned



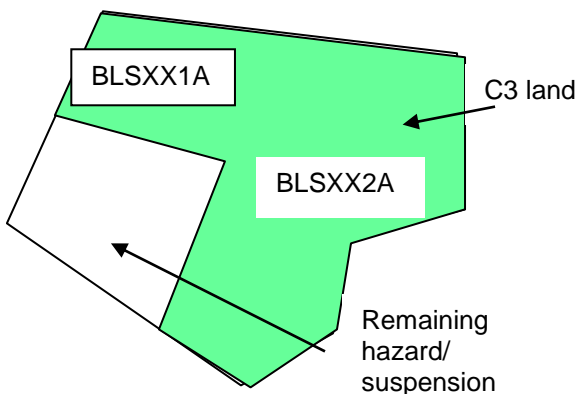
Task: BLSXX1A/XX2A

Step 2 Clearance/TS Stages 2&3  
Land Release



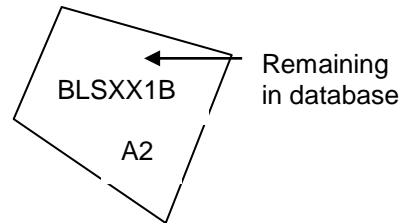
Task: **BLSXX1A/XX2A**

Step 3 Handover



Land Release Form completed

Step 4 Resize Polygon



BLS Form 2 updated

Under no circumstance is a suspected hazard area in the A and B category to be handed over to a community without meeting the minimum requirements of C category or End-state land.

The Land Release Form provides the RGC with evidence that all reasonable effort has been applied in releasing the land. If for whatever reason there is a disagreement between the operator and a community concerning acceptance of the Land Release Form the Operator, Community or MAPU may approach the CMAA Secretary General for arbitration. The CMAA Secretary General shall convene a board to address and resolve the situation.

The Land Release Form shall be accompanied by the completed Handover Form attached at Annex H.

The Land Release Form is not required for the act of superseding land as the provisions for this are already covered under CMAS 14.

## **11. Post Land Release Actions**

Post land release Monitoring shall be conducted by the MAPU to monitor the use of released land. If it is discovered that land is not being used within a 6 month period, despite the Land Release Form being satisfactorily completed, an investigation shall be conducted to ascertain why the land is not being used. Appropriate follow on action shall be taken.

## **12. Responsibilities and Obligations**

CMAA shall:

- a) be the custodian of CMAS 15. It shall maintain, update and review as appropriate;
- b) review and approve SOPs incorporating the requirements of the Land Release CMAS developed by operators;
- c) be responsible for quality management of the land release process in Cambodia;
- d) conduct post land release monitoring of all released land;
- e) maintain and update data as necessary to support the land release process; and
- f) conduct investigations into any explosive hazards found in released areas.

Organisations undertaking survey and clearance in Cambodia shall:

- a) develop SOPs that incorporate the requirements of this land release standard;
- b) gain from the CMAA accreditation needed to conduct land release activities;
- c) apply the national standards for land release;
- d) where applicable, conduct a formal handover of assessed sites to the organisation conducting follow-on activities including, where relevant, technical survey and clearance;
- e) maintain and make available documentation as specified by the CMAA;
- f) consult closely with affected communities with regards to all decisions to release land and complete the Land Release Form in accordance with this CMAS;
- g) report any accident or incident on released land, and
- h) cooperate with CMAA concerning any investigation into any explosive hazards found in released areas.

Phnom Penh 27 October, 2014

Secretary General

PRUM Sophakmonkol

## Annex A: Normative References

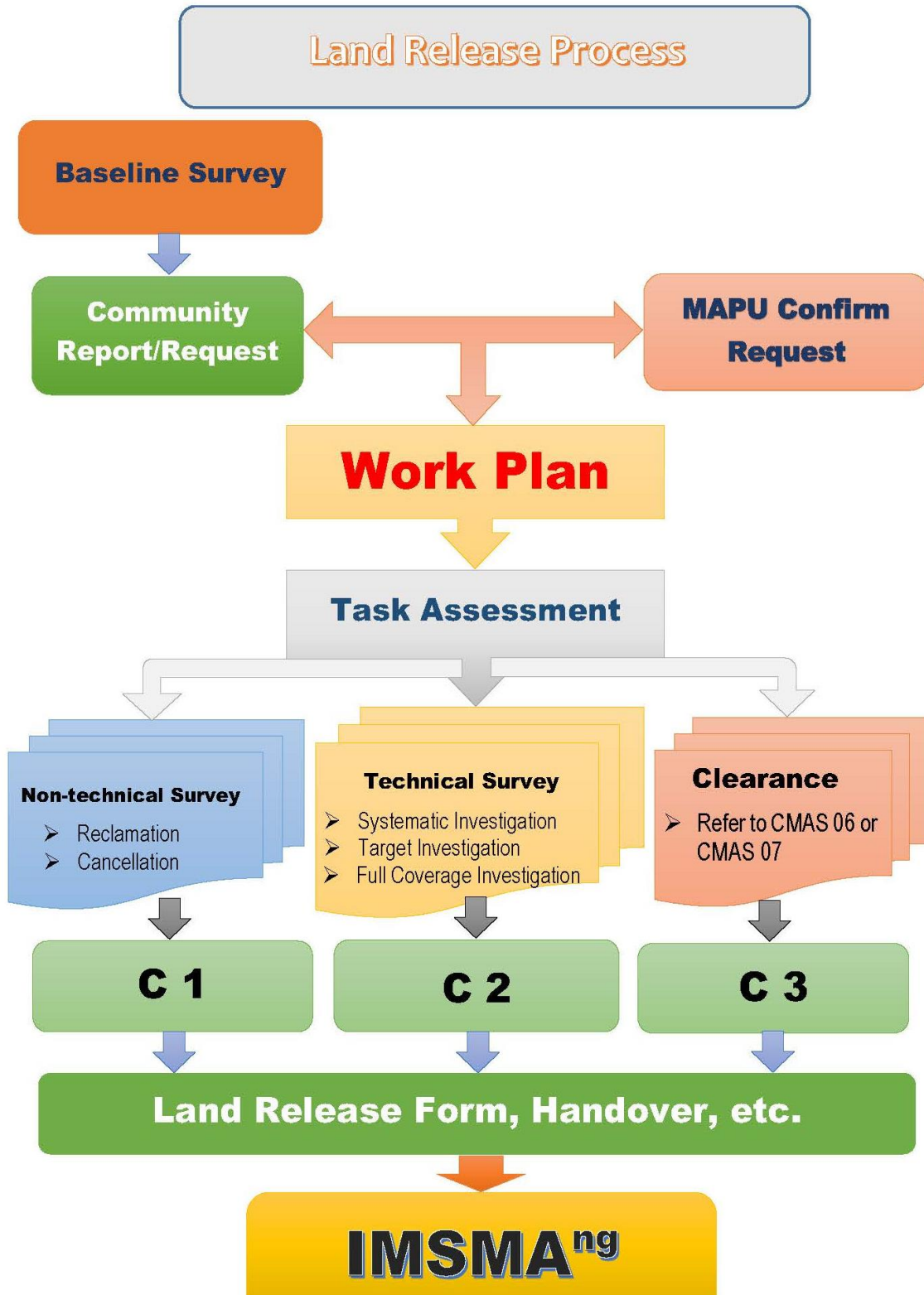
The following normative documents contain provisions, which, through reference in this text, constitute provisions of this part of the standard:

- a) CMAS 06 Clearance Requirements Demining
- b) CMAS 07 Clearance Requirements ERW
- c) CMAS 14 Baseline Survey
- d) CMAS 05 Investigations
- e) CMAS 13 Clearance Marking System
- f) IMAS 07.11 Land Release
- g) IMAS 08.10 Non-technical Survey
- h) IMAS 08.20 Technical Survey
- i) 9 series IMAS Mine and ERW Clearance

The latest version/edition of these references should be used.

## Annex B: Land Release Process

Annex B: Land Release Process



**Note:** If during clearance demining assets are failing to identify mines, the methodology shall be reviewed and the polygon subjected to further technical survey in order to confirm the presence of any further hazards or release land as appropriate. As a guide fade out should be 25 meters from the last identified mine.

## Annex C: Land Classification Standard

| CLASSIFICATION                                                                                                                                                | SUB-CLASSIFICATION | SUB-CLASSIFICATION DETAILS                                 | REMARKS                                                                                                                                                                                                                                                                                                                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------|--------------------|------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <p style="text-align: center;"><b>A</b><br/><b>(Mined Area)</b></p> <p>Land that presents evidence of mines</p>                                               | <b>A1</b>          | Land containing dense concentration of AP mines            | Strategically located, logical patterns of protective, defensive or denial mine laying such as mine belts, mines along road alignment, borders, military bases, and other infrastructures.                                                                                                                                  |
|                                                                                                                                                               | <b>A2.1</b>        | Land containing mixed dense AP and AT mines                |                                                                                                                                                                                                                                                                                                                             |
|                                                                                                                                                               | <b>A2.2</b>        | Land containing mixed scattered AP and AT mines            | Land that is not in productive use with limited presence of AP and AT mines laid in a non-defined manner.                                                                                                                                                                                                                   |
|                                                                                                                                                               | <b>A3</b>          | Land containing AT mines                                   | In-use or abandoned route alignment presenting threat of AT mines.                                                                                                                                                                                                                                                          |
|                                                                                                                                                               | <b>A4</b>          | Land containing scattered or nuisance presence of AP mines | Land that is not in productive use with limited presence of AP mines laid in a non-defined manner                                                                                                                                                                                                                           |
| <p style="text-align: center;"><b>B</b><br/><b>(Residual Threat Land)</b></p> <p>Land that presents evidence of ERW or an indeterminate presence of mines</p> | <b>B1</b>          | Land containing ERW (not including mines)                  | Battle areas containing ERW. These areas are suitable for BAC                                                                                                                                                                                                                                                               |
|                                                                                                                                                               | <b>B1.1</b>        | Land containing aircraft bomb                              | Bomb data or evidence that single aircraft bombs may be present.                                                                                                                                                                                                                                                            |
|                                                                                                                                                               | <b>B1.2</b>        | Land containing cluster munitions/bombies                  | Bombing data or evidence that an area contains cluster munitions or bombies.                                                                                                                                                                                                                                                |
|                                                                                                                                                               | <b>B1.3</b>        | Location of Ground Battles                                 | Areas containing evidence of ground fighting only.                                                                                                                                                                                                                                                                          |
|                                                                                                                                                               | <b>B1.4</b>        | Land containing stockpiles/caches                          | Locations where caches or stockpiles are existing.                                                                                                                                                                                                                                                                          |
|                                                                                                                                                               | <b>B1.5</b>        | Abandoned military compounds                               | Locations which may be more highly suspected to contain munitions.                                                                                                                                                                                                                                                          |
|                                                                                                                                                               | <b>B2</b>          | Land with no verifiable mine threat                        | Previously suspected land that local population are putting back into productive use. No accidents or evidence of mines for a period of 3 years will result in reclassification as C1                                                                                                                                       |
| <p style="text-align: center;"><b>C</b><br/><b>(End State Land)</b></p> <p>Land that presents no obvious threat</p>                                           | <b>C1</b>          | Cancelled / Reclaimed Land                                 | Previously suspected land that non-technical survey confirms has been put back into productive use and ploughed without accident or evidence of mines a minimum of 3 times. Land previously recorded in error as A or B categories where non-technical survey confirms that the area meets the criteria detailed in Annex F |
|                                                                                                                                                               | <b>C2</b>          | Land Reduced through Technical Survey                      | Land previously recorded as mined or suspected where as a result of approved technical survey methodology no obvious threat remains.                                                                                                                                                                                        |
|                                                                                                                                                               | <b>C3</b>          | Cleared Land                                               | Land formally cleared by accredited mine clearance operators adhering to the national standards (CMAS).                                                                                                                                                                                                                     |
|                                                                                                                                                               |                    |                                                            |                                                                                                                                                                                                                                                                                                                             |



| 5. ការកាត់បន្ថយផ្ទៃដីតាមការស្រាវជ្រាវបច្ចេកទេស / Land Released Through Technical Survey (C2)                                                                                                                                                                                            |                                                                                                                                                                        |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ឧបករណ៍ប្រើប្រាស់                                                                                                                                                                                                                                                                        | <input type="checkbox"/> ដោយដៃ (Manual) <input type="checkbox"/> សត្វ (EDA): <input type="checkbox"/> គ្រឿងចក្រ (Mechanical): <input type="checkbox"/> ផ្សេងៗ (Other): |
| ថ្ងៃចាប់ផ្តើម/ Started date:                                                                                                                                                                                                                                                            | ថ្ងៃបញ្ចប់ (Ended date):                                                                                                                                               |
| ចំនួនថ្ងៃធ្វើការ/ Number of working days:                                                                                                                                                                                                                                               | លេខសម្គាល់ក្រុម/ Team ID:                                                                                                                                              |
| ទំហំផ្ទៃដីដែលបានកាត់បន្ថយ/<br>Area Released                                                                                                                                                                                                                                             | ការស្រាវជ្រាវតាមប្រព័ន្ធ/ Systematic Investigation (SI): <span style="float:right">m<sup>2</sup></span>                                                                |
|                                                                                                                                                                                                                                                                                         | ផ្ទៃដីបោសសំអាតព្រះប្រអប់/Breaching lane: <span style="float:right">m<sup>2</sup></span>                                                                                |
|                                                                                                                                                                                                                                                                                         | ផ្ទៃប្រអប់បោសសំអាត/ Investigated Box: <span style="float:right">m<sup>2</sup></span>                                                                                   |
|                                                                                                                                                                                                                                                                                         | ប្រអប់មិនត្រួតពិនិត្យ/Uninvestigated Box: <span style="float:right">m<sup>2</sup></span>                                                                               |
|                                                                                                                                                                                                                                                                                         | ការស្រាវជ្រាវតាមគោលដៅ/ Targeted Investigation (TI): <span style="float:right">m<sup>2</sup></span>                                                                     |
|                                                                                                                                                                                                                                                                                         | ផ្ទៃដីពិនិត្យគោលដៅ/ Targeted Investigated Area: <span style="float:right">m<sup>2</sup></span>                                                                         |
|                                                                                                                                                                                                                                                                                         | ផ្ទៃដីមិនត្រូវការពិនិត្យ Uninvestigated Area: <span style="float:right">m<sup>2</sup></span>                                                                           |
|                                                                                                                                                                                                                                                                                         | ការស្រាវជ្រាវទាំងស្រុង/ Full Coverage Investigation (FCI): <span style="float:right">m<sup>2</sup></span>                                                              |
|                                                                                                                                                                                                                                                                                         | ផ្ទៃដីសរុប/Total area released: <span style="float:right">m<sup>2</sup> (=area SI+TI+FCI)</span>                                                                       |
| ផ្ទៃដីសរុបតាមGIS Calculation: <span style="float:right">m<sup>2</sup></span>                                                                                                                                                                                                            |                                                                                                                                                                        |
| តើមានតំបន់រដ្ឋបាលដែលបានបោសសម្អាតស្ថិតនៅក្រៅ BLS ដែរឬទេ?<br>(Is there administrative area cleared outside of BLS?)                                                                                                                                                                       | <input type="checkbox"/> NO <input type="checkbox"/> YES, If yes/ប្រសិនបើមាន:.....m <sup>2</sup>                                                                       |
| តើមានការកាត់បន្ថយផ្ទៃដីបន្ថែម នៅក្រៅ BLS ដែរឬទេ?/ Is there any extra technical survey outside the BLS area? <input type="checkbox"/> NO <input type="checkbox"/> YES: if yes, ប្រសិនបើមាន ទំហំផ្ទៃដី/ Area size:.....(m <sup>2</sup> ) សូមបញ្ជាក់ពីហេតុផល/ Please provide reasons:..... |                                                                                                                                                                        |
| តើអ្នកណាជាម្ចាស់ជំនួយសំរាប់ប្រតិបត្តិការនេះ ?/ Who is the donor supporting this operation?:                                                                                                                                                                                             |                                                                                                                                                                        |

| 6. ការកាត់បន្ថយដោយការបោសសម្អាត/ Land Release Through Clearance (C3)                                                                                                                                                        |                                                                                                                                                                        |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| ឧបករណ៍ប្រើប្រាស់                                                                                                                                                                                                           | <input type="checkbox"/> ដោយដៃ (Manual) <input type="checkbox"/> សត្វ (EDA): <input type="checkbox"/> គ្រឿងចក្រ (Mechanical): <input type="checkbox"/> ផ្សេងៗ (Other): |
| ថ្ងៃចាប់ផ្តើម/ Started date:                                                                                                                                                                                               | ថ្ងៃបញ្ចប់ /Finished date:                                                                                                                                             |
| ចំនួនថ្ងៃធ្វើការ/ Number of working days:                                                                                                                                                                                  | លេខសម្គាល់ក្រុម (Team ID) :                                                                                                                                            |
| ទំហំផ្ទៃដីដែលបានបោសសម្អាត<br>/Area cleared                                                                                                                                                                                 | តាមផ្ទៃដីប្រតិបត្តិការ/ Operational: <span style="float:right">m<sup>2</sup></span>                                                                                    |
|                                                                                                                                                                                                                            | តាមផ្ទៃដី/ GIS Calculation: <span style="float:right">m<sup>2</sup></span>                                                                                             |
| ជម្រៅដែលទាមទារឲ្យធ្វើការបោសសម្អាត /Required clearance depth: <span style="float:right">cm</span>                                                                                                                           |                                                                                                                                                                        |
| តើមានតំបន់រដ្ឋបាលដែលបានបោសសម្អាតស្ថិតនៅក្រៅ BLS ដែរឬទេ?<br>(Is there administrative area cleared outside of BLS?)                                                                                                          | <input type="checkbox"/> NO <input type="checkbox"/> YES, If yes/ ប្រសិនបើមាន: [ ] m <sup>2</sup>                                                                      |
| តើមានការបោសសម្អាតបន្ថែម នៅក្រៅ BLS ដែរឬទេ?/ Is there any extra clearance outside the BLS area? <input type="checkbox"/> NO <input type="checkbox"/> YES<br>if yes, ប្រសិនបើមានទំហំផ្ទៃដី/ Area size: [ ] (m <sup>2</sup> ) |                                                                                                                                                                        |
| សូមបញ្ជាក់ពីហេតុផល/Please provide reasons:                                                                                                                                                                                 |                                                                                                                                                                        |
| តើអ្នកណាជាម្ចាស់ជំនួយសំរាប់ប្រតិបត្តិការនេះ ?/ Who is the donor supporting this operation?:                                                                                                                                |                                                                                                                                                                        |

| 7. គ្រឿងផ្ទុះដែលបានរកឃើញ និងបានកម្ទេចចោល/ Devices Found and Destroyed |                     |           |             |           |                              |           |                         |           |               |           |
|-----------------------------------------------------------------------|---------------------|-----------|-------------|-----------|------------------------------|-----------|-------------------------|-----------|---------------|-----------|
| វិធីសាស្ត្រ<br>(Methodology)                                          | មីនប្រឆាំងមនុស្ស/AP |           | មីនគោរ/AT   |           | សំណល់ជាតិផ្ទុះពីសង្គ្រាម/ERW |           | មីនថ្លៃ/IM (Improvised) |           | ផ្សេងៗ/Others |           |
|                                                                       | ប្រភេទ/Type         | ចំនួន/Qty | ប្រភេទ/Type | ចំនួន/Qty | ប្រភេទ/Type                  | ចំនួន/Qty | ប្រភេទ/Type             | ចំនួន/Qty | ប្រភេទ/Type   | ចំនួន/Qty |
| ការស្រាវជ្រាវបច្ចេកទេស (Technical Survey)                             |                     |           |             |           |                              |           |                         |           |               |           |
| ការស្រាវជ្រាវតាមប្រព័ន្ធ                                              |                     |           |             |           |                              |           |                         |           |               |           |

|                                                       |  |  |  |  |  |  |  |  |  |  |
|-------------------------------------------------------|--|--|--|--|--|--|--|--|--|--|
| Systematic investigation                              |  |  |  |  |  |  |  |  |  |  |
| ការស្រាវជ្រាវតាមគោលដៅ<br>Targeted investigation       |  |  |  |  |  |  |  |  |  |  |
| ការស្រាវជ្រាវទាំងស្រុង<br>Full coverage investigation |  |  |  |  |  |  |  |  |  |  |
| <b>ការបោសសម្អាត Clearance</b>                         |  |  |  |  |  |  |  |  |  |  |
| ការបោសសម្អាត Clearance                                |  |  |  |  |  |  |  |  |  |  |
| Total                                                 |  |  |  |  |  |  |  |  |  |  |
| កំណត់សម្គាល់/Remarks:<br>.....                        |  |  |  |  |  |  |  |  |  |  |

**8. តំបន់ដែលមិនបានបោសសម្អាតនៅសេសសល់ Remaining Hazardous Area**

8.1 តើមានតំបន់ដែលមិនបានបោសសម្អាតនៅសេសសល់ បន្ទាប់ពីបានបោសសម្អាតដែរឬទេ?/ Are there remaining hazardous areas following parts 4, 5 and 6 (C1, C2, and C3) of this form?  NO  YES, if yes, please provide SP  
 ប្រសិនបើមានសូមផ្តល់ SP:X: ..... Y: .....

ទំហំតំបន់មិនបានបោសសម្អាត/ Uncleared area size: ..... m2

ពិពណ៌នា/Description:  
.....

សំគាល់: សូមផ្តល់និយាមកាលដីតំបន់មិនទាន់បោសសម្អាត Please attach table.  
 កំណត់សម្គាល់: ប្រភេទតំបន់មិនបានបោសសម្អាតទាំងនោះ រួមមាន គុម្ពបួស្សី បឹង ត្រពាំង ស្រះទឹក ដីបាតផ្ទះ និងទ្រុងសត្វពាហណៈ ជាដើម។  
 Note: Those uncleared areas may include: bush, lake, pond, the underneath of a house, animal yard, etc.

8.2 តើប្លង់ចម្ការមិនស្រាវជ្រាវត្រូវបានកាត់នូវទាំងស្រុងឬទេ? Has the entire BLS polygon been released?  
 Yes  No (បើសិន No សូមផ្តល់និយាមកាលដីតំបន់មិនទាន់បានបោសសម្អាតដូចបានចែងក្នុង CMAS 15, កថាខ័ណ្ឌ 10 If "No" please provide coordinates of the remaining BLS polygon as stipulated in CMAS 15, paragraph 10)

**9. ព័ត៌មានស្តីពីការត្រួតពិនិត្យគុណភាព/ QC Information** ផ្ទៃក្នុង/ Internal ក្រៅ/ External

តើមានតម្រូវការពិនិត្យគុណភាពលើផ្ទៃដីដែលបានកាត់បន្ថយដែរឬទេ? (Is QC required on the released land?)  Yes  No  Yes  No

ប្រសិនបើមាន តើការត្រួតពិនិត្យគុណភាពត្រូវបានធ្វើដែរឬទេ?/If YES, has QC been conducted?  Yes  No  Yes  No

ប្រសិនបើមាន តើក្រុមត្រួតពិនិត្យលេខប៉ុន្មាន?/ If YES, what is the QC team ID:

សូមផ្តល់លេខរបាយការណ៍ក្នុងការត្រួតពិនិត្យ/ What is the QC report ID:

**10. ព័ត៌មានសេដ្ឋកិច្ចសង្គម(ដើម្បីប្រៀបធៀបជាតំបន់ក្នុងពេលប្រគល់)/ Socio-Economic Information (Actual land use at time of handover)**

|                                                       |                                                       |                                                       |                                                     |
|-------------------------------------------------------|-------------------------------------------------------|-------------------------------------------------------|-----------------------------------------------------|
| 10.1 ទំហំ/Size: m <sup>2</sup>                        | 10.2: .m <sup>2</sup>                                 | 10.3: m <sup>2</sup>                                  | 9.4: m <sup>2</sup>                                 |
| ប្រភេទដី:                                             | ប្រភេទដី:                                             | ប្រភេទដី:                                             | ប្រភេទដី: សាលារៀន                                   |
| <b>អ្នកទទួលបានផលផ្ទាល់</b><br>Direct Beneficiaries    | <b>អ្នកទទួលបានផលផ្ទាល់/</b><br>Direct Beneficiaries   | <b>អ្នកទទួលបានផលផ្ទាល់/</b><br>Direct Beneficiaries   | <b>អ្នកទទួលបានផលផ្ទាល់/</b><br>Direct Beneficiaries |
| ចំនួនគ្រួសារសរុប/Families:                            | ចំនួនគ្រួសារសរុប/Families:                            | ចំនួនគ្រួសារសរុប/Families:                            | ចំនួនសិស្សសរុប/Students :                           |
| ចំនួនមនុស្សសរុប/Individual:                           | ចំនួនមនុស្សសរុប/Individual:                           | ចំនួនមនុស្សសរុប/Individual:                           | ប្តី/ Male:                                         |
| ប្តី ≥18/Male:                                        | ប្តី ≥ 18/Male:                                       | ប្តី ≥18/Male:                                        | ស្ត្រី/Female:                                      |
| ស្ត្រី ≥18 /Female:                                   | ស្ត្រី ≥18 /Female:                                   | ស្ត្រី ≥18 /Female:                                   | ជនពិការ/Disabled:                                   |
| ក្មេងប្រុស <18/Boy:                                   | ក្មេងប្រុស <18/Boy:                                   | ក្មេងប្រុស <18/Boy:                                   |                                                     |
| ក្មេងស្រី <18/Girl:                                   | ក្មេងស្រី <18/Girl:                                   | ក្មេងស្រី <18/Girl:                                   |                                                     |
| ជនពិការ/Disabled:                                     | ជនពិការ/Disabled:                                     | ជនពិការ/Disabled:                                     |                                                     |
| <b>អ្នកទទួលបានផលប្រយោល/</b><br>Indirect Beneficiaries | <b>អ្នកទទួលបានផលប្រយោល/</b><br>Indirect Beneficiaries | <b>អ្នកទទួលបានផលប្រយោល/</b><br>Indirect Beneficiaries |                                                     |
| ចំនួនគ្រួសារសរុប/Families:                            | ចំនួនគ្រួសារសរុប/Families:                            | ចំនួនគ្រួសារសរុប/Families:                            |                                                     |
| ចំនួនមនុស្សសរុប/Individual:                           | ចំនួនមនុស្សសរុប/Individual:                           | ចំនួនមនុស្សសរុប/Individual:                           |                                                     |
| ប្តី >18/Male:                                        | ប្តី >18/Male:                                        | ប្តី >18/Male:                                        |                                                     |

|                              |                    |                    |
|------------------------------|--------------------|--------------------|
| ស្ត្រី>18 /Female:           | ស្ត្រី>18 /Female: | ស្ត្រី>18 /Female: |
| ក្មេងប្រុស<18/Boy:           | ក្មេងប្រុស<18/Boy: | ក្មេងប្រុស<18/Boy: |
| ក្មេងស្រី<18/Girl:           | ក្មេងស្រី<18/Girl: | ក្មេងស្រី<18/Girl: |
| ជនពិការ/Disabled:            | ជនពិការ/Disabled:  | ជនពិការ/Disabled:  |
| <b>កំណត់សម្គាល់/Remarks:</b> |                    |                    |

|                                                                                                                                                                                                                                                                           |                                               |                                                    |                     |
|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------|----------------------------------------------------|---------------------|
| ប្រភេទការប្រើប្រាស់ដី (សូមស្រង់ពាក្យខាងក្រោមនេះ ទៅបំពេញក្នុងប្រភេទដីក្រោមចំនុច 10.1, 10.2, 10.3 ដោយឡែកចំនុច 10.4 បំពេញបានតែ សាលារៀន)<br>Land Use Categories (Please select below words and write it after land use type under 10.1, 10.2, and 10.3. But school for 10.4.) |                                               |                                                    |                     |
| 1. ព្រំដែន (Border zone)                                                                                                                                                                                                                                                  | 7. លំនៅដ្ឋាន (Housing)                        | 12. ការិយាល័យរដ្ឋបាល<br>(Administration office)    | 16. ស្រះទឹក/ Pond   |
| 2. តំបន់ការពារ (Protected area)                                                                                                                                                                                                                                           | 8. កសិកម្ម (Agriculture)                      | 13. វត្ត/មណ្ឌលសាសនា (Pagoda)                       | 17. អណ្តូងទឹក/ Well |
| 3. ប្រាសាទ/តំបន់ប្រវត្តិសាស្ត្រ<br>(Temple/historical site)                                                                                                                                                                                                               | 9. ផ្លូវ/ស្ពាន/លូទឹក<br>(Road/Bridge/Culvert) | 14. ប្រព័ន្ធស្រោចស្រព<br>(Canal/Irrigation system) | 18. ផ្សេងៗ(Others)  |
| 4. កន្លែងទេសចរណ៍/Tourist Site                                                                                                                                                                                                                                             | 10. សាលារៀន (School)                          | 15. ប្រភពទឹក (Water source)                        |                     |
| 5. ដីពាណិជ្ជកម្ម (Commercial land)                                                                                                                                                                                                                                        | 11. មណ្ឌលសុខភាព (Health centre)               |                                                    |                     |
| 6. ការកាត់បន្ថយគ្រោះថ្នាក់ (Risk reduction)                                                                                                                                                                                                                               |                                               |                                                    |                     |

**11. កិច្ចព្រមព្រៀងក្នុងតំបន់/Local Agreement**

|                                 |                            |
|---------------------------------|----------------------------|
| <b>១. ប្រតិបត្តិករ/Operator</b> | <b>២. តំណាងអ្នកទទួលបាន</b> |
| ឈ្មោះ (Name):                   | ឈ្មោះ (Name):              |
| ភេទ (Sex):                      | ភេទ (Sex):                 |
| អាយុ (Age):                     | អាយុ (Age):                |
| មុខរបរ (Occupation):            | មុខរបរ (Occupation):       |
| ហត្ថលេខា (Signature):           | ហត្ថលេខា (Signature):      |
| <b>៣. អាជ្ញាធរភូមិ</b>          | <b>៤. អាជ្ញាធរឃុំ</b>      |
| ឈ្មោះ (Name):                   | ឈ្មោះ (Name):              |
| ភេទ (Sex):                      | ភេទ (Sex):                 |
| អាយុ (Age):                     | អាយុ (Age):                |
| មុខរបរ (Occupation):            | មុខរបរ (Occupation):       |
| ហត្ថលេខា (Signature):           | ហត្ថលេខា (Signature):      |

**សម្គាល់:** យ៉ាងហោចណាស់មានមនុស្ស៤នាក់៖ ប្រតិបត្តិករ, អាជ្ញាធរក្នុងតំបន់, សហគមន៍ក្នុងតំបន់, តំណាងអ្នកទទួលបាន  
**Note:** At least 4 people including: Operator, Local authority, Local community, Beneficiaries



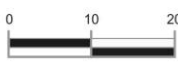











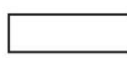

















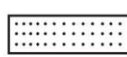









**12. ការបញ្ចូលទិន្នន័យ និងការត្រួតពិនិត្យគុណភាព/ Internal Data Entry and Quality Control**

|                            | រាយការណ៍ដោយ<br>(Reported by) | បញ្ចូលទិន្នន័យដោយ<br>(Data entered by) | ពិនិត្យគុណភាពដោយ<br>(Quality controlled by) |
|----------------------------|------------------------------|----------------------------------------|---------------------------------------------|
| ឈ្មោះ/Name:                |                              |                                        |                                             |
| តួនាទី/Title:              |                              |                                        |                                             |
| ប្រតិបត្តិករ/Organization: |                              |                                        |                                             |
| ហត្ថលេខា/Signature:        |                              |                                        |                                             |
| កាលបរិច្ឆេទ/Date:          |                              |                                        |                                             |

- ភ្ជាប់ជាមួយ/ Attachment:**
- ផែនទីដីដែលបានកាត់បន្ថយ ជាមួយបរិមាត្រ (Sketch of released area with perimeter – please subdivide map differentiating between cancellation, technical survey and clearance)
  - ចំនុចយោងដីដែលបានកាត់បន្ថយ និងដីដែលនៅសល់ (តារាងចំណុចរបត់មាននៅក្នុងឧបសម្ព័ន្ធ ខ- របាយការណ៍ស្រាវជ្រាវទិន្នន័យមូលដ្ឋានស្តង់ដារជំពូក១៤) (Referent Points will be found in annex B, Baseline Survey report of CMAS-14)
  - គំរូការគូសផែនទីមានក្នុងស្តង់ដារកម្ពុជាជំពូក-១៥ នៅទំព័រទី ( ១២-១៣ ) ជាភាសាខ្មែរ និងទំព័រទី ( ១០ ) ជាភាសាអង់គ្លេស (Model of map drawing has in CMAS-15 of page ( 12-13 ) in Khmer version and page ( 10 ) in English version)

# និមិត្តសញ្ញាផែនទី

## MAP SYMBOLS

|                                                                                     |                                                                                  |                                                                                       |                                                    |
|-------------------------------------------------------------------------------------|----------------------------------------------------------------------------------|---------------------------------------------------------------------------------------|----------------------------------------------------|
|    | ទិសខាងជើង<br>North Direction                                                     |    | គ្រោះថ្នាក់មនុស្ស<br>Human Accident                |
|    | មាត្រដ្ឋាន<br>Scale                                                              |    | គ្រោះថ្នាក់សត្វ<br>Cattle Accident                 |
|    | ចំណុចទិសដៅ<br>Bench Mark                                                         |    | ផ្លូវកៅស៊ូ<br>Ashvelt Road                         |
|    | ចំណុចចាប់ផ្តើម<br>Starting Point                                                 |    | ផ្លូវត្រួសក្រហម<br>Laterite Road                   |
|    | ចំណុចបត់<br>Turning Point                                                        |    | ផ្លូវលំ<br>Village Road                            |
|    | ចំណតរថយន្ត<br>Parking Area                                                       |    | ផ្លូវដែក<br>Rail Way                               |
|    | ចំណតឧទ្ធស្ឋាចក្រ<br>Helicopter Landing Area                                      |    | ទំនប់<br>Dyke                                      |
|    | ដីមិនទាន់បោសសំអាត<br>Uncleared Area                                              |    | ផ្លូវរទេះ<br>Cart Track                            |
|    | ដីបោសសំអាតដោយអ្នកដោះមីន<br>Area Cleared by Deminer                               |    | ផ្លូវថ្មើរជើង<br>Foot Path                         |
|  | ដីចំការមីនដែលបានបញ្ចប់<br>Completion Minefield                                   |  | លេនដ្ឋានចល័ត<br>Trench                             |
|  | ដីបោសសំអាតដោយស្ថាប័នផ្សេងទៀត<br>Area Cleared by Other Agencies                   |  | ស្ពាន លូ<br>Brigde, Culvert                        |
|  | ដីបោសសំអាតដោយម៉ាស៊ីនស្រូបកំរិតជ្រៅ<br>Area Cleared by Large Loop Detectors (LLD) |  | បឹង ត្រពាំង ស្រះ អាងទឹក<br>Lake, Pond, Reservoir   |
|  | ដីកាត់ដោយត្រាក់ទ័រ<br>Area Cut by Tractor                                        |  | ប្រឡាយទឹក អូរ<br>Canal, Stream                     |
|  | ដីបោសសំអាតដោយគ្រឿងចក្រ<br>Area Cleared by Mechanical                             |  | អណ្តូង<br>Well                                     |
|  | ដីកសិកម្ម<br>Agriculture Land                                                    |  | លំនៅដ្ឋាន<br>Settlement                            |
|  | មូលដ្ឋានទ័ព<br>Military Installation                                             |  | សាលារៀន<br>School                                  |
|  | ដីបោសសំអាតដោយសត្វសុនខ<br>Area Cleared by Dogs                                    |  | វត្ត<br>Pagoda                                     |
|  | គ្រាប់មីន<br>Mine                                                                |  | សំណង់សាធារណៈ<br>Public Building                    |
|  | គ្រាប់មីនទាន់ផ្ទះ<br>UXO                                                         |  | មន្ទីរពេទ្យ មណ្ឌលសុខភាព<br>Hospital, Health Center |
|  | មីនរកឃើញដោយប្រជាពលរដ្ឋ<br>Mine Found by Local Villagers                          |  | អង្កែតែន<br>Antenna                                |
|  | គ្រាប់មីនទាន់ផ្ទះរកឃើញដោយប្រជាជន<br>UXO Found by Local Villagers                 |  | តំបន់ ភ្នំ ខ្ពង់រាប<br>Contour                     |

## Annex F: Criteria for cancellation through non-technical survey

1. Land previously classified as A or B, whether a whole polygon or part of a polygon, may be cancelled where:
  - A qualified and accredited non-technical survey team finds no evidence of mine/ERW contamination on the land in question, or, where evidence has previously been recorded, the land now meets the reclamation criteria  
AND
  - The non-technical survey team has made all reasonable effort to obtain such evidence should it exist by Identifying and accessing all relevant sources of information, including women, girls, boys and men, land owners, land users and former combatants, as well as historical and analytical material (such as clearance and survey reports of adjacent areas)
2. Cancelled land shall be classified as follows:
  - Reclaimed land which has been ploughed a minimum of three times since the last evidence of a mine was recorded:  
  
A1, A4 – a minimum of 3 times by light tractor or buffalo  
A2, A3 – a minimum of 3 times by heavy tractor  
  
Only the area ploughed may be recorded as C1 (square metres of cancelled land)  
  
Criteria for B1 areas shall be established by CMAA in due course.
  - Land where areas have been erroneously recorded through mapping or data errors.
3. Land shall not be cancelled solely on the basis of having a low impact on the local community. It may however be given a lower priority, [as agreed with CMAA in accordance with the MAPU process](#).

Note: Land shall not be cancelled where the following evidence is recorded, except where reclamation criteria are met:

- Verbal reports from local population/former combatants
- Mine/ERW records, where the reliability of such records has been confirmed during previous operation
- Visual observation of mines/ERW, mine/ERW parts, fragmentation or craters
- There have been detonations during fires or by animals
- Mine/ERW accidents or incidents have occurred

## Annex G: Conduct of Technical Survey

Technical Survey may be conducted in SHAs, except for A3 areas, once a non-technical survey has resulted in the classification of an A or B area. Technical survey assets should primarily target the A areas in an attempt to further define the hazardous area.

Technical survey may be conducted using targeted investigation and/or systematic investigation. Targeted investigation is technical survey conducted in certain areas of an SHA which are more likely to contain mines/ERW than others (for example, previous accident sites or other evidence points). Systematic investigation is conducted where there are no areas within the polygon which are more likely to contain mines/ERW than others.

For land to be reduced through technical survey it is necessary to show that the efforts applied could reasonably have been expected to identify evidence of the presence of contamination if it had been present.

Any breach lanes utilised within the technical survey process shall apply full clearance methodology requirements for the assets used. During systematic investigation, breach lanes shall not be cleared at intervals greater than 25m, and this should be reduced further in lower density minefields. The techniques employed should follow the principle of targeting the identification of the mined area and then employ breaching lanes into the mined area and then clear outwards till fade out has been achieved. As a guide fade out should be at least 25 metres from the last mine but this may vary depending on each individual site.

Operators shall develop technical survey methodology that shall take into account any information available about the hazard types that may be encountered at the site and the capability of the available survey assets.

The technical survey methodology should define the proportion of the ground requiring investigation, the width, arrangement and separation of breach lanes and any requirement for follow-up by other assets.

Technical Survey will likely face the greatest challenge in defining A4 areas. Greater use of demining tools should assist with isolating the cause of the contamination.

The most common assets and methods used for technical survey are:

- a) *Manual*. This is a reliable technical survey tool providing a high degree of confidence in the ground that has been searched. Due consideration, however, should be given to the sample size, and the type of hazard expected, when using manual clearance to determine the likely presence of mines. Using manual clearance in a technical survey role is most appropriate when addressing patterned or dense minefields (A1 and A2 areas). Manual assets may employ a range of detectors such as multi sensor detectors dependant on the expected threat defined by the land classification. Rates must remain realistic for manual techniques.
- b) *Explosive Detection Animals*. Detection animals are a tool that can be used to assist in the reduction of hazardous area through technical survey. They may be more effective in A4 and B1 areas where no known pattern or density is expected. The use of dogs is governed in CMAS Dogs, and the testing requirements for dogs shall be maintained throughout their use. Animals must be accredited by CMAA for the type and depth of hazard expected within the SHA. As soon as an indication is confirmed as being a mine or ERW, and the subsequent 25m cleared box shows that there are other mines present, then the task is no longer considered as technical survey, and the continued use of animals in the specific site shall be reviewed.

- c) *Machines*. Machines, employed in a fashion consistent with manufacturers specifications and accreditation, can provide an effective way of conducting technical survey in larger SHAs or where the mines are suspected of being more scattered. Recording detonations and conducting a visual search after the use of a machine in a suspected area can provide further evidence as to whether an area contains a mine/ERW hazard or not. Any detonations or evidence shall be thoroughly investigated. In this role machines may be the most effective way of quickly surveying areas that would ordinarily commit other assets for a far longer period. Machines may also provide an additional confidence building measure for informants and assist in the land release process. It is essential that machines shall only be employed in a known threat area so that the operator and machine are not put at unnecessary risk. Machines may be used to assist in the clearance of collapsed stockpiles or spoil piles. Rates must remain realistic for any use of mechanical machines.
- d) *Combination*. A particular area may necessitate the combination of the tools mentioned above in order to ascertain the data required to define the area requiring full clearance.

### **Information Collected During a Technical Survey**

Area on which technical survey is conducted shall be recorded as area reduced (C2). Operators shall record the area physically inspected in square metres, and the methodology used, within the area to be reduced.

The information obtained from a technical survey should be contained within a task dossier which includes details of previous non-technical surveys that provided the original requirement for technical survey.

During a technical survey the following information should be collected:

- a) confirmation of the presence or likely density of mines/ERW;
- b) confirmation of existing non-technical (and other recorded) information;
- c) assessment of the ground in terms of the soil and metal contamination;
- d) definition of the type, condition and extent of hazard;
- e) the type of explosive items and suggested depth of clearance for specific areas within the SHA. This should be clearly indicated in reports and maps; and
- f) the resources recommended to carry out further activities, such as clearance, including assets to be used in specific areas of the SHA.
- g) additional non-technical survey information;

In addition to the information above, a detailed site plan (sketch, digital map of the area, aerial photograph, etc.) shall also be prepared. This shall be provided, with the rest of the task dossier, to the organisation that will carry out any follow-on activity. The following information should be included in the site plan:

- i) marking as per Annex E
- ii) exploratory lanes (if used), area covered by technical survey assets, and safe access routes;
- iii) reference Point (Land mark), Bench Marks, Start point, Turning Points and Intermediate Points as applicable;
- iv) distances and bearings from the bench mark and turning points;
- v) location of visible mines/ERW and the pattern or mines (if known);
- vi) locations(s) of any mine, ERW or other devices found/destroyed earlier, or during, the technical survey;
- vii) prominent natural features such as high ground, water courses, trees, etc.; and
- viii) prominent man-made features within the SHA.

## Annex H: Guide on Application of Land Release Techniques

| BLS Land Classification                                                                                                                                                                 | LR Methodology | LR Technique                | Criteria                                                                                                                                                   | End State Land |
|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|-----------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------|
| <b>A1</b><br>(land containing dense concentration of APM)<br><b>A4</b><br>(land containing scattered or nuisance presence of APM)<br><b>B2</b><br>(land with no verifiable mine threat) | NTS            | Land cancellation           | Applicable to areas where subsequent non-technical survey established that there is no evidence <sup>1</sup> of a hazard.                                  | C1             |
|                                                                                                                                                                                         |                | Land reclamation            | Applicable to areas that have been ploughed for at least 3 times without accident or evidence of mine presence.                                            |                |
|                                                                                                                                                                                         | TS             | Systematic investigation    | Applicable to areas where mine presence cannot be determined by non-technical survey                                                                       | C2             |
|                                                                                                                                                                                         |                | Target investigation        | Applicable to certain areas which are more likely to contain mines than others (previous accident sites or other evidence points) by non-technical survey. |                |
|                                                                                                                                                                                         |                | Full coverage investigation | Applicable to areas where there is evidence of ERW and where it is deemed necessary to build confidence.                                                   |                |
|                                                                                                                                                                                         | Clearance      | Clearance                   | Applicable to shallow search that should concentrate on areas where there is evidence of mines                                                             | C3             |
| <b>A2</b><br>(land containing mixed APM and ATM)                                                                                                                                        | NTS            | Land cancellation           | Applicable to where subsequent non-technical survey established that there is no evidence of a hazard                                                      | C1             |
|                                                                                                                                                                                         |                | Land reclamation            | Applicable to areas that have been ploughed by heavy tractors for at least 3 times without accident or evidence of mine presence                           |                |
|                                                                                                                                                                                         | TS             | Systematic investigation    | Not applicable                                                                                                                                             | C2             |
|                                                                                                                                                                                         |                | Target investigation        | Not applicable                                                                                                                                             |                |
|                                                                                                                                                                                         |                | Full coverage investigation | Applicable to areas that have been ploughed by cattle/rotivators/light tractors or by heavy tractors less than 3 times                                     |                |
|                                                                                                                                                                                         | Clearance      | Clearance                   | Applicable to shallow search and deep search and should concentrate on areas where there is evidence of mines                                              | C3             |
| <b>A3</b><br>(land containing ATM)                                                                                                                                                      | NTS            | Land cancellation           | Applicable to areas where subsequent non-technical survey established that there is no evidence of a hazard                                                | C1             |
|                                                                                                                                                                                         |                | Land reclamation            | Applicable to areas that have been ploughed by heavy tractors at least 3 times without accident or evidence of ATM presence                                |                |
|                                                                                                                                                                                         | TS             | Systematic investigation    | Not applicable                                                                                                                                             | C2             |
|                                                                                                                                                                                         |                | Target investigation        | Not applicable                                                                                                                                             |                |
|                                                                                                                                                                                         |                | Full coverage investigation | Not applicable                                                                                                                                             |                |
|                                                                                                                                                                                         | Clearance      | Clearance                   | Applicable to deep search                                                                                                                                  | C3             |

### Definitions of technical terms used in this Guide:

| Terms                       | Suggestion                                                                                                                                                                                                                                                                                                                                |
|-----------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Cancelled Land              | Cancelled land is previously suspected land that has been incorrectly surveyed and where subsequent non-technical survey has established that there is no evidence of a hazard.                                                                                                                                                           |
| Reclaimed Land              | Reclaimed land is previously suspected land that has been put back into productive use involving ground-intrusive activity and ploughed a minimum of three times without accident or evidence of mine.                                                                                                                                    |
| Systematic Investigation    | The systematic investigation refer to the systematic process of applying technical survey in a polygon. It is typically used where there are no areas within a polygon that are more likely to contain mines/ERW, than others.                                                                                                            |
| Target Investigation        | Targeted investigation is technical survey conducted in certain areas of a polygon which are more likely to contain mines/ERW than others (e.g. previous accident sites or other evidence points).                                                                                                                                        |
| Full Coverage Investigation | Full Coverage Investigation is the method involves the processing of the entire area by an asset which does not meet standards considered as clearance (eg a flail without follow-up), in a technical survey role. If no further evidence of mines/ERW is found the area may be released, or further survey/clearance may be carried out. |

<sup>1</sup> The term “evidence” of mine presence in this Guide is meant when mine(s) was/were physically seen by surveyor or local people or accident was occurring on land in question.

**Annex J “Guide on Application of ERW Land Release Techniques”**

| <b>BLS Land Classification</b>                              | <b>LR Methodology</b> | <b>LR Technique</b>                   | <b>Criteria</b>                                                                                                                                                                                                                                                                                       | <b>End State Land</b> |
|-------------------------------------------------------------|-----------------------|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------|
| <b>B1.1</b><br>(Land containing aircraft bomb)              | <b>NTS</b>            | Land cancellation                     | Applicable to areas where subsequent non-technical survey established that there is no evidence of a hazard. Wrong survey                                                                                                                                                                             | <b>C1</b>             |
|                                                             | <b>TS</b>             | Targeted Investigation /EOD Spot Task | Applicable to area where subsequent non-technical survey/task assessment established that there is evidence of a hazard. (Size of hazardous area should be captured and cleared 25m X 25m), but if air craft bombs were dropped as partern/serries and repeated then it shall be captured as polygon. | <b>C2</b>             |
|                                                             | <b>Clearance</b>      | Clearance                             | Applicable to areas where aircraft bombs were dropped as partern and repeated. Clearance refer to CMAS 07                                                                                                                                                                                             | <b>C3</b>             |
| <b>B1.2</b><br>(Land containing cluster munitions/ bombies) | <b>NTS</b>            | Land cancellation                     | Cancelled land is previously suspected land that has been incorrectly surveyed and where subsequent non-technical survey has established that there is no evidence of a hazard.                                                                                                                       | <b>C1</b>             |
|                                                             |                       | Land reclamation                      | Applicable to area that has been ploughed by rotivator/ iron buffalo for at least 3 times without any accident or evidence of submunition presence.                                                                                                                                                   |                       |
|                                                             | <b>TS</b>             | Systematic investigation              | Applicable to areas where submunition presence cannot be determined by non-technical survey/task assessment.                                                                                                                                                                                          | <b>C2</b>             |
|                                                             | <b>Clearance</b>      | Clearance                             | Applicable to area where CHA is determined. Clearance refer to CMAS 07.                                                                                                                                                                                                                               | <b>C3</b>             |
| <b>B1.3</b><br>(Location of Ground Battles)                 | <b>NTS</b>            | Land cancellation                     | Applicable to areas where subsequent non-technical survey established that there is no evidence of a hazard.                                                                                                                                                                                          | <b>C1</b>             |
|                                                             |                       | Land reclamation                      | Applicable to areas that have been ploughed by heavy tractors for at least 3 times without accident or evidence of ERW presence                                                                                                                                                                       |                       |
|                                                             | <b>TS</b>             | Target investigation                  | Applicable to areas where likely be ERW in some spots are discovered by non-technical survey/task assessment.                                                                                                                                                                                         | <b>C2</b>             |
|                                                             |                       | Systematic investigation              | Applicable to areas where some concerns on submunitions presence are discovered by non-technical survey/task assessment.                                                                                                                                                                              |                       |
|                                                             | <b>Clearance</b>      | Clearance                             | Applicable to area where the evidence of ERW presence can be determined. Clearance refer to CMAS 07.                                                                                                                                                                                                  | <b>C3</b>             |
| <b>B1.4</b><br>(Land containing stockpiles/ caches)         | <b>Clearance</b>      | Clearance/ EOD Spot task              | Applicable to area where the land containing stockpiles/caches can be determined.                                                                                                                                                                                                                     | <b>C3</b>             |
| <b>B1.5</b><br>(Abandoned military compounds)               | <b>NTS</b>            | Land cancellation                     | Applicable to areas where subsequent non-technical survey established that there is no evidence of a hazard.                                                                                                                                                                                          | <b>C1</b>             |
|                                                             |                       | Land reclamation                      | Applicable to areas that have been ploughed by rovator/heavy tractors for at least 3 times without accident or evidence of ERW presence                                                                                                                                                               |                       |
|                                                             | <b>TS</b>             | Systematic investigation              | Not applicable                                                                                                                                                                                                                                                                                        |                       |
|                                                             | <b>Clearance</b>      | Clearance                             | Applicable to area where the evidence of ERW presence can be determined. Clearance refer to CMAS 07.                                                                                                                                                                                                  | <b>C3</b>             |

**Definitions of technical terms used in this Guide:**

| <b>Terms</b>                              | <b>Suggestion</b>                                                                                                                                                                                                                                             |
|-------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| <b>Cancelled Land</b>                     | Cancelled land is previously suspected land that has been incorrectly surveyed and where subsequent non-technical survey has established that there is no evidence of a hazard.                                                                               |
| <b>Reclaimed Land</b>                     | Reclaimed land is previously suspected land that has been put back into productive use involving ground-intrusive activity and ploughed a minimum of three times without accident or evidence of ERW.                                                         |
| <b>Systematic Investigation</b>           | The systematic investigation refer to the systematic process of applying technical survey in a polygon. It is typically used where there are no areas within a polygon that are more likely to contain submunition/ERW, than others.                          |
| <b>Evidence of B1.1</b>                   | Unexploded ordance, a suspected hole of bomb, strong claimed site, strike mark, missed target                                                                                                                                                                 |
| <b>Systematic Investigation procedure</b> | <ul style="list-style-type: none"> <li>- Atleast 40% of polygon to be checked, excluding the CHA</li> <li>- The area to be checked are: suspected, unused areas and strong claimed site from communities</li> <li>- Fade out 50m at all directions</li> </ul> |