17895

Infantry Squad Battle Course (ISBC)

RANGE DESIGN GUIDE

RANGE AND TRAINING LAND PROGRAM – MANDATORY CENTER OF EXPERTISE
U.S. ARMY ENGINEERING AND SUPPORT CENTER, HUNTSVILLE
HUNTSVILLE, ALABAMA
256-895-1534
EMAIL RTLP

General

This document contains information specific to an Infantry Squad Battle Course (ISBC), FCC#17895. It describes the design and construction information that is specific to this range. The general sections of the RDG provide information on range features that are generic to multiple range types. Use both for complete range requirements.

Purpose

The ISBC is used to train and test infantry units up to the squad level, either mounted or dismounted, on the skills necessary to conduct tactical movement techniques, detect, identify, engage and defeat stationary and moving infantry and armor targets in a tactical array. The squad can conduct individual maneuvers as well as collective maneuvers (battle drills).

The dismounted squad has an area to practice the critical training maneuvers:

- Ambush
- Movement to contact
- Attack
- Raid
- Retrograde
- Defend
- Reconnaissance/security

The standard ISBC does not accommodate aerial gunnery support activities.

The facility can support live fire training exercises only when the range meets all safety aspects. The ISBC also supports non-live fire conditions that include dry fire, MILES (laser), and blanks prior to live fire.

Refer to the Layout Section below for additional information

Primary Features

The primary features of the ranges are divided into two categories: the Range and the Range Operations and Control Area (ROCA).

Range

The following drawings depict the standard layout for the range.

- ISB-C-01/-02

Layout

Use the standard ISBC layout referenced above as the basis for the range.

The ISBC occupies an area approximately 1000 meters wide by 1000 meters deep, plus an area for the ROCA facilities. The drawings show the objectives as six enemy defensive battle positions configured to simulate typical threat scenarios. Use the standard layout and distances shown as a starting point then tailor the layout to the specific site terrain features and to support

the installations training requirements for the type of weapons and ammunition used. Base the strategies for the final range layout on the following criteria:

- Training directives, priorities, and guidance established by the installation's Chain of Command.
- Squad battle tasks
- Squad mission-essential task list
- Squad training priorities
- Training resources and availability
- Terrain availability

Consider terrain as a critical element when selecting a suitable location for a battle course. The site's terrain features should support the user's training requirements as well as the critical training maneuvers. Site the various objectives in a tactically correct layout for the terrain on the chosen site. Coordinate range layout closely with the installation training staff.

Consider the use of below grade target emplacements rather than the standard typical above grade target berms; assure proper drainage. Blending emplacements into the natural terrain presents a more realistic battlefield and causes the training soldiers to look for the threat rather than target berms. Refer to the RDG section of each particular downrange feature for additional considerations.

Number	Feature	RDG Section
1	Moving Armor Target	MAT
6	Stationary Armor Target	SAT
6	Moving Infantry Target – 15M	MIT
20	Stationary Infantry Target	SIT
2	Trench	Trench
5	Machine Gun/Observation Bunker	MGB
1	Tactical Helicopter Landing Zone	LZ/PZ

Firing Line

The ISBC does not have a specific firing line. Rather, it has a baseline or start-fire line where live fire training begins. Mark the start-fire line as required by the installation.

Down Range

Objective A

This objective simulates an enemy observation post. Site Objective A 200 to 300 meters downrange on a ridgeline or other strategic area that can be engaged from a frontal suppressing posture and a lateral (flanking) defeating posture. Objective A includes 4 SITs.

Objective B

Objective B is the final squad objective. It is separated in two groupings of three SITs and a single MIT each. Infantry targets should be located approximately 15 meters apart in each grouping. Each target grouping will also include one enemy trench, one SAT, and one machinegun bunker (MGB). Locate the target groupings approximately 500 to 600 meters from

the baseline. Locate with line of site to Objective C. This requires the squad to place suppressive fires on Objective C while maneuvering to engage and secure Objective B.

Objective C

This objective simulates an enemy overwatch force. Locate about 200 meters from Objective B with line of sight from/to Objective B. This makes the training unit place suppressive fires from Objective B while a maneuver force moves to engage and secure. Objective C includes two SATs, one MAT, and an MGB.

Objectives D and E

Objectives D and E are counterattack forces consisting of five SITs, two MITs, one SAT, and one MGB each. Locate the objectives with line of sight back to areas within objectives B and C.

Danger Area

A danger area is any area void of a protective cover that could aid in the concealment of the unit during movement exercises. The danger area is not a mandatory feature for all ISBCs, but is an option to force the maneuvering element into situations that control direction of fire and help contain Surface Danger Zones (SDZ). Line of sight

Line of sight

Refer to the Line of Sight (LoS) section of the RDG for LoS requirements, procedures, and submittal requirements.

LoS requirements for the ISBC are very site specific. Generally, keep as much natural vegetation and terrain as possible. Some installation and sites require selective tree thinning and clearing in order for targets to be visible. Site objectives and targets to limited the amount of site grading. Coordinate with the installation trainers to determine target visibility requirements. Consider LoS for vehicle over watch positions, visibility to counter attack objectives, RF coverage, firing limit markers, etc. Include both terrain and tree/vegetation in LoS analysis.

The Control Tower is not required to have unobstructed visibility to all downrange areas. It should have visibility to the baseline or start-fire line.

Cameras are not standard on an ISBC. However, if cameras are used, provide a camera analysis to show what is visible.

Targetry

The ISBC uses fully automated targets with event-specific, computer-driven target scenarios and scoring. The Range Control System (RCS) computer in the Control Tower controls the targets through the target data network. The target data network can be either hard-wired or Radio Frequency (RF), refer to the Electrical Range Design Section of the RDG for further information. The computer captures the scoring data which can then be used by the unit for performance evaluation in the after action review process.

The ISBC uses Observer/Controllers maneuvering with the platoon to control the training scenarios and as a safety measure. These observers use either a handheld controller or radio back to the control tower to initiate target scenarios. In some cases, repeater antennas are required to provide coverage for RF targetry control; coordinate with the MCX and targetry system provider for more specific requirements.

This range includes provisions for Vehicle and Infantry Trackless Moving Targets (TMT-V and TMT-I). The standard targetry package includes 1 TMT-V and 3 TMT-I targets. These targets are battery operated. Charging is done at the ROCA outside the Operations/Storage Building. Consider requirements for additional cut/fill and road network depending on soil types, terrain, and scenarios. Coordinate with installation trainers for the areas where TMTs will operate, areas from where they must be visible. Also consider providing hide locations; areas where TMTs are not engaged and can be hidden.

ROCA

Refer to the ROCA section of the RDG for general design information. The ROCA for the ISBC is based on the standard Small Arms ROCA. Refer to the table below for the list of standard buildings.

Locate the ROCA so that is does not obstruct assembly and maneuver areas for the soldiers training on this facility. Typical location is to the side and behind the baseline. This offers the opportunity for units to maneuver tactically to the baseline, (if allowed by the installation). The Control Tower is not required to have unobstructed visibility to all downrange areas. It should have visibility to the baseline or start-fire line. Because of the limited visibility requirement, many installations place the "tower" at ground level. An alternative is to replace the tower with the previous standard Range Operations Center (ROC). The ROC is an 800sf building divided in half with the RCS on one side and an observation area on the other; contact the MCX for details. That change requires an exception to standard.

The Operations and Storage Building (Ops/Stg) has the additional requirement for storing and charging TMTs. Because of the additional fire protection/suppression requirements for the battery types used, charging and storage are done outside of the building. Refer to the Ops/Stg section in the RDG for specific requirements. Consider road access to/from downrange when siting this facility in the ROCA.

Name	Size	UoM	RDG Section
Control Tower – Small Arms	1	EA	Range Control Towers
Operations/Storage Building, Standard	800	SF	Ops/Stg Buildings
Classroom Facility	800	SF	Classroom and AAR Facilities
Latrine: Vault (Latrine: Water)	330 (550)	SF	Latrines
Bleacher Enclosure	1	EA	Bleacher Enclosure
Covered Mess	800	SF	Covered Mess
Ammunition Breakdown Building	185	SF	Ammunition Breakdown Building

Requirement Documents

Requirement Documents

Refer to Training Circular TC 25-8, Training Ranges, for additional information and references to the FMs, ARTEPs, TCs, etc. that describe and require the training on this type of range. The latest TC 25-8 is available at Army Knowledge Online (www.us.army.mil) and the General Dennis J. Reimer Training and Doctrine Digital Library (www.train.army.mil).

Additional Information

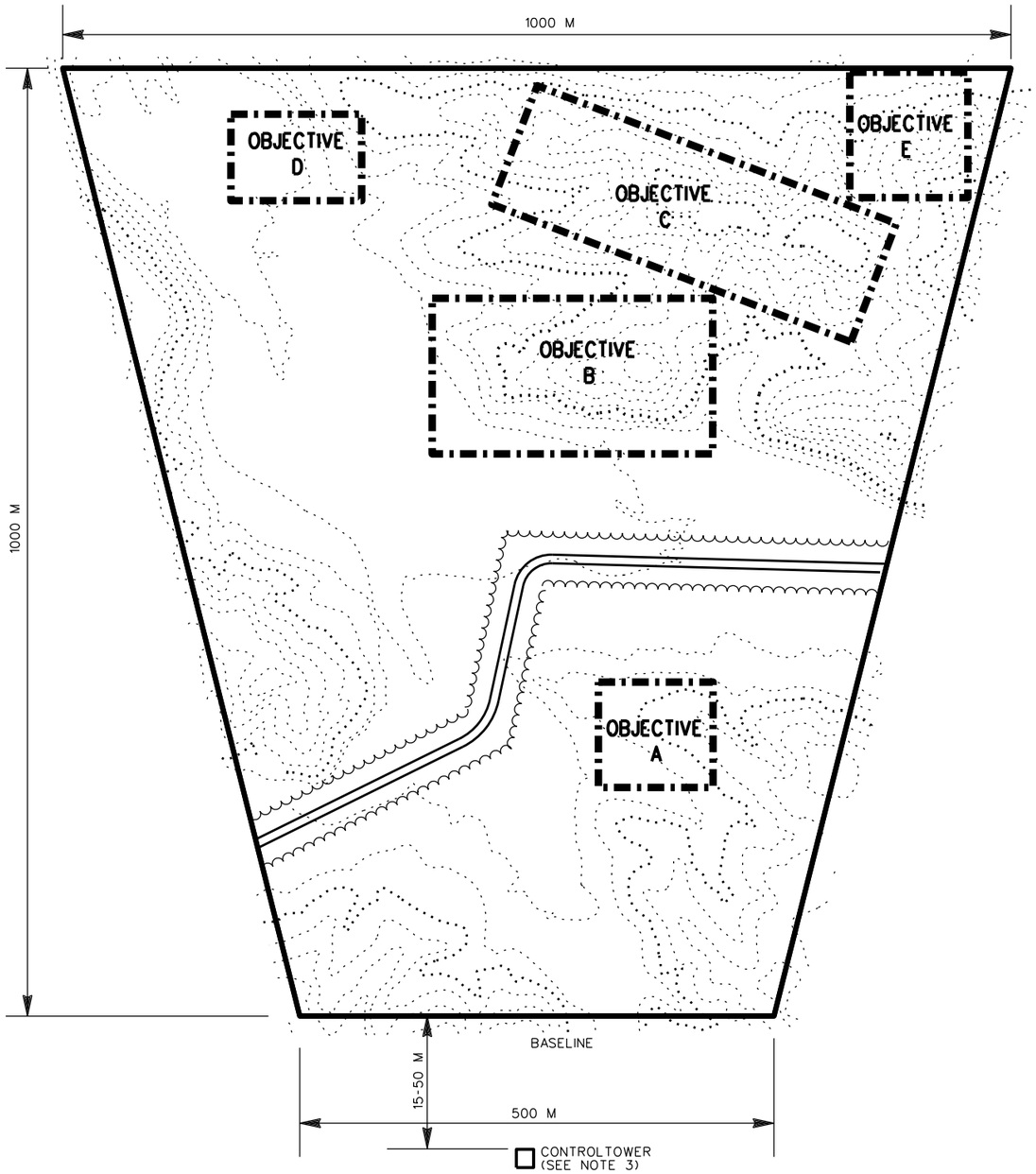
Target locations are site adapted. All must be located in areas that support desired tactics and the training requirements. Avoid environmentally undesirable locations where possible.

Trenches, bunkers, and target emplacements must simulate typical threat scenarios.

Helicopter landing zones (LZ/PZ) are tactical elements of the range; not designed to airfield requirements. Locate them to support tactical insertion and extraction.

A Remote Piloted Vehicle Launch Point may be required on some ranges. Coordinate the location and design with the installation.

TYPICAL TRENCH

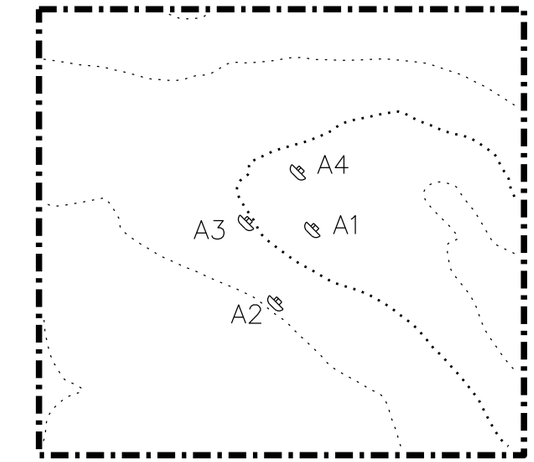


LEGEND: (SHEETS L-10 AND L-11)

- ARMOR MOVING TARGET (MAT) EMPLACEMENT
- STATIONARY ARMOR TARGET (SAT) EMPLACEMENT
- STATIONARY INFANTRY TARGET (SIT) EMPLACMENT WITH HOSTILE FIRE SIMULATOR
- MG BUNKER - MACHINEGUN (MG)
- OB BUNKER - OBSERVATION (OB)
- MOVING INFANTRY TARGET (MIT) EMPLACEMENT
- TRENCH
- DANGER AREA (CLEARED AREA WITH ROAD)

GENERAL NOTES:

1. ISBC LAYOUT DEPICTS TARGET POSITIONS AND TRAINING SCENARIO SPECIFICALLY TAILORED FOR THE TOPOGRAPHY SHOWN. LIMIT MARKERS MUST BE POSITIONED BASED ON SITE SPECIFIC CONDITIONS FOR EACH OBJECTIVE AND THE ENTIRE RANGE.
2. SEE SHEET IPB-C-02 FOR OBJECTIVES B,C,D AND E.
3. RANGE BOUNDARIES ARE GENERIC AND REPRESENT MAXIMUM EXPECTED LAND USE REQUIREMENTS. ACTUAL RANGE BOUNDARY CONFIGURATION MAY VARY DEPENDING ON SITE SPECIFIC CONDITIONS.
4. SITE CONTROL TOWER 15-50 METERS FROM THE BASELINE IN AN AREA THAT WILL PROVIDE AN UNOBSTRUCTED VIEW OF THE BASELINE.



OBJECTIVE A

US Army Corps of Engineers

Rev.	Description	Date	Approved
Rev. 1			

Date:
Design file no.
Drawing code
File name
Plot scale
Plot code

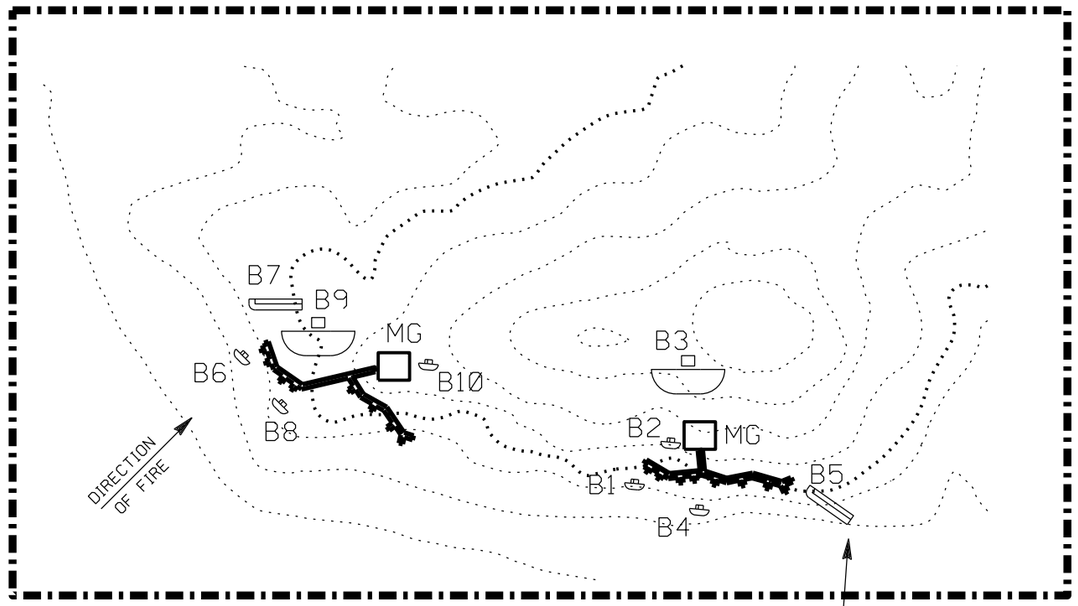
Designed by:
Cad by:
Dsn by:
Reviewed by:
Submitted by:

U.S. ARMY ENGINEERING AND SUPPORT CENTER, HUNTSVILLE
HUNTSVILLE, ALABAMA

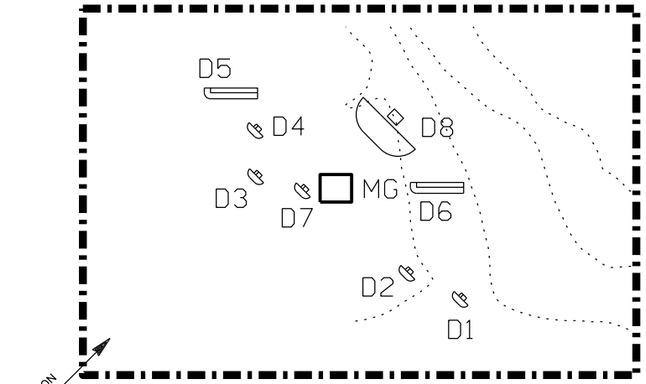
SEPTEMBER 2011

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL
FCC- 17895
INFANTRY SQUAD BATTLE COURSE
(1 OF 2)

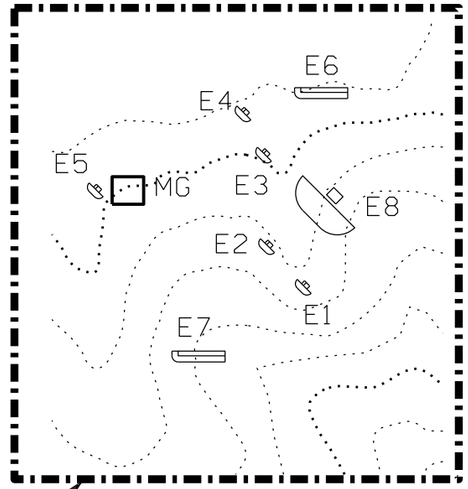
Sheet reference number:
ISB-C-01
Sheet of



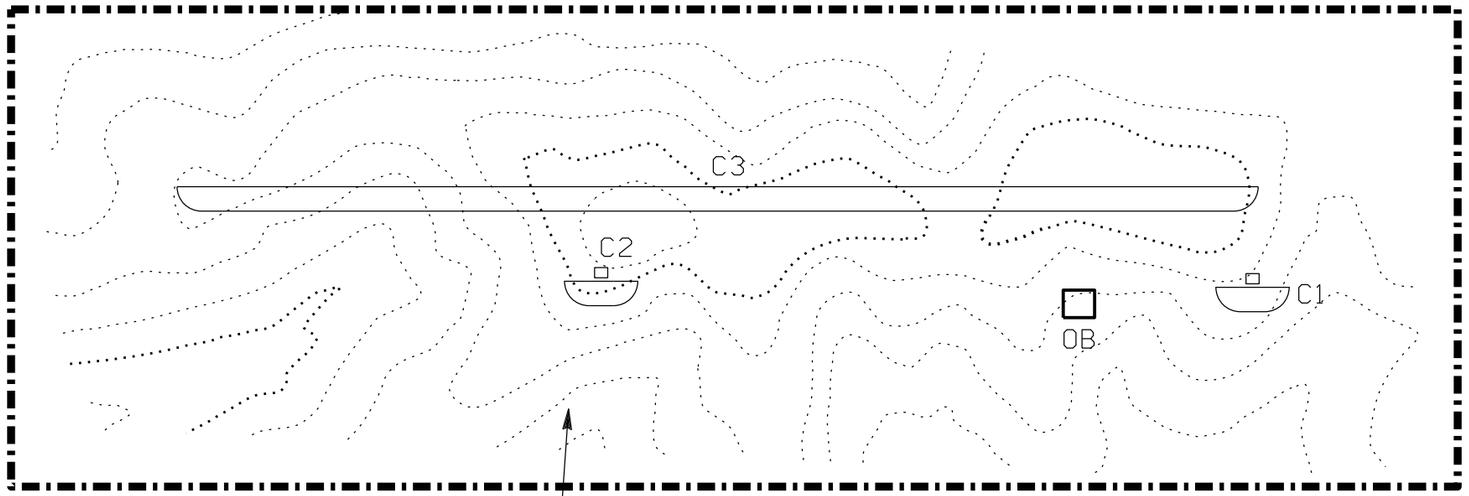
OBJECTIVE B



OBJECTIVE D



OBJECTIVE E



OBJECTIVE C

NOTE:

SEE SHEET ISB-C-01 FOR LEGEND AND GENERAL NOTES.

US Army Corps of Engineers

Rev.	Description	Date	Approved
Rev. -			

Designed by: | Drawn by: | Checked by: | Reviewed by: | Submitted by:

Date: | Design file no. | Drawing code | File name | Pen table | Pen code

U.S. ARMY ENGINEERING AND SUPPORT CENTER, HUNTSVILLE
HUNTSVILLE, ALABAMA

SEPTEMBER 2011

RANGE AND TRAINING LAND PROGRAM
STANDARD DESIGN MANUAL

FCC- 17895
INFANTRY SQUAD BATTLE COURSE
(2 OF 2)

Sheet reference number:
ISB-C-02

Sheet of