

TRENTHAM CAMP

COLLINS RANGE STANDING ORDERS

CONTENTS

- Title Page
- Contents
- Distribution
- Record of Amendments
- References

CHAPTER ONE

GENERAL

<u>Paragraph</u>	<u>Subject</u>
301.	Range Orders
302.	Control
303.	Range Description
304.	Limitations on Firing
305.	Boundaries
306.	Communications
307.	Minimum Group Size
308.	Vehicles on the Range
309.	Range Clearance Procedure
310.	Use by Civilian Licence Holders
311.	Us by other Civillans or Organisations
312.	Terms and Definitions
313.	Authority to Use Collins Range
314.	Enforcement of Range Usage
315.	Compliance Monitoring
316.	Range Inspections
318.	Range Bookings
319 – 320.	Reserved
Annex A	Range Danger Area
Annex B	Range Safety Certificate – dated 2010
Annex C	Application for HPC Midweek Shooting Events

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CHAPTER TWO**RANGE SAFETY**

<u>Paragraph</u>	<u>Subject</u>
321 – 322.	Range Danger Area
323.	Air Danger Area
324.	Common Safety Considerations
325.	Responsibilities of All Range Personnel
326.	Medical Coverage
327.	Safety Brief
328.	Accident Procedure on the Range
329 – 331.	Range in Use Flags
332.	Bay In Use Identification
333.	Range Intrusions
334.	Hearing Protection
335.	Eye Protection
336.	Limitations when Using the Range
337.	Ammunition Accidents or Incidents
338.	Build Up of Lead and Other Metals
339.	Environmental
340 – 350.	Reserved
Annex A	Collins Range Complex Danger Area

CHAPTER THREE**HERETAUNGA PISTOL CLUB LIVE SHOOTING EVENTS**

<u>Paragraph</u>	<u>Subject</u>
351.	Range Conducting Officer(s)
352.	Firearm Limitations
353.	Authorised Shoots
354.	Firearm Safety Precautions
355.	Unzeroed Firearms
356 – 357.	Ammunition Limitations
358.	Hand Loaded Ammunition
359.	Target Limitations
360.	Firing Emplacements
361.	Inability to Achieve Cone of Fire
362 – 370.	Reserved
Annex A	Calculating left and right danger area angles and associated shooter and target locations

TRENTHAM CAMP

COLLINS RANGE STANDING ORDERS

DISTRIBUTION LIST

<u>Copy Number</u>	<u>Distributed To</u>
1	Range Control, WRSC
2	Operations Manager, WRSC
3	Trentham Duty Complex
4	DSS, Facility Management, Wellington
5	Range Box
6 - 7	Heretaunga Pistol Club
8 - 12	Spare

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TRENTHAM CAMPCOLLINS RANGE STANDING ORDERSRECORD OF AMMENDMENTS

Amendment		Subject	Inserted	
No	Date		Initial	Date
01/12	11 Jul 12	1. Amendment Page. 2. Distribution List, change. 3. List of References: a. NZ Topo Map change. b. JSP - 403 Change 6. 4. Chapter One, Annex B, Safety Certificate date change. 5. New Collins Range Safety Certificate, dated 1 Jul 12.		
02/12	01 Aug 12	1. Amendment Page. 2. Amended Collins Range Safety Certificate, Closure of Firing Bay 4, dated 1 Aug 12.		
03/12	03 Sep 12	1. Amendment Page. 2. Amended Collins Range Safety Certificate, Reopening Bay 4 with restricted usable Firing Lanes, dated 03 Sep 12.		
04/12	08 Nov 12	1. Amendment Page. 2. Amended Collins Range Safety Certificate, Restricting use of Bay 4 to 25m engagement only, dated 08 Nov 12.		
05/13	09 Apr 13	1. Amended Collins Range safety Certificate dated 09 Apr 13, Restricting the use of pistols in Bay's 2, 4 and 5, due to no NZ Police approval documentation.		
06/13	07 Aug 13	1. Amendment Page. 2. New Collins Range Safety Certificate dated 27 Jun 13.	SX	13/8/13

TRENTHAM CAMPCOLLINS RANGE STANDING ORDERSLIST of REFERENCES

- A. Map NZMS 260, Sheet R27, Pt. Q27 Wellington, Scale 1:50,000
- B. Handbook of Defence Land Ranges Safety (JSP 403, Vol 2, Edition 3, Change 4) – Design, Construction and Maintenance of Small Arms, Infantry Weapons Systems and 30 mm Weapons Systems Ranges
- C. DFO (A) Vol 7, Training Policies and Procedures
- D. Heretaunga Pistol Club Range Submission, dated 26 Aug 01
- E. Army General Staff (7795/7/1) Development of the Heretaunga Pistol Club Range at Trentham, dated 9 Nov 04
- F. Development of Heretaunga Pistol Club Range, dated 22 Oct 2007
- G. NZ Pistol Association (Inc) Issue 1 dated Feb 2002
- H. NZP109, NZ Army Technical Ammunition Instruction

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CHAPTER ONE

GENERAL

Range Standing Orders

301. Trentham Camp Collins Range Standing Orders are to give users of Collins Range the necessary information for the safe operation of this range from administration to conduct of live shooting. These orders apply to Collins Range only. A copy of these Standing Orders must be made available on the range while live shooting is being conducted.

Control

302. The Commanding Officer (CO), Trentham Regional Support Battalion (TRSB) is the range controlling authority for the operation and administration of Collins Range. The CO has delegated authority to TRSB Range Control for the day to day administration of the ranges within the Trentham Defence Area.

Range Description

303. Collins Range complex is a non-standard range having five separate firing bays as detailed below.

- a. Bay 1 is a Non-Standard 25 Metre No Danger Area Range.
- b. Bay 2 is a Non-Standard 25 Metre Limited Danger Area Range.
- c. Bay 3 is a Non-Standard 25 Metre Limited Danger Area Range.
- d. Bay 4 is a Non-Standard 50 Metre Limited Danger Area Range.
- e. Bay 5 is a Non-Standard 100 Metre Limited Danger Area Range.

Limitations on Firing

304. No live shooting events are to be conducted on Good Friday or Christmas Day without the CO's prior approval. Applications for approval are to be submitted to Headquarters TRSB, Trentham Camp.

Boundaries

305. The area of Collins Range is situated to the northeast of Sommerville Range and to the east of the Trentham Golf Club.

Communications

306. When conducting live shooting events or any other activity within the TRSB Defence Area, all users are to ensure they have Motorola communications systems. The Motorola radio systems are issued from the TRSB Duty Complex within the

range box for the duration of the activity. The below detail is the procedure for use of the communication systems:

2

- a. **Channel.** Current in service Motorola systems are to be operated on Channel 7 when in use within the TRSB Defence Area.
- b. **Callsigns.** The TRSB Safety Net callsign is:
 - (1) **Duty Complex.** During normal working hours, after hours, weekends and public holidays.
 - (2) **Collins Range.** For the HPC when conducting live shooting activities.
- c. **Requirement.** All Collins Range users when conducting live shooting activities are to establish and maintain communications with the TRSB Safety Net with the supplied radio. Communications with the TRSB Safety Net are to be maintained for the duration of the activity and are to be initiated by the users on the following occasions:
 - (1) A radio check upon entry to the range,
 - (2) To obtain permission immediately prior to commencing live shooting (regardless of prior approval),
 - (3) At the completion of live shooting,
 - (4) Immediately upon the occurrence of an accident, incident or intrusion.
- d. **Radio Checks.** TRSB Safety Net will conduct random radio checks with all users to ensure communications are being maintained.
- e. **Loss of Communications.** Should communications on the TRSB Safety Net fail or are lost, the following procedure is to occur:
 - (1) **By the user.** Contact the TRSB Duty Complex on (04) 527 5112 and report the failure and uplift another radio.

Minimum Group Size

307. The minimum group size allowable to conduct live shooting event on all Trentham Ranges is two persons unless prior approval is granted from the CO TRSB. At least one of the persons is to have proof as having a range officer's qualification.

Vehicles on the Range

308. Vehicle parking is permitted only on the designated parking area behind (west side) the covered firing point of the range with restrictions as follows:

- a. Vehicles speed limit is not to exceed 20 km per hour through the golf course road.

- b. Vehicles are restricted to 5 km per hour when driving along the range road.
- c. The designated safety vehicle is to be positioned in the car park by the entranceway to the range when live firing is being conducted and must have clear access to and from the range.

Range Clearance Procedure

309. At the completion of the shooting event the user of the range is to clear the range, as follows:

- a. Remove all live ammunition.
- b. Remove all brass (fired cases).
- c. Remove all items that have been used during the shoot that are not permanent fixtures, i.e. targets, sandbags, firing lane markers, scoreboards, flags etc.
- d. Refurbish the bullet catcher by raking or filling in the projectile impact areas until they are flat to the same contour of the existing angle.
- e. Secure the range by closing and locking the range access gate.
- h. Return the range keys and communication radio to the Duty Complex
- i. Slide the "Collins Range" part of the Range Indication Board to "not in use".

Use by Civilian Licence Holders

310. The Heretaunga Pistol Club (HPC) has been granted a Range Licence (NZDF MD332) agreement to use Collins Range for the purpose of club shooting activities.

- a. The HPC when using the range must comply with Trentham Camp Collins Range Standing Orders at all time.

Use by other Civilians or Organisations

311. Any other government, civilian organisation or individuals outside the previously mentioned club must apply in writing to the CO Trentham Camp or his delegated representative for permission to conduct activities on Collins Range.

- a. The HPC will be advised of any such activities if approval has been granted.

Terms and Definitions

312. The following terms and definitions are provided for clarification:

- a. **Live Shoot or Shooting.** A term used to describe an activity during which live firing of any firearms takes place.
- b. **Bullet Catcher.** The bullet catcher is designed to capture the majority of rounds fired at each target.
- c. **Stop Butt.** Stop butts are located around or behind the bullet catcher to capture wide shot and low ricochet. In this particular case on the Collins Range complex, the application of the bullet catcher and stop butt have been combined as one range safety feature to maintain No Danger Area and Limited Danger Area Range status.
- d. **Cone of Fire (CoF).** The CoF is the distribution of fired projectiles within a margin of error in the vertical and horizontal planes. The authorised HPC CoF is attached at Annex A.
- e. **Range Conducting Officer (RCO).** The RCO is a person qualified and appointed by the HPC who is responsible for the conduct and overall safety of the shoot.
- d. **Backsplash.** Is projectile fragmentation, target debris or impact surface material, which is thrown backwards at any angle towards the firing point as a result of projectile impact.
- e. **First Strike.** Is the point where a projectile first strikes any surface after leaving the barrel.
- f. **Pop-over.** Is projectile or target debris, normally from previous firing, which has been re-energised by subsequent projectile strike.
- g. **Post First Strike Hazards.** Post strike hazards include ricochet, pop-over, splatter and backsplash.
- h. **Range Axis.** Is a line at right angles (90°) to the line of the bullet catcher.
- i. **Ricochet.** Is the change in velocity and direction of a projectile or projectile fragment caused by its impact with any surface. A single projectile or projectile fragment may ricochet more than once prior to it coming to a complete stop.
- j. **Splatter.** Is projectile fragmentation or target debris that is thrown to the side of the impact area.

Authority to Use Collins Range

313. No person(s) or organisation(s) are permitted to transit, occupy or use Collins Range for the purpose of shooting or for any other purpose without the prior written authority from the CO TRSB.

Enforcement of Range Usage

314. Range Control TRSB has delegated responsibility from the CO TRSB for all user compliance of Range Standing Orders. After normal working hours this delegation is passed to the Trentham Camp Orderly Officer.

Compliance Monitoring

316. Random compliance monitoring is required to ensure compliance with Range Standing Orders. Random monitoring is not to occur more frequently than twice in any 12 month period unless there is reason to believe that non-complaint activities are occurring.

Range Inspections

317. Shooting events of any type may only be conducted on ranges declared safe by an inspecting officer. The range inspecting officer for the Trentham Camp ranges is appointed by HQ TRSB.

318. The NZ Army range inspection cycle comprises daily check, monthly inspection, annual inspection and independent inspection components.

- a. **Daily Check.** When a range is in use, a daily check is to be carried out by the range officer or TRSB Range Warden before firing commences. The check is to ensure that the range is being presented in good order for users and is in all respects fit use.
- b. **Monthly Check.** A monthly check of the range is to be arranged by HQ TRSB to ensure that the range is being maintained to an acceptable standard of cleanliness, is good order, and that any maintenance requirements are followed up until completed. A HPC member is to be invited to assist with the monthly check.
- c. **Annual Inspection.** An annual inspection is to be completed by a range inspecting officer appointed by HQ TRSB. If the inspection determines that the range and its use remains safe and compliant, a Range Safety Certificate (AFNZ 199) is to be produced.
- d. **Independent Inspection.** Every five years an independent inspection is to be completed by a competent inspecting officer from another formation or Service or a NZ Police appointed range inspecting officer (a register of NZ Police appointed range inspecting officers is maintained by Mountain Safety Council of NZ) who is not a member of the HPC.

Range Bookings

318. In accordance with the HPC licence, Collins Range is automatically booked for HPC authorised shooting events during weekends and public holidays (excluding Christmas day and Good Friday, unless an exemption has been approved).

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- a. It is acknowledged the HPC have a requirement to have midweek and/or midweek after hour's access to at least one firing bay of the range for normal club activities.
- b. Due to possible military units conducting training or employed contractors conducting works within the range danger area during normal working hours, range bookings are essential to confirm the range danger area is clear.
- c. An application for Midweek Shooting Events, as attached to Annex C, Chapter One, of these orders, is required to be submitted.
- d. The application is to be forwarded to the Range Control TRSB at least three working days prior to the event. This provides timely notice to de-conflict any range bookings or works activities that may arise.
- c. Incorrect or incomplete submission of the shooting application will be returned to the user for resubmission. Should it be necessary to decline any application, the applicant will be notified as soon as possible.

319 - 320. Reserved

Annexes:

- A. Authorised HPC Cones of Fire
- B. Collins Range Safety Certificate (AFNZ 199) – 2010
- C. Application for HPC Midweek Shooting Events

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AUTHORISED HERETAUNGA PISTOL CLUB CONES OF FIRE

The following table provides the authorised Cones of Fire (CoF) for approved Heretaunga Pistol Club shooting events. The CoF consists of the core distribution, unintentional aiming error, variable weather conditions, wind estimation error and wrong target error.

Serial	Firearm Groups with Cones of Fire (Horizontal x Elevation in mils)	Cones of Fire Dimensions at Specific Distances (Horizontal x Elevation in metres)							
		5m	10m	15m	20m	25m	50m	75m	100m
(a)	(b)	(c)	(d)	(e)	(f)	(g)	(h)	(i)	(j)
1.	Practical Pistol up to 25m (60 x 60)	0.3 x 0.3	0.6 x 0.6	0.9 x 0.9	1.2 x 1.2	1.5 x 1.5	N/A	N/A	N/A
2.	Practical Pistol 25 to 50m (30 x 30)	N/A	N/A	N/A	N/A	0.75 x 0.75	1.5 x 1.5	N/A	N/A
3.	Practical Pistol Steel Targets 10 to 15m (45 x 60)	N/A	0.45 x 0.6	0.675 x 0.9	N/A	N/A	N/A	N/A	N/A
4.	Informal Pistol up to 25m (60 x 60)	0.3 x 0.3	0.6 x 0.6	0.9 x 0.9	1.2 x 1.2	1.5 x 1.5	N/A	N/A	N/A
5.	Bullseye Pistol at 25m (24 x 40)	N/A	N/A	N/A	N/A	0.6 x 1.0	N/A	N/A	N/A
6.	Bullseye Pistol at 50m (30 x 30)	N/A	N/A	N/A	N/A	N/A	1.5 x 1.5	N/A	N/A
7.	Handgun Metallic Silhouette at 25, 50, 75 & 100m (30 x 30)	N/A	N/A	N/A	N/A	0.75 x 0.75	1.5 x 1.5	2.25 x 2.25	3.0 x 3.0
8.	Shotgun up to 20m (60 x 60)	0.3 x 0.3	0.6 x 0.6	0.9 x 0.9	1.2 x 1.2	N/A	N/A	N/A	N/A
9.	Shotgun up to 100m (25 x 25)	0.125 x 0.125	0.25 x 0.25	0.375 x 0.375	0.5 x 0.5	0.625 x 0.625	1.25 x 1.25	1.875 x 1.875	2.5 x 2.5
10.	Shotgun at aerial clay targets (120 x 120)	0.6 x 0.6	1.2 x 1.2	1.8 x 1.8	2.4 x 2.4	3.0 x 3.0	6.0 x 6.0	9.0 x 9.0	12.0 x 12.0
11.	Rifle up to 100m (25 x 25)	0.125 x 0.125	0.25 x 0.25	0.375 x 0.375	0.5 x 0.5	0.625 x 0.625	1.25 x 1.25	1.875 x 1.875	2.5 x 2.5

COLLINS RANGE SAFETY CERTIFICATE (AFNZ 199)

**NEW ZEALAND ARMY
RANGE SAFETY CERTIFICATE**

Name of Range: Collins Range Complex (also known as Heretaunga Pistol Club Range) at Trentham.

Type of Range:

- Bay 1 is a Non-Standard 25 Metre No Danger Area Range.
- Bay 2 is a Non-Standard 25 Metre Limited Danger Area Range.
- Bay 3 is a Non-Standard 25 Metre Limited Danger Area Range.
- Bay 4 is a Non-Standard 50 Metre Limited Danger Area Range.
- Bay 5 is a Non-Standard 100 Meter Limited Danger Area Range.

Number of Firing Lanes:

- Bay 1 has a maximum of 15 x firing lanes for Practical Pistol and Informal Pistol (up to 25 metres), Shotgun (static up to 20 metres) targets (line of fire parallel to the range axis) and 2 x Bullseye Pistol (protected steel knockdown targets at 90° to the bay axis, positioned in front of the purpose built canopy).
- Bay 2 has a maximum of 5 x firing lanes for Shotgun (static up to 20 metres) targets (line of fire parallel to the range axis).
- Bay 3 has a maximum of 5 x firing lanes for Practical Pistol, Informal Pistol and Bullseye Pistol (up to 25 metres) and Shotgun (static up to 20 metres) with the target line of fire parallel to the range axis.
- Bay 4 has a maximum of 3 x firing lanes for Shotgun (up to 20 meters) targets (line of fire parallel to the range axis) and 1 x Shotgun Sporting Clay Aerial target.
- Bay 5 has a maximum of 14 x firing lanes for Rifle (not exceeding 1000 m/s MV or 4500 JME), Shotgun (rifled slugs), Shotgun (up to 20 meters) targets (line of fire parallel to the range axis) and 1 x Shotgun Sporting Clay Aerial target.

Name of User Organisation: Heretaunga Pistol Club (HPC).

1. I certify that I am a New Zealand Army appointed range inspecting officer.
2. I certify that on 26th June 2013 I inspected the above range complex and the below stated firing bays conformed in all respects of ballistic safety for the Heretaunga Pistol Club shooting disciplines as prescribed in JSP 403 - Handbook of Defence Land Ranges Safety, Volume II - Design, Construction and Maintenance of Small Arms, Infantry Weapon Systems and 30mm Weapon System Ranges, Vol 2, Edition 3, Change 6, February 2012.

- Bay 1 being a Non-Standard 25 Metre No Danger Area Range for Practical Pistol, Informal Pistol, (.22 cal rimfire to 12.5mm centrefire), Bullseye Pistol (.22 cal rimfire up to 9.65mm centrefire) and Shotgun (shot, up to 12 gauge) static.
- Bay 2 being a Non-Standard 25 Metre Limited Danger Area Range for Shotgun (shot, up to 12 gauge) static.
- Bay 3 being a Non-Standard 25 Metre Limited Danger Area Range for Practical Pistol, Informal Pistol, (.22 cal rimfire to 12.5mm centrefire), Bullseye Pistol (.22 cal rimfire to 9.65mm centrefire) and Shotgun (shot, up to 12 gauge) static.

- Bay 4 being a Non-Standard 50 Metre Limited Danger Area Range for Shotgun (shot, up to 12 gauge) static and Shotgun (shot, up to 12 gauge) sporting clay.
Bay 5 being a Non-Standard 100 Metre Limited Danger Area Range for Rifle (not exceeding 1000 m/s MV or 4500 J ME), Shotgun (shot, up to 12 gauge) static, Shotgun (shot, up to 12 gauge) sporting clay and Shotgun (rifle slug up to 12 gauge) static.

3. I declare Bay 1, Bay 2, Bay 3, Bay 4 and Bay 5 of Collins Range for the Heretaunga Pistol Club multiple shooting disciplines safe for use subject to compliance with:

- a. Compliance with the conditions set out in the Army General Staff letter (File Number 7795/7/1) dated 15 November 2001, Army General Staff letter (File Number 7795/7/1) dated 14 December 2001 and in the Trentham Regional Support Centre letter (File Number 7795/1) dated 28 June 2005.
 - b. Heretaunga Pistol Club range control procedures as set out in the Heretaunga Pistol Club letter dated 26th August 2001.
 - c. Trentham Camp Collins Range Standing Orders dated 20th June 2011, authorised by the Commanding Officer Trentham Regional Support Battalion.
 - d. Due to current Heretaunga Pistol Club modifications in Bay 4, the number of usable firing lanes are No's 16-18. The use of firing lanes No's 16-18 is restricted to 25m from the bullet catcher only. Firing from the covered firing point is not currently permitted. Sporting Clay shotgun use is permitted under conditions as stated in paragraph 3, b above.
 - e. Prohibited use of pistols in Bay's 2, 4 and 5 until NZ Police approval has been granted.
4. This certificate expires at 2359 hours on 30th June 2014.
5. This certificate is rendered null and void:
- a. On the day after the expiry dated in paragraph 4 above;
 - b. Immediately any range structure falls below the minimum acceptable specification;
 - c. Immediately any activity that is not authorised by range standing orders or in the letters or conditions stated in paragraphs 3 (a, b, c, d and e) above, or any other lawful authority, is conducted; and
 - d. Immediately on the occurrence of any serious harm accident.
6. A copy of this certificate has been forwarded to the Officer Commanding, Headquarters Wellington Regional Support Centre, Weapons and Range safety Section TRADOC and the President of the Heretaunga Pistol Club.

(Original Signed)

Mr S.D.LAMB
Range Inspection Officer
Headquarters Wellington Regional Support Centre
27th June 2013

APPLICATION FOR MIDWEEK SHOOTING EVENTS

Reference: Collins Range Standing Orders

1. The _____ (club/organisation)
requests the use of Collins Range (Heretaunga Pistol Club Range) on:
(date): _____

2. **Type of Shoot.** The type of shooting activity to be conducted is:

and will start at (time): _____ and finish at: _____

3. I, the applicant, certify that the above information is correct:

Initial and Name: _____ Signature: _____

Date: _____

4. **Heretaunga Pistol Club Endorsement of Application.** The
application to conduct shooting events as described above is endorsed by:

Initial and Name: _____ Signature: _____

Date: _____ HPC Appointment: _____

CHAPTER TWO

RANGE SAFETY

Range Danger Area

321. The Range Danger Area (RDA) for HPC shooting events at Collins Range has been developed with the reconstruction of the stop butt/bullet catcher combination, ballistic proofing the firing bay partition walls and the application of the HPC CoF. Collins Range currently has three 25 metre, one 50 metre and one 100 metre firing bays with each bay's danger area being classified as follows;

- a. Bay 1 is a non-standard 25 metre No Danger Area Range,
- b. Bay 2 is a non-standard 25 metre Limited Danger Area Range,
- c. Bay 3 is a non-standard 25 metre Limited Danger Range,
- d. Bay 4 is a non-standard 50 metre Limited Danger Area Range,
- e. Bay 5 is a non-standard 100 metre Limited Danger Area Range with an additional pop-over danger area applied that crosses over onto a portion of Sommerville Range.

322. All though Collins Range Bay 1 is classified as being a No Danger Area range and Bay's 2-5 are Limited Danger Area ranges, however, to enhance additional safety, the RDA has been applied extending to the Defence Boundary.

Air Danger Area

323. A permanent Air Danger Area has been established over Collins Range by Civil Aviation Authority under rule 71.64 of the Civil Aviation Rules. It operates 24 hours per day. The airspace is NZD621 (NZ Danger Area) and it extends from the ground surface to an upper limit of 1500 ft above sea level. The purpose is to warn aircraft of the potential danger of flying into the range danger area. The nearest Air Traffic Control Centre is Wellington Central Rongatai who can be contacted on (04) 385 5123.

Common Safety Considerations

324. Attached at Annex A to Chapter Two is an aerial map of Collins Range which identifies the RDA. The design characteristics of Collins Range will, to a certain extent, dictate the safety regulations for firearms and ammunition types and of shooting disciplines permitted to be conducted on it.

Responsibilities of All Range Personnel

325. Notwithstanding any instruction authorising live shooting, if any person observes that an incident is about to occur which may result in injury or death to a person or damage to property, that person is responsible for taking action to prevent it and if necessary may order firing to stop by shouting the emergency command 'STOP'.

Medical Coverage

326. The Range Conducting Officer (RCO) is responsible for ensuring that proper medical coverage is available on the range for the shoot.

- a. HPC range users are to provide their own suitably qualified and capable first aid person(s) and appropriate first aid kit(s). The RO is responsible for ensuring that the location of all medical resources is made known to all personnel participating in the shoot.

Safety Brief

327. The RCO is responsible for ensuring that all personnel and visitors receive a verbal safety brief and acknowledge this in writing at the start of the days shoot (a normal nominal roll with the safety brief attached is sufficient)

- a. All late arrivals are to be directed to the RCO to read and acknowledge the safety brief. The acknowledgment form is to be filed with the User Range Log Book documentation.
- b. Should any part of the safety brief change, the detail of the change is to be briefed to all and appropriately recorded as above.
- c. The RCO is to ensure that all participants are informed of the location of the copy of Range Standing Orders.
- d. A copy of Range Standing Orders is to be present at the firing point during all shooting activities.

Accident Procedure on the Range

328. In the event of an accident the following procedure is to be adopted:

- a. Firing is to be immediately stopped and priority is to be given to the treatment of the injured person(s), and if necessary, their evacuation to the nearest medical facility.
- b. Firing is to be suspended, all firearms are to be placed on the firing point platforms or firing mound with all firers moving to the rear.
- c. If a firearm is involved, that firearm is to be set aside by the RCO, labelled and kept separate, pending an investigation.
- d. Where a person sustains a serious injury on the range by a firearm, (e.g. a breech explosion or are shot) the RCO or the most senior person present is to notify the nearest NZ Police.
- e. In the event the RCO being injured the next most senior person present is to assume full control.
- f. Immediately report the accident without delay to the Trentham Camp Duty Complex or via the Safety Net.

- g. All incidents are to be reported in writing by the RO and witness statements obtained as soon as possible after the accident has occurred.

Range in Use Flags

329. 'Range in Use Flags' is used to indicate danger. Flags are traditionally red but may be of fluorescent red or fluorescent orange colour. Flags, large enough to be visible from all range boundary points, are to be flown on the range to indicate to all persons within the area that the range is use.

330. Placement of the 'rang in use flags' is the responsibility of the Range Officer. Locations of the 'range in use flags' are as follows:

- a. At the range road entrance gate, this flag is to remain raised for the duration of the practice.
- b. To the right of the entrance way to the firing bays by the covered firing. This flag is to remain raised for the duration of the practice.

331. Shooting is not to commence on the range until all 'range in use flags' are hoisted to the top of the mastheads on each flagpole at the above detailed locations. The 'range in use flags' are to be raised at least 30 minutes before shooting or should be the first activity prior to any other range set-up. This gives timely notice to all personnel about that the range is in use and live shooting is about to commence.

Bay In Use Identification

332. In accordance with Reference F, a "Bay in Use Identification Board" is to be displayed to all range users as they enter the range. The board advises range users which bays are in use and any associated hazards and/or restrictions. It is the responsibility of trained HPC personnel to update the Bay In Use Board prior to the commencement of shooting.

Range Intrusions

333. If persons, stock, vehicles or aircraft are seen to enter, or are about to enter the range danger area, firing is to cease immediately.

- a. Further action is to be ordered as appropriate by the RO.
- b. Report the intrusion to the TRSB Duty Complex without delay.

Hearing Protection

334. The noise of discharge from modern weapons (159 decibels sound peak pressure) can cause considerable damage to unprotected eardrums. Whenever personnel are engaged in firing of firearms they are to wear hearing protection (class 5 protectors are strongly recommended).

- a. All range staff, shooters and/or spectators involved in live shooting events are to wear the appropriate hearing protection.

- b. The minimum safety distance for all personnel not wearing is 20 metres from the firing point.
- c. The RO is responsible for ensuring compliance with this and that all hearing protection is correctly fitted. Claims of deafness by individuals do not excuse the wearing of hearing protection.

Eye Protection

335. Impact resistant safety glasses are to be worn by all personnel engaged in live shooting events being conducted on the range.

Limitations when Using the Range

336. Collins Range allows for live shooting events but for additional safety certain limitations must be applied. The shooting disciplines detailed in Chapter Three, Authorised Shoots, are the only shooting events authorised to be conducted on this Range.

Ammunition Accidents or Incidents

337. In the event of an accident with ammunition, the following procedure is to be adopted:

- a. Shooting is to be immediately suspended and all firearms unloaded.
- b. Give priority to the treatment of the person injured and if necessary, effect evacuation to the nearest medical facility.
- c. Report without delay to TRSB Duty Complex (04) 527 5112 or via the Safety Net.

Build Up of Lead and Other Metals

338. **Stop Butt and Bullet Catchers.** Care is to be taken to avoid the build up of lead and other metals in the stop butts, bullet catchers and in the range danger area particularly on ranges where shotguns and black powder firearms are used. Build up of lead and other metals can lead to environmental contamination and increased backsplash and ricochet hazards. Stop butt and bullet catcher sand is to be monitored regularly to ensure lead and other metal does not build up around the mean point of impact for each target. As a guide, the sand should be checked for lead and other metal build up each time the slope is raked to restore its profile. Testing for environmental lead contamination is to occur after 20,000 rounds have been fired on a lane and every 10,000 rounds thereafter until an unacceptable level of lead contamination has been detected, at which time the stop butt is to be decontaminated.

339. **Environmental.** Considerations of the improved drainage system in Reference D must be given for the establishment of a sediment trap at the south-west end of the existing concrete drain to prevent unacceptable spread of lead contamination beyond the immediate vicinity of Collins Range and eventually beyond the Defence Area boundary.

340 – 350. Reserved

Annex:

A. Collins Range Complex Danger Area

RELEASED UNDER THE
OFFICIAL INFORMATION ACT



COLLINS RANGE DANGER AREA

(Awaiting production for insertion)

RELEASED UNDER THE
OFFICIAL INFORMATION ACT

CHAPTER THREE
HERETAUNGA PISTOL CLUB
LIVING SHOOTING EVENTS

Range Conducting Officer(s)

351. To ensure minimum acceptable supervision of shooters and overall range control, qualified range conducting officers are to be appointed by the HPC President or Vice President as follows:

- a. One Range Conducting Officer (RCO) for each shooter where the type of shooting event requires a ratio of one range officer for each shooter.
- b. If the type of shooting event does not require the ratio of one range officer for each shooter, one range officer for each firing bay and each group of ten shooters within a bay is to be appointed (i.e. fifteen shooters in Bay 1 requires two range officers to be appointed).
- b. Should the RCO or RCO's be required to undertake any other activity, suitably qualified replacement(s) must assume the responsibilities, ensuring that:
 - (1) All range flags are hoisted to their respective mastheads.
 - (2) Inspection of the sand bullet catchers, bay floors and covered firing points are free of any possible hazards (i.e. stones over 30mm in size, rabbit holes, excessive hollowing or tunnelling in the impact areas of the bullet catchers).

Firearm Limitations

352. The following firearm types are authorised for use on Collins Range:

- a. **Pistol.** Air/gas powered, single shot, revolver, semi-automatic and muzzle loading pistols that fire .22 calibre rimfire up to 12.5mm centrefire and muzzle loading ammunition.
- b. **Shotgun.** Double barrellled, pump action and semi-automatic shotguns that fire up to 12 gauge ammunition.
- c. **Rifle.** Air/gas powered, single shot, bolt action, lever action, semiautomatic and black powder rifles that fire .22 calibre rimfire up to 7.62mm centrefire and black powder ammunition.

Authorised Shoots

353. Authorised shooting disciplines with the incorporated firearm types and ammunition natures for use in each individual firing bay of Collins Range complex are as follows:

a. **Bay 1, Bay 2 and Bay 3.**

- (1) **Practical Pistol up to 25m.** Revolvers, semiautomatic and muzzle loading pistols from .22 calibre rimfire to 12.5mm centrefire and muzzle loading ammunition.
- (2) **Practical Pistol Steel Targets from 10m to 15m.** Revolvers, semiautomatic and muzzle loading pistols from .22 calibre rimfire to 12.5mm centrefire and muzzle loading ammunition.
- (3) **Informal Pistol up to 25m.** Air/gas powered, single shot, revolvers, semiautomatic and muzzle loading pistols from .22 calibre to 12.5mm centrefire muzzle loading ammunition.
- (4) **Shotgun up to 20m.** Double barrelled, pump action and semiautomatic shotguns up to 12 gauge shot ammunition.
- (5) **Bullseye Pistol 25m.** Air/gas powdered, single shot, revolver, and semiautomatic pistols from .22 calibre to 9.65mm centrefire ammunition.

b. **Bay 4.**

- (1) All of paragraph 343, subparagraph, a, (1-5), above and including:
- (2) **Practical Pistol 25 to 50m.** Revolver, semiautomatic and muzzle loading pistols from .22 calibre to 12.5mm centrefire and muzzle loading ammunition.
- (3) **Bullseye Pistol 50m.** Air/gas powdered, single shot, revolver, semiautomatic and muzzle loading pistols from .22 calibre to 9.65mm centrefire and muzzle loading ammunition.
- (4) **Shotgun Sporting Clay.** Double barrel, pump action and semiautomatic shotguns up to 12 gauge shot ammunition.

6. **Bay 5.**

- (1) All of subparagraph 343, a, (1-5), above,
- (2) All of subparagraph 343, b, (1-4) above and including:
- (3) **Handgun Metallic Silhouette.** Revolvers and single shot pistols from .22 calibre up to 12.5mm centrefire non-jacketed projectile ammunition.
- (4) **Shotgun Rifled Slugs.** Double barrelled, pump action and semiautomatic shotguns up to 12 gauge ammunition.

- (5) **Rifle.** Air/gas powdered, single shot, bolt action, lever action, semiautomatic and black powder rifles from .22 calibre up to 7.62mm ammunition.

Firearm Safety Precautions

354. All persons involved in live shooting events while on the range must adhere to the following safety precautions when handling firearms:

- a. All firearms brought on to the range are to be suitably bagged.
- b. All firearms removed from the range are to be suitably bagged.
- c. Firearms are not to be handled in the range carpark.
- d. Firearms are not to be left unattended at any time.
- e. Firearms may be cleaned, repaired, test cycled or dry fired only in the designated Safety Area.
- f. Ammunition, empty cases (brass), snap caps or anything resembling ammunition is not permitted within the Safety Area.
- g. Loaded firearms are to be pointed down range in the direction of the target/ bullet catcher at all times.
- h. Prior to any shooter leaving a firing bay, the firearm must be inspected and cleared by the RCO.

Unzeroed Firearms

355. Ideally all firearms should be zeroed to the individual shooter prior to being used on the range complex. However, as this may not be practical in all situations, it is acceptable for bore-sighted firearms to be fired providing the fall of shot is observed from the firing point. If after three shots the fall of shot is not within the relevant CoF for the firearm group, the bore-sighted firearm is to be removed from the range and zeroed at another range prior to being used on the Collins Range complex. To improved bore-sighting effectiveness, it is recommended that a mechanical bore-sighting device is obtained.

Ammunition Limitations

356. Ammunition used in the authorised shooting disciplines conducted on Collins Range complex is not to exceed the following performance limitations. The ammunition limitations are expressed by muzzle velocity (MV), and muzzle energy (ME).

- a. **Air/gas powered.** Is not to exceed a ME of 16 J (12 ft/lbs).
- b. **Rimfire.** Is not to exceed a MV of 610 m/s (2000 ft/sec) and a ME of 480 J (350 ft/lbs).

- c. **Centrefire Pistol.** Is not to exceed a MV of 655 m/s (2145 ft/sec) and a ME of 2030 J (1495 ft/lbs).
- d. **Shotgun - Shot and Slug.** Is not to exceed a MV of 411 m/s (1350 ft/sec).
- e. **Centrefire Rifle.** Is not to exceed a MV of 1000 m/s (3280 ft/sec) and a ME of 4500 J (3319 ft/lbs).

357. The following ammunition natures are not permitted for use on any firing bay of Collins Range complex:

- a. Tracer,
- b. Armour piercing, and
- c. Incendiary,

Hand Loaded Ammunition

358. Particular attention is to be given when hand loaded or reloaded ammunition is used. The performance of such ammunition is not to exceed the limitations stated in Chapter Two, paragraph 356. Considerations must also be given for the ammunition to perform within the established CoF of each described shooting discipline. If for any reason the hand loaded ammunition does not perform within the CoF for the specific firearm group, the ammunition is not to be used until the fault has been rectified.

Targets Limitations

359. The following target construction, target line, target positioning, target centre and target spacing limitations are required:

- a. **Target Construction.** The following target construction limitations are to apply:

- (1) **Penetrable Targets.** Where possible all penetrable targets are to be constructed so that the target frame is outside of the cone of fire and projectiles easily penetrate the target face backing. It is permissible for the frame of Practical Pistol targets to be within the cone of fire so long as the frame is made from the small wooden battens (approximately 50mm x 15mm) currently used by HPC. It is also permissible for the frame of Informal Pistol targets to be within the cone of fire so long as the frame is made from the 50mm x 50mm soft wood currently used by HPC and a limited danger area is applied to the Defence Area boundary.
- (2) **Steel Targets.** Steel targets may only be used if they are provided with a ricochet suppression shelter as described in Reference D. Steel targets positioned inside a bullet catcher do not require individual target ricochet suppression shelters as the bullet catcher is designed to capture all post impact hazards (less backsplash).

b. **Target Placement.** Target placement is to be calculated in accordance with the method described at Annex A to this Chapter, which will determine the distance from the side walls and side banks and the following limitations:

- (1) **Practical Pistol Penetrable Targets.** Practical Pistol penetrable targets are to be positioned as follows:
 - (a) **Stop Butt.** Within 10m of the stop butt toe.
 - (b) **Bullet Catchers.** A minimum of 500mm inside a line perpendicular to the forward edge (closest to the shooter) of the canopy.
- (2) **All Other Penetrable Targets.** All penetrable targets (less Practical Pistol Penetrable targets) are to be positioned within 1.5m of the stop butt toe.
- (3) **Steel Targets.** Steel targets are to be positioned as follows:
 - (a) **Stop Butt.** Within 1.5m of the stop butt toe. Each target is to be provided with a ricochet suppression shelter.
 - (b) **Bullet Catcher.** A minimum of 500mm inside a line perpendicular to the forward (closest to the shooter) edge of the canopy. So long as the bullet catcher is designed to capture all post-impact hazards (less backsplash) individual target ricochet suppression shelters are not required.

c. **Extreme Left and Right Target Positioning.**

- (1) **Practical Pistol Penetrable Targets.** Practical Pistol penetrable targets are to be positioned in accordance with minimum distances in the following table from the left hand end of the compliant bullet catcher and the right hand side wall in Bay 1.

Target Distance from Stop Butt Toe (m)	1	2	3	4	5	6	7	8	9	10
Target Distance from Side Wall/End of Compliant Stop Butt (m)	1.5	1.5	1.5	1.5	1.5	1.74	2.03	2.32	2.61	2.9

- (2) **Informal Pistol Penetrable Targets.** Informal Pistol penetrable targets are to be positioned a minimum of 1.5m from the left and right side wall of Bay 3.

d. **Target Centres.** Target centres are to be positioned so that the relevant CoF, when applied from the shooters position, is completely captured by the stop butt or bullet catcher impact slope.

- (1) **Practical Pistol Penetrable and Steel Popper Targets.** The centre of Practical Pistol penetrable and steel popper targets are to be positioned so that the cone of fire, applied to a line from the shooters firearm through the centre of the target, is completely captured by the stop butt.
- (2) **Informal Pistol Penetrable Targets.** The target centre for Informal Pistol targets is to be a maximum of 1.5m and a minimum of 1.2m above ground level at the target line.
- e. **Target Spacing.** Where the possibility of wrong target engagement exists, target spacing (measured from centre to centre of the targets) is not to exceed 1.2m.
- f. **Maximum Number of Targets.** The following is the maximum number of targets permitted for use in each firing bay of the range complex:
- (1) **Bay 1.** Provides a maximum of 15 x targets for Practical Pistol, Informal Pistol, Shotgun (up to 20 metres) and 2 x Bullseye targets positioned at the toe of the purpose built canopy.
- (2) **Bay 2.** Provides a maximum of 5 targets for Practical Pistol, Informal Pistol and Shotgun (up to 20 metres).
- (3) **Bay 3.** Provides a maximum of 5 x Practical Pistol, Informal Pistol and Shotgun (up to 20 metres).
- (4) **Bay 4.** Provides a maximum of 6 x Practical Pistol, Informal Pistol, Shotgun (up to 20 metres) and 1 x Shotgun Aerial Sporting Clay target.
- (5) **Bay 5.** Provides a maximum of 14 x Practical Pistol, Informal Pistol, Rifle, Shotgun (rifled slugs), Shotgun (up to 20 metres), Handgun Metallic Silhouette and 1 x Shotgun Aerial Sporting Clay targets.
- g. **Cross-lane Firing.** In developing the method at Annex A to this Chapter to determine left and right Danger Area angles and associated shooter and target locations, the maximum arc of fire angle of $\pm 10^\circ$ (± 178 mils) has been used. Therefore, cross-lane firing may occur up to a maximum $\pm 10^\circ$ (± 178 mils) from the range axis, unless otherwise restricted.
- h. **Moving Targets.** Sporting Aerial Clay targets are the only moving targets that are authorised to be engaged on Collins Range complex. This is restricted to Shotgun with shot ammunition in Bay 4 and Bay 5 only.

Firing Emplacements

360. Firing may only occur from the pre-determined positions on the range floor of each firing bay. Firing is not to occur closer than the back splash safety distances as

stipulated in Reference B, unless impact resistant eyewear is worn and the wearing of protective clothing (i.e. long sleeve shirts or jackets) has been considered.

Inability to Achieve Cone of Fire

361. If for any reason any shooter personally notifies the Range Officer or is identified as having fired a shot outside the cone of fire, the following procedure is to occur:

- a. The shooter is to immediately stop firing or be stopped from firing.
- b. The shooter's next shot is to be observed and if it falls within the cone of fire the shooter is to be permitted to continue firing.
- c. If the next shot does not fall within the cone of fire, the shooter is to be provided a competent coach with the intention of bringing the spread of shot to within the cone of fire in the next 3 shots.
- d. Shooters who are unable to achieve the cone of fire within the three shots are to be prevented from further firing. Shooters prevented from firing in this way may resume firing following identification and rectification of a firearm or ammunition fault. If the firearm and ammunition are found to be satisfactory the shooter is not to recommence firing until after suitable non-live firing training with the firearm has occurred.
- e. The event is to be recorded in a logbook along with the location of the shot or shots outside of the cone of fire if possible.

362 – 370. Reserved.

Annex:

- A. Calculating Left and Right Danger Area Angles and Associated Shooter and Target Locations.

CALCULATING LEFT AND RIGHT DANGER AREA ANGLES AND ASSOCIATED SHOOTER AND TARGET LOCATIONS

Introduction

1. A method (based on the New Zealand Army Advanced Small Arms Field Firing rules) for determining the left and right danger area angles and the associated shooter and target locations has been developed by GSO2 Weapons and Range Safety to allow safe concurrent use of:

- a. Adjacent and other bays at the HPC Range, and
- b. Allen and Sommerville Ranges (also located within the Trentham Defence Area).

2. This annex explains the generic calculation steps for determining the left and right danger area angles and the associated shooter and target locations (see paragraph 4 and 5 below) and provides a diagrammatic representation of the method (see Figure 1 below).

3. The method is based on trigonometric ratios, right-angled triangles (see triangles ABC, CDE and ABF in Figure 1 below) and the following:

- a. An assumption the projectiles will not strike the range floor prior to the bullet catcher toe. If this assumption is not valid, concurrent activities on two or more bays is not possible at the HPC Range.
- b. 1° equals 17.78 mils of angle.
- c. The arc of fire angle is not to exceed $\pm 10^\circ$ (± 178 mils).
- e. The largest cone of fire for the authorised firearm group at each bay is used.
- d. The ricochet angle is to be 29.81° (530 mils), which is the standard opening ricochet angle for Army's full danger area templates.

Determining the Shooter's Location

4. To determine the shooter's location, the length of line BC and line DE in Figure 1 below must be determined. The calculation steps for determining the shooter's location follow:

- a. **Step 1.** Determine the length of line AB. The length is the distance between the shooter and the target.

- b. **Step 2.** Determine the angle between line AB and the line AC in degrees. The angle is the arc of the angle (if an arc of fire is required and permitted) plus the cone of fire angle.
- c. **Step 3.** Determine the length of line BC by multiplying the length of the line AB by the tangent of the angle between line AB and line AC.
- d. **Step 4.** Determine the length of line CD. The length is the distance between the target and the bullet catcher toe.
- e. **Step 5.** Determine the angle between line CD and line CE in degrees. The angle is the arc of fire angle (if an arc of fire is required and permitted), plus the cone of fire angle, plus the ricochet angle.
- f. **Step 6.** Determine the length of line DE by multiplying the length of line CD by the tangent of the angle between line CD and CE.
- g. **Step 7.** Add the length of line BC and DE. The total equals the minimum distance that the shooter must be from the side wall or bank.

Determining the Target's Location

5. To determine the target's location, distance BF must be subtracted from the total length of line BC plus the length of line DE. The calculation steps for determining the target's location follow:
 - a. **Step 1.** Determine the length of line AB. The length is the distance between the shooter and the target.
 - b. **Step 2.** Determine the angle between AB and line AF in degrees. The angle is the arc of fire angle (if an arc of fire required and permitted).
 - c. **Step 3.** Determine the length of line BF by multiplying the length of line AB by the tangent of the angle between line AB and AF.
 - d. **Step 4.** Subtract the length of line BF from the total length of line BC plus the length of line DE. The result is the minimum distance that the target must be from the side wall or bank.

Range Axis

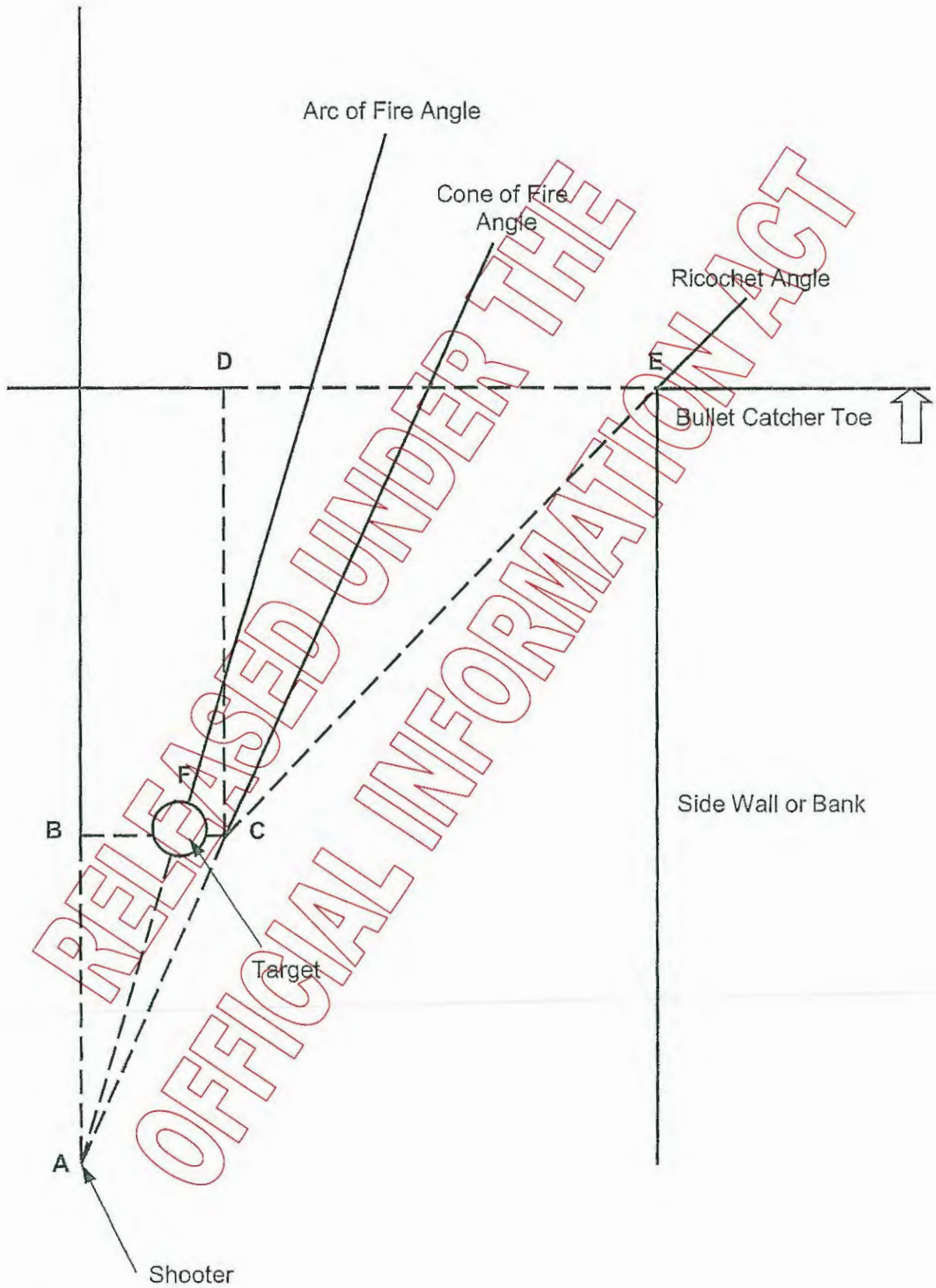


Figure 1 – Calculating Shooter and Target Locations