

Environmental Assessment Registration

# Stephenville Range Complex

JUNE 2019



# ENVIRONMENT ASSESSMENT REGISTRATION

## Stephenville Range Complex

Prepared for:  
Department of Municipal Affairs and  
Environment Environmental Assessment  
Division  
PO Box 8700  
St Johns, NL A1B 4J6

Prepared by: Clyde Russell  
Consultant and Military Advisor to the Town  
of Stephenville 24 McNeil Crescent  
Stephenville, NL A2N 3E3

# Table of Contents

1.0 NAME OF THE UNDERTAKING .....	4
2.0 PROPONENT .....	4
2.1 Name of Corporate Body.....	4
2.2 Address .....	4
2.3 Contact.....	4
2.4 Principal Contact Person for Purposes of Environmental Registration .....	4
3.0 THE UNDERTAKING.....	5
3.1 Nature of the Undertaking .....	5
3.2 Need for the Undertaking .....	6
4.0 DESCRIPTION OF THE UNDERTAKING .....	6
4.1 Geographic Location .....	6
4.2 Physical Features of the Undertaking .....	6
4.2.1 Site Access .....	7
4.2.2 Site Electricity and Telephone.....	7
4.3 Construction Activities.....	7
4.3.1 Vegetation Clearing .....	7
4.3.2 Grubbing and Disposal of Related Debris .....	8
4.4 Operations .....	8
4.4.1 Fire Safety Program.....	9
4.4.2 Groundwater and Surface Water Monitoring Program.....	9
4.5 Potential Valued Ecosystem Interactions and Mitigation.....	9
4.5.1 Resource Conflicts.....	9
4.5.2 Wildlife .....	9
5.0 Occupations Involved.....	10
5.1 Construction Phase.....	10
5.2 Operational Phase .....	10
6.0 APPROVAL REQUIRED FOR THE UNDERTAKING.....	11
7.0 References .....	12
Appendices .....	13
Appendix A – Site Location .....	14
Appendix B - Road Access.....	15
Appendix C - Safety Area Templates .....	16

Appendix D - Site Plan ..... 17  
Appendix E - Area to be cleared ..... 18  
Appendix F - Noise Attenuation..... 19  
    Calculation ..... 20  
    Vehicle Traffic..... 20  
    Conclusion ..... 20

# **1.0 NAME OF THE UNDERTAKING**

STEPHENVILLE RANGE COMPLEX

## **2.0 PROPONENT**

### **2.1 Name of Corporate Body**

The Town of Stephenville

### **2.2 Address**

Town of Stephenville  
P.O. Box 420  
125 Carolina Avenue Stephenville, NL A2N 2Z5

### **2.3 Contact**

Name: Mike Campbell  
Official Title: Town Manager

### **2.4 Principal Contact Person for Purposes of Environmental Registration**

Mr. Clyde Russell, (Colonel ret'd), OMM, CD, BSM  
Town of Stephenville Military Advisor 24 McNeil Crescent  
Stephenville, NL A2N 3E3 Telephone: (709) 721-0127

## 3.0 THE UNDERTAKING

### 3.1 Nature of the Undertaking

The proposed project is the construction and operation of a range complex consisting of a 600-meter, 12 lane rifle range and a 50-meter, 10 lane pistol range in Stephenville, NL. The range complex will be owned by the Town of Stephenville, governed by a Board of Directors and operated by a duly qualified Range Master. The Range Complex will be purpose built for use by the Royal Canadian Mounted Police (RCMP), the Royal Newfoundland Constabulary (RNC), Wildlife and Fisheries Officers, Department of National Defense (DND) and registered public.

1. The proposed location is approximately 2km north west of Route 460 and approximately 5km north of the Port au Port Highway. (see Appendix B)
2. The proposed location is approximately 1km from a privately owned tree farm and 2.34 km from an agriculture area. These locations will be accessible to users both during construction and operation of the Range Complex.
3. The nearest permanent residence is approximately 3 km from the proposed Range Complex. Noise attenuation for the range is explained in Appendix F and it is assessed that noise pollution will not be a factor with establishment of this range.
4. The proposed location will be accessible by means of improving an already existing road leading to the Town of Stephenville's former landfill. An already existing ATV trail will be re-located to the SE of the proposed security fence as per Appendix D. Users can continue to use this route both during the construction and operation of the Range Complex.
5. The proposed location takes in a total area of approx. 1 square km. Within this area will be cleared land for the 600 m rifle range shooting field (approx. 60,000 m<sup>2</sup>), the 50 m pistol range shooting field (approx. 2500 m<sup>2</sup>), security fence with access gate, parking areas, buildings, and access road. The Range Complex also includes an approximately 3km fan shaped safety area template for the rifle range and 2km safety area template for the pistol range. No land clearance or construction will take place in this safety area templated zone. The range will be designed and constructed so that all rounds will impact and be contained within the bullet backstop. The safety area template is a drawing representing the ground area designed to contain overshoot bullets and ricochets generated from a single shooters firing point, under conditions which are considered to be representative of normal range use. The

safety area template for this range complex overlaps the watershed protected area and the well head protected water supply area for the towns of Stephenville and Kippens. Working jointly both municipalities have amended their municipal plans to allow for the use of the area as a target shooting range as per references D, E, and F.

### **3.2 Need for the Undertaking**

The Stephenville Range Complex is Phase Two of a multi-year strategy to attract military, law enforcement, and other government department training to the Stephenville area to help stimulate the local economy. The first phase saw the construction of training infrastructure in the Town of Stephenville to include: a Rappel Tower, Urban Operations building, and an Equipment Storage Building. This coupled with the legacy infrastructure of Ernest Harmon Air Force Base and the natural attributes of the area make Stephenville a highly credible choice for a wide range of training scenarios. The Stephenville Range Complex will be a one of a kind in western and central NL and represents the critical missing element to the overall strategy.

## **4.0 DESCRIPTION OF THE UNDERTAKING**

### **4.1 Geographic Location**

(See Appendix A)

### **4.2 Physical Features of the Undertaking**

The development will consist of the following components:

1. Gravel Access Road
2. Administration and Multi - purpose Building
3. Target storage building
4. 36,000 m<sup>2</sup> rifle range with firing point mounds, concrete retaining wall and footing, target holders and stop butt (bullet catch)
5. 2,500 m<sup>2</sup> pistol range with target holders and stop butt (bullet catch), and sheltered shootingstand,
6. Security fence with access gate surrounding both shooting fields, buildings, and parking areas.
7. Signage on border of safety area template indicating the location of the Range Complex
8. Two gravel Parking Lots for a total cleared area of 1000 m<sup>2</sup> (see site plan at Appendix D).

#### 4.2.1 Site Access

Access to the site will be by means of an already existing gravel access road extending North from Route 460 to the former Stephenville landfill site. (see Appendix B) The latter 500m of this road will require some improvements. The road will be graded gravel with all season use. Access to the actual range complex will be controlled by a locked gate and security fence. The ATV road through the range area will be re-routed to the SE of the security fence (see Appendix D).

#### 4.2.2 Site Electricity and Telephone

Two-phase power would be required to service the site. Telephone and electricity lines would be installed along the site access road from the municipal towers.

### 4.3 Construction Activities

Pending required approvals construction could begin in fall 2019 or summer 2020. Activities include the removal of vegetation, grubbing, and grading of soil material for the construction of the proposed structures on site. These activities will be required for the construction of the two free standing cinder block buildings, the security fence and gated entrance to the site, the gravel parking lots close to the buildings, and the improvement of 500m of gravel roadway and the re-routing of approx. 250 m of ATV road. The 60,000 m<sup>2</sup> rifle shooting field will require land clearing, drainage, removal of vegetation, and site grading. It will also require the construction of a bullet backstop and the installation of target frames in the backstop area. The 1500 m<sup>2</sup> pistol range will require land clearing, removal of vegetation, and site grading. It will also require the construction of a sheltered shooting stand, a bullet backstop, and target holders. Realizing some impact is likely in certain areas, the proponent is committed to keeping those impacts to a minimum. During the construction and operation of the Range Complex, all efforts will be made to preserve and conserve the natural environment. Vegetation will be maintained where possible to provide natural buffer zones, and any exposed slopes will be stabilized with natural vegetation where possible.

#### 4.3.1 Vegetation Clearing

Potential concerns associated with vegetation clearing include loss of habitat, as well as sedimentation of watercourses. All vegetation clearing and associated activities will adhere to applicable acts, regulations, and permits. Also, mitigation measures will be implemented to reduce the potential effects of vegetation removal. A cutting permit will be obtained prior to the start of any site clearing. Clearing and removal of trees will be restricted to the minimum areas needed for the site requirements and will not be outside the permitted limits. Vegetation will only be cleared for the 60,000 m<sup>2</sup> rifle shooting field, the 1,500 m<sup>2</sup> pistol shooting field, the building locations, the parking areas, security fence and access road. The remaining natural environment surrounding the site will serve as a buffer zone and will be left



in its natural state. Limits of clearing will be shown in Appendix C. Disposal of cleared timber and slash will be in compliance with Forest Fire Regulations, Environmental Code of Practice for Open Burning, and the Permit to Burn.

#### 4.3.2 Grubbing and Disposal of Related Debris

The principal concerns associated with grubbing are the potential effects of erosion on marine and freshwater ecosystems, as well as water quality. All grubbing and disposal of related debris near watercourses will adhere to relevant regulatory requirements. Efforts will be made to minimize dust generation during the construction phase of the project. Dust from construction activities will be controlled using frequent applications of water. Any application of calcium chloride will be in accordance with applicable guidelines from the Department of Transportation and Works. Solid waste disposal practices will be in compliance with the Environmental Protection Act and associated regulations. Any construction debris generated during the course of the project will not be permitted to be disposed of on site, but will be contained in steel boxes on site for disposal at a municipal solid waste disposal facility. Where possible, construction waste will be recycled.

All machinery will be inspected regularly for leakage of lubricants or fuel and must be in good working order. Any accidental spills or leaks will be promptly contained, cleaned up and reported to the 24-hour environmental emergencies report system at 709-772-2083 or 1-800-563-9098. All fuel handling and storage will be in compliance with The Storage and Handling of Gasoline and Associated Products Regulations. Also, to minimize the risk of fuel, lubricant or hydrocarbon release, construction equipment will not be permitted to be refueled within 30 m of any body of water. If fuel storage is necessary, it will be stored only in approved containers with all necessary permits in place. Basic petroleum spill clean-up equipment will be on-site and made accessible to all contractors and or employees. Equipment exhaust systems will be maintained to provide emissions meeting the standards designed for the equipment by the manufacturer. Exhaust systems will be maintained to ensure noise levels are within the design specifications of the machinery.

### 4.4 Operations

The proposed range complex is estimated to begin operations in September 2020 at the earliest and be operational for approximately a 50-year period. The ranges will operate annually from 1 May until 1 November and daily from 0900hrs up to 2200 hrs as required. The proposed rifle and pistol ranges will be available for use by RCMP, RNC, Wildlife and Fisheries Officers, military personnel, and registered public during the predetermined hours of operation. Upon arrival each person will be required to check in with the site official at the registration building. They will then proceed to the shooting area after their arms and equipment has been approved by the site official. Each shooting area has specific safety regulations that will be posted, read, and strictly enforced. Ammunition will not be stored on

site and range users will be responsible for the transportation and safe storage of their own ammunition. Upon completion of shooting practices range users will be responsible for collecting and removing all empty casings from the range for recycling. A local business, NEWCO Metals and Auto Recycling at 9 Rorstad Loop in Stephenville is an established venue for recycling used casings.

#### **4.4.1 Fire Safety Program**

A fire safety program will be developed in consultation with the local fire department and where required, the Department of Forest Resources and Agri-Foods.

#### **4.4.2 Groundwater and Surface Water Monitoring Program**

Where required, surface water control measures will be implemented to minimize the impact on the environment from the construction activities and general operation of the range. The basic element of surface water controls is to maintain post development flow rates at pre-development levels and not to alter the pre-development water quality. It is important to minimize the contact between sediment and surface water by: constructing ditches to intercept and divert surface water from areas of sediment constructing temporary measures to separate surface water from high traffic areas. In order to minimize the impact of lead on the surrounding environment from the lead core bullets used, the stop butts will be inspected monthly and raked and cleaned annually. Used lead will be disposed of in accordance with Western Waste Management and Department of Environment guidelines. There will also be monitoring wells established down grade from the stop butts to ensure that lead is not leaching into any groundwater or surface water on site. Water quality testing will take place annually.

### **4.5 Potential Valued Ecosystem Interactions and Mitigation**

#### **4.5.1 Resource Conflicts**

There is a stream located in the safety area templated zone approximately 150 west of the shooting fields. Construction activities will be conducted in such a manner as to prevent the release of sediment or other deleterious materials into this stream as outlined in Section 4.4.2.

#### **4.5.2 Wildlife**

Noise generated on site will be periodical and is therefore not expected to create a concern for wildlife in the area. The shooting fields will be enclosed with a security fence which will allow users to fire their weapons without causing any immediate wildlife conflict.

## 5.0 Occupations Involved

### 5.1 Construction Phase

National Occupational Classification Group Title Code	Potential Positions Anticipated	Description
2264	1	Construction Health and safety Inspectors
7612	12	Other Trades Helpers and Laborers

### 5.2 Operational Phase

It is expected that one person will be employed full time as Range Master during the facilities operational phase with the potential for two part-time employees in the future.

National Occupational Classification Group Title Code	Potential Positions Anticipated	Description
7421	1	Range Master

## 6.0 APPROVAL REQUIRED FOR THE UNDERTAKING

The permits, approvals, and authorizations that may be necessary for the undertaking include:

Permit, Approval or Authorization	Issuing Agency
Approval for the Undertaking	Minister of Environment and Conservation
Approval under the National Building Code of Canada  Approval under the National Fire Code of Canada	Engineering Services, Department of Government Services
Building Accessibility Design Registration	Operations Division Department of Government Services
Crown Lands Application Licenses Develop Land – Protected Road Zoning and Development Control Regulations – Preliminary Application to Develop Land Electrical Permit	Customer Services, Department of Government Services
Permit to Burn	Forest Fire Protection Specialist, Department of Natural Resources
Permit to Cut Crown Timber Operating Permit Fire Season	Newfoundland Forest Service, Department of Natural Resources
Approval to Operate a Shooting Range	RCMP Provincial Chief Firearms Officer

## 7.0 References

- A. RCMP Range Design and Construction Guidelines, 1999, The Canadian Firearms Centre
- B. Designing and Operating a Range to Minimize Sound by: John Joines, Range Engineer, National Association of Shooting Ranges, 1/26/2009
- C. Decibel Table, Loudness Comparison Chart, [www.sengpielaudio.com](http://www.sengpielaudio.com)
- D. Town of Stephenville, Municipal Plan Amendment No. 1, 2017
- E. Town of Stephenville Municipal Plan Amendment No. 5, 2018
- F. Town of Stephenville Municipal Plan Amendment No. 9, 2018

---

Date

---

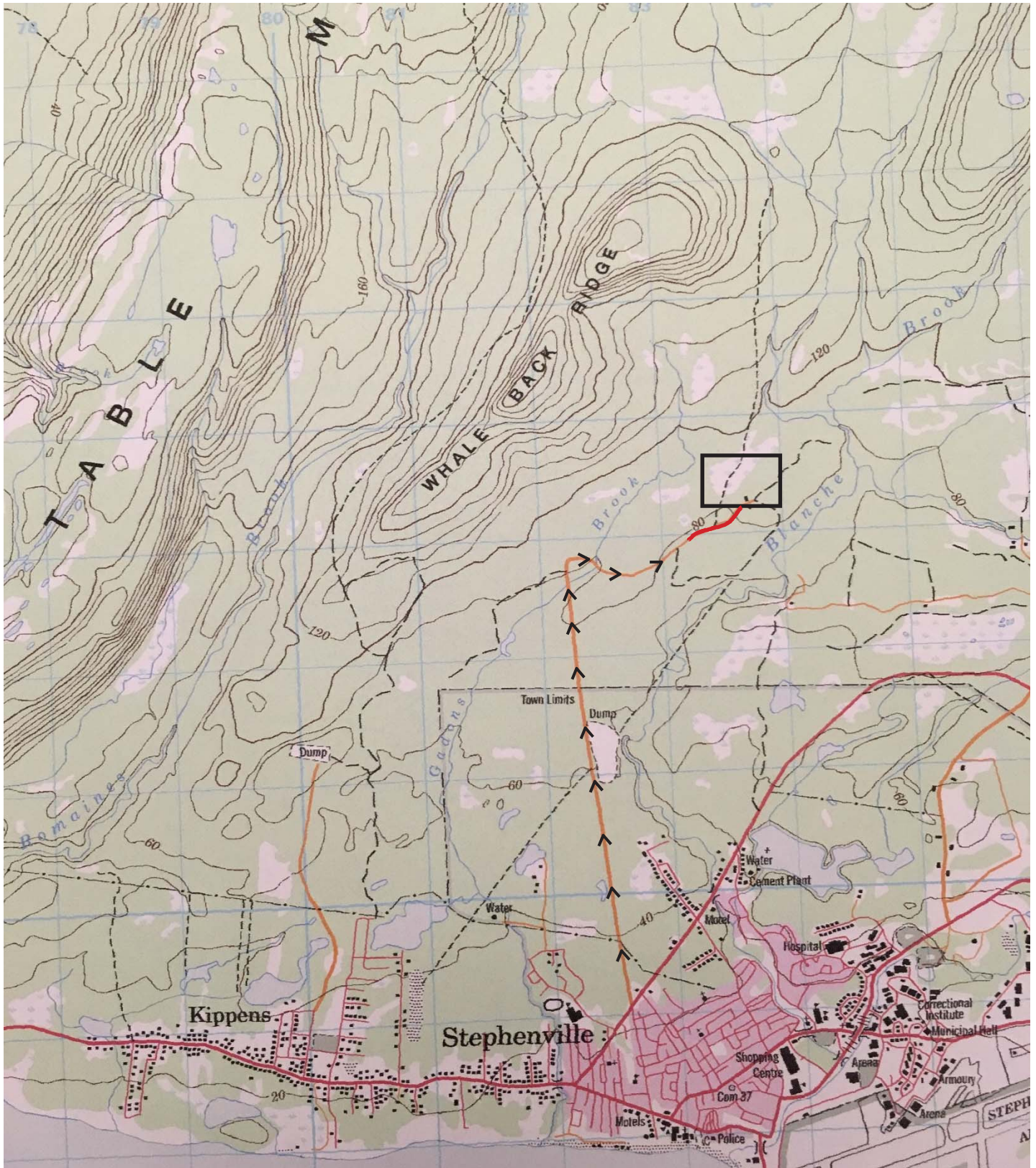
Chief Executive Officer




# Appendices

# Appendix A – Site Location



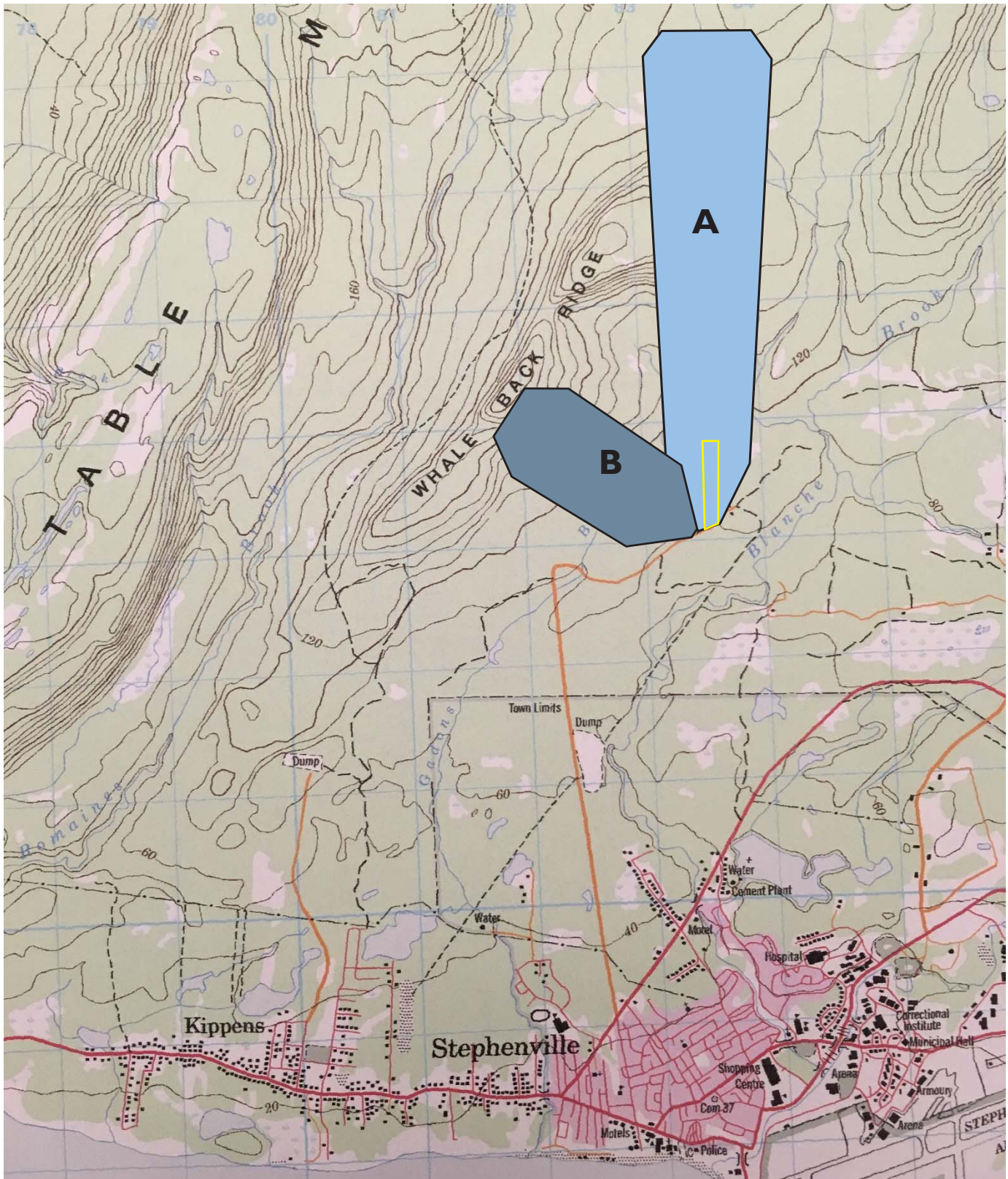
# Appendix B - Road Access



-  Range Complex
-  500m of road to be repaired
-  Range Access Road



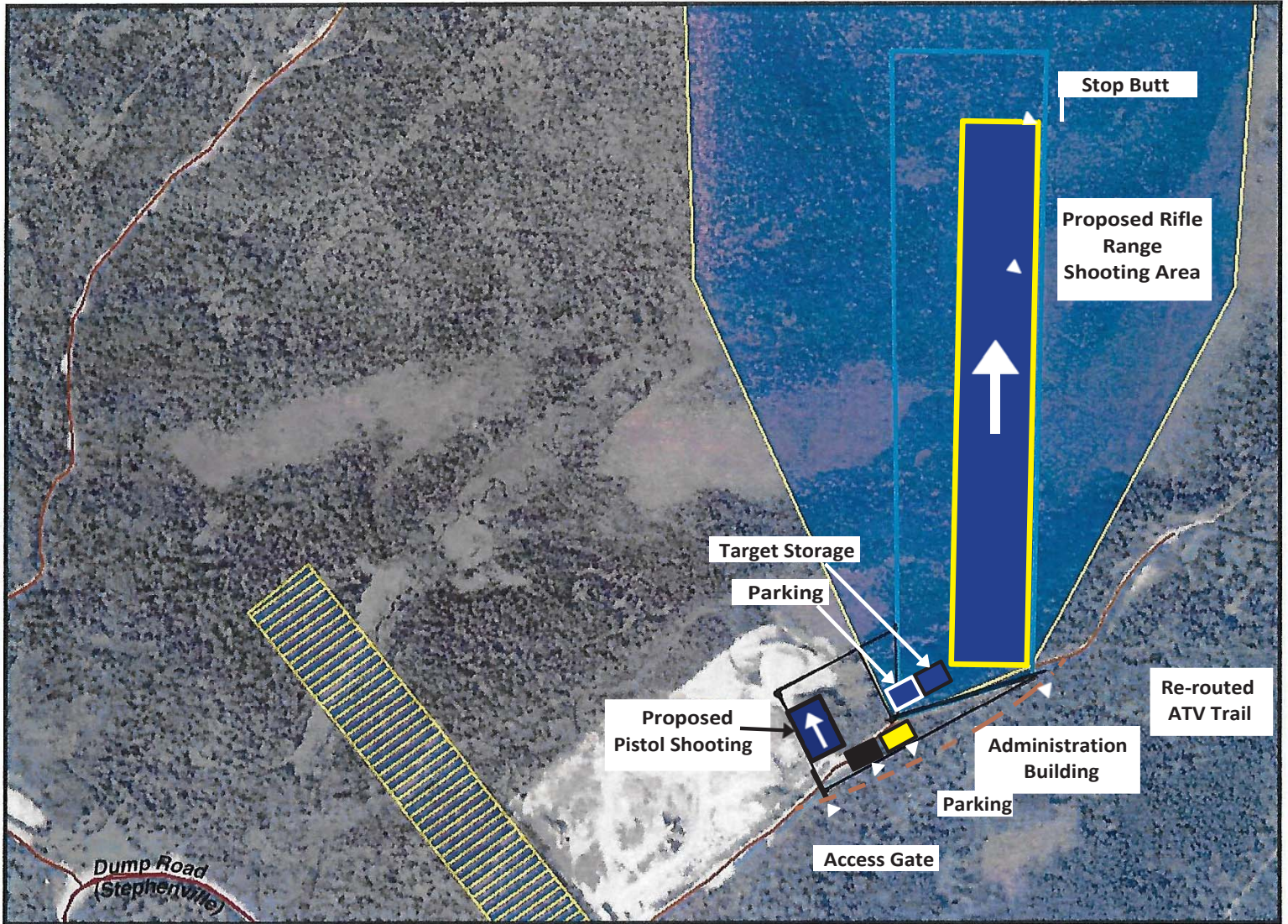
## Appendix C - Safety Area Templates



A. Safety area template 7.62 mm Ranger Rifle

B. Safety area template .357 S&W Magnum

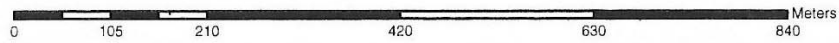
# Appendix D - Site Plan



## Crown Lands Division

Scale 1:7,500

Compiled on June 02, 2017



Re-routed ATV Trail — — — — —

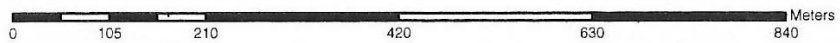
# Appendix E - Area to be cleared



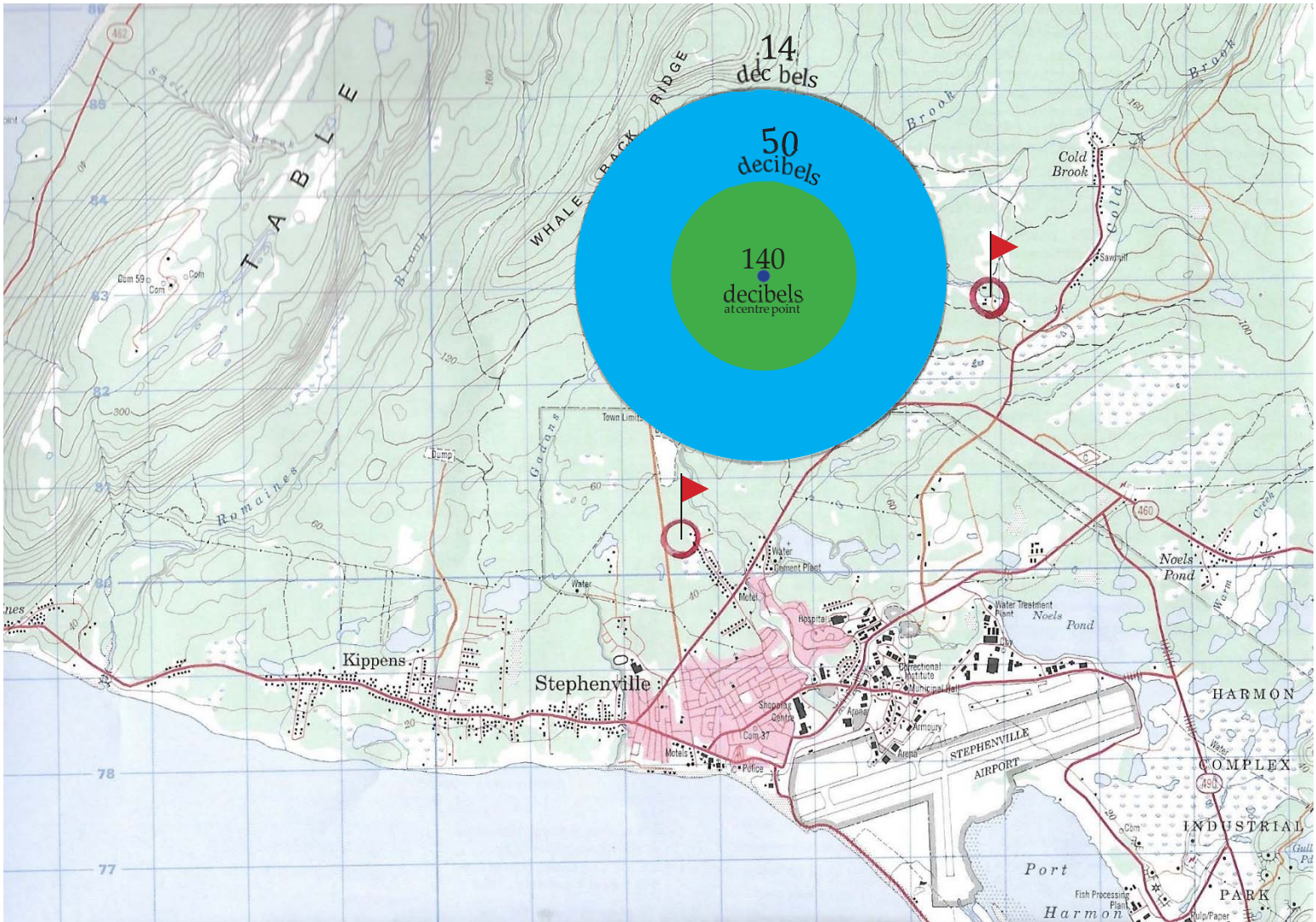
## Crown Lands Division

Scale 1:7,500

Compiled on June 02, 2017



# Appendix F - Noise Attenuation



 Closest residential areas

## Table of Sound Levels

### Inverse Square Law

- For every doubling of the distance away from the point source emitter the sound pressure levels will be reduced by 6 decibels.
- Trees and shrubs will allow you to get between 3 and 23 decibels in additional sound reduction per 300ft (approximately 100 meters).

Examples	Sound Pressure Level (decibels)
Jet Aircraft 50m away	140
Threshold of pain	130
Threshold of discomfort	120
Chainsaw, 1m distance	110
Disco 1m from speaker	100
Diesel Truck, 10 m away	90
Kerbside of busy road, 5m	80
Vacuum Cleaner, distance 1m	70
Conversational Speech, 1m	60
Average home	50
Quiet Library	40
Quiet bedroom at night	30

## Calculation

- Starting 1 meter from 140 dbls at the source of a rifle shot.
- Using Inverse Square Law at 1km the noise level would be 80 dbls –30 dbls for vegetation tamping = 50 dbls, the noise level inside the average home.
- At 2km the noise level would be 74 dbls – 60 dbls = 14 dbls; less than the noise inside a quiet bedroom at night.
- The nearest home is approx. 3km from the 600 meter firing point on the rifle range.
- There are no adverse effects of range noise on residential areas.

## Vehicle Traffic

- Residential roads will be avoided and the landfill road will be used as the main route to and from the range.
- During construction we will see tractor trailer flatbeds hauling heavy equipment.
- During range operations a typical military range party would consist of a 40-passenger bus and three to four trucks. Police would likely use several panel vans and cars.

## Conclusion

- Noise from range construction and operation will have minimal to no impact on residential areas.