

**Registration**

Pursuant to s. 37(1)(e) of the Environmental Protection Act, SNL 2002, c.E-14.2

**Undertaking**

Nano Brewery

**Location**

211 Drake Ave, Labrador City, Newfoundland and Labrador

**Submitted by**

Dave Hurley for Iron Rock Brewing Company

**Submission Date**

January 12<sup>th</sup>, 2018

# Contents

<b>Name of Undertaking:</b> .....	3
<b>Proponent:</b> .....	3
<b>(i.) Name of Corporate Body</b> .....	3
<b>(ii.) Address</b> .....	3
<b>(iii.) Chief Executive Officer</b> .....	3
<b>(iv.) Primary Contact Person for Environmental Assessment Queries</b> .....	3
<b>The Undertaking:</b> .....	4
<b>I. Overview of the Undertaking</b> .....	4
<b>II. Rational for the Undertaking</b> .....	4
<b>I. Geographic Location</b> .....	5
<b>II. Physical Features</b> .....	5
<b>III. Construction</b> .....	5
<b>IV. Nano Brewery Operations</b> .....	6
<b>Period of Operations</b> .....	8
<b>Nano Brewery Material Consumption and Waste Generation</b> .....	8
<b>I. Water Usage</b> .....	8
<b>II. Grain Usage</b> .....	8
<b>Occupations</b> .....	9
<b>Approval of the Undertaking</b> .....	10
<b>Schedule of the Undertaking</b> .....	10
<b>Funding</b> .....	10
<b>References</b> .....	12

**Name of Undertaking:**

Iron Rock Brewing Company

**Proponent:**

**(i.) Name of Corporate Body**

Iron Rock Brewing Company Ltd.

**(ii.) Address**

211 Drake Ave. Labrador City, NL A2V 2B6

**(iii.) Chief Executive Officer**

Name: Chris Sirabian.

Official Title: President.

Address: 303 Bartlett Dr. Labrador City, NL A2V 1G1

Phone: (709) 944-6956

**(iv.) Primary Contact Person for Environmental Assessment Queries**

Name: Dave Hurley

Official Title: Director of Brewing Operations and Quality Control

Address: 24 Guy St. Wabush, NL A0R 1B0

Phone: (709) 280-6986

## **The Undertaking:**

### **I. Overview of the Undertaking**

Dave Hurley and Chris Sirabian, the owners of Iron Rock Brewing Company (also referred to as “the brewery” or “Iron Rock Brewing”), are seeking approval to install and operate a nano brewery in the lower level of an existing building, “Baba-Q’s Smokehouse and Grill”, located at 211 Drake Ave., Labrador City, NL. The building is currently under development as a restaurant, and will meet all required life safety and accessibility requirements of Service NL. The brewery will consist of a 1 BBL (120L) Brewhouse with (3) fermentation vessels, and (3) brite beer tanks. Maximum annual production of this system is 85 hectoliters. The beer produced by Iron Rock Brewing would be sold by the keg to customers in the surrounding area.

### **II. Rational for the Undertaking**

The craft beer and microbrewery industry has been a growing trend within Newfoundland and Labrador, there are approximately 17 microbreweries that are currently operating or have intentions to operate within the province of Newfoundland and Labrador, however none of them are within the Labrador region. Labrador West, comprising of Wabush and Labrador City, has an especially favourable environment for the development of a craft beer industry. This is due to the lack of product diversity for consumers, along with the limited number of locations to purchase draught beer. Currently, there is only one bar that offers commercial draught beer in Labrador West.

As of the 2016 Census, Labrador West has a population of 9,126 people. 6,070 of those people are between the ages of 19 and 65. Furthermore, due to the isolation of the neighbouring community of Fermont, QC, there is also a high potential of gaining business from their population as well. Fermont adds an additional 1,494 people between the ages of 19 and 65, bringing the total target market to 7,564. Along with anticipating business from Fermont, the primary industry in Labrador West is iron ore mining. The mining companies create a large demand for people who travel to and from the communities to work as contractors, these people are especially favourable for the success of the brewery, as they statically dine out more frequently than locals would.

## Description of the Undertaking

### I. Geographic Location

The site for the brewery is in the lower level of “Baba-Q’s Smokehouse and Grill” food establishment, located at 211 Drake Ave., Labrador City, NL on a commercially zoned lot. The building is approximately 10m x 18m, on a 30m x 30m lot. The owners of Iron Rock Brewing have applied for municipal approval of the proposed operations of the nano brewery and are awaiting a response. Please see [Figure 1 – Aerial Map](#) in the Reference section for a highlighted aerial view of Baba-Q’s Smokehouse and Grill.

### II. Physical Features

The building sits in an area of town that has many other commercial properties, as well as apartments and hotels nearby. To the North there is a hotel and restaurant, and to the West a fast-food restaurant. To the South and East of the building is a town park that has a gazebo equipped with a roof that is used for musical performances, and a small pond. The lot has a fence that separates the park from the commercial area.

### III. Construction

The building is constructed as a truss and frame, two-level building. The main level is currently being renovated to house the restaurant, Baba-Q’s Smokehouse and Grill. There will be accessible male and female washrooms, a family dining area, lounge and bar area, and a kitchen area. On the lower level, there is a large walk-in cooler, food-prep room, a bonus room, utility room, and proposed area for the 1BBL brewery operations. The proposed area for the brewery operations would see the following changes upon approval:

- Walls will be covered with mildew resistant drywall, then covered with thin-gauge aluminium sheet metal or other easy-to-clean covering.
- Floors will be covered with an epoxy floor coating to allow for ease of cleaning and slip resistance.
- A ¾” waterline equipped with filtration system will be piped into the Brewhouse area. The fill line will utilise an air-gap, therefore an additional

backflow preventer will not be required. All hose bibs will be equipped with hose bib vacuum breakers.

- An exhaust hood will be installed above the Brewhouse for venting moisture to the outside, this same exhaust system will be used to exhaust any dust that is created from grain milling.

#### **IV. Nano Brewery Operations**

The typical brewing process is as follows:

- At the start of the production day, the Hot Liquor Tank (HLT) will be filled with approximately 190 liters of water. Two 5500W electric elements heat the strike water to temperatures close to 75°C as a pump recirculates the water through the HLT.
- As the HLT heats the strike water, the grains are weighed and milled. Various types of grains are used dependant on the style of beer, however, Canadian 2-Row malted barley will be used as the bulk of the recipe for most brew days. The total weight of grains will average 35kg.
- Once the strike water has reached the desired temperature it is pumped from the HLT to the Mash/Lauter Tun, where the grains are added and allowed to mash or steep. Mash times can range from 60 to 90 minutes in duration at temperatures between 64°C and 75°C. During this process, the starches that are released from the grains are converted into fermentable sugars.
- When the conversion of the starches to fermentable sugars has been confirmed, the liquid, now called “wort”, is transferred to the Boil Kettle. As the wort is drawn off the bottom of the Mash Tun, 75°C water is added to the top of the grain bed by a float controlled valve. This process is used as a sort of “washing” of the grains, helping to further remove the fermentable sugars from the grains and improve the yield, this is known as fly sparging.
- Once the wort has been collected in the Boil Kettle, it is heated to 100°C and boiled for 60 to 90 minutes. Throughout the boil, hops and other additives are added at pre-determined times according to the recipe. The primary role of hop additions are to add bitterness to the wort as well as adding distinct aromas. Other additives that could be used during the boil would be dependent upon the particular recipe.

- When the boil is complete, the wort is recirculated through a pump where is injected back into the Boil Kettle on an angle, causing the wort in the vessel to spin. This process is called whirlpooling. Whirlpooling causes any suspended particles such as hops and proteins, to gravitate to the center of the kettle where they fall to the bottom and avoid from being drawn off into the fermenter.
- As the wort is transferred into the fermenter, it passes through a plate chiller that cools the wort indirectly with cold water to 20°C. Once the wort leaves the plate chiller, it then passes through an oxygenation tee, where the wort is aeriated with oxygen. Aerating the wort is beneficial to the yeast during fermentation. The prepared wort is pumped into the fermenter that has already had the proper amount of yeast cells added.
- The temperature of the wort is controlled to the desired setpoint by the use of a glycol chiller and internal tubing coil for cooling, and an electric heating pad that is shaped to fit around the exterior of the fermenter for warming the wort. The fermentation process usually takes 5-7 days to complete, by this time the wort is now considered to be beer.
- Next, the beer is cooled slowly to 3°C. Known as “crashing”, this procedure is used to encourage any suspended particles such as yeast and proteins to drop to the bottom of the fermenter, where this waste can then be drained off to improve the clarity of the beer.
- After draining off the fallout from crashing the beer, the beer is then transferred from the fermenter to the brite beer tank. This process involves purging the hoses and brite tank with carbon dioxide, then using about 1 to 1.5psi of nitrogen pressure in the fermenter to push the beer into the brite tank. Known as a pressure transfer, this process ensures that the finished beer is not exposed to oxygen.
- Once the beer is in the brite tank, it is force carbonated using carbon dioxide that is injected into the beer via a carbonation stone, similar to a bubbler/aerator used in a fish tank. While being carbonated and conditioned, the beer is cooled with the same glycol chiller that was used to cool the fermenter in the earlier step.
- When the beer has been carbonated and conditioned to the desired levels, it is then transferred into kegs. The kegs will be filled in the same method as the transferring of

the beer from the fermenter to the brite tank. The kegs, which have been already put through a wash, rinse, sanitize, and CO2 purge cycle, are weighed as they are filled to determine the proper volume is achieved in each keg. Once the kegs have been filled, they are tagged with the beer name/style, kegging date, and the name of the person who kegged the beer. The kegs are then capped with a dust cover and stored in a walk-in cooler where they will be tapped when needed.

## **Period of Operations**

The brewing operations, such as cleaning, kegging, tank transfers etc., would occur throughout the year. Brew house operations are anticipated to occur three times bi-weekly.

## **Nano Brewery Material Consumption and Waste Generation**

### **I. Water Usage**

During the brewing process, water will be used as an ingredient, as well as a method for sanitizing and cleaning. Iron Rock Brewing is anticipating to brew 3 times per production cycle (14 days), this would total 6 production runs per month. Each production run will produce approximately 135 liters of finished beer, while consuming 150 liters of water and producing an additional 80 liters of waste water that would be used for cleaning throughout the 14 day cycle. The estimated total water consumption per month will be 1,380 liters, and a total waste water generation of 480 liters.

### **II. Grain Usage**

Each production run will use an average of 35kg of grain, this would equate to approximately 180kg per month. These grains will be milled on-site within 24 hours of brewing. Due to the small amount of grain that will be used there will be very little dust produced, nowhere near any level that would create an explosive atmosphere. As an additional safeguard, any dust that is produced by the milling process will be expelled from the brew area by the same exhaust hood that will be used to remove evaporate from the mashing and boiling processes. Furthermore, while milling is being done a 3M 8511



disposable dust mask would be worn as a precaution by the person performing the milling.

Once the grains have been spent, they will be bagged within 5 gallon buckets for transportation out of the brewery. During the spring and summer months, the Labrador City Community Garden's compost will receive any spent grains that are produced. When the composter is no longer accessible due to weather conditions, the spent grains would go to the Labrador West Regional Landfill. The option of providing the spent grain for someone with livestock or for use as animal feed was explored, but there is currently no one with a use such as that in the Labrador West area. However, Iron Rock Brewing is attempting to make arrangements to have the spent gain used as animal feed in the Happy Valley-Goose Bay area. Whatever can be done to prevent organic material from going to the landfill, Iron Rock Brewing would be committed.

### **III. Use of Cleaners and Sanitizers**

Throughout the brewing process there are a number of different cleaners and sanitizers that are used to ensure that any equipment that comes into contact with the product is clean and sanitary. Each cleaner that would be used will have appropriate WHMIS labels as well as having MSDS sheets available near the storage area, personnel involved with the brewery operations will also be trained in WHMIS. Also in the cleaners storage area will be safety goggles, rubber gloves, and an eye-wash station. All cleaners that will enter into the municipal sewer system would be highly diluted and pose no environmental risk. Furthermore, any waste water entering the sewer system would be cooler than 70°C and free of any hazardous material.

### **Occupations**

The nano brewery would be operated completely by the owners for the foreseeable future. If market conditions allow, the potential for expanding our production to 20 hectoliters per year would present the need to hire an additional person as a brewery operations worker. If this scenario were to occur, there would be no formal training required as a prerequisite, as all training would be provided on the job.

## **Approval of the Undertaking**

### Municipal

- Municipal approval – Town of Labrador City
- Occupancy Permit – Town of Labrador City
- Application for Signage/Advertising – Town of Labrador City

### Provincial

- Environmental Assessment and Approval & Registration – Department of Environment and Conservation
- Building Accessibility & Fire and life Safety Approval – Service NL
- Manufacturer’s Licence – NLC
- Food Establishment Licence – Service NL
- Health, Safety and Compensation Commission Registration – Workplace NL

### Federal

- Excise Duty Licence – CRA
- Labelling Requirements – Canadian Food Inspection Agency

## **Schedule of the Undertaking**

The building that the nano brewery would be located in is currently under construction to be used as a restaurant, “Baba-Q’s Smokehouse and Grill”. Upon approval from the provincial and municipal governments, construction of the brewery area will commence. Once construction of the brew area has completed, final inspections from NLC and Service Canada will be requested. We are intending to begin operating the brewery by the end of June 2018.

## **Funding**

Funding for this undertaking would come in the form of a business loan from one of the listed private financial institution, along with a portion of personal capital. Private loans will be requested from the following financial institutions:

- Canadian Imperial Bank of Canada  
208 Humber Ave  
Labrador City, NL  
A2V 1L1
- Bank of Montreal  
1 Grenfell Dr.  
Wabush, NL  
A0R 1B0
- Scotia Bank  
500 Vanier Dr.  
Labrador City, NL  
A2V 2W7

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Date

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Chief Executive Officer

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Date

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Director of Brewery Operations and Quality Control

References



Figure 1 - Aerial Map

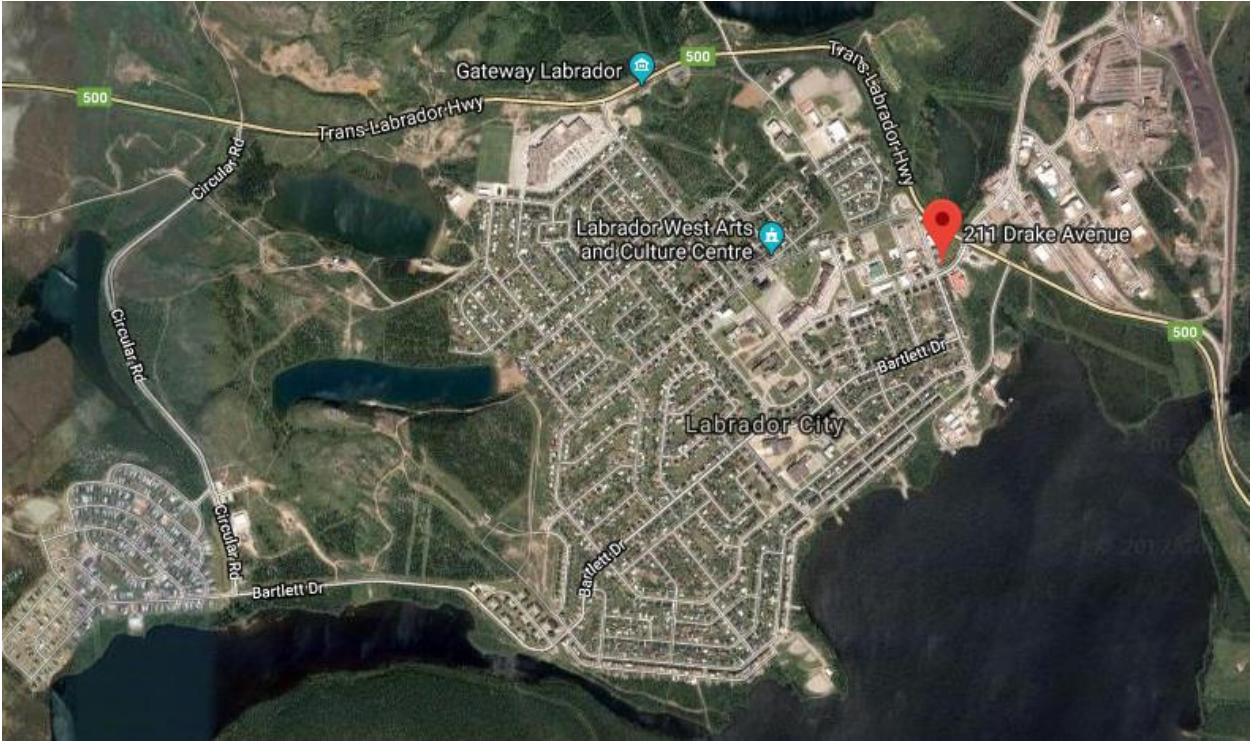


Figure 2 - Labrador City

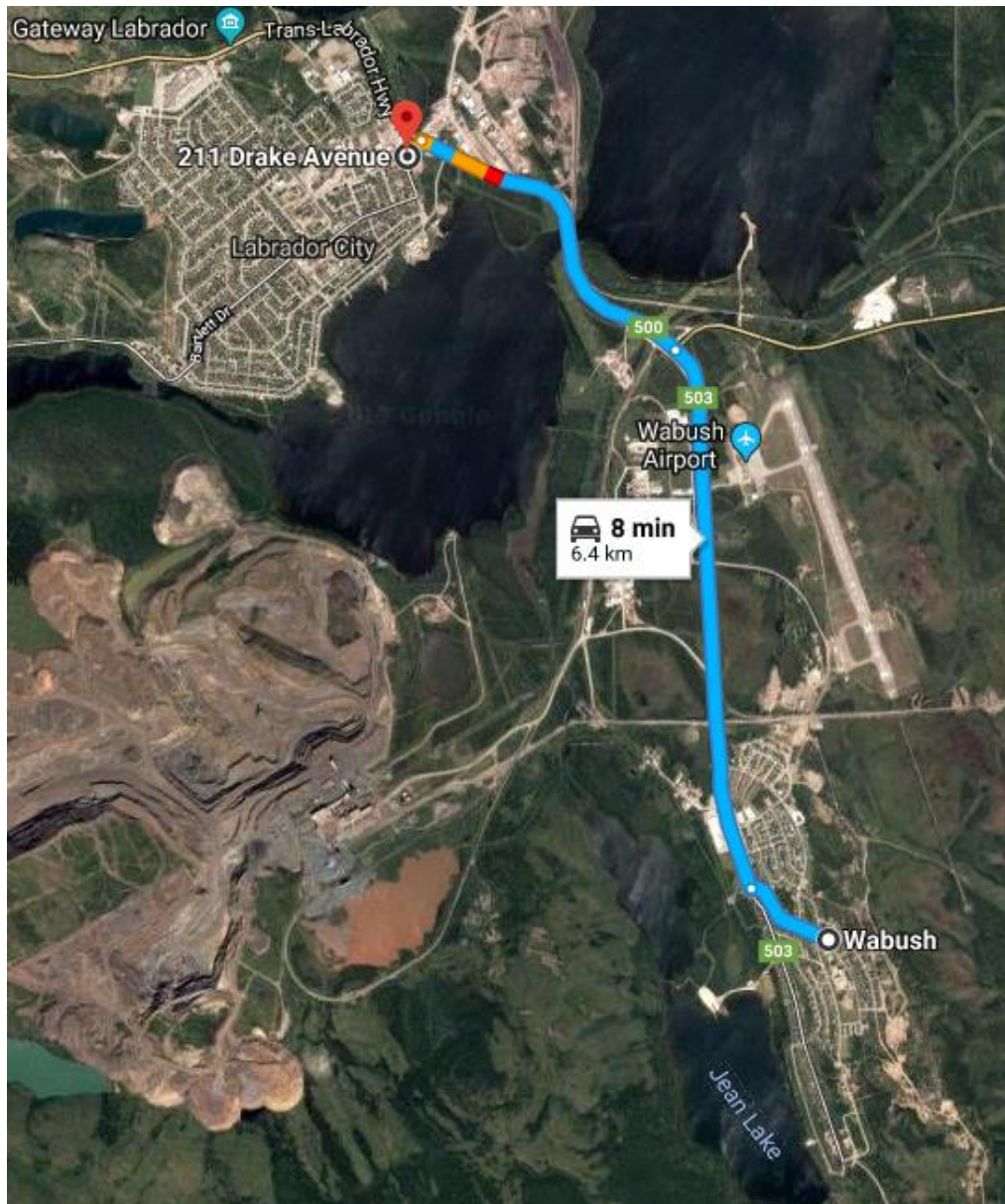


Figure 3 - Wabush to Labrador City

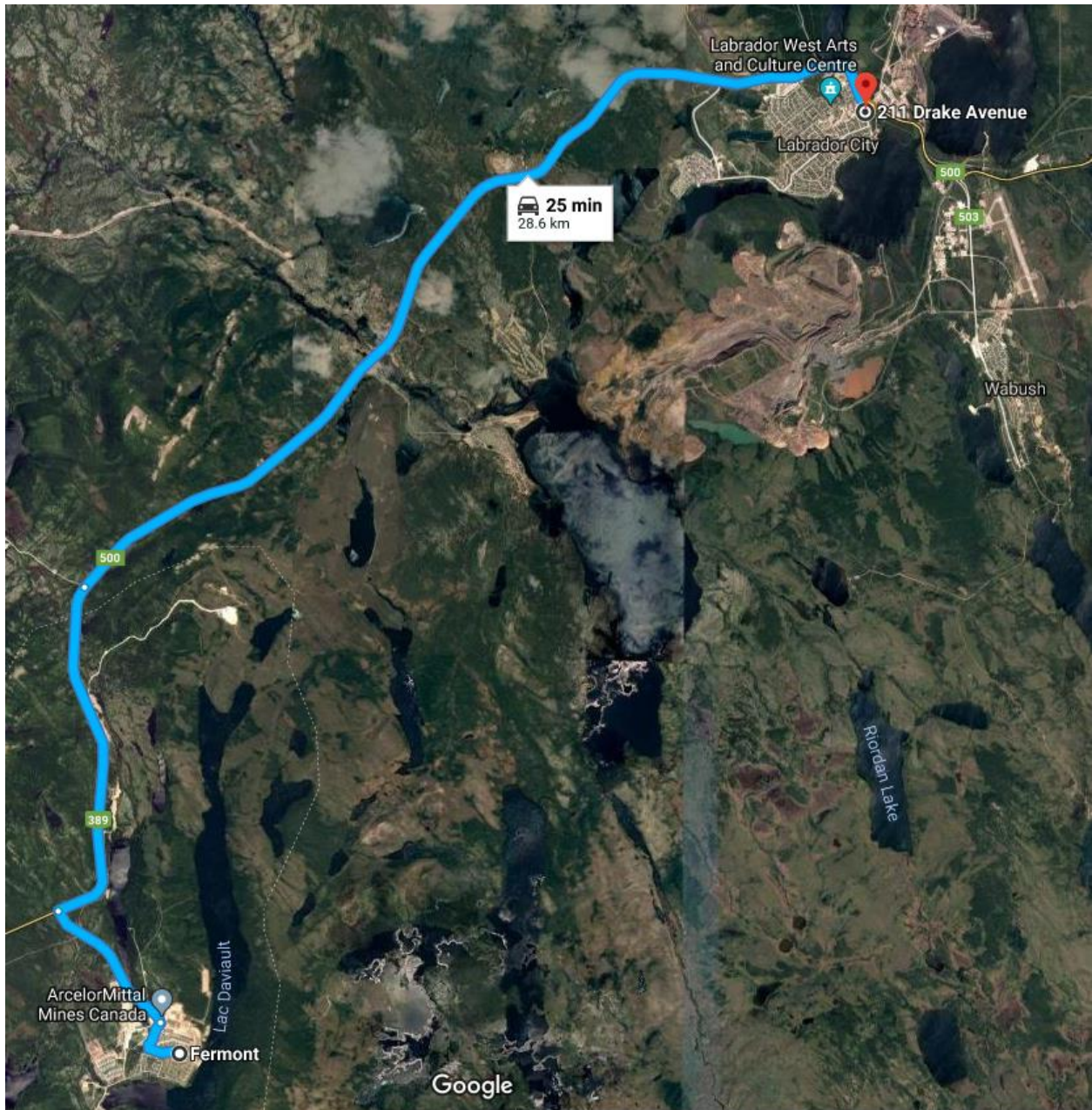


Figure 4 - Fermont to Labrador City

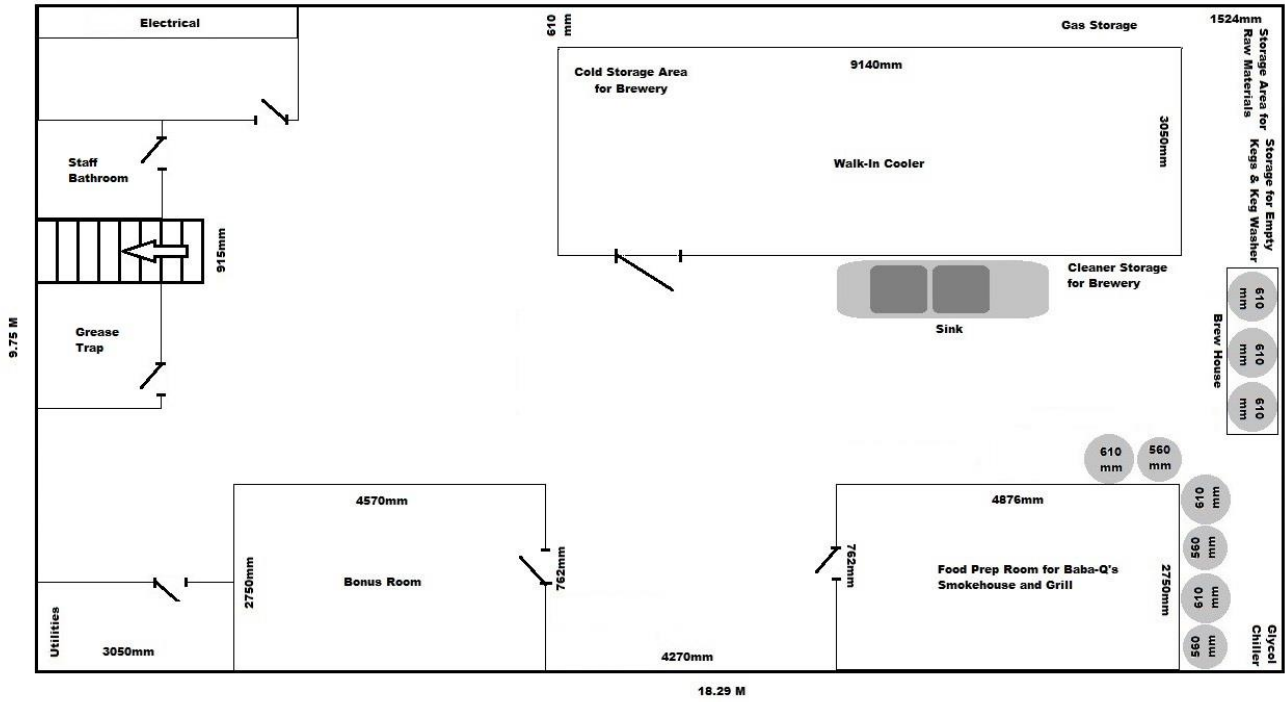


Figure 5 - Brewery Floor Plan