

**Distilling an Industry: Re-engaging the Community of Bell Island
through Small-Scale Industry**

by

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ABSTRACT

The province of Newfoundland and Labrador presents many outlets for resources and innovation. Unfortunately, outdated technology and economic downturns have rendered many communities economically vulnerable.

The community of Bell Island, Newfoundland, was once one of the largest iron-ore exporters in the world. Since the closing of the mines in the 1960s, Bell Island's population has dwindled and its lack of industry is just one example of a recurring economic pattern. While large-scale industries have garnered the hope of renewed economic benefits to the province, Newfoundland has often fallen prey to the contentious politics behind such distant projects. In order to revitalize and sustain the community of Bell Island, this thesis takes stock of local resources and proposes a strategy that returns small-scale industry based on local knowledge of skill and place, in this case adaptively reusing a barn, that was part of the mining operations, into a gin distillery.

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CHAPTER 1: INTRODUCTION

Newfoundland and Labrador

Newfoundland and Labrador is the eastern-most province in Canada. Discovered by Giovanni Caboto in 1497, settlers were attracted to the island due to its abundance of codfish close to its shores. As such, the island consists of many coastal communities that relied on this resource for the majority of its history. The province was part of the British Empire up until 1947,¹ when Newfoundland and Labrador joined confederation as the 10th province of Canada.²



Location of Newfoundland is highlighted as the eastern-most landmass of Canada. Map data collected from USGS Global Data Explorer.

Settlement

Ever since the time of settlement, Newfoundland and Labrador has been known for its beautiful setting despite its relatively harsh living conditions. The issues of social and

1 Joseph Roberts Smallwood and Robert D. W. Pitt, ed., “Cabot,” *Encyclopedia Of Newfoundland And Labrador*, Volume 1, (St. John’s: Newfoundland Book Publishers, 1981), 310.

2 Ibid., 501.

economic sustainability within the province have not helped to keep people on the island. Since the time of confederation, turning the island from a British colony to a Canadian province, the land has struggled with economic issues to keep the province prosperous. A harsh climate and unforgiving landscape has always caused Newfoundland to be privy to a vulnerable economy, yet given it's vast amount of natural resources, there has been a long history of settlement, investment in infrastructure, and then overconsumption of that resource. This has often caused many Newfoundlanders to have to resettle or relocate outside of province, despite efforts to keep up with Canadian standards and mandates for the province.³

Economy and Industry

Arguably, the largest blow to the Newfoundland and Labrador economy since Confederation, in both an economical and socially alienating sense, was the onset of the cod moratorium in 1994. Despite many forays into different industries to sustain the economy and lifestyle of Newfoundlanders, such as hydropower, forestry, mining, and most recently, oil, the fishing community was the most relied upon industry for the economic and social benefit of Newfoundland and Labrador.⁴ Dwindling codfish populations had been noted for some time, and fishermen in small coastal communities felt this trend.⁵ The government eventually intervened and made it illegal to fish by net, and placed strict regulations on any line-jigging done.⁶ This was set to encourage the population of codfish to regenerate, however the damage of the fish population had already surpassed any timely reparations. Many fish plants began to close their doors, and thus the surrounding community that it fed also began to die away.

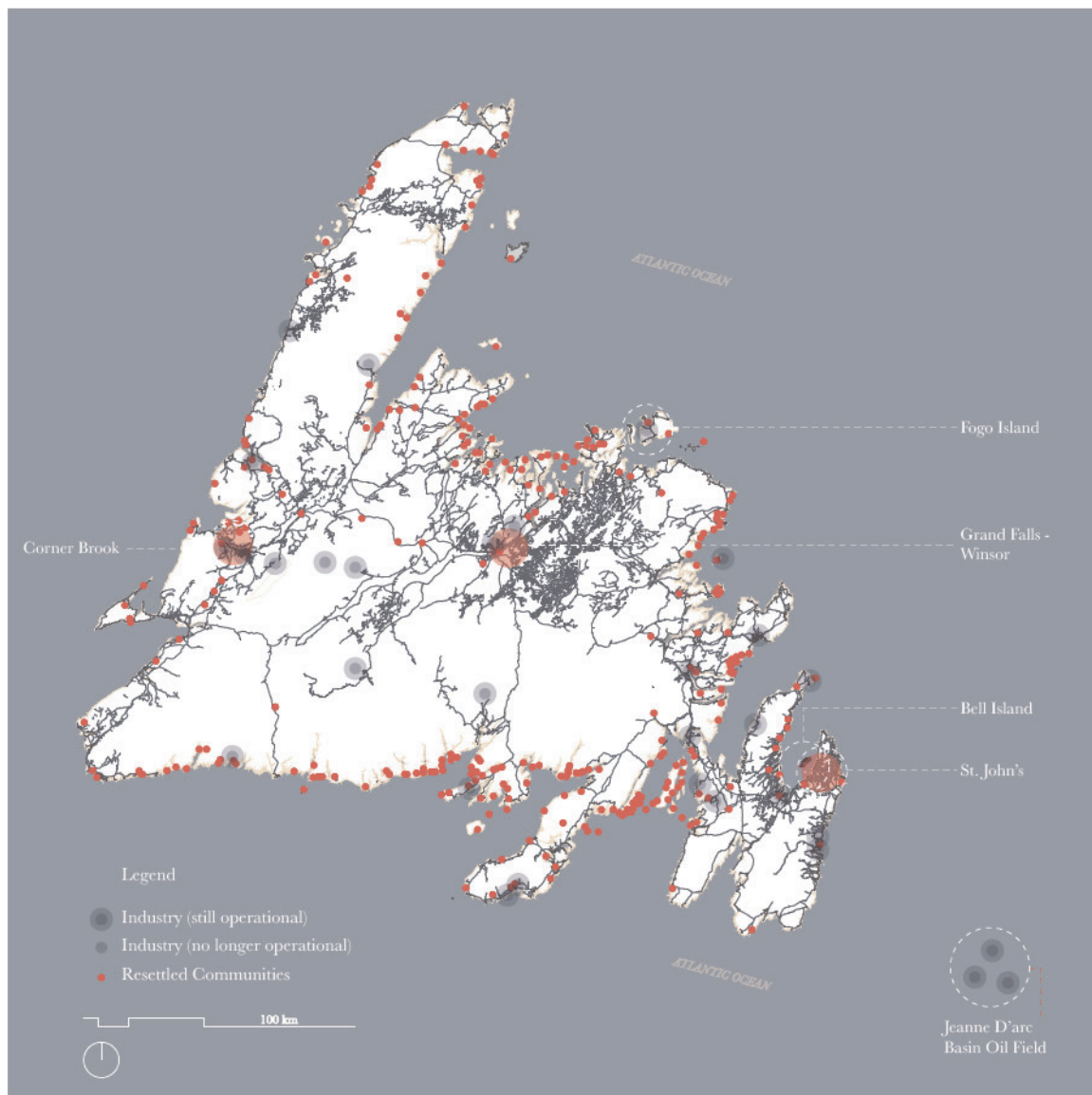
Unfortunately, the province continues to dwindle in population. Directly correlating with the status of the fisheries, Newfoundland and Labrador's population has not recovered from the ongoing cod moratorium. Although the rest of Canada has been growing in population, Newfoundland remains the sole province to have dropping numbers, as aging

3 Ibid., 310.

4 Economic Council of Canada, *Newfoundland: From Dependency to Self-Reliance* (Hull: Canadian Government Publishing Centre, 1982), 10.

5 Lawrence C. Hamilton and Melissa J. Butler, "Outport Adaptations: Social Indicators Through Newfoundland's Cod Crisis," *Human Ecology Review* 8, no. 2 (2001): 1.

6 Ibid.



Newfoundland Industry and resettled towns.

Map data collected from Government of Newfoundland and Labrador Open Data.

populations continue to die off and younger residents leave the province in pursuit of work or otherwise.⁷ This is a dangerous trend for the future of Newfoundland, as the province is isolated in the middle of the Atlantic ocean and thus requires increased infrastructure to provide its residents with services and needs. Services such as means of transportation, healthcare, and food become more complicated, especially during the shift of economical resources and the loss of use of cultural knowledge that that entailed.

⁷ Ibid., 6.

Resettlement Program

Newfoundland and Labrador was a British colony until 1949, when it joined Canada as its 10th province. Led by politician Joseph Smallwood, the province was voted into Confederation with the promise of funding for roads and railways construction.⁸ In order to lower the cost of living in rural communities, thereby needing to provide electricity and government services, Smallwood mobilized a resettlement program wherein communities were given the opportunity to apply for grants so as to move to St. John's on the east coast, Corner Brook on the west coast, or Grand Falls-Winsor in central Newfoundland. This was an important time in Newfoundland history, as theoretically the program was to accommodate those who were struggling in their current fishing community in an increasingly modern world. Although the program was innovative solution for redeeming a viable quality of life for many residents of the proving, however, the expected opportunities of shifting many families to larger hubs did not necessarily pan out, as many families would return home to the abandoned properties after being unable to find work.

⁸ Smallwood and Pitt, ed., "Cabot," 310.



Northern shores of Bell Island

CHAPTER 2: BELL ISLAND

The majority of Newfoundland communities are located along the coast of the island. As per the nature of settlement, many communities settled within rugged landscapes with proximity to sheltered harbours, so as to be able to process the catch of the day. In traditional methods, this would also include proximity to fishing stages, wherein fishermen would flake their catch and salt them for preservation. Eventually, especially with the advent of net-catching, fish plants along harbour shores were a new typology, so as to process large-scale fishing and freezing for export.⁹ Once the moratorium was mobilized, much of this activity dwindled, or ceased completely, as the main industry implemented by coastal settlement became obsolete. Populations correlated accordingly, as Newfoundland's main source of economy (and ultimately the community's main engagement) were lost.

Some communities in Newfoundland, however, were not as affected by the resettlement program or the loss of the cod population. As many coastal regions were mainly centered or grew from an accessible and sheltered harbour landscape, making settlement lifestyle relatively reasonable, the vast island is home to many different conditions. During the time when rural areas were undergoing resettlement, there were some outliers to this condition as other means of fishing outshone the need for governmental funding. These communities were able to utilize other means of fishing, such as crab fishing, or instead had another means of industry, such as hydropower or mining. Ultimately, communities that were sustainable on their own were largely self-sustaining due to a unique resource tied largely to that specific place. Although most coastal towns relied heavily on the proximity to traditional fishery practices, unique geological features of some communities allowed them to prosper in different ways.

There is one place in Newfoundland that can exhibit a small-scale example of its ongoing economic and social issues in one place. Bell Island, located just outside St. John's, is its own 8400-hectare piece of land, located approximately 5.3km west of Portugal Cove in the area known as Conception Bay. Although the first recorded resident to have been recorded on Bell Island does not come up in paperwork until the mid-18th Century, Bell Island has been known to have been discovered and settled on by European settlers as early

9 Lan T. Gien, "Land And Sea Connection: The East Coast Fishery Closure, Unemployment And Health," *Canadian Journal Of Public Health* 91, no. 2 (2000): 122.

as the 16th century.¹⁰ Unlike other coastal settlements in Newfoundland, Bell Island was an agricultural hub as much as a fishing settlement, most likely largely due to its topography. The island is primarily a large sloping stack of Ordovician rock approximately 120 metres to 140 metres above sea level, making the more inhabitable land fairly inaccessible to shorelines.



The Avalon Peninsula, showing Bell Island in Conception Bay.
Map data collected from Government of Newfoundland and Labrador Open Data.

Surviving on Bell Island

Residents of Bell Island survived primarily through a subsistence economy. The

¹⁰ Peter Neary, "The Book Of Newfoundland: The Epic Tragedy Of Bell Island," Newfoundland's Grand Banks, 2002, <http://ngb.chebucto.org/Articles/epic-hm.shtml>.

uncharacteristically fertile land located atop of the furrowing and drastic cliffs yielded a very fruitful bounty to its residents.¹¹ As such, the population of Bell Island slowly increased, with residents of the island surviving primarily through farming.¹² By 1845, there was a recorded 338 residents living on Bell Island.

Samples of rock from Bell Island were sent back to Great Britain as early as 1628.¹³ John Guy of London was amongst one of the earliest colonizers of Newfoundland, and saw great potential in the rock for mineral extraction. An early publicist for the island, Henry Crout, reported to Sir Percival Willoughby in Great Britain “the life land is not in Newfoundland for good earth and great hope of Iron Stone.”¹⁴ The implementation of this early sample and exploration would not come to full fruition for another 300 years, despite early recognition that the island is rich with resources.¹⁵

Prosperity through Export

It wasn't until 1895 that Bell Island opened the doors to its Iron Ore Mine. The mines eventually became one of the world's largest exporters of Iron Ore, which was shipped primarily to Sydney, Nova Scotia, but also to location in Germany and Great Britain. This iron ore was refined and used for steel, making it an extremely profitable export.¹⁶ For about 70 years, the mining industry of Bell Island saw the island prosper, as it moved away from its traditional subsistence economy and moved towards a more industrial capital venture. This saw a significant exponential increase in population, yielding a record of over 12,000 residents by the year 1961.¹⁷ The main town of Wabana on the west of the island, and Lance Cove on the south of the island (where most of the shorelines existed) became a well-rounded system of industry and economy. The proximity to land and ocean allowed for residents to both fish and farm, while also having an industry for export through

11 Tourism Bell Island Inc., “History,” 2018, <http://www.tourismbellisland.com/page/Tours-Lookout-Bellfest-on-the-Beach-NL/Harrys-Lookout-Bellfest-on-the-Beach-NL.html>.

12 Ibid.

13 Peter Neary, “The Book Of Newfoundland: The Epic Tragedy Of Bell Island.”

14 Ibid.

15 Ibid.

16 Government of Newfoundland and Labrador: Dept. of Natural Resources Mines Branch, Call For Proposals On Exempt Mineral Land: Bell Island (St. John's: Government of Newfoundland and Labrador, 2004), 7.

17 Neary, “The Book Of Newfoundland.”

the iron ore industry.

The mines themselves eventually turned into an extensive network of shafts, even digging under the seabed of the Bell Island tuckle, covering approximately 32 square kilometres underwater.¹⁸ There were six main shafts that workers were to enter through, with quotas of about 20 carts filled with iron ore per worker required per workday. Other jobs surrounding the mine included tending to the horses that entered down into the mines to work or keeping the storehouse for supplies. The implementation of this industry not only extracted a viable resource from the land, providing a direct export and occupation, but as a by-product it required a system of different occupations to support the community it was implemented in. By that, many stables, shops, schools, churches, not to mention marine infrastructure, were also implemented as the growing population of Bell Island required more services.¹⁹

The End of an Industry

It was not until 1966, when stock value of steel dropped, that the mines were closed. The value of the iron ore that exists on the Island is of second grade steel, and the mines had been struggling for several years at this point.²⁰ This correlates with the population of Bell Island, and acts as a snapshot view of general trends of industry and population sustainability in Newfoundland in general.²¹ It is unclear what happened to the large-scale infrastructure, such as the tracks and belts that transported the mined iron ore from shaft to export boats, however some of the infrastructure of the shafts and barns still exist as relics of the past today. In fact, a museum and Mine No. 2 was opened for public tours in 1998 to help educate visitors of Bell Island of this industrial endeavour.²²

As population trends of Bell Island have previously been mentioned, the population trajectory generally correlates with the trajectory of industry. The island has been without

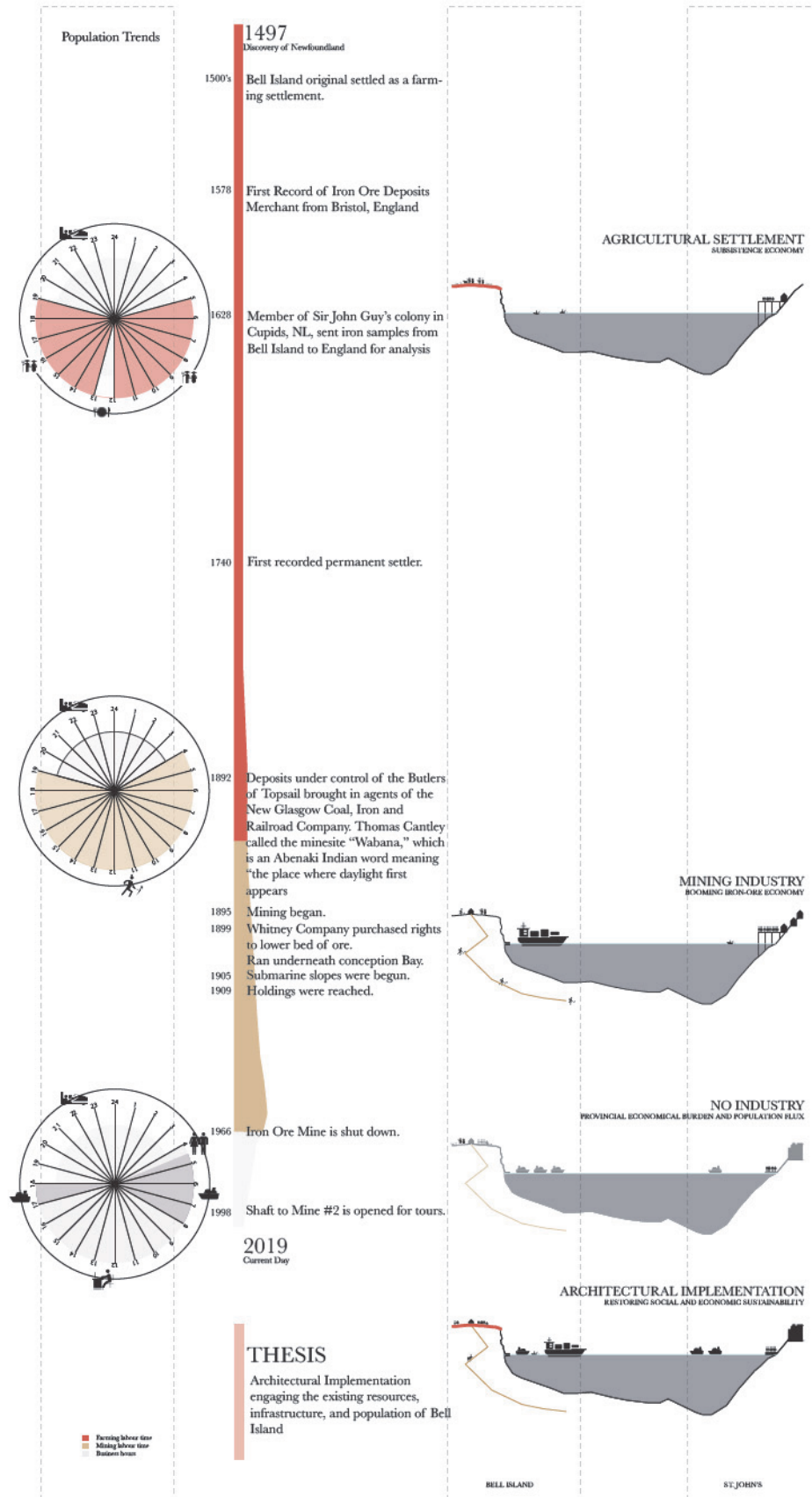
18 Ibid.

19 Ibid.

20 Government of Newfoundland and Labrador: Dept. of Natural Resources Mines Branch, Call For Proposals On Exempt Mineral Land: Bell Island, 6.

21 Neary, "The Book Of Newfoundland."

22 "Bell Island #2 Mine And Community Museum 13 Compressor Hill, Bell Island, NL", 2018, <https://www.bellislandminetour.com>.



Historical timeline and trends of Bell Island

any large-scale export industry since 1966, and the population has been in steady decline ever since.²³ Currently, approximately 2, 400 residents live on Bell Island, over half of which are aged 15-64.²⁴

The Commute



Commute from Bell Island to Portugal Cove

Bell Island Marina

By way of ferry, approximately 600 people commute to the greater area of Newfoundland, primarily St. John's, everyday for work. The province recently invested in two new ferries, both purchased from Romania.²⁵ The ferries pose a number of issues, including the economic burden it poses on the province, the conditions in which it can function, and the deterrent nature of the ferry schedule itself.

Firstly, many island communities in Newfoundland are accessible only by way of boat. Some other communities include St. Bernard's and Fogo Island. It is well-documented that the infrastructure to keep these communities alive is very costly to the province.²⁶ The same hold true for Bell Island; without an industry to exacerbate the costs of these fees to keep ferries running, the entire endeavour becomes a large burden on the entire province

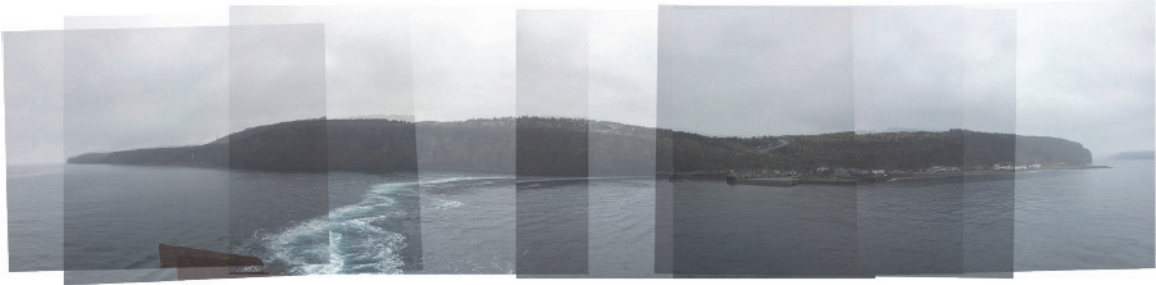
of Newfoundland. The alternative, however, is to isolate the island to its own doing, thus having to provide all governmental services (including welfare) to those who cannot work,

²³ Statistics Canada, "2016 Census Of Population – Data Products", 2018, <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/Page.cfm?Lang=E&Geo1=CSD&Code1=1001494&Geo2=PR&Code2=10&Data=Count&SearchText=bell%20island&SearchType=Begins&SearchPR=01&B1=All>.

²⁴ Ibid.

²⁵ "Damen launches second of two ferries for the Government of Newfoundland and Labrador," 2018, https://www.damen.com/en/news/2015/07/damen_launches_second_of_two_ferries_for_the_government_of_newfoundland_and_labrador.

²⁶ Smallwood and Pitt, ed., "Confederation," *Encyclopedia Of Newfoundland And Labrador*, Volume 1, 508.



The approach to the Bell Island Marina



Portugal Cove Marina

risking a larger cost to the government.²⁷

Second, the ferries were purchased from Europe as a means to save funds for the province. The boats are cheaply made, and many residents complain of the unreliable nature of the ferries, as they are prone to breaking down. As a province that has survived as fisherman and boating communities across the province, it seems counterintuitive that this community is prone to such problems, as one would believe cultural knowledge of this would inhibit a more reliable boating industry.

Finally, the daily life of any Bell Islander that must leave the island to make a living is largely influenced by the ferry schedule. The earliest ferry leaves at 5:30am and the latest crossing in the evening is at 10:40pm. According to residents of the island, and given the congestion of the morning commute, residents must wake up to cross with their vehicles no later than 4:30am so as to arrive at work on time for an 8am start. There is a relatively similar rush in the evening when those residents return to Bell Island, which poses the question of why one would decide to stay on the island at all.

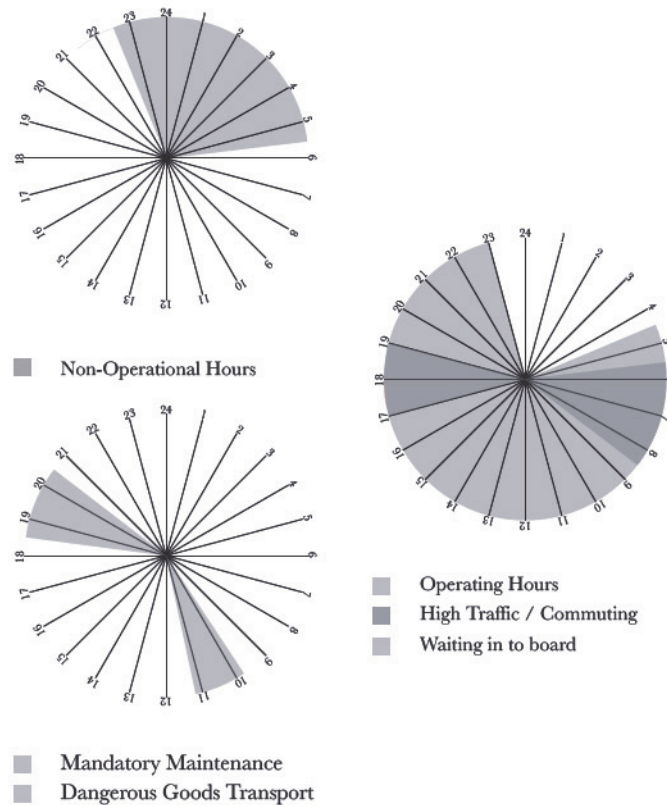
The ferry acts as a link to the mainland of Newfoundland, however the issues that arise due to the nature of boat travel are not reliable. In lieu of both the aforementioned economic and social burdens brought on by the nature of having to commute to the

²⁷ Ibid.

mainland, it would be ideal to alleviate this burden by providing an opportunity for self-reliance to Bell Island. Through architectural discourse and design, there are many opportunities for the island to implement a viable small-scale industry that mobilizes the cultural knowledge of the islanders. As such, reversing the trend of both Bell Island (and Newfoundland in general) or having to export their residents so as to make a living, and instead taking agency of what is available on the island. By implementing a local industry and providing a stimulus for activity on the island, it may alleviate the pressure of having to commute, thereby lessening the reliance on the daily schedule and economic viability of the ferry. This is not a suggestion to get rid of the ferry, however instead a possible framework by which to support the ferry industry while also supporting and sustaining a future economy.

Bell Island: Why Stay?

Bell Islanders, and Newfoundlanders in general, have been vocal about the strength



Daily Schedule of the Bell Island Ferry System

and pride of place. Many Bell Islander states that the reason they do not leave the island is because it is their hometown, and they wish to raise their family there. Aside from personal ties, however, residents also speak openly about the economical benefits of low property taxes and land ownership, suddenly making the attraction of Bell Island, with its numerous issues, a viable living place.²⁸ Another conversation with an islander consisted of speaking with a man whom had to leave for work in the early 2000s, moving to Toronto for the duration of his career, and then returning to Bell Island to retire, a common practice for many Newfoundlanders. The power of place is extremely powerful for this community, as many residents choose to return to home for both economic and social reasons.

Bell Island as Drosscape

Since Bell Island plays host to many natural resources and phenomena, it is inherent that a viable sustainable industry may be explored. Given several infrastructural relics that still exist from the industrial boom of the past, Bell Island plays host to a framework that recalls the notion of drosscape and terrain vague.²⁹ A number of “in-between spaces” exist around Bell Island alluding to a civilization of times past, including a barn that was used for the mining industry. Spaces such as this will become important in the trajectory of this project, as certain landscape qualities and economic factors may encourage the reuse of former relics for both economic and social reasons.

The cultural knowledge that exists in this location is fairly unique, pertaining to its layered history in gardening, agriculture, and exporting culture; this presents an interesting opportunity for experiences by both locals and tourists in both old and new spaces.

Viability for Social and Economic Sustainability

Instead of focusing on what Bell Island lacks, it is important to take inventory of the viable resources that Bell Island currently has. In understanding that, it will also be possible to understand the cultural knowledge and skills that are inherent in such conditions. Aside from the overarching traditional practices of line-fishing in Newfoundland, Bell Island’s specific and unique qualities lie in the nature of it’s fertile landscape. Although there are

²⁸ Ibid.

²⁹ Alberto Perez-Gomez, “Spaces In-between” in *Present and Futures, Architecture and Cities*, ed. Ignasi de Sola Morales and Xavier Costa (Barcelona: Actar, 1996), 273.

no recent land studies in existence (and it is widely known that an accurate and updated geological land survey for Bell Island is necessary) a return to the island's original cultural traditions of agriculture and foraging pose an appropriate response to place and community for the island.

Newfoundland's climate is relatively harsh, with long winters and short springs and summers, however it is well suited for growing root vegetables and berries. Bell Island is no exception to this. Given the island's natural state of being lined by cliffs along a large majority of its periphery, much of the precipitation accumulated is able to drain from the edges, allowing freedom from bog and swamps that much of Newfoundland is privy to. Bell Island's cliffside nature allows for natural draining of surface water. This is a unique condition, as it allows for natural draining of the land in comparison to the rest of Newfoundland (where bogs and marshes unsuitable for natural or easy agricultural practices). Furthermore, on many parts of the island the cliffs drop steeply, and even inversely in some cases, into the Atlantic ocean. Another unique condition to Bell Island, the seaspray is blown above onto the island top. The salty spray eradicates pests, however is subtle enough for organic matter to survive. This amazing natural phenomena of the island acts as a natural pesticide. As such, there is massive potential for both foraging and agricultural growth in these areas, should Bell Islanders choose to take agency for these characteristics. By supplementing these natural phenomena with an architectural narrative, the island can already utilize current and traditional practices already inherent to their culture.

Effect and Benefits of Revitalization

Ultimately, the revitalization of a community goes hand-in-hand with economic prosperity. Rarely does revitalization occur without some sort of architectural implementation, however the larger scale of revitalization occurs when a community decides to take agency for themselves. Several case studies that utilized the existing skill sets of its community to implement successful architectural features and are worth studying include the entire community of Fogo Island, Newfoundland and Labrador, and the town of Vardø, Norway.

Fogo Island

Fogo Island is located north-central to the rest of Newfoundland. The closest town hub to Fogo Island is Gander, approximately 200 kilometres by ferry and vehicle away. Fogo Island is a prime example of a community that was affected by both the resettlement program of the 1960s, and then again of the moratorium in 1994. The correlation of population to industry also applies to the entire island of Fogo Island, including the towns of Fogo Island (proper), Tilting, Seldom, and Little Fogo Island, as the large-scale commercial fisheries were halted and surrounding communities were forced to leave the island.

When the Shorefast Foundation, implemented by Zita Cobb and her siblings, initiated a program to revitalize the community in 2006, their mission statement established the importance of cultural and economic resilience of Fogo Island.³⁰ Cobb herself had to leave the island in order to pursue an educational career, and became a successful business CEO. Upon returning to her home after finding financial success, she applied her knowledge as a successful business owner to her hometown. As such, she knew that she alone could not save the island - that it required a cultural revolution in her town. By mobilizing the cultural knowledge of the town, and understanding a business model that would require an entire community to run, she organized a multidisciplinary program of both an Inn resort and Artists' Residences.³¹ These two seemingly different programs utilize a number of different skill sets known specifically to local craftspeople, while attracting an international art scene. As such, artists wish to come to the residencies, and tourists wish to come for an unprecedented resort atmosphere in a remote and rugged landscape.

The ability of the Inn to support the local economy of the community seems almost too obvious, however the not only has the population of Fogo Island begun to be restored, it is growing. The communities are seeing a return to traditional skill sets that were otherwise obsolete or lost, including a booming quilting community, a return to local furniture making, and a general interest in arts and crafts. This stimulus of activity also has by-proxy effects, wherein tourists are able to experience first-hand the phenomena that all Newfoundland are traditionally privy to, including whale-watching, line-jigging, berry-picking, and iceberg viewing. This return to cultural knowledge has allowed the community to do what they

³⁰ "Shorefast: Integrity Of Place," *Shorefast Organization*, 2018, <https://shorefast.org/>.

³¹ Ibid.

know, and has provided job opportunities back to the community.

It must be noted, however, that the success of this model lies in the participation of the community in the Inn and artists residencies from the beginning. Cobb made it very clear that the project must be “of the community” for it to be successful. The design of the inn and residences were by Todd Saunders, an architect from Gander, Newfoundland and Labrador, whom practices in Bergen, Norway. Working with Saunders, whom grew up in Newfoundland and inherently has a vast cultural knowledge of the Newfoundland vernacular, worked with local craftspeople in the community to come up with unique designs for the, emphasizing the importance of community in building the Inn and residences. As such, the local craftspeople have also found steady employment through maintenance and sales of their products.

Vardø, Norway

Another case study that is relevant to the study of Bell Island is in Vardø, Norway. Originally a fishing settlement, Norway was also hit with a fishing moratorium in 1988.³² Also a known fishing hub for many European countries, including parts of Russia, the northern Norwegian town saw a huge loss in population in the following years. Save for a short period when an oil field was discovered nearby and large-scale investor updated the harbour (with promises of an economic boom) the population continued to fall, revealing local displacement of the existing community. Unfortunately, this trend continued, especially once the price of oil was capped in the global market and the hope of this industry was lost.³³

Not unlike Fogo Island, it was not until initiatives that took stock of regional and cultural resources and unique cultural influences that Vardø was at all restored. For Vardø, it was a unique bird-watching culture. A local architecture firm, called Biotope, utilized this knowledge and have implemented bird-watching huts in various parts of the area. programs that emphasize local knowledge and culture and both are seeing booms in local and tourist populations.

³² Janike Kampevold Larsen and Peter Hemmersam, *Future North* (New York: Routledge, 2018), 96.

³³ Ibid.



Long Studio



Tower Studio



Bridge Studio



Squish Studio

Architectural Intervention: Fogo Island



Kongsfjord, Norway



Steilnes, Norway



Vadso harbour, Varanger, Norway



Steilnes, Norway

Architectural Intervention: Vardø

Artists Residencies

Todd Saunders Architecture

Pragmatic use of local/minimal materials



Table design by Nick Herder

Lightly touching the land;
minimal destruction of natural surroundings

Taking advantage of views;
celebrating vast landscape

Small-scale designs;
do not overshadow surroundings

Utilization of local materials;
supports local economy and employs local tradespersons

Bird Hide & Wind Shelters

Biotope Architecture

Cultural knowledge of Field Ornithology



Utilizing cultural resources;
large birding culture

Taking advantage of views;
mindfully sheltering against winds

Small-scale designs;
small pavilions to leave environment largely undisturbed

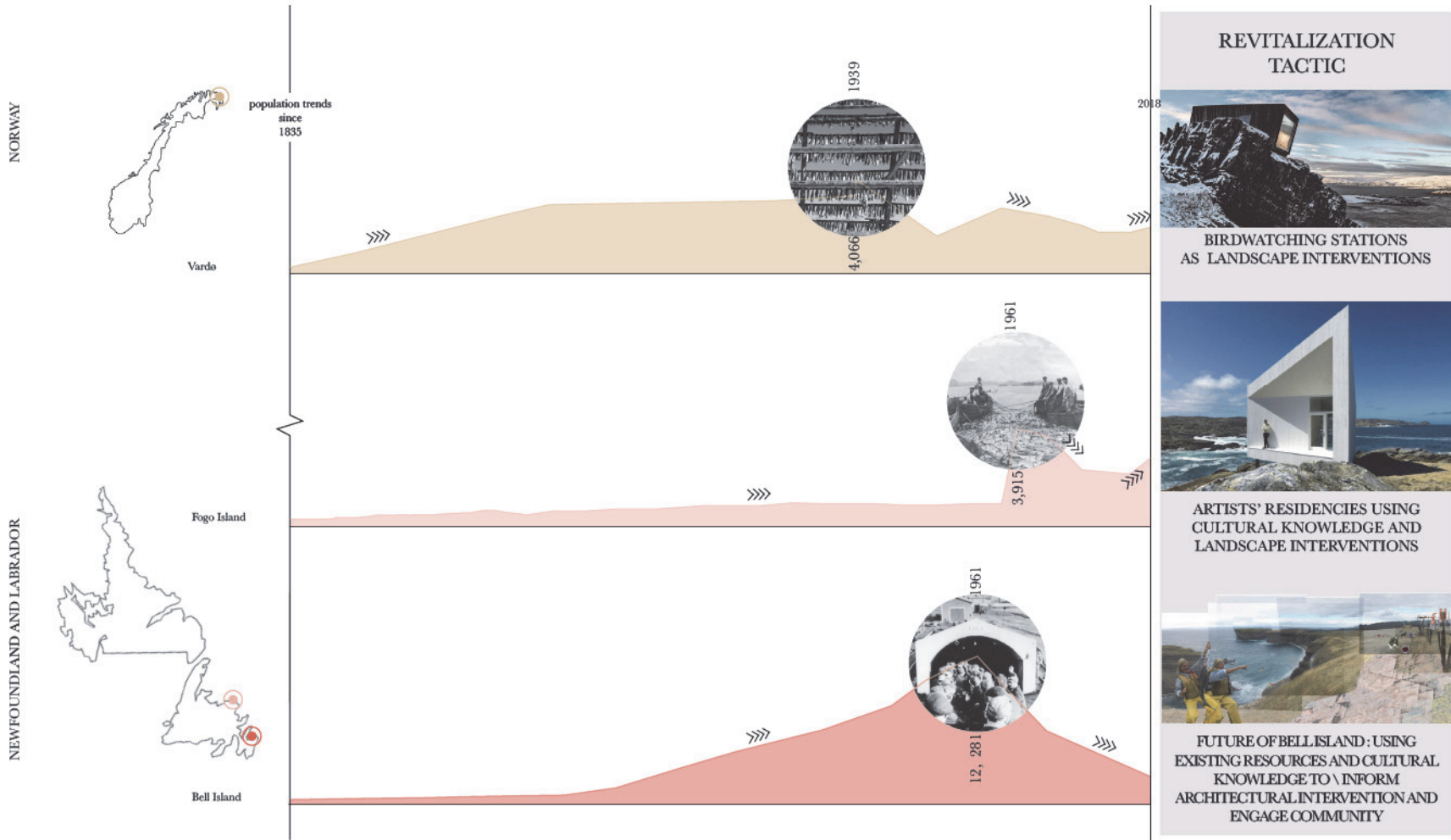
The ultimate consensus for both these case studies is that the removal of their main industry caused for dwindling populations despite a desire to stay in their hometowns. This is proven by the motivation of a few simple moves to allow for the residents to take agency for the existing cultural knowledge and natural landscapes. This can then be marketed to locals and tourists alike, as attractions that cannot be found elsewhere. The unique characteristics of both Vardø and Fogo Island are one factor, however the pride in cultural knowledge that these communities share in their own respects are also extremely important, as they are inextricably linked to the traditional culture of place.

Furthermore, by way of mobilizing and understanding the nature of place as attractions, providing or re-adapting existing structures that accommodate for a optimal experience in this place is recognizably important for both these case studies, for both locals and visitors alike. Aside from the iconographic aspect of the artists' residences and the Inn of Fogo Island, or the viewing huts of Biotope of Vardø, these architectural contributions provide a destination for humans to interact with. Not only do they become programmatic spaces that, they provide space of employment, of purpose, and of pride.

Effect of Agency

These spaces act as integrators of cultural knowledge and community. For example, it was important to employ and engage with local builders to construct the artists' residences of Fogo Island. The entire goal of the project was to return the island to a self-sustaining prosperity, where the job opportunities were returned to the people within the community rather than bringing outsiders in, thus negating the need for displacement. By employing local labourers for all aspects of these projects, one alleviates the common problem Newfoundland faces; that of outside sources exploiting a resource and then leaving. The common phrase "teach a man to fish" comes to mind, although many communities in Newfoundland do not need to be taught; they simply need the means by which to utilize what they already know.

As Newfoundlanders are very proud of their island, and very tied to their place, it has been proven through the Fogo Island initiative with the Shorefast Foundation that if given the opportunity to utilize their skills, many would choose to stay. This is true for Bell Islanders as well. The question of how and what role architecture plays in allowing for the effect of



Population trends in other communities experiencing revitalization

local opportunity to take hold relies on the cooperation of both the community, delicate handling of sites. The architecture, therefore, needs to understand the spaces required by those working in, around, and for the island, pertaining to both craftsmanship, traditional construction, cultural knowledge. Architecture can thus be used as a tool to implement appropriate responses to the community at hand that is attainable and sustainable by the community, as opposed to intervening with an outside lens and imposing a new industry that may not be appropriate to place. By returning to a cultural knowledge, the architecture then acknowledges the culture that already exists, and enhances it with new programs and opportunities for those who live there.

Agency of Bell Island

Although Bell Island, like the rest of Newfoundland and Labrador, poses many opportunities for resource innovation, in order to return to a prosperous industry base, one must encourage the cultural knowledge that already exists and implement a new scale of reliable export that allows for widespread opportunities for contribution from the community. Traditionally, many Newfoundland outports stored or traded salt cod,³⁴ a cured source of protein that could withstand long periods of time without spoiling. As such, the notion of the curing or distilling of a perishable good is customary to the traditional knowledge of Newfoundlanders and by implementing an export, it encompasses, utilizes, and relies upon many different scopes of the community. Given that Bell Island did partake in the fisheries but was primarily knowledgeable in organics and agriculture, the curing of organic materials is not far off of traditional Newfoundland exports. A crossover of Newfoundland tradition with Bell Island cultural knowledge will here manifest itself in either pickling or fermentation, both viable options in this climate. Furthermore, the nature of an island-spread industry that requires multiple stages of collection, production, and export, would harmonize a number of small-scale industries, pertaining to not only knowledge of agriculture, foraging, and production, but maintenance, hospitality, and construction.

Tradition of Export

As island settlements go, the tradition of import and export trade has been a long-

34 Cyril F. Poole and Robert Cuff, "Salt," *Encyclopedia Of Newfoundland And Labrador*, (St. John's: Harry Cuff Publications Ltd., 1994), 69.

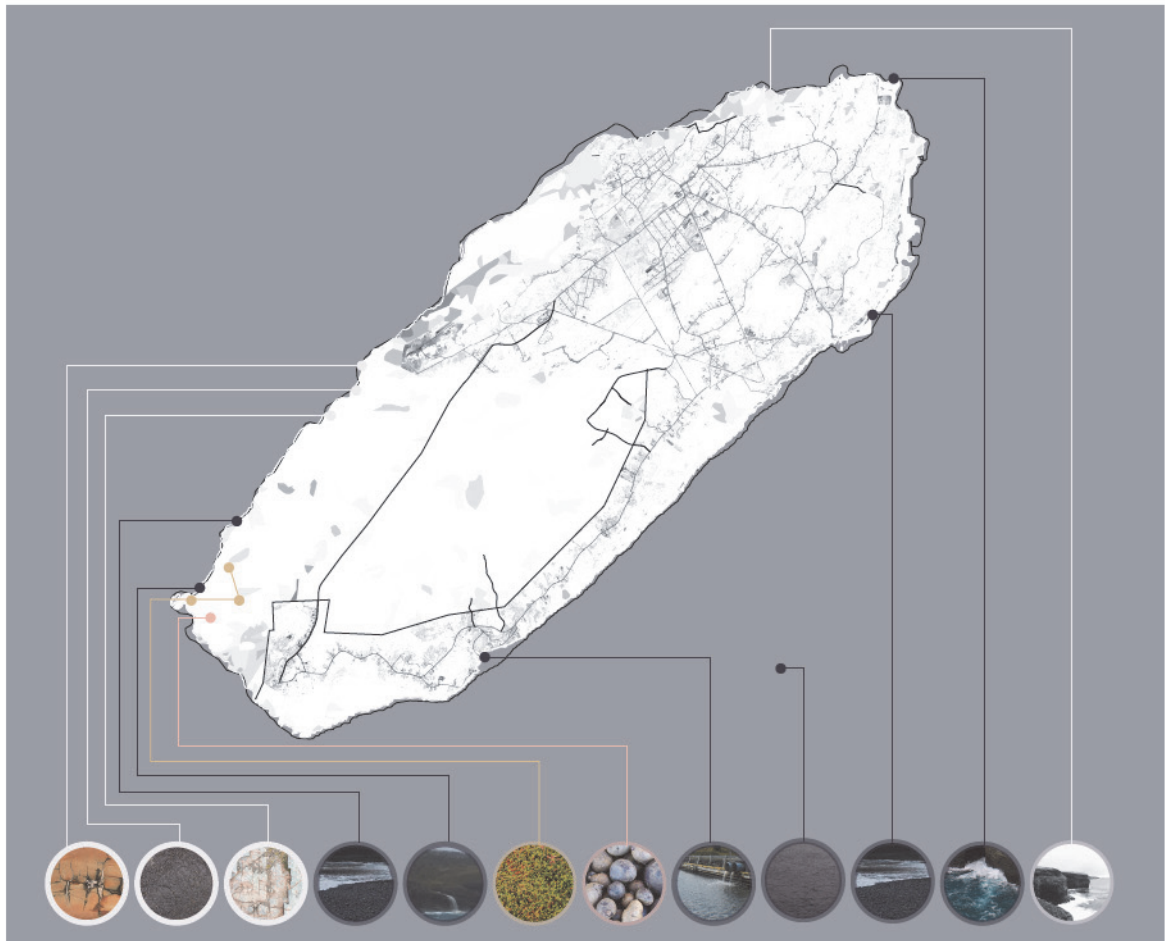
standing supplement to life and culture in Newfoundland. Going back to initial discovery (officially set in 1497) many fisherman would come and fish seasonally, until about the late 18th century when fisherman set up permanent colonies along the coast. As settlement proceeded, Newfoundlanders wanted to move away from subsistence agriculture and move more into export trade of goods. Since the permanent settling of the island is relatively young, importing goods from other parts of the world had and continues to be a survival tactic for the island, as well as a meaningful social connection . The tradition of export trade of salt fish was an especially lucrative one in Newfoundland, as it was the most generous of resources in terms of exportable goods at the time. Many merchants would set prices based on the quality of the salted fish in the stores, a traditional Newfoundland structure where the fish would be processed and then laid on flakes for salting and drying.³⁵ The nature of preserving the fish made for long-lasting protein not only for people living on the island (where the winters are very long), but for those in many markets worldwide as the shelflife of salted fish could withstand lengthy travel periods; some of the major markets for Newfoundland saltfish found themselves in Brazil, the West Indies, Spain, Portugal, and sometimes Greece.³⁶

The act of preserving food is another longstanding tradition in Newfoundland culture. Traditional food known to all Newfoundlanders include not only salt cod, but also salt beef, preserved jams and jellies, distilled spirits, and hardbreads. Any sort of wild game, such as moose or rabbit, if hunted was used for every part of their carcass. The climactic reality of the harsh conditions of the island made for a beautifully unforgiving landscape that requires economic use of all resources.

People in rural communities had to make many things for themselves in order to survive. This includes clothing, furniture, tools, and especially their buildings. Buildings had to last, were made out of timber or whatever they could find, and were often repaired, renovated, and added on over years. Depending on the property, most households took advantage of the climate and built what are referred to as “outbuildings,” otherwise known as ancillary buildings that would service the household. The main dwelling was often built in the “salt box” style of home, which itself has many different generations of typology and

³⁵ Heritage Newfoundland and Labrador, “19th Century Cod Fisheries,” accessed May 28, 2019. <https://www.heritage.nf.ca/articles/economy/19th-century-cod.php>.

³⁶ Ibid.



Seaspray



Blows over the southwest coast of the island
Acts as a natural pesticide ideal for organic farming

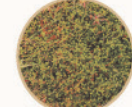
Cliffside



Bell Island protrudes out of the Atlantic ocean as a stack consisting largely of Ordovician rock.

Forage

Berries of Bell Island








JUNIPER BERRIES PATRIDGEBERRIES BLUEBERRIES
ROSEHIPS BLACK CURRANTS CRANBERRIES

Produce

Traditional Agriculture







POTATO
TURNIP
CARROT
KOHLRABI
CAULIFLOWER

Bell Island and the natural conditions of the island

customizations based on family needs, property characteristics, or available materials. The other outbuildings to supplement the home would be cold spaces, often consisting of a root cellar. Many houses from the mid 19th-century are still lived in today, often with crooked rooves, walls, and floors, however they are still sturdy.

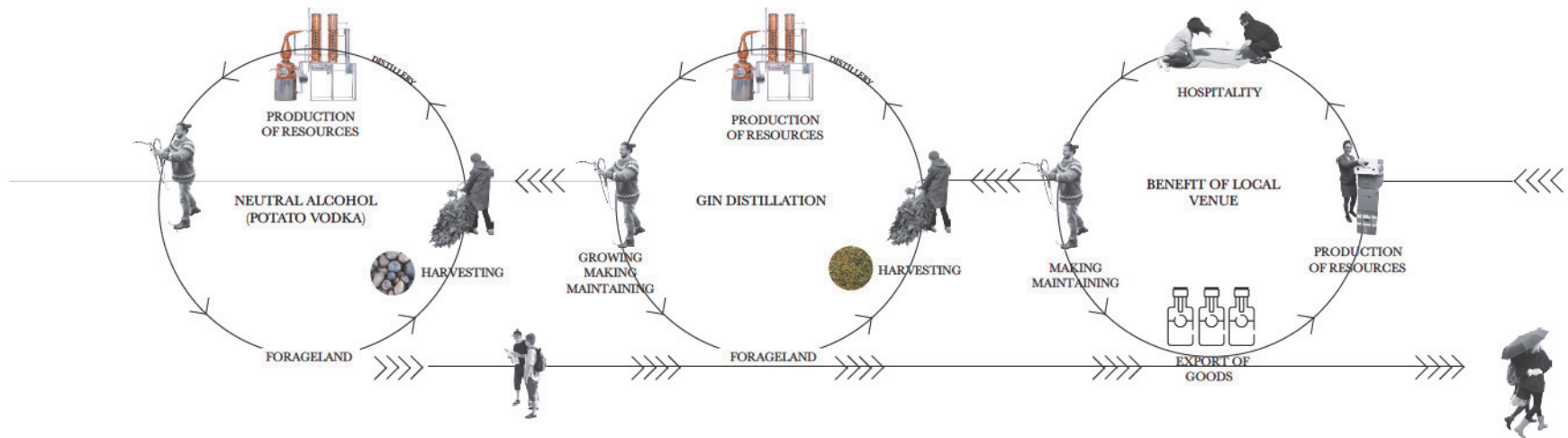
Return to Agriculture

Bell Island is already seeing some efforts to return the agricultural industry that it once relied on. HPK Farms is located on the west end of Bell Island. Currently a small-scale farm, it grows a number of conventional vegetables on a relatively small plot. As mentioned earlier, the seaspray that kills pests that could harm the vegetables eliminates the need for environmentally harmful pesticides, which also makes the soil easier to control and prevent soil erosion. Furthermore, the farm is fertilized by caplin that rolls along the shores of the beach, another local specialty specific to this place. This allows for successful growth of vegetables requiring maintenance such as potatoes, and encourages the foraging of other fruits such as the juniper berries.

Having mentioned the juniper berry, it is relevant to point out the climactic conditions that allow for the exceptional growth of this plant on this island, especially given the benefits of the berry and nature therein for that it is vied for. The juniper berry is not technically a berry; it is a seed cone of fleshy scales that grows off of a coniferous plant. The juniper plant itself consists of coniferous needle leaves and grows close to the ground in small shrub-like clusters. These clusters make for very successful growth in harsher conditions, where the nutrient index of the soil may be less due to long freeze periods, such as those of the Newfoundland climate. Much of the foragelands on the northwestern side of the island is covered in the shrub, of which reaches full-maturity on a two-year cycle. The long growth period of these plants is typical for coniferous plants, which are known to grow slowly but remain viable for a long period of time.³⁷

Having a berry-like appearance, it is a deep navy blue colour at full maturity, and the intense bitter taste resembles that of pine. A distinct flavour, it is one of the only known berries that can also be referred to as a spice, said to pair nicely with wild game such as

³⁷ Lisbeth Booth, "When to Pick Juniper Berries?" accessed June 1, 2019. <https://www.hunker.com/13428363/when-to-pick-juniper-berries>.



Cyclical system of the distillation process and how it contributes back to the island

moose (another common Newfoundland delicacy). The distinct flavour is also used as the main ingredient in gin; in fact, the main identifier of the gin spirit, is the incorporation of the juniper berry into the distillation process, and many distilleries must outsource for the berry as their requirements far outweigh the possible yields of their location. Gin is also known as a reasonably economic spirit to produce, as it may be cycled with other spirits and can be exported and consumed with relatively low overhead. This is a viable resource-based industry that could revitalize an entire community based on cultural knowledge, reasonable exportable goods, gastrotouristic influence, and engagement with both the natural landscape, resources, and community of the island. Furthermore, the spirit can be distilled from a base alcohol such as potato vodka. The distillation process of vodka and then to gin can be cycled for year-round production based on careful identification of seasonal schedules. As such, engaging other local resources that are already cultivating and selling potatoes can become a mutual relationship to mobilize the existing resources of the island, returning to traditional means of subsistence economy and producing an exportable good that can be consumed.

Either through cooperation with existing farms, or by implementing new farms that utilize the cultural knowledge already clearly existing here, and employing residents that wish to contribute to a local industry that supports their local community and supplies several products (through gardening, foraging, collecting, spreading of fertilizer, construction and/or maintenance of storage houses, distillation buildings, offices, just to begin) a return to agriculture with a focus on a non-perishable good. By incorporating as many viable outputs from the island, including the distillation of potatoes for vodka, and then the vodka with juniper berries into gin. There is also possibilities to push the distilling in other directions that are specific to the island, including flavoured gin and vodka with of the wild fruits such as blueberries, cranberries, and rosehips, all of which would have a unique flavour due to the unique conditions of Bell Island.

CHAPTER 3: PHENOMENOLOGY

Aside from the practical resources found on Bell Island, it also presents many beautiful and reputable sensory experience that cannot be discredited. This will lend itself to a study of the possible sites of the island, that utilizes both the economic viability of community involvement, but also allowing architectural opportunities that take advantage of sensory experiences around the island.

The island has two very different distinct landscapes that can yield two very different yet stunning experiences. The north side of the island is noted by a barren cliffside overhanging the ocean that is also facing a expansive ocean horizon. The south side, and the side facing the bay that the ferry crosses to get to mainland Newfoundland, is primarily a hilly deciduous coastline, hosting several marinas. The majority of Bell Island's population resides in Wabana and Lance Cove, arguably protected from the prevailing winds that come from the southwest coast. Whether it is the north or south side of the island, the exquisite nature of natural and man-made relics that exist on the island in a relatively close proximity to one another makes for accessible hiking views and exploration. To be able to experience these landscapes personally not only invites locals to take further care of their island, it promotes a unique experience to those who wish to explore this island and what it has to offer beyond a physical product.

In *Eyes of the Skin* by Juhani Pallasmaa, the author outlines how philosopher Merleau-Ponty related sensory perception to experience in space:

But instead of the Cartesian eye of the outside spectator, Merleau-Ponty's sense of sight is an embodied vision that is an incarnate part of the 'flesh of the world': 'Our body is both an object among objects and that which sees and touches them.' Merleau-Ponty saw an osmotic relation between the self and the world - they interpenetrate and mutually define each other - and he emphasized the simultaneity and interaction of the senses. 'My perception is [therefore] not a sum of visual, tactile and audible givens: I perceive in a total way with my whole being: I grasp a unique structure of the thing, a unique way of being, which speaks to all my sense at once,' he writes.³⁸

This quotation occurs as Merleau-Ponty criticizes the role of vision as the ultimate human sense, and emphasizes the importance of total sensory exploration in understanding one's

38 Juhani Pallasmaa, *The Eyes of the Skin Architecture and the Senses*, 3rd ed. (Hoboken: John Wiley & Sons, 2012), 22.

place in the world as a space. In terms of how this can relate to the multiple sites of Bell Island, it is important to take stock of not only the viable outputs of the island, but also the sensory outputs that the island present to the human experience. Such sensory outputs include a relatively harsh and consistent breeze, often carrying seaspray and damp air. Newfoundland's climate is precipitation heavy, with frequent rainfall, fog, and drizzle at all times of year. This sensory experience should be incorporated into the experience of visiting the island, through embracing of this experience or perhaps providing shelter from undesirable climactic effects. Given the harsh nature of the Newfoundland climate coupled with the proximity to unprotected cliffs and coastlines that much of Bell Island is privy, it is perhaps useful to examine Pallasmaa's criticism of Heidegger's observation of the nihilistic eye versus the narcissistic eye:

The hegemonic eye seeks domination over all fields of cultural production, and it seems to weaken our capacity for empathy, compassion and participation with the world. The narcissistic eye views architecture solely as a means of self-expression, and as an intellectual-artistic game detached from essential mental and societal connections, whereas the nihilistic eye deliberately advances sensory and mental detachment and alienation. Instead of reinforcing one's body-centred and integrated experience of the world, nihilistic eye disengages and isolates the body, and instead of attempting to reconstruct cultural order, it makes a reading of collective signification impossible. The world becomes a hedonistic but meaningless visual journey.³⁹

In this way, the author criticizes the nihilistic eye as disengaging the body from cultural experiences, thus outside of the human experience, while the narcissistic eye views architecture as arbitrary artistic expression. In order to properly address any of the possible sites located on Bell Island, it is important to integrate both the sensory experience of the body within the site and space, as well as how the space fits into the cultural and social collective of the experience. As such, it is important that the site of this project pertains to a sensory response appropriate to human experience as well as a social experience that does not ignore its cultural or collective significance. Therefore, sites that exist both at the end of the island that yields the optimal sensory experience and social experience is important. In this case, this will manifest itself at the north-west coast in what I will henceforth refer to as the Foragelands, as well as a site located in the town of Wabana with close proximity to main roads and local residents and services. By utilizing the understanding of sensory experience in consideration with the industrial need of a small-scale exportable good, the importance of sensitive site handling and understanding cannot be ignored.

³⁹ Ibid., 22.



Freshwater, Foragelands



Freshwater, existing crops



Wabana, near the Lighthouse Lookout



Freshwater, foragelands and cliffs



Wabana looking north



Marina, Lance Cove



Existing mine opening at Grebe's Nest

CHAPTER 4: CONNECTING TO THE TOWN OF WABANA

Working in the Community

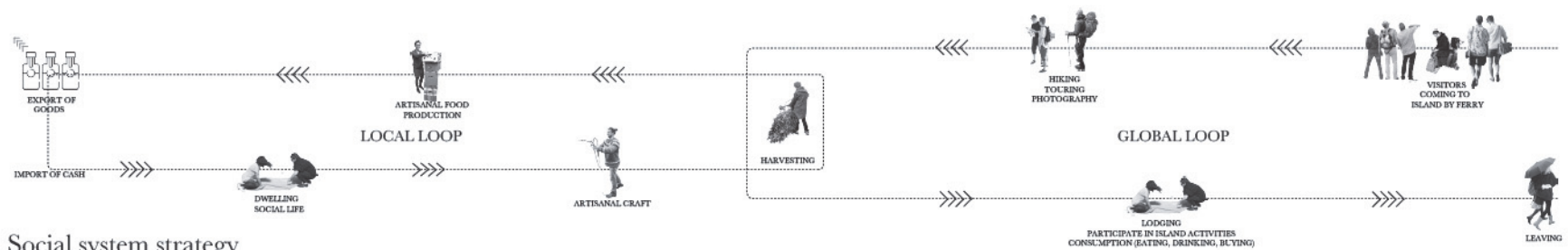
There are several existing businesses that already exist around Bell Island. In order to work well within the community, it is necessary to take stock of these businesses and consider possibilities for how they can contribute and benefit from the implementation of a new industry.

Currently, the largest draw for both business and tourism on Bell Island is the Mine Museum, which holds tours of Mine #2, wherein visitors are taken on into a still inhabitable mine shafts. This is a seasonal attraction, only active from April to October every year, therefore defining those months as the “tourist season.” This currently employs a handful of people for the community directly, but as a tourist destination, it also attracts visitors to the island, whom then have the opportunity to visit the one restaurant, the bakery, and/or the few convenience stores and gift shops around town. There is also a large hardware store there, alluding to a knowledge or need for construction supplies. Aside from this, there is a community centre and an old age home, as well as a fire station and a health centre. Several religious building and a recycling depot exist. There are several baseball fields, a skating rink, a curling club, and an airstrip. HPK Farms, the only formal business crop that grows in Freshwater, sell their vegetables at the bakery on weekends, with no current formal space or storefront.

The presence of all of these businesses make it clear that although the population of Bell Island is small, there are knowledgeable community members here that can be involved, contribute, and even benefit from playing a role in the design and construction of a distillery in their town. By designing a building that pertains to the needs of this community, while also employing people of the community, buying local stock, and eating local food, one is already contributing to the local economy. By treating this project as a network and not simply an intervention, it allows the consideration for how the rest of the community will be affected. As immediate accessibility to the town residents and connections to existing businesses is advisable to the success of a small-scale local industry, Wabana would be an appropriate site placement for this an industrious program. Freshwater is, in fact, placed inside of the aforementioned Foragelands, and thus a symbiotic relationship



Bell Island; main route from marina to site(s) by road or by foot



Social system strategy

between resource stock and phenomenological opportunities will find itself in this part of the island.

Distilling an Industry

It is at this point that defining an industry that could be both attractive to local residents and visitors from near and far. Acknowledgement of the former mining industry proves that an exportable good can be useful to provide income to a place, thus catalyzing an activity boom and exacerbating government fees such as the required ferry for commuters. An industry, however, that has remained consistent on the island since the time of settlement and therein implies a cultural knowledge for the island is that of agriculture and foraging, and the supplementary practices of preserving food during long and damp winter months in the middle of the Atlantic ocean. Emphasizing the utilization of a local resource, the presence of the Juniper Berry poses a unique opportunity to the community. Its robust flavour component is unique to the distilled spirit of gin,⁴⁰ and also is a promotes the practice of both bottling and exporting a foraged and preserved perishable good that is unique to a place with such conditions as Bell Island. It is important, also, to consider the appropriate nature of a distilled spirit in aiding the rest of the community. The practical ramifications of what grows on the island aside, the cultural knowledge and skill that exists in this community as construction workers and gardeners avail themselves directly to the programmatic needs of both the foraging and agricultural aspects; thus, by engaging the Town of Wabana in a small-scale local distillery and ancillary programmatic needs, potential for engaging the entire community can be spatially realized.

Site Selection

Upon identifying the existing social and economical climate of Bell Island and determining that Wabana would be an appropriate location for small-scale industry, and then identifying the programmatic direction for utilizing existing resources on the island and using them for the distillation of gin, an appropriate acknowledgement of a location for this proposed industry is required. Since the island had been void of the historic mining industry since its halt in the 1960s, there have been a number of buildings belonging to the mines that have either been torn down by the former industry leaders, bought by patrons

⁴⁰ Booth, "When to Pick Juniper Berries?"

and torn down for property value or left abandoned and unused. In order to fully engage the theory of this thesis, readapting an existing building for the sake of the economical, social, and historical benefit would prove to be to the most effective, if not necessary, option.

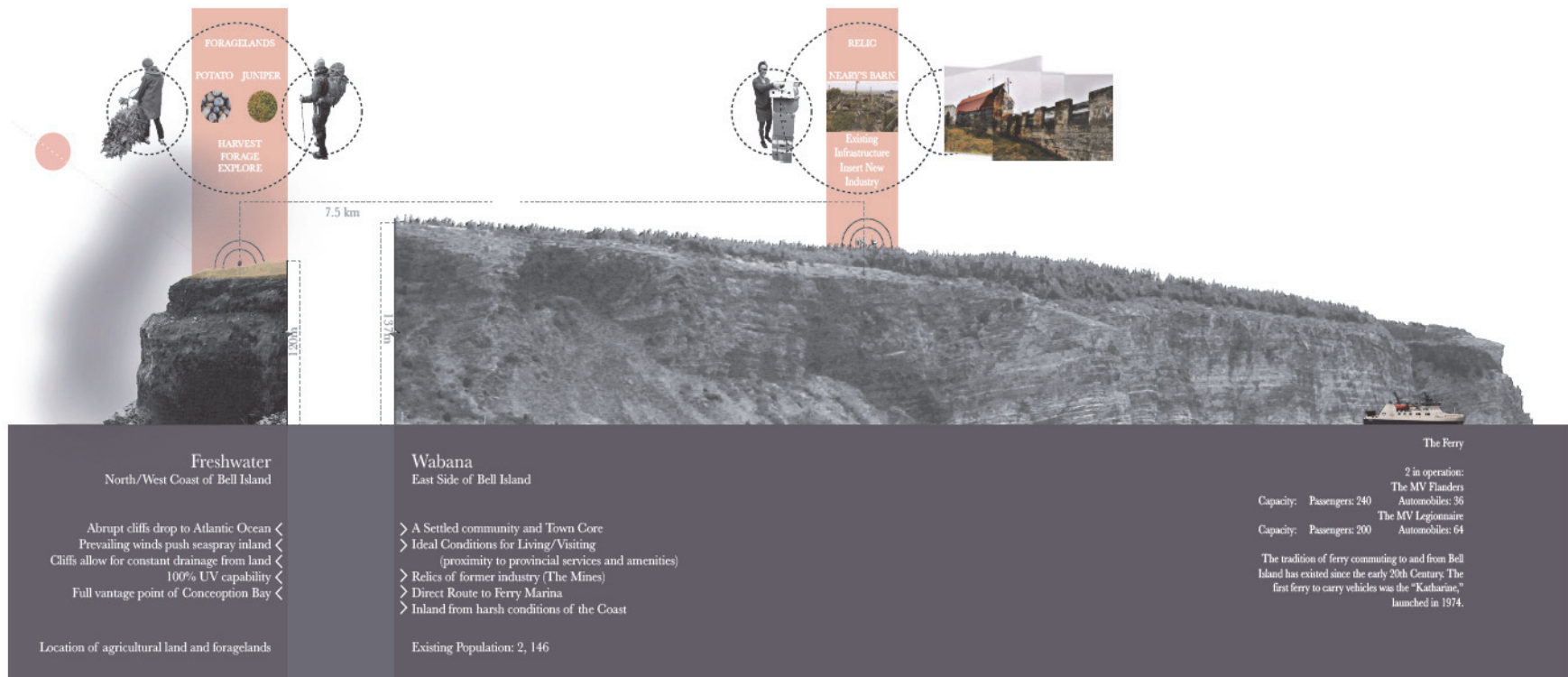
One such property in the core of Wabana is a former barn foundation located along a road called Quigley's Line. It is referred to in the town as Neary's Barn, and is a large concrete structure that currently sits idly within the town. According to residents residing alongside the barn, it once housed the horses that aided in the digging of the mines. It currently resides abandoned, nestled between several active residential properties. The original barn that once covered the concrete foundation had been removed, exposing the original concrete and existing troughs. Much debris currently covers the interior of the barn floor, and grass and other flora have begun to grow inside. A makeshift roof and locked doors imply that the barn was used as private property after the Barn structure was removed, however the roof shows signs of rotting and one wall has been torn away, revealing signs of neglect and years of abandonment. Repairing and inserting a program that reengages and revitalizes the site would not only take advantage of an existing site and structure, thus alleviating the need for a large-scale new build, but would also be layering a new meaning to a structure already inherent to productivity and industry within the town. The size of the surrounding land to the concrete structure also allows space for ancillary and supplementary outbuildings, if/as needed.

Analysis of the Existing Structure

Not much information can be found about the leftover relics of the mining industry, and unfortunately Neary's Barn falls within this discrepancy. Structural assumptions can be made, however, given the significant exposure of the concrete foundation on site. This type of barn falls under the typical format of a "bank barn," wherein a barn is built into the bank of a hill.⁴¹ The existing structure consists of two storeys, with a third half-storey existing along the south-east portion of the structure. These types of barns were popular during the 19th and 20th century⁴² which aligns with the advent of the Mines and speaks to the social prowess of this industry to the community, as this would have upheld the

41 Audrey Pavia, "7 Classic American Barn Styles," *Hobby Farms*, February 18, 2009, <https://www.hobbyfarms.com/7-classic-american-barn-styles-4/>.

42 Ibid.



Island section and system

TOWN CORE OF WABANA

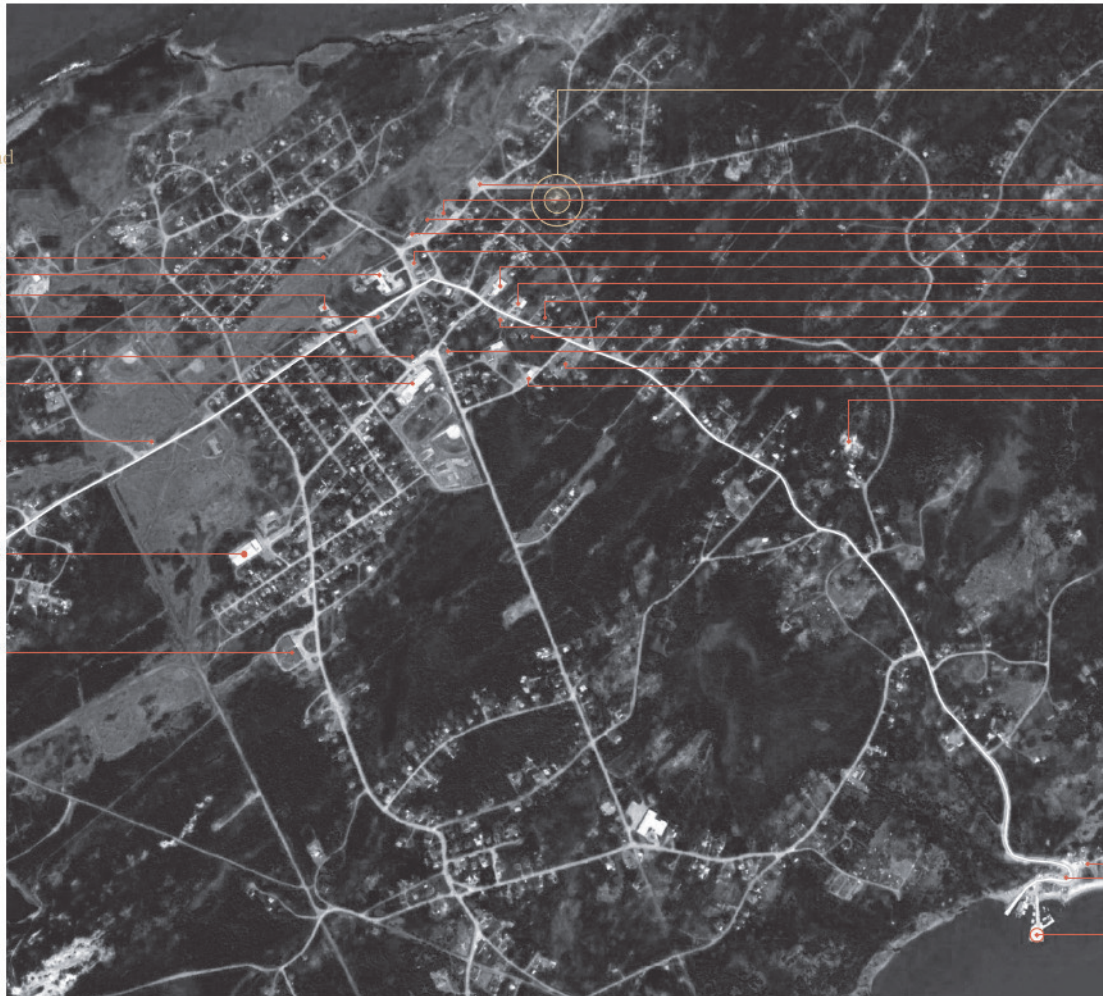
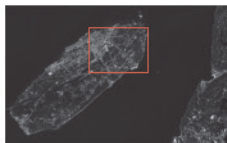
Identifying service on Bell Island

- 17 Bell Island Community Museum
- 18 Health Care Centre
- 19 Retirement Home
- 20 Canada Post
- 21 Pharmacy
- 22 Bank
- 23 Home Depot Building Supplies

- 24 Wabana Fire Department

- 26 Skating Arena

- 27 Elementary School



DISTILLERY SITE

- 1 Royal Canadian Legion
- 2 Clover Farm Supermarket
- 3 Wabana Boys and Girls Club
- 4 Beachstone Enterprises (Cabinetry)
- 5 Bell Island Co-Op Bakery
- 7 St. Michael Catholic Church
- 8 Green Depot Recycling Depot
- 9 NL Power District Building
- 10 Princess Pub Lounge
- 11 Clift Lodge No. 10
- 12 Hotel Pavla
- 13 Anglican Church of Canada
- 14 Irving Oil
- 15 St. Michael Catholic Church

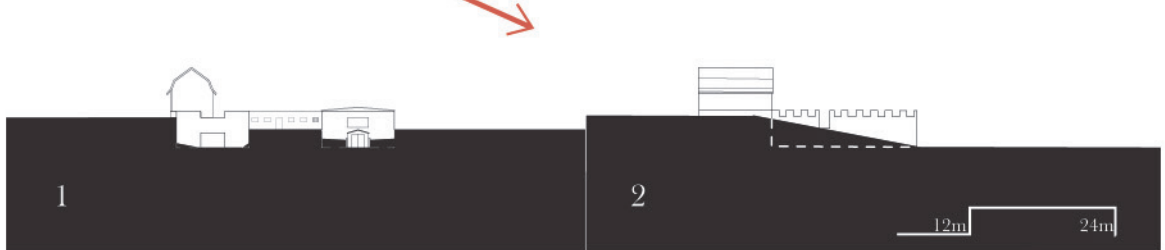
- 16 Dick's Fish and Chips
- 17 Convenience Store

- 18 Bell Island Marina

Map of town core of Wabana



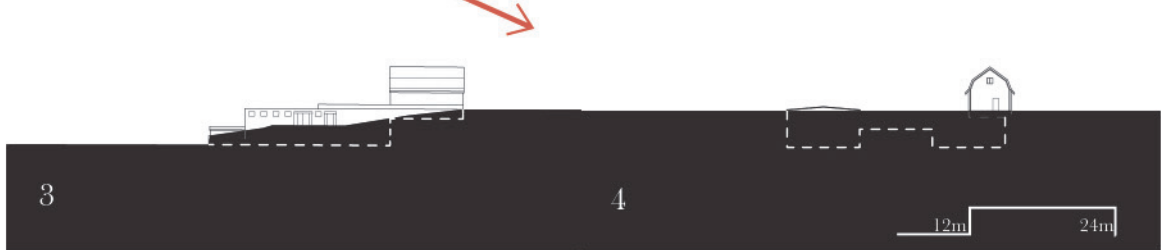
to marina



Existing site of the barn.



to marina



Existing site of the barn.

typological norm in innovation of the time. Traditionally, livestock would have resided below in the basement with the above floors having been used for threshing and storage, however the steep grade change of the site and troughs (also known as mangers) reveal that perhaps the main livestock floor would have been on the second storey (however both could have been used for livestock storage and maintenance).⁴³ The remaining concrete slab that sits above the eastern adjoining part of the second-storey (and also meets at grade at the back of the structure) was likely used for threshing. This style also explains the unique alignment of the structure on site. The axis of barns at this time were constructed so that the long side of the barn would be aligned to the south, so as to provide a warm wall in the winter for the animals it sheltered.⁴⁴

For the sake of analysis, the structure consists of two wings with an adjoining area between them. The two wings will be referred to as the North Wing (the portion physically closest to the street) and the South Wing (the portion set inland on site from the street). The first level consists of two basements that are not connected to one another, and are actually set in-ground. Each basement wall measures 12 metres wide by 12 metres long, at a height of approximately 3 metres high. The North Wing basement has a set of 6 concrete columns inside that hold up the front arm of the floor plate above, that also measures 12 metres long and 12 metres wide. It can be assumed that the adjacent South Wing mirrors this structure. There is a portion of the floor plate above the basement that extends beyond the back of the basement wall above that is as is actually sitting on the ground (again, in-set at the back portion here). This part connects the north and south parts of the structure, consisting of an extra 12 metre long by 36 metre wide floor plate. The South Wing also has a substantial entry porch that acts as a significant threshold to the building's bottom half. This alludes to the difference in programmatic function of the two basements, however it is not telling of how these programmatic functions could have differed.

As previously mentioned, the two basements hold up a second floor that appears to protrude out of the ground. The North Arm of this floor has a unique wall structure made up of corrugated concrete fins, mimicking other bank barns from the 18th century. This would have been where the wooden structure of the actual barn form would have met, with

43 Portland Cement Association, *Plans or Concrete Farm Buildings*, (New York, Portland Cement Association, 1924), 34-35.

44 Pavia, "7 Classic American Barn Styles."

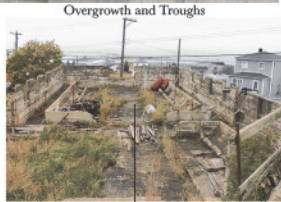
A Former Barn

Neary's Barn was once commissioned by the Mining Industry, housing the horses that facilitated the mining industry.

The large barn once sat above the existing foundation, made of concrete with large rock aggregate revealed by crumbling at some points. A unique feature of the barn in Bell Island is that it sits adjacent to the street, likely due to the large grade change



The Barn



Overgrowth and Troughs



Rotting Wood



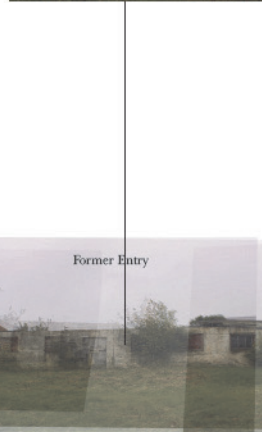
Grade Change and Crumbling



The Approach
Quigley's Line



North Wing



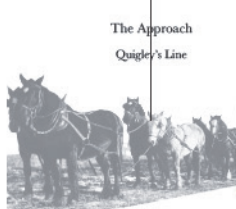
Former Entry



South Wing



Bottom Store Entry

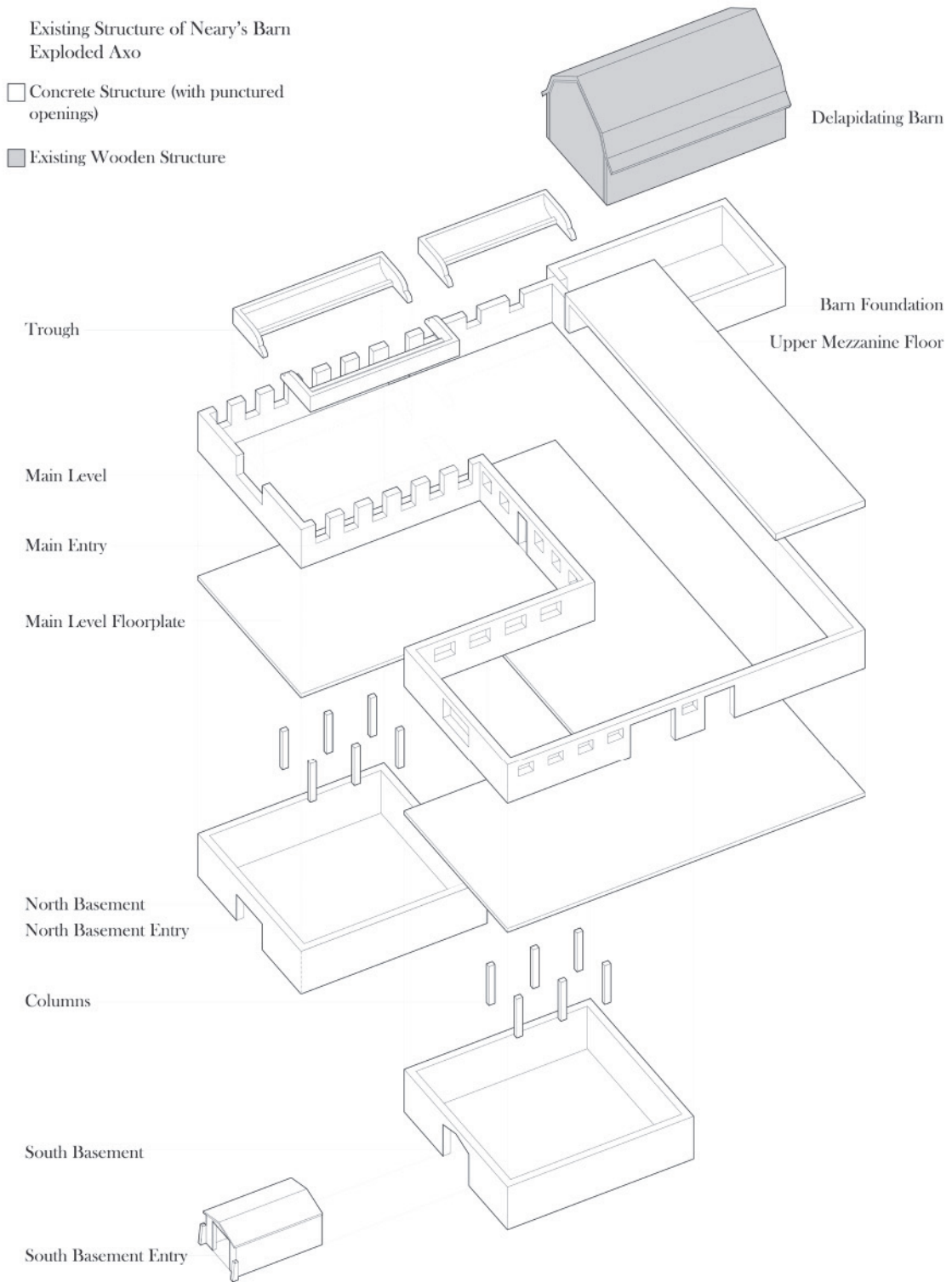


Existing site of the barn

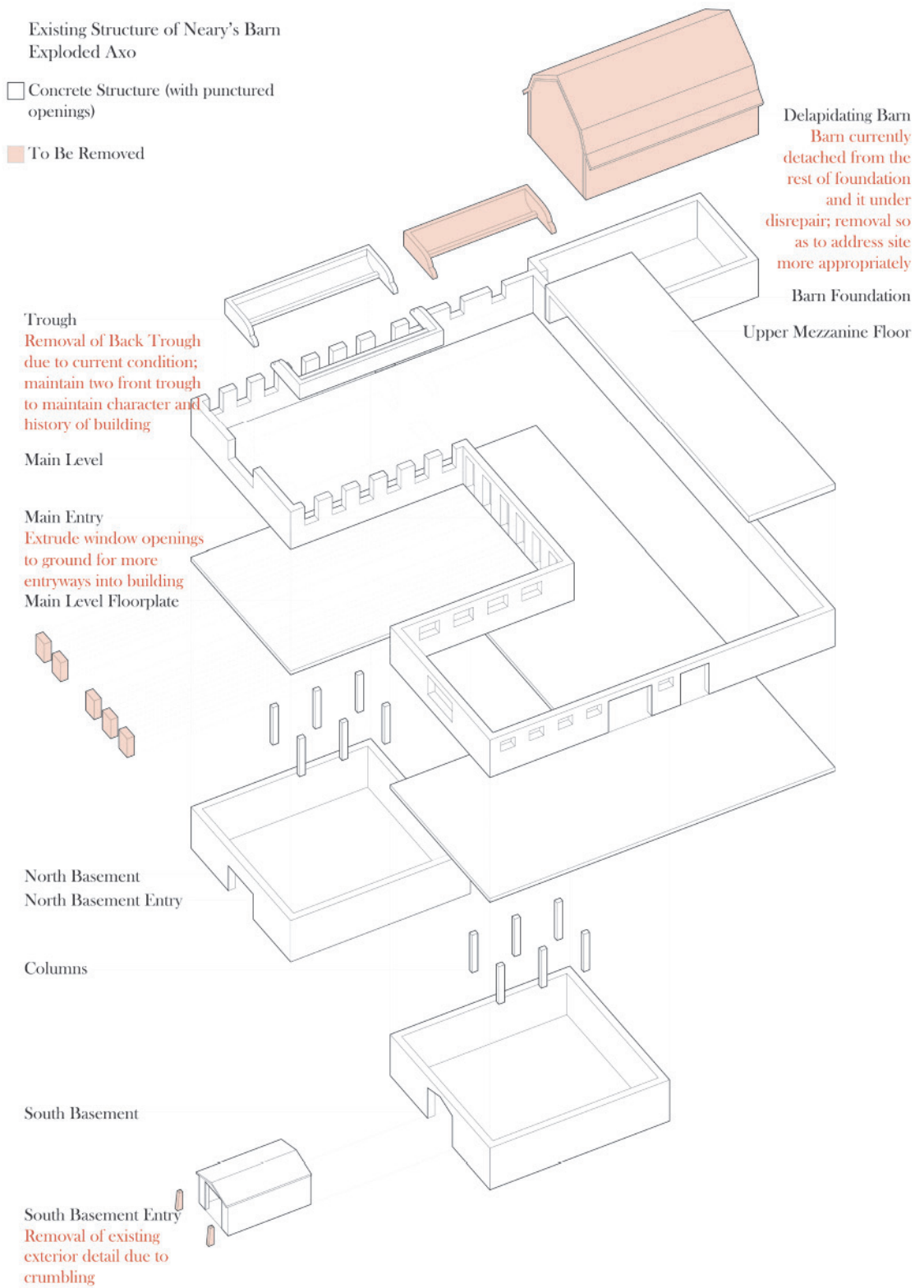
what appears to be corrugations having actually been openings for glazing. The troughs define this space as the main area for keeping livestock. There is a north-side entry of this wing, which sits at the midpoint of the north wall at grade. The ground beneath continues to slope upward towards the back of the structure, rising an entire storey once you reach the back of the second storey floor plate. This is consistent for the entire structure. The South Wing does not have the same corrugated wall type, however it does have punctured windows and an two at-grade entry points, one mirroring the north side entry and another directly beside it. This portion was likely for programming functions pertaining to administration or storage purposes, as the concrete structure differs from that of the North Wing.

The adjoining part of the floor plate that resides between the two arms is enclosed at the western, or “front,” portion of the structure. This is presumed to be the former “main” entry, with several punctured windows and one door frame placed here. The ground slopes upward a whole storey over the course of the 12 metre reach of the north and south arms to enter at this point. Upon reaching the eastern wall, or “back” of the structural floor plate, as mentioned before, the 3 metre concrete wall is met at grade, revealing that almost the entire concrete structure stepped up at 3 metre intervals, and largely resides underground.

It is also noteworthy that there currently exists a small concrete foundation addition and fully enclosed barn and the north-east corner of the concrete structure, sitting at grade at this point. There are remnants of the former barn enclosure that used to sit on top of the large concrete foundation left on the interior face of the barn, however the condition of the existing wooden structure is in great disrepair and will need to be discarded rather than preserved for future programming. There is also a large amount of wooden barricades across all window openings and doorways, as well as a makeshift wooden roof covering the south-east corner of the second storey. All of this will be removed for programming and will be replaced with the intended design structure. Some concrete portions will also be removed, however the general structure of the concrete foundation is sound. Some patching along the north and south faces will take place, however aside from the removal of the two cornices of the basement threshold of the South Wing, the concrete aggregate (consisting of cement and large stones) is in relatively good shape. A concrete trough at the back of the North Wing will also be removed for programming and functionality.



Existing relic of Neary's Barn as it stands today



Showing pieces to be removed

Why Distillation?

Distillation is one means by which to preserve the quality of an alcoholic spirit, thereby removing the perishable solids from which the spirit was derived.⁴⁵ Distilled spirits have had a long history in Newfoundland heritage, perhaps the most well-known story being that of the Newfoundland rum called Screech. In actuality, this rum would have been traded by those in the West Indies for fish during times of trade, reinforcing the relationship of export/import trade and emphasizing the longevity of a distilled spirit as a non-perishable good.⁴⁶ Using this as context to a new need for exportable good, pivoting to utilize and distill Juniper berries into gin is appropriate for the intention of a Newfoundland community.

Process of Distilling on Bell Island

The process of spirit distillation requires many different ingredients, phases, techniques, and equipment. Already, the presence of the juniper plant on Bell Island alludes to a well-known and widely enjoyed spirit, of which Bell Island does not currently produce. Gin, however, does require the pre-production of another agriculturally-based spirit. This can be handled by taking advantage of the aforementioned agriculturalists of Bell Island. By engaging specifically with the farms and other freelance resources, a gin distillery could either contractually agree to purchasing and storing locally-grown potatoes for the distillation of a base alcohol, or infer for education and labour of potato growing by local residents of Bell Island. However the means, a multi-step process to the final gin product inherently needs more involvement and engagement from the community, and as a by-product encourages local knowledge, education, and reiterates historical precedence of the island, all while producing a new good that is understood on a global scale.

From Ground to Glass

For the actual process of arriving at the end goal of distilled gin, for the community of Bell Island there must actually be two separate distillation processes, as one of the main

45 Jack Besse and Danielle Dechaine, "Distillery Design: Producing Vodka and other Spirits" (dissertation, Worcester Polytechnic Institute, 2014), 10.

46 Heritage Newfoundland and Labrador, "19th Century Cod Fisheries."

ingredients in gin is actually listed as being an “agriculturally sourced neutral spirit.”⁴⁷ So as to reinforce the notion of small-scale local industry and utilizing resources that are available on the island, this can be attained by fermenting and distilling potatoes, essentially making a base spirit otherwise known as potato vodka.⁴⁸

Prior to even beginning any distillation processes, collection of appropriate ingredients must be made. For any gin, a combination of neutral grain spirit and a selection of base botanicals is required. These botanicals include:

- juniper berries
- coriander seeds
- cardamom seeds
- ground cinnamon sticks
- liquorice root
- angelica root
- citrus peel

Ratios may differ depending on the type of gin being produced or by region, however generally the ratio is about 40% Juniper Berry, 15% Coriander Seed, 15% Cardamom Seed, 10% Crushed Cinnamon Stick, 5% each of Angelica Root and Liquorice Root, and 1% Peel of a Citrus fruit. The addition of other Newfoundland flavours such as Rhubarb, Rosehips, Crabapples, Blueberries, Partridgeberries, and Seaweed make for endearing flavour profiles that would be unique to the place of Bell Island.

It is also important to identify the necessary and specialized equipment that will be necessary for the distillation of both the neutral base spirit and the gin. Most notably, a large hybrid still, which consists of both a Coffey Still and a Pot Still, would yield the best results for the production of two different kinds of spirits.⁴⁹ Other equipment and needs include:

- hammer mill
- mash ton and boiler

47 Besse and Dechaine, “Distillery Design: Producing Vodka and other Spirits,” 10.

48 Nora McGunnigle, “How to Choose the Right Distillery Equipment,” *The Equipped Brewer*, accessed May 28, 2019, <https://www.equippedbrewer.com/equipment-and-supplies/how-to-choose-the-right-distillery-equipment>.

49 McGunnigle, “How to Choose the Right Distillery Equipment.”

- several fermenters (able to hold yeild)
- hydrometer
- spoons, paddles
- water source (hose)
- cleaning area (for produce)
- bottling station
- placement of the equipment will be spatially rectified in the design of the distillery. Use of each piece will be iterated in the breakdown of the gin distilling process.

Harvesting

It has been determined that in order to yield a sufficient amount of distilled product for a small-scale industry, a 900L still will be sufficient. In order produce enough distilled spirit to support the industry, collection of agricultural and botanicals will be required. Harvesting of Juniper Berries in particular will be required. Returning to local traditions of foraging, berry-picking and agricultural collection is something many Newfoundlanders wait year-round to participate in. An opportunity to hire harvesters and collectors and once again returning to this common Newfoundland practise further reinforces a need to return to cultural knowledge for the production of a good. It is also important to note that Juniper Berries are a hearty plant, however they do require to grow on a 2-year cycle. Mindful care to rotating foraging areas will have to be enforced. Keeping a large stock of all ingredients within the distillery premises would also be advisable, thereby implying the necessity for a space to keep them at hand. This will be determined in the design portion of the thesis.

The procedure to produce both the neutral spirit and the gin are fairly straightforward, however they require large batches of ingredients and the fine-tuning of techniques. As gin requires a neutral base spirit as one of it's main ingredients, identifying the need for the preliminary distillation of locally-grown potatoes. This procedure will be explained in Appendix A. It is also important to note that this quantity of neutral spirit produces a large amount of leftover fermented potato mash. This may be returned to the Foragelands as compost fodder or perhaps donated to surrounding residential animal farms as feed. Either way, the potato mash has been distilled of all alcohol and is now suitable to be repurposed elsewhere.

Gin Distillation Process

Once the neutral base spirit has been produced and set aside, collection and preparation of the aforementioned ingredients for gin will be required. Once all of your ingredients have been collected, the still must be completely cleaned of any residue left from the processing of the neutral base spirit. The base spirit is then added back to the pot still, and the botanicals and optional Newfoundland ingredients are added to the Still Column of the hybrid in satchels of cheesecloth. Once both components are added to the still, it is time to distill your final product by turning on the heat and slowly bringing the temperature to 150 degrees Fahrenheit, carefully monitoring the amount of distilled alcohol that is dripping. Alcohol evaporates at a much lower temperature than water, thus the vapour that is produced here is pure alcohol vapour.⁵⁰ Passing through the column still allows for the vapour to pick up notes and flavours of the botanicals in the still, thereby flavouring the gin to its final product that will pass through a condenser and collected. Keeping a close eye on the speed at which the gin is collecting is an important indicator of how one should monitor the temperature of the still.

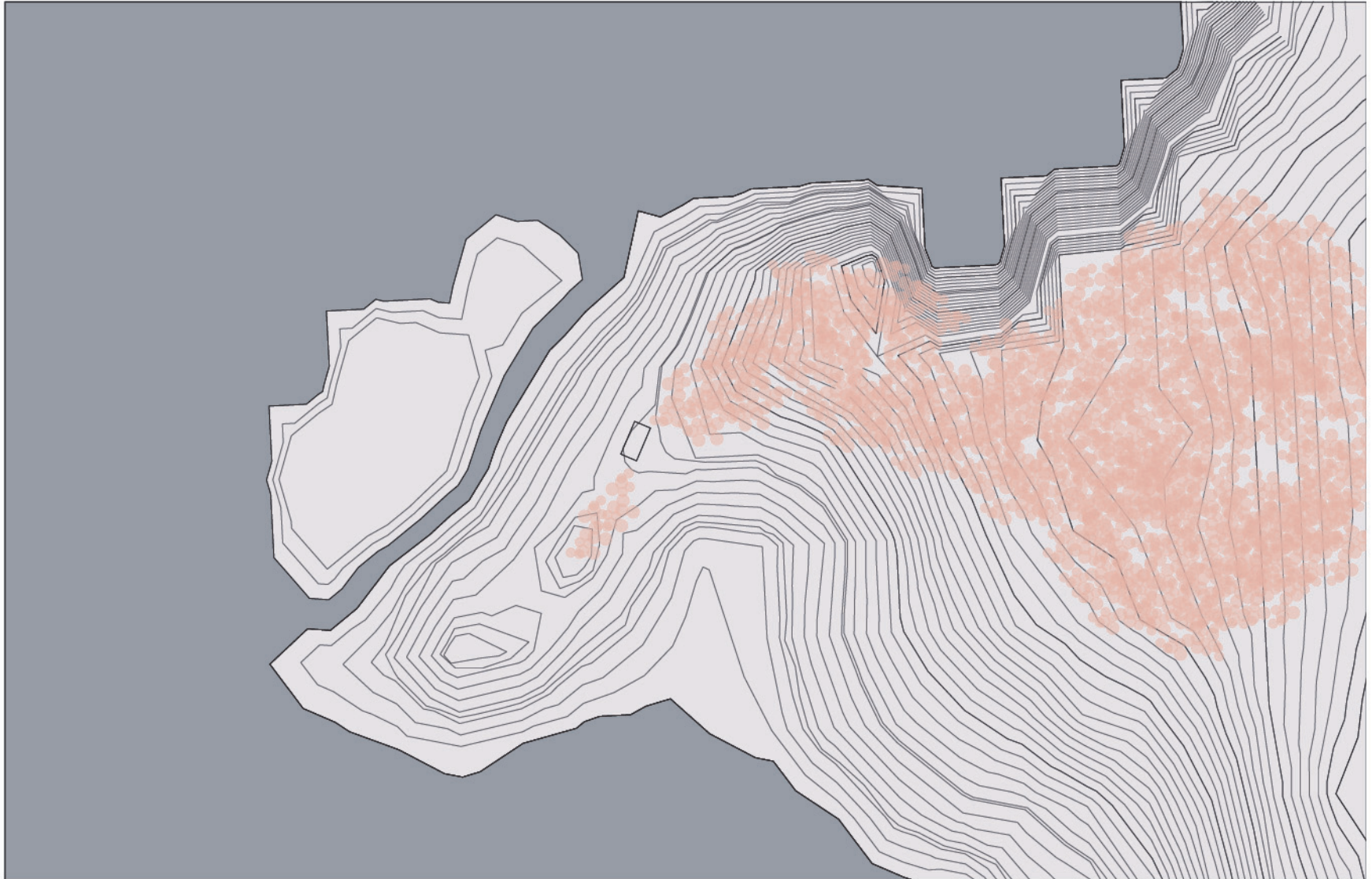
The Foreshots, Heads, Hearts and Tails

Upon collection of your gin distillate, there are several parts of the “run” that must be considered. Referred to as the “foreshots,” “Heads,” “Hearts,” and “Tails,” of the batch, these have been determined as safe or unsafe to be consumed.⁵¹

The first 5% of the run is the foreshot. This is unsafe for consumption as it contains toxic methanol. Identified by their strong solvent smell, this portion of the run is to be discarded. The heads is the next 30% of the run, which must also be isolated and discarded as it contains a toxic chemical known commonly as acetone. Once these two components have been identified and discarded, the Hearts follows, which is the following 30% of the batch run and the part of the product that will be used for commercial consumption. Finally, the tails consist of the final 35% of the run. Although the flavour will be bitter and the chemical compounds of this are slightly oilier than the desired product, the tails can be

50 Ibid.

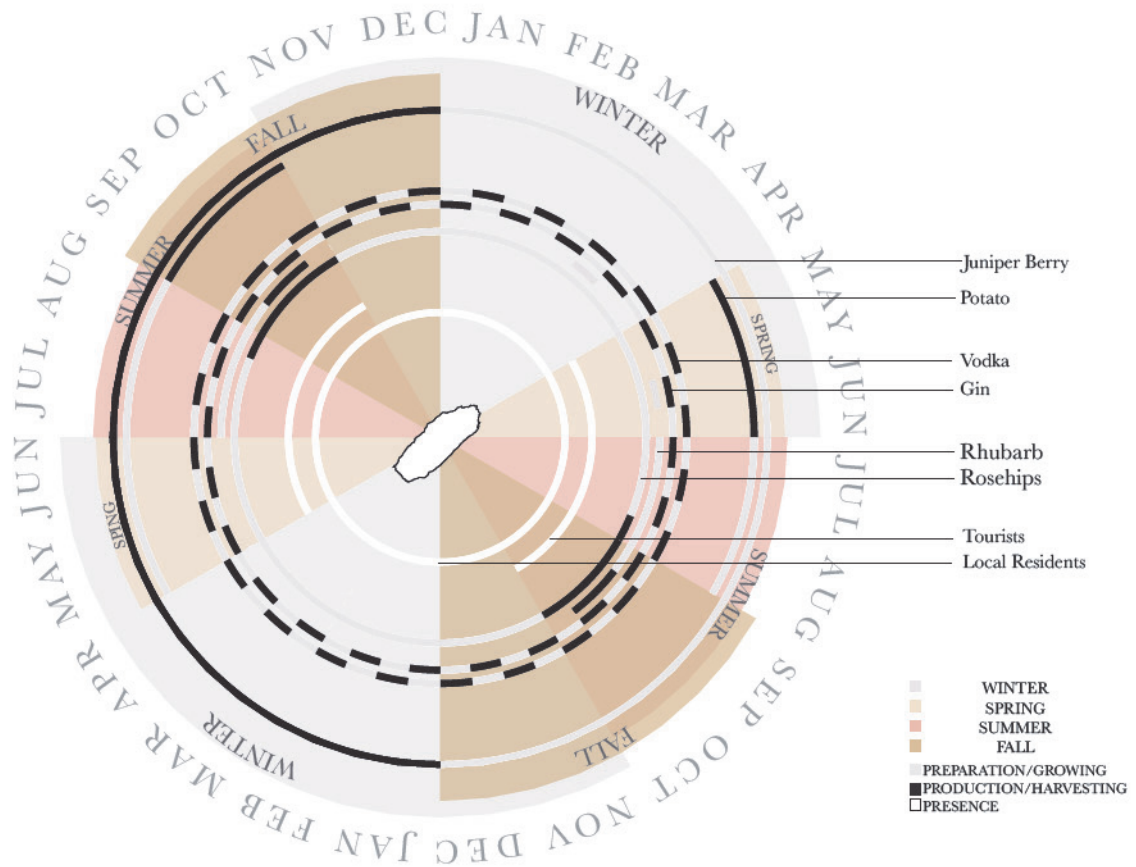
51 Ibid.



Existing site of the Foragelands where harvesting will take place



Images of the Foragelands where harvesting will take place



Two-year preparation/production schedule

repurposed and used in the future for the production of the neutral base spirit.⁵²

Diluting and Bottling

Once the gin has been collected, the use of a hydrometer will determine the alcohol percentage. A minimum of 37.5% alcohol by volume (ABV) is required by definition. Once this has been reached, it is time for bottling and consumption.⁵³

Social Benefit of Gin Distillation

Not to mention the job creation and community engagement of a new industry, gin distillation offers a bevy of social benefits as well. Gin tasting, socializing, gastro-experimentation, promotion of local craft and industry, and social benefits inherent in foraging and agriculture will all be hugely beneficial to the community. Mindful design of

⁵² Ibid.

⁵³ Ibid.

the site and buildings will merely encourage social interaction for residents and visitors.

A Visual Connection: Placement of the Distillery

Having identified the processes and importance of the Distillery, it is important to create a visual connection with the town of Wabana. Neary's Barn is unique as a site, as the foundation of the barn sits at an angle to the adjacent street, pointing directly to the far view of the Baccalieu trail across the Atlantic Ocean. This corner of the site is where the Distillery production area will reside, allowing for residents and visitors to be able to identify the activity going on inside and creating a visual connection to the community surrounding it. In the tradition of Newfoundland vernacular design, a number of outbuildings typologies will be incorporated into the design as well, so as to turn the distillery from simply a production zone but into a community beacon that engages and educates the cultural knowledge of the place. Suggested spaces include:

- A restaurant: A space to enjoy the distillery and take advantage of the site, a possible overflow space for both patrons and locals to come and enjoy the wares of the distillery and the subsequent agricultural practices that bring these practices forth is necessary.
- Overnight Houses (Lodgings): Given the state of remote location of the Island, overnight lodging should be provided in case of ferry suspension or weather issues. Furthermore, venue hire could offer spectacular results given the location of the site in the middle of the town. Striking views are offered and may promote further exploration around the island.
- A Farmer's Market: To promote cooking classes and/or educational practices of agritourism and provide further pedagogy of agricultural practices within the island.
- A greenhouse and garden so as to be able to distill 100% NL local produce; educational pursuits.
- A pavilion in the foragelands to escape the harsh conditions of the island while also being able to take in the serene landscape.

Each of these designs will be explored in the following chapter.

CHAPTER 5: DESIGN PROPOSAL

Site Strategy and Programmatic Overlay

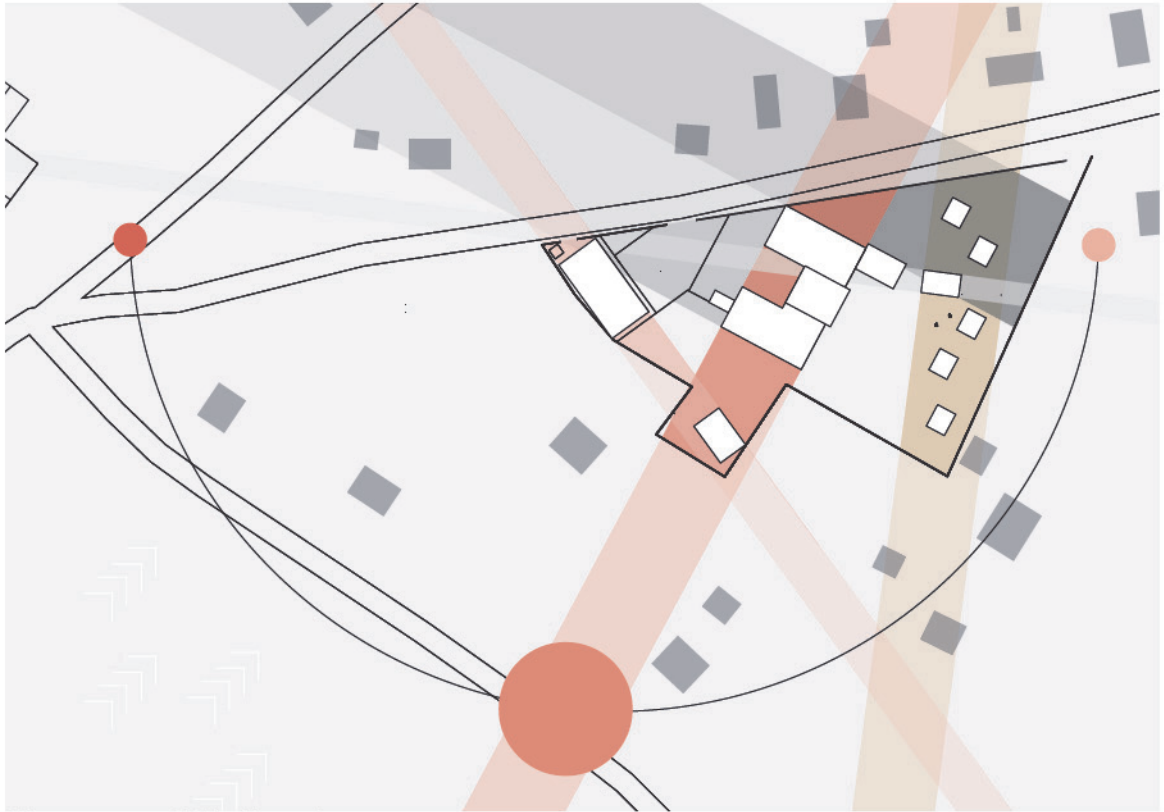
Situating the Distillery Site

In order to properly place the site appropriately, many factors have been taken into account. Upon determining the prevailing winds and sun trajectory, a series of design moves have been implemented. The Distillery being the main driver for industry and programming on the site has allowed for its placement in the northern arm of the existing barn. This entire strip of the site is noted as the “production” strip, wherein everything that lies along this strip is used for production and promotion of production. The foundation of the Barn will house the Distillery and tasting room, the restaurant, the reception area, the storage area (ie. cold room) and the speakeasy. This strip overlaps with the “green strip” which takes advantage of the solar trajectory of the site and hosts both the Farmer’s Market and Greenhouse. The greenhouse will be placed at the junction of the production and green strip. The Housing strip is found behind the production strip and emphasizes the private portion of the site. The circulation of the distillery will determine the placement of each house along the back of this area, with several views strips also informing their placement. Each strip emphasizes a certain aspect of design quality informing this thesis:

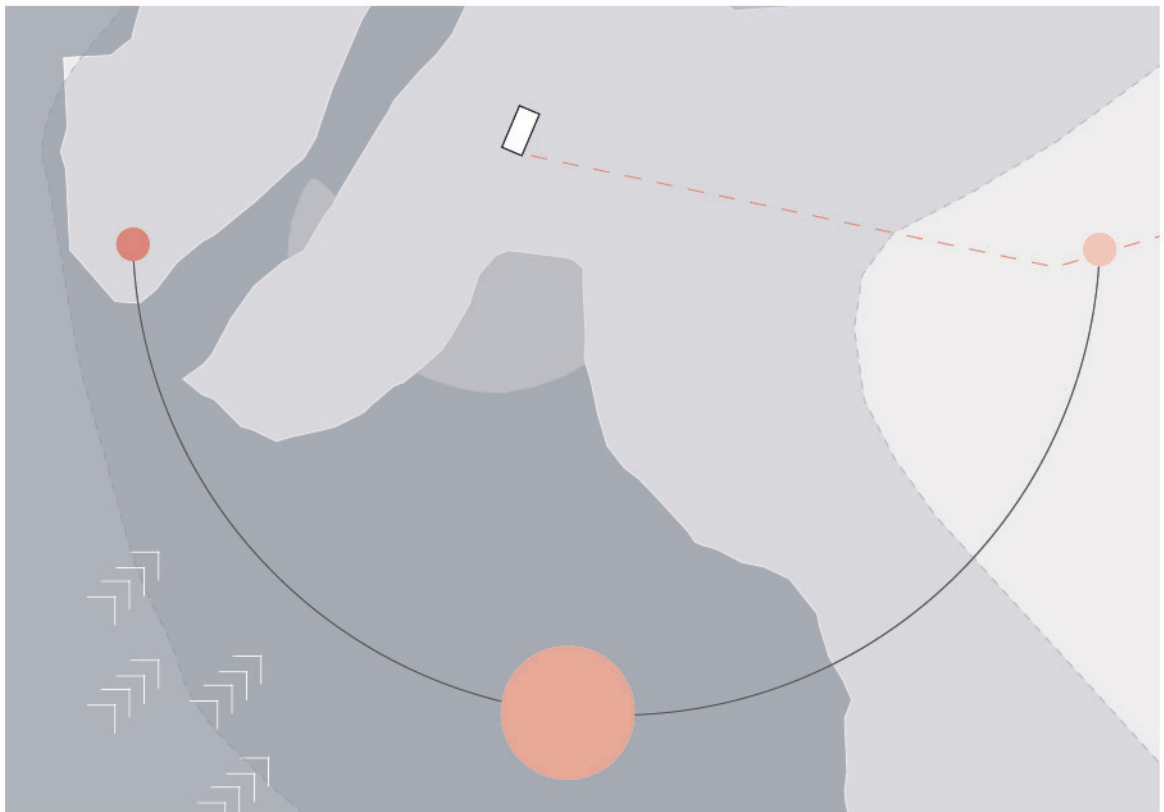
- green space strip - importance of agriculture
- production/distillery strip - importance of export
- views strip - phenomenology and importance of landscape
- housing strip - importance of hospitality

The Foragelands Pavilion

The pavilion located at the foragelands will be much simpler in program. This space is primarily used as a viewing pavilion for those exploring the space, with bathrooms, viewing window and seats, a fireplace, and some equipment for berry picking and storage. The primary function of this pavilion is to provide a serene space for rest and reflection of surroundings in a climate that is largely subject to wet and damp conditions.



Site strategy of Distillery site



Site strategy of Foragelands pavilion

The Building Design

Taking from vernacular design, Newfoundlanders have always relied on being self-sufficient and skilled builders. The harsh conditions of the island require sturdy, reliable, and long-lasting structures using whatever materials were available on-hand. Wood-frame construction developed over years of generational timber frame is inherent to Newfoundland culture. The implication of utilizing this base knowledge is appropriate to any local building design.

The most common typology of building in Newfoundland is the salt box house. A timber frame construction, the salt box house can be seen all over the island. Even Salt box houses that have been abandoned and undergone years of neglect can be identified, despite their twisting and tilted forms. Utilizing the knowledge of construction, layered with the inspiration from previous mining structures to define and inform the structure of the distillery will be important. Another outbuilding that is also important to the tradition of Newfoundland housing is the root cellar. The root cellar, simply put, was a hole that was dug into the ground to keep vegetable cold throughout the long winter months. This will inform the placement and design of the cold room, wherein the storage of ingredients required for the distillery will be kept (See Appendix B).

Design Requirements

Determined by the factors broken down privy to this thesis, the design of the distillery and ancillary outbuildings will be determined by the following factors:

- Wood frame construction
- Built with local materials
- Built to last
- To provide a beacon to the town and also an escape from the at times harsh climate of the outdoors
- Built to amplify the beauty and history of the wear and tear that exists on the existing barn foundation.

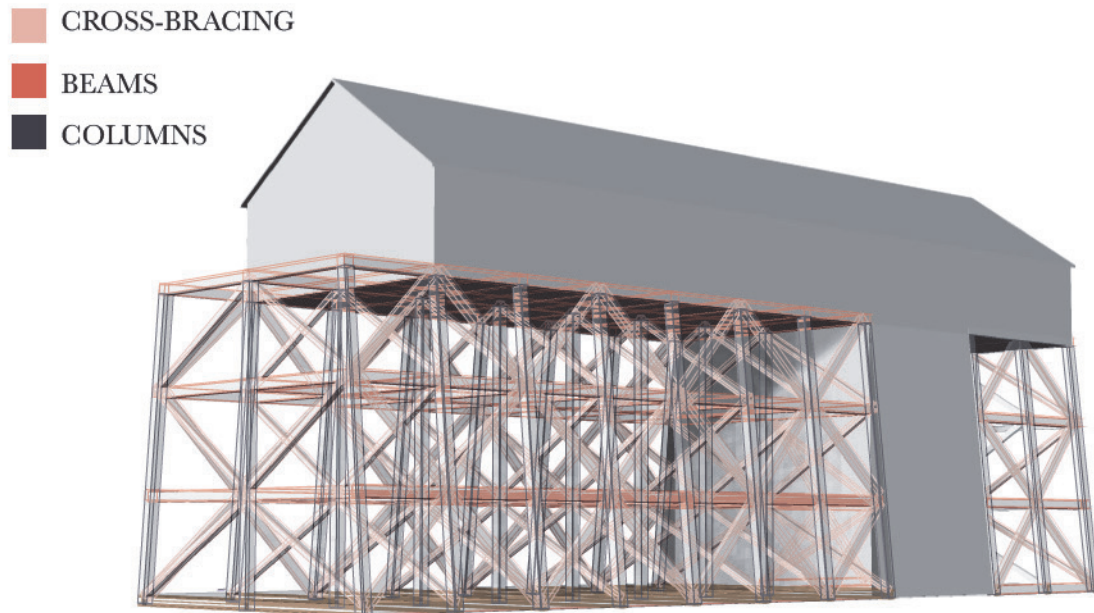
In order to address each of these factors, I've broken down each outbuilding into their own categories and will discuss them and their materiality individually.

The Distillery

This is by far the most important space of the site, as it is driving the intention of the rest of the site. Having to deal with the necessary equipment of the distillation process, while also maintaining the character of the former barn, the distillery equipment is placed at the forefront of the building facing the road. A high enough ceiling to accommodate for housing of the still column and also maintaining a safe buffer zone around the still inform the height of the roof. Informed by the former Iron-Ore tracks that would dump the mined Iron-Ore onto the shipping boats, tilted structural columns reach from ground to ceiling and are braced against the existing concrete. This form is found throughout the entire site, alluding to the importance of the mining industry but also reinterpreting the form as a modern design. A storage room for the organic stock of the distillery is placed below, reinterpreting the root cellar, and making use of the “cold room”. A tasting room is placed in this wing of the distillery, allowing for visitors to be educate and partake in the wares of the distillery while also enjoying the views and atmosphere of the interior. The interior will be finished with warm wood panelling to promote an escape from the wet air outside, with accent colours of light pink referring to the traditional Republic of Newfoundland flag and also the nature of colourful housing inherent in Newfoundland culture. Entry to the distillery will be through the reception area, located at the central junction between the two arms of the concrete foundation.

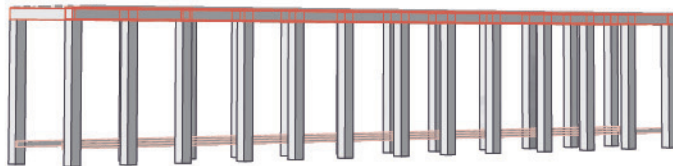
The Roof Structure

Extrapolating from the large wooden structures of the past, the roof structure of the distillery takes into account some of the vernacular structures from the mining industry. The intention for this is to refer to the past industry, using familiar materials and construction methods for cross-bracing and heavy timbers, while also making use of the structural integrity of the concrete foundation. In order to house the large still that will be used in the North Wing of the distillery, a roof with at least 3 metres of clearance above will be required. This also alludes to the physical quality of the mines that were once so important to the everyday life of the Bell Islander. Pictured and modeled here, some examples of the mine interior structure still exists in some parts of Bell Island, wherein a simplified structure formalizes the former mine track. This is an evocative architectural feature of the island that is abstracted and formalized in the roof structure of the distillery.



Former pier structure, taken from historical photos, to exemplify the use of wooden structures and cross-bracing on the island; this structure no longer exists

The structural integrity of the roof comes from the combination of the beams bracing against the concrete foundation. The same principle is applied to both the North and South Wings of the building, with two beams attaching at the concrete foundation and meeting at the skylight at the top. This is partially to draw forces to the ground through the concrete foundation, while also being able to shed precipitation easily off of the roof structure. A skylight lining the entire length of the roof, along with a large window facing back to the town of Wabana and glazing placed within all openings of the existing concrete foundation provide light into the space. Further utilizing the structural vernacular of historical figures from the mining past, large timber cross-bracing is found throughout the entire roof structure. The interior of the roof structure is lined with a plywood finish to provide warmth to the space, while also using local materials and workmanship. The exterior cladding will be of seamless steel, so ensure minimal maintenance and long term material sustainability to the building.



An existing portion of the former Mine Structure still exists in Grebe's Nest, Bell Island, modelled above and pictured right

The Restaurant

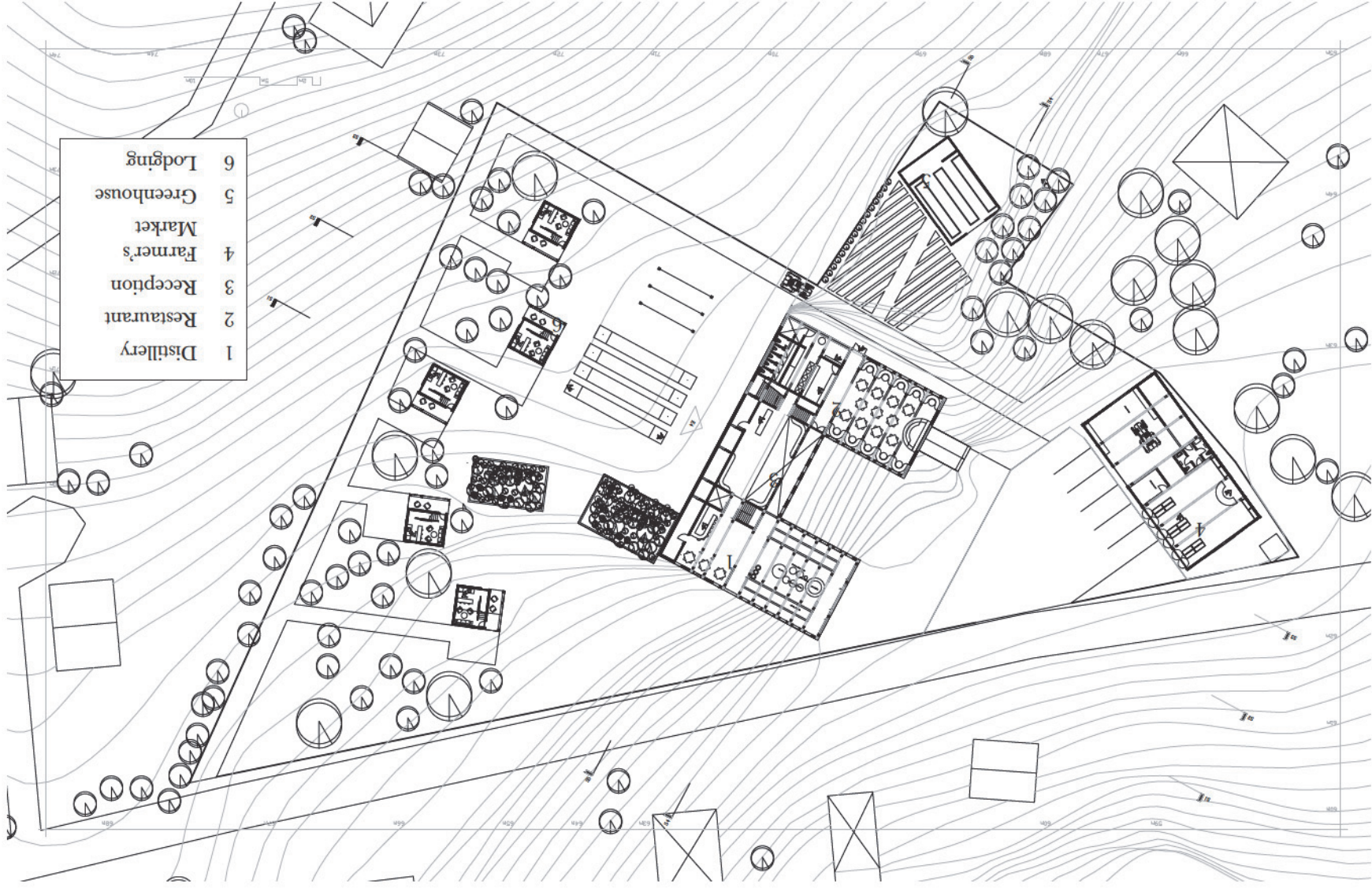
The high-end restaurant that allows patrons to come enjoy local food and drink will also be located in the concrete form, mirroring and slightly altering the roofline of the Distillery as there is no column still in this part of the program. This will likely be the most frequented portion of the design, as it can be used both by public and private patrons. Materiality will be kept consistent with the rest of the design, with a speakeasy below that can also be accessed independently to the public. The kitchen will be placed at the back of the concrete form to allow for outward views to the rest of the site and Bell Island.

The Greenhouse and Garden Patches

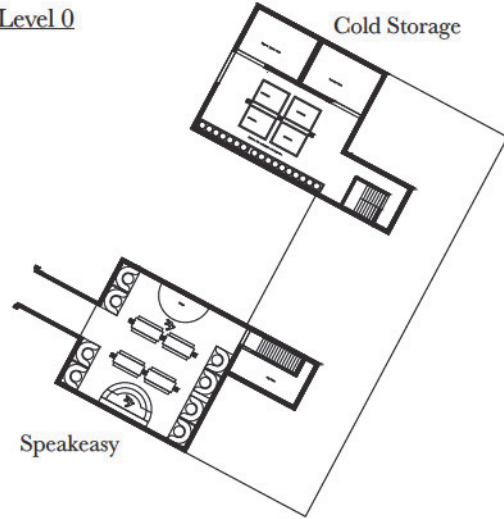
Many supplementary ingredients required for gin flavouring are not acclimatized to Newfoundland conditions. A greenhouse will accommodate for any necessary ingredients. Consistent with the design and materiality of the distillery, the greenhouse will only differ in the placement of a large glazed window along the south-west facing wall of the structure. This is to take advantage of all possible sunlight. Furthermore, patches for rosehips and rhubarb will be moved into old foundations found around the site, particularly the one directly attached to the concrete foundation of the distillery and the other found just beyond. Crabapple trees will be placed along the green strip and throughout the site to provide both privacy and ingredients. Other such ingredients that will be grown in the garden adjacent to the restaurant and used for the restaurant include potatoes, parsnips, turnips, kohlrabi, cabbage and carrots, all vegetables that can be grown and stored easily on Bell Island.

Farmer's Market and Store

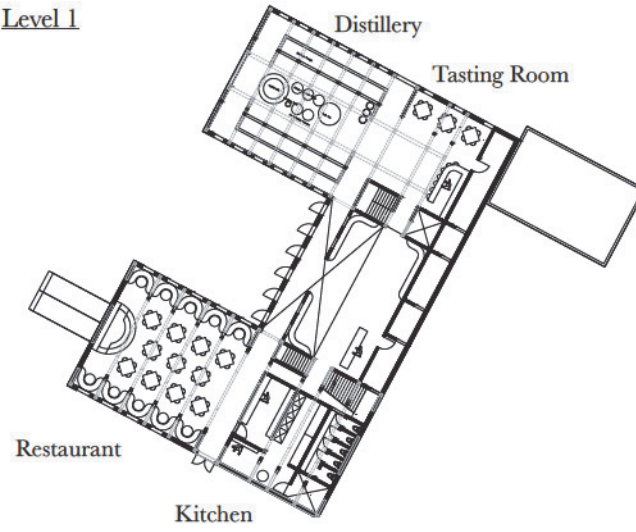
The farmer's market is located at the front end of the site, within the green strip adjacent to the parking lot, allowing community members to easily access the market. Adhering to the same materiality of the distillery again, the farmer's market will be a combination of newly poured concrete to address the industrial nature of the store (tractor and other mechanical needs) while also maintaining a warm and open space on the interior. This market will be a space for community members to be able to sell their produce and other artisanal fares, buy and support each other and host community meetings and events. This is meant to be a flexible space, with large operating windows adjacent to the parking lot.



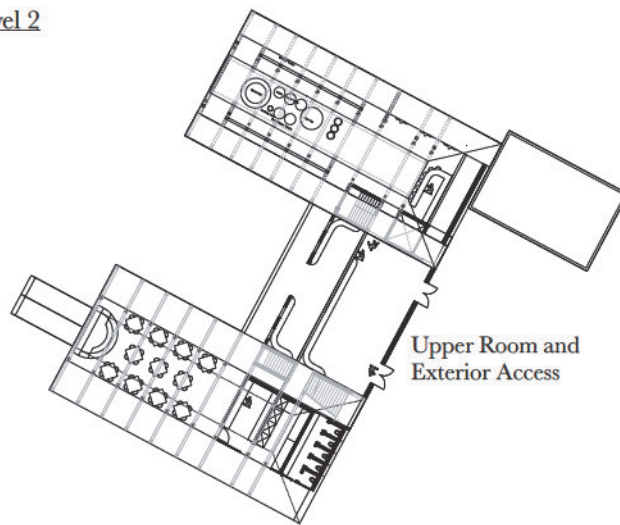
Level 0



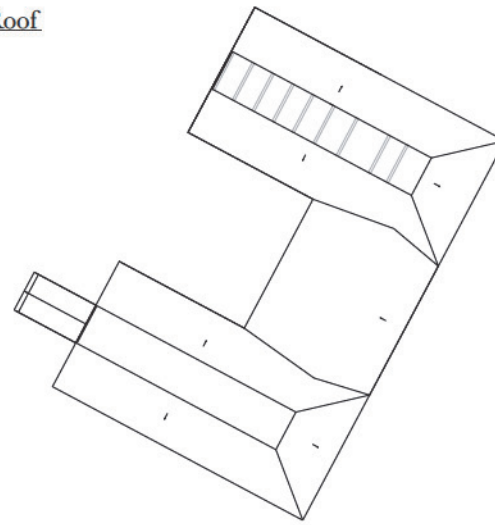
Level 1



Level 2



Roof



DISTILLERY BUILDING STRUCTURE

ROOF STRUCTURE

Seamless Steel Roof
Enclosing large space with
longevity and maintenance in mind

Interior Finish
Plywood

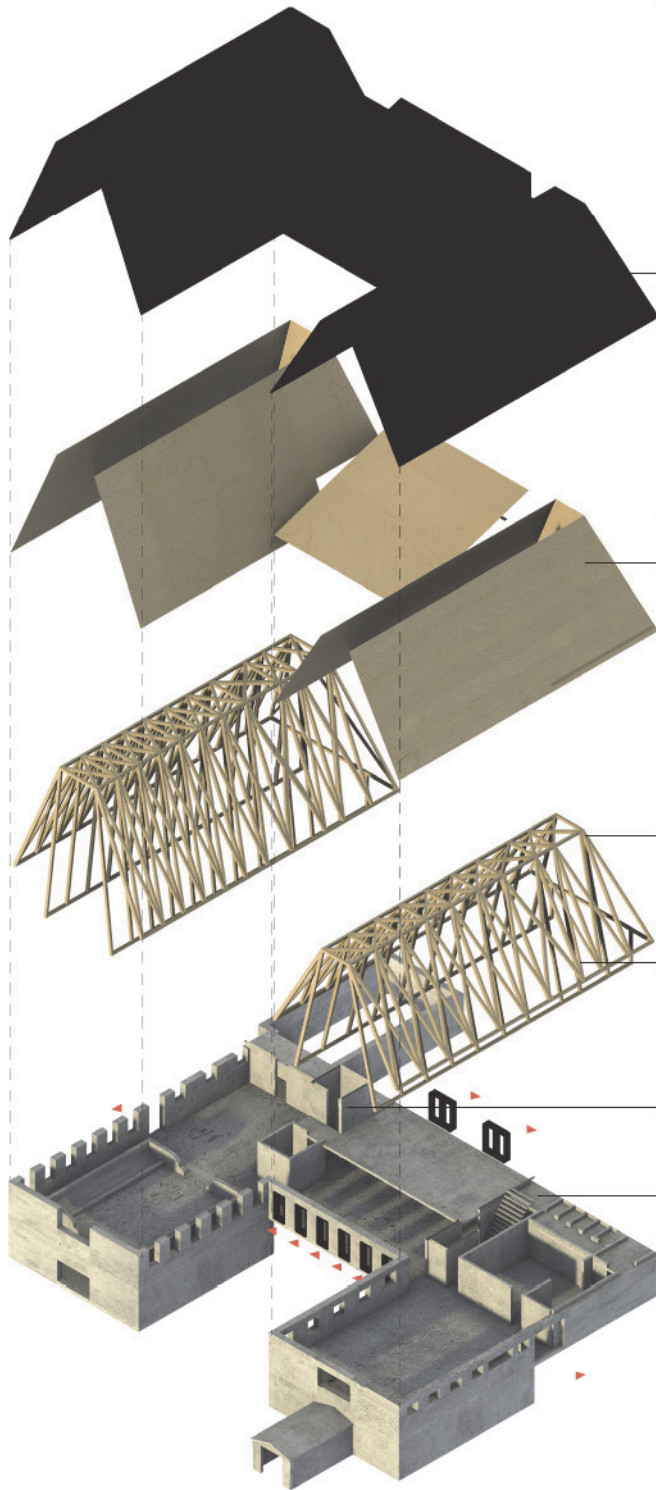
Exposed Structural
Beams
Large Timber Beams

Cross-Bracing
Taken from exposed structural
vernacular of mining structures

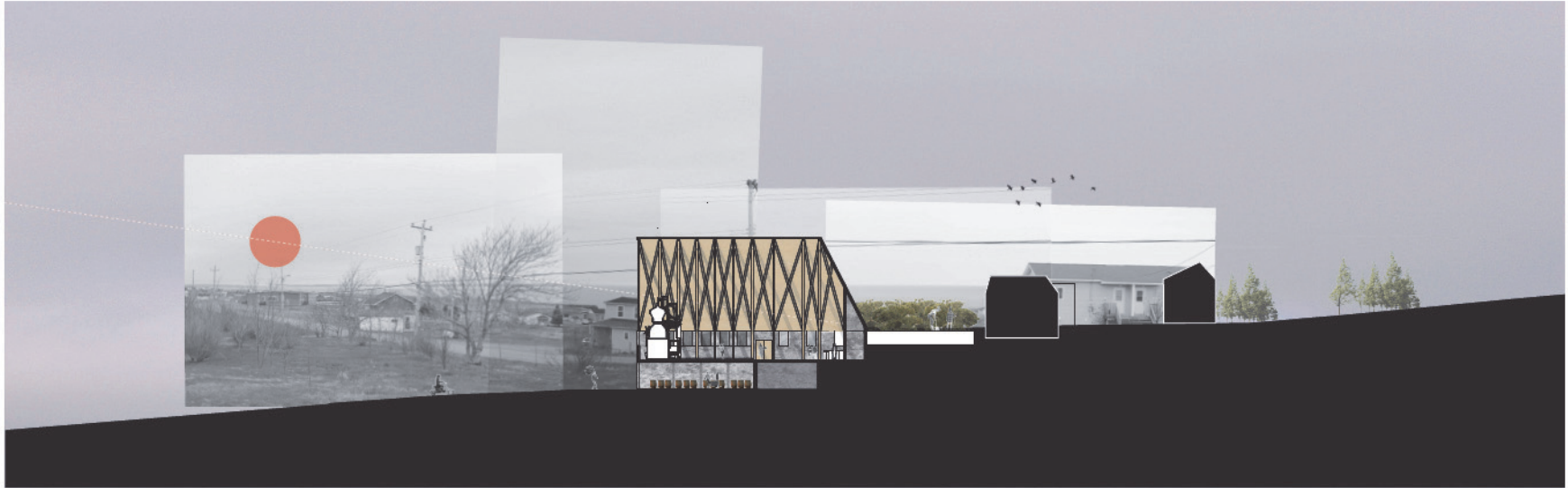
EXISTING STRUCTURE

Additional Cores
added to increase circulation
throughout entire building

Entry points to
building



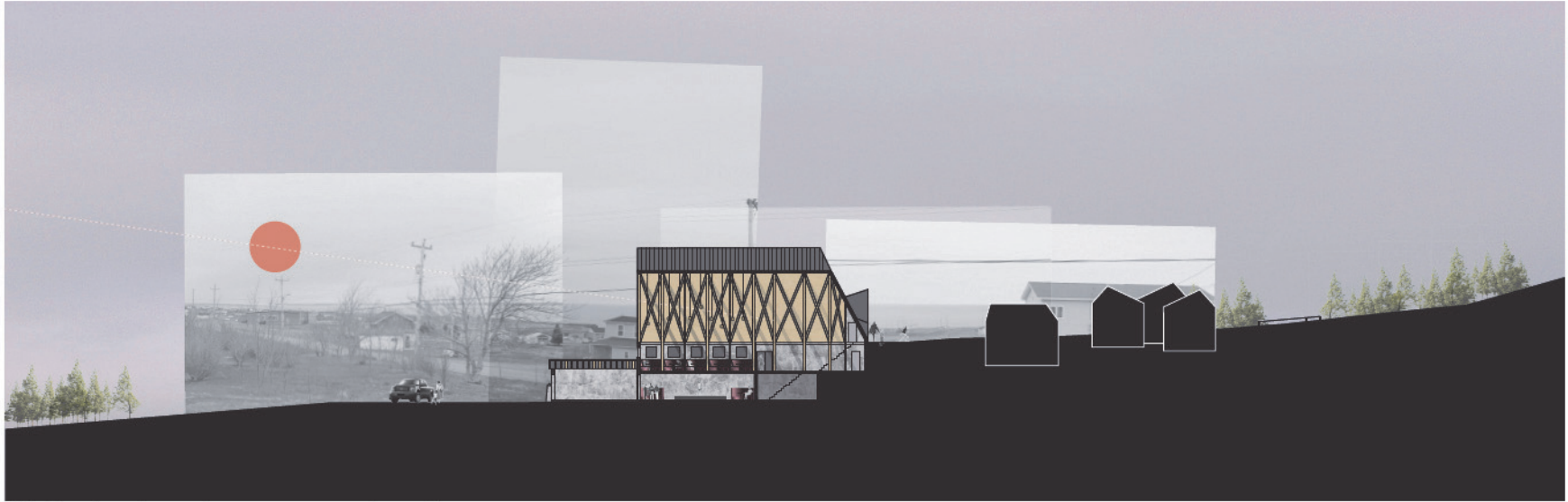
Roof structure exploded axo



S1: Section through distillery, tasting room, and cold storage below



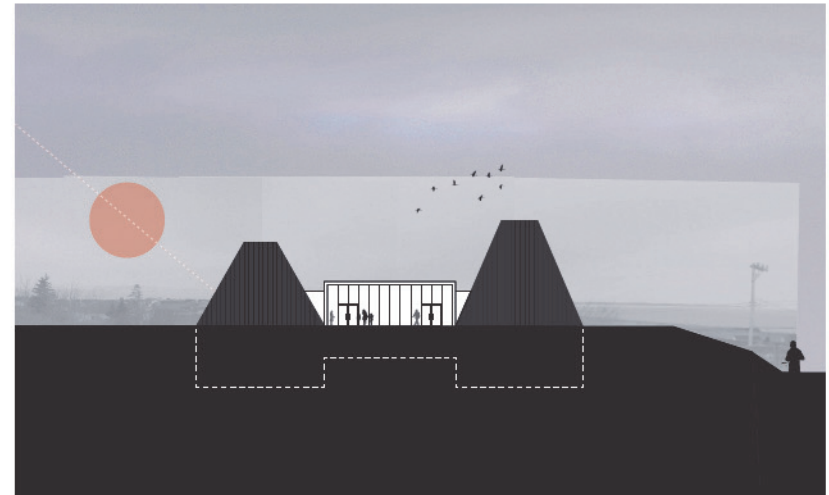
S2: Section through reception



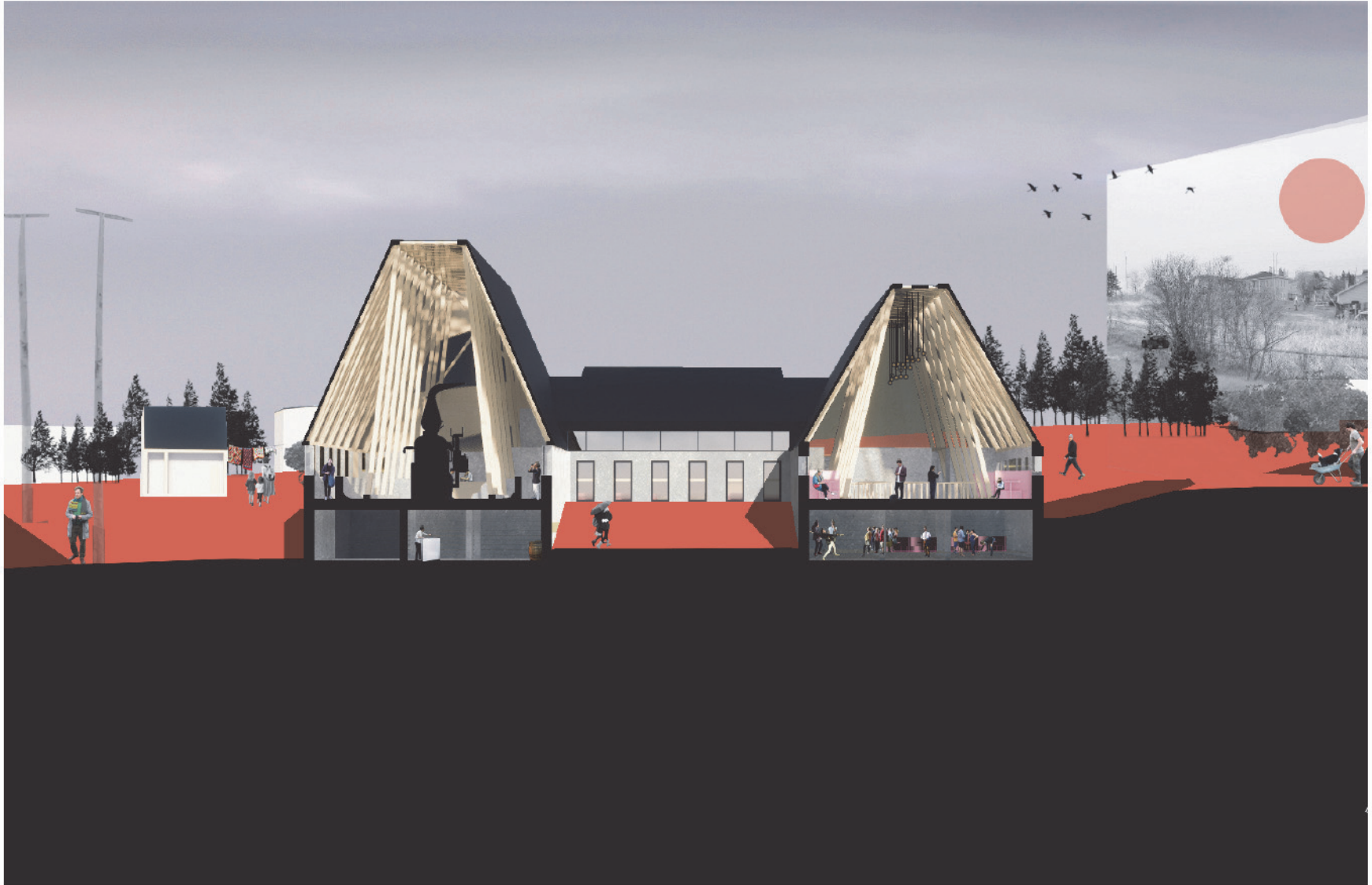
S3: Section through restaurant and speakeasy



S5: Section through distillery, reception, and restaurant



E4: Elevation of back of distillery



S4: Section of distillery and restaurant

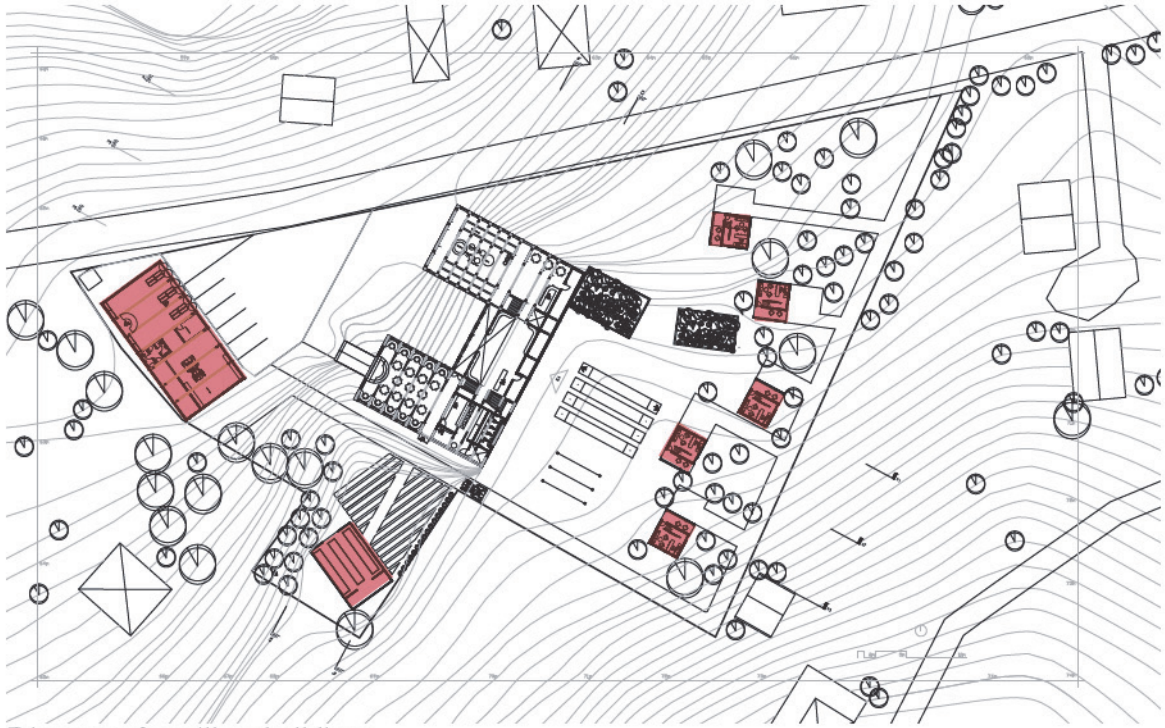
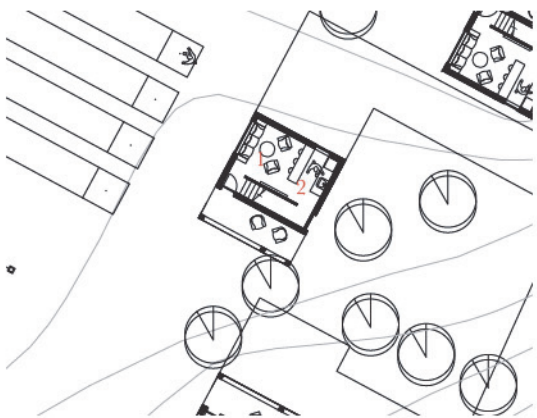
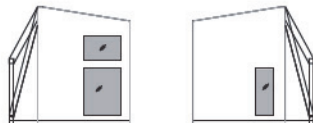
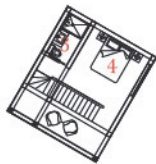


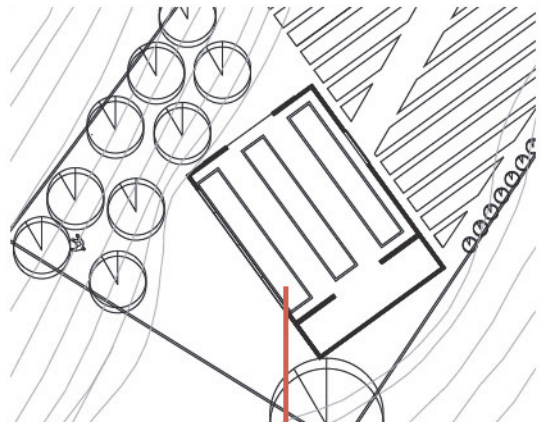
Diagram of ancillary buildings



- 1 kitchenette
- 2 living room
- 3 bathroom
- 4 bedroom



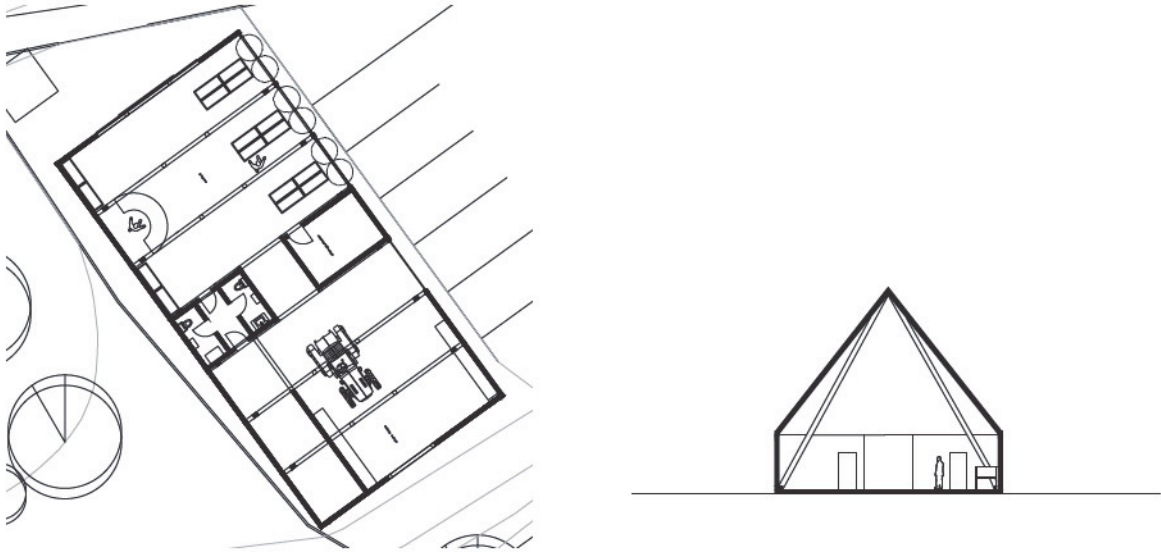
Floor plans and elevation of lodging



raised beds inside
greenhouse



Floor plan and section of greenhouse



Plan and Section of Farmer's Market

The Foragelands

A small pavilion will be placed in the Foragelands for hikers and foragers. This will also be consistent with the materiality of the distillery, with a portion for storage of buckets and bins and other supplementary equipment for harvesting, as well as a viewing area for rest, relaxation, and appreciation of the landscape outside.



Floor plan of pavilion in the Foragelands

Materiality

The materiality of the project has been thoughtfully chosen to reflect the structural, cultural, and phenomenological attributes of the design. They are as followed:

Concrete

The existing Barn foundation, known as Neary's Barn, requires some reparation to some areas that have cracked however it is generally in good condition. Some areas will require concrete patching over the revealed concrete aggregate.



Seamless Steel

The climate of Bell Island requires a durable roof. Rain, drizzle, and fog, mixed with proximity to the ocean air make for a damp climate that is hard on materials. Given the emphasis on long-lasting and sustainable design, a long-lasting stainless steel roof will be necessary.



Wood

The forestry industry is one of Newfoundland's most lucrative industries, with a large part of it coming from the lumber mill industry. Constructing large structural beams and finishing the interior with Newfoundland pine will emphasize the cultural knowledge and economy.



Pink Interior Finishes

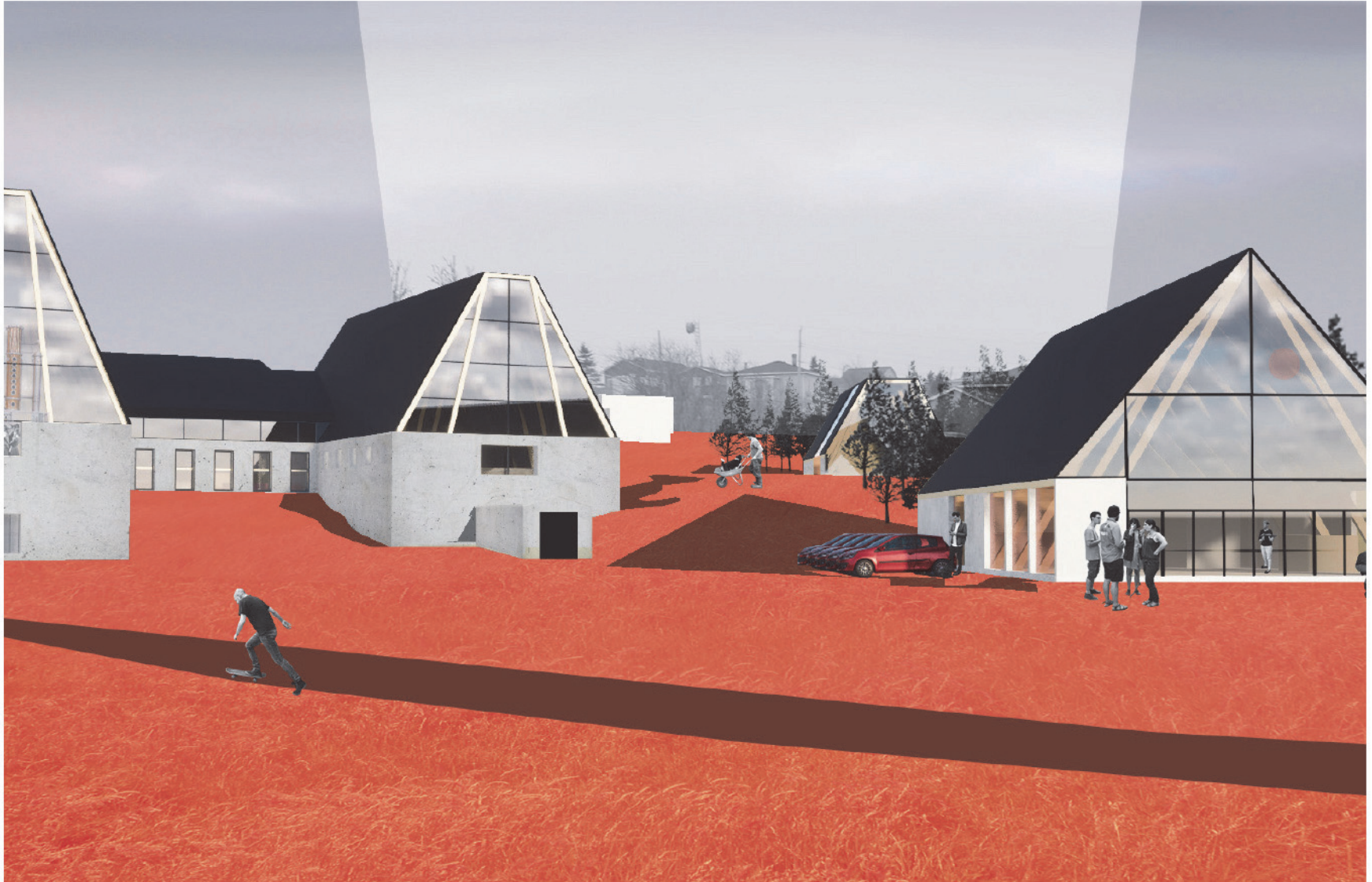
As a nod to the Republic of Newfoundland flag, all accent finishes inside the distillery will be rose pink, connecting the interior aesthetic to the cultural heritage of the rest of the province.



CHAPTER 6: CONCLUSION

The implementation of appropriate architectural intervention can allow communities to create meaningful connections and re-engage with cultural knowledge. For people of Bell Island to take agency for their community and provide for and sustain themselves would be hugely helpful to the current social and economic issues that have arisen since the closing of the Iron-Ore Mines. By breaking down the current resources apparent from the landscape, whether edible, usable, or phenomenological, allowing the residents to take advantage of their own land is hugely beneficial to their own well-being as a community.

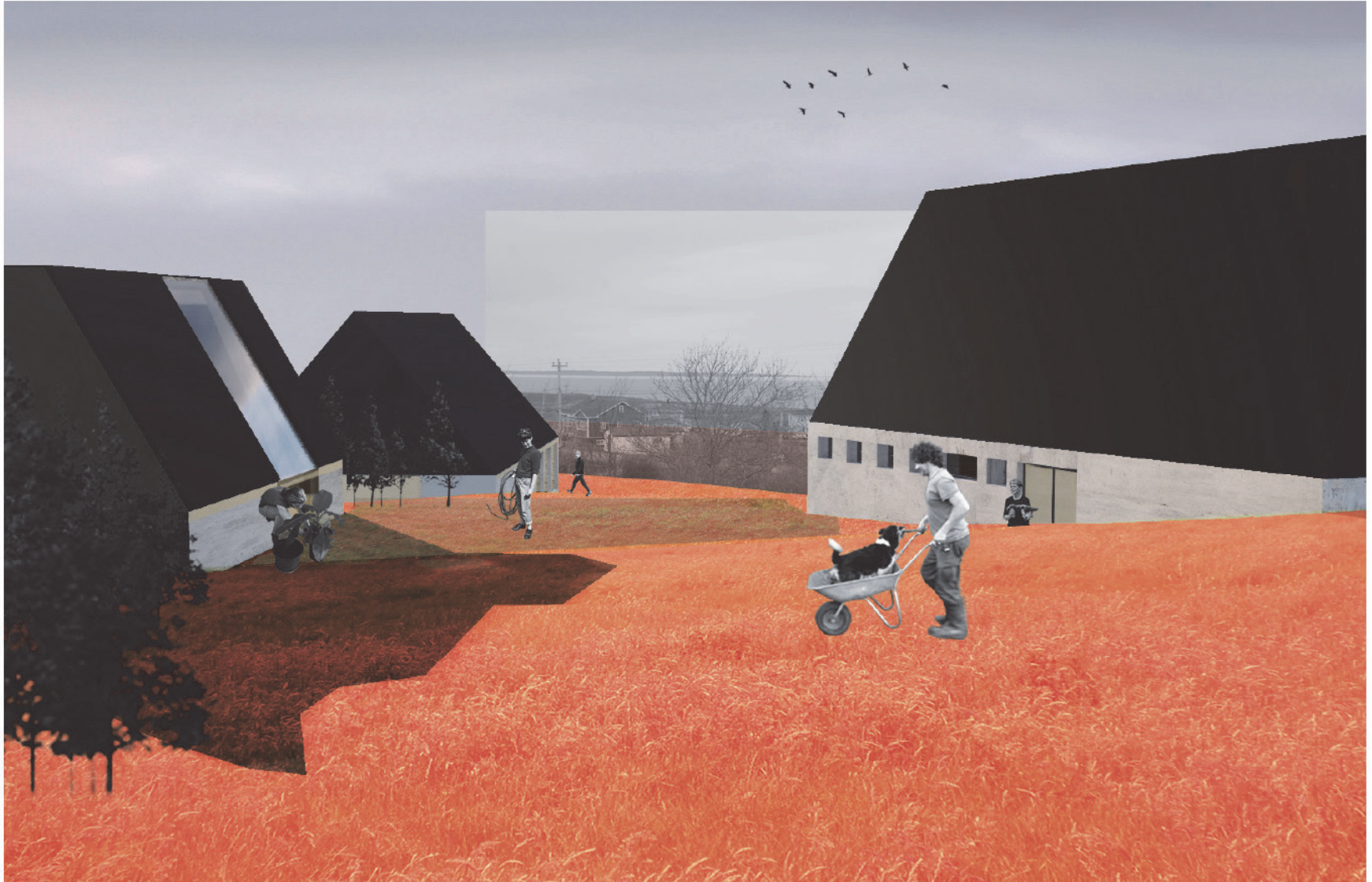
The emphasis here is not to deter from current infrastructure. The Ferry and those that wish to commute may remain a viable option for many that reside there. However, implementation of an industry that is unique to place by way of landscape, climate, history, and local knowledge can emphasize what is truly unique to the people living there, inherently catapulting a better quality of life and pivoting away from dependency of other areas like St. John's. By being mindful of the carpentry and agricultural knowledge of the place, and implementing a new industry that can work mutually with many other existing industries on the island, a sustainable system that meets all needs of the island will only enhance the amazing place that is Bell Island.



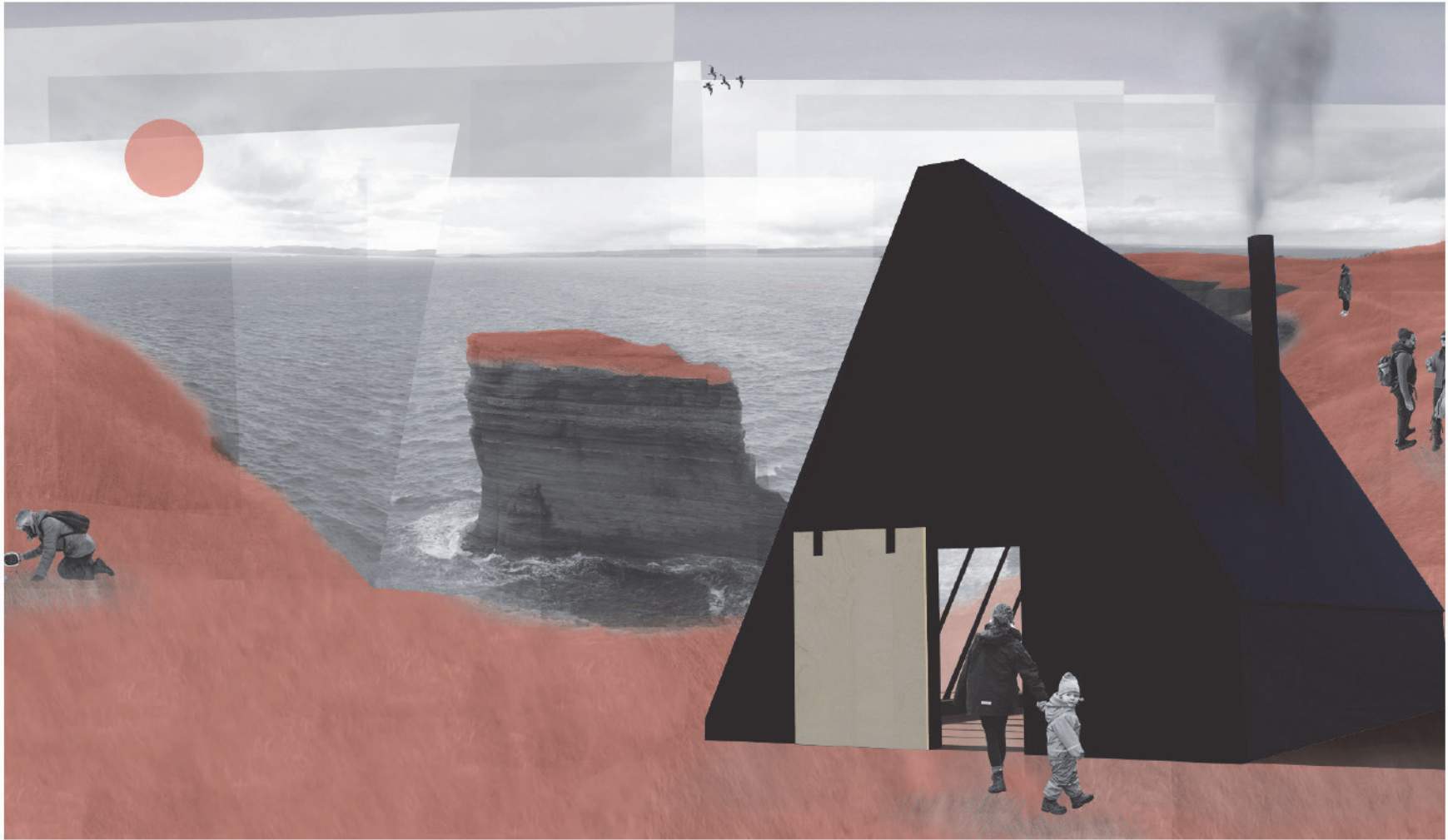
Vignette of market



Vignette of lodgings on site



Vignette of greenhouse and garden



Foragelands pavilion view



Final model

APPENDIX A: HOW TO MAKE VODKA: POTATO MASH RECIPE

How to make Vodka: Potato Mash Recipe⁵⁴

Base Ingredients & Materials:

- 7 Gallons of Water
- 25 Pounds of Potatoes
- 5 Pounds of Crushed Malted Barley
- Mash Pot
- Heat Source
- Thermometer
- Long Spoon

Mash Procedure

Scrub potatoes with produce brush to remove residual dirt.

Cut potatoes up into cubes to increase surface area.

Boil potatoes for 20 minutes in 7 gallons of water.

Mash potatoes by hand or by using immersion blender.

Transfer mash to mash pot. Add water to reach 7 gallons of total volume.

Raise heat of mash to 140 °F. Stir mixture continuously until desired temperature is reached.

Add 5 pounds of crushed malted barley, continue to stir while adding barley.

Hold mash at 140 °F for 20 minutes. Stir for 30 seconds every 4 minutes during this time.

Raise temperature to 152 °F and hold for 1 hour. Stir for 30 seconds every 10 minutes.

Take gravity reading. If below 1.065, add sugar to reach 1.065.

Cool mash to 75 °F. If time allows, cool overnight to give barley enzymes more time to break down potato starches.

54 “How to Make Vodka: Potato Mash Recipe,” *Mile High Distilling*, March 27, 2018, accessed April 9, 2019, <https://milehidistilling.com/how-to-make-vodka/#potatomashrecipe>

Fermenting Your Potato Vodka Mash

Materials

- Fermentation Bucket
- Yeast
- Siphon
- Cheese Cloth
- Citric Acid
- Iodine (Optional)
- pH Meter (Advanced)

Fermentation

Create a yeast starter by following these steps:

Sanitize a standard mason jar.

Pour 4 oz. of 110 °F water into the sanitized jar.

Add 2 tsp. of sugar to the water, stir thoroughly.

Mix in yeast (Amount depends on type of yeast used, follow directions provided).

Stir thoroughly.

Let the starter sit for 20 minutes. Mixture's volume should double in this time.

Transfer the mash liquid only to the fermentation bucket. Pour the mash through strainer to achieve this. Aerate the mixture by “splashing” it into bucket (without wasting).

Add the yeast starter to your fermentation bucket.

Add airlock; ferment for 2 weeks at room temperature. To check fermentation, use iodine to perform a quick check to determine if fermentation has completed. First, take a sample of liquid off the top of your wash (avoid any residual solids from coming into the sample). Put the sample onto a white plate or lid and drip in a few drops of iodine. If the sample turns blue, this means it has reacted to starches present. If starches are present then fermentation is not complete. Restore and check in a few days.

Straining

Once fermentation has completed, it will be required to completely remove any solid

material. The solid material left over can lead to headaches if left in the wash. Strain wash with cheesecloth before distillation.

Distilling

Materials:

- Still
- Fermented and Strained Mash Water
- Cleaning Products
- Column Packing

Prepping Your Still

Add clean copper packing to your column. (If you have a condenser, now is the time to hookup the water input and output.) Add wash to still. It is recommended to use an auto-siphon for this process, so as to reduce the amount of sediment as much as possible.

Running Your Still

Turn on the heat source and start raising the temperature of your wash.

If using a copper still: apply flour paste to the joint between the vapor cone and column once you reach 110 °F. If using a condenser, turn on the water when the boiler reaches 130 °F.

At about 170 °F the still will start producing. Dial in heat source setting to achieve a consistent 1-3 drips per second.

Collecting Your Potato Vodka Distillate

Foreshots

The first approximately 5% of run will be the foreshots. Foreshots contain methanol which is extremely volatile and toxic.

Do not consume this part of your run.

Isolate your foreshots thoroughly and throw them out. Consuming methanol can cause an array of issues including blindness.

Heads

The next 30% percent of vodka run is known as the heads. Similar to the foreshots, the heads of the run are filled with volatile alcohols. One of the staples of the heads is a particularly volatile alcohol known as acetone.

Acetone has a distinct, solvent-like smell, making it easily identifiable.

Like your foreshots, you'll want to isolate these and throw them out.

Hearts

The next 30% of the run will be the hearts (ie. the consumable vodka).

The solvent smell of acetone will have tapered off and a sweet-smelling ethanol come forward. By accurately identifying where the acetone stops and the ethanol begins, a distiller maximizes their number of high quality jars of product. The main giveaways are the solvent smell of acetone and the sweet/smooth taste of ethanol.

Tails

The final 35% of the vodka run will be the tails. The tails contain protein and carbohydrates from the wash that is not wanted in final product. Set the tails aside and run them as their own wash in the future to pull out a bit more product. The best way to identify tails is the steep drop in sweetness as ethanol concentrations decrease. You'll also begin to see an oily film on top of the product.

Conclusion

Clean and disassemble your setup and store vodka in a cool, dry place. Wash all equipment thoroughly to ensure high-quality product in the future.⁵⁵

55 Ibid.

APPENDIX B: ROOT CELLAR CONSTRUCTION

First thing, you got to get a good palce to build it. That's a hard thing to do. That's the worst job you got, trying to find a place to build that cellar. On a hill is the best: you don't have no water. you get down a hollow, you're sure to have water. We built this cellar so it would hold about twenty barrels of potatoes and two or three barrels of turnips, maybe seven feet by nine, someting liek that, and about five feet high. you log it up inside - the best way to have the logs is vertical because whatever moisture is in that wood drains away from it. if it's horizontal, it lodges there and rots quicker. You just lay them on the ground, and you have stringers, back and forth, maybe on the inside or you cna have them on the outside - you put your wall plate on top of that, then you put your strongback, and board her over on top. Now they use logs for the roof, but at that time they used to used puncheons, you knows puncheons, the staves? that right length for to make both sides - thats plenty strong - inch oak - and there's not a hell of a lot of weight on it - the strongback has all the wight. you wants about two feet of sod on top - after it's there for a year, you don't need two feet, but for a new cellar, you wants two feet. I always had the entrance through the top. Some people has it in the ends. ut then, you gets a big patch of snow, every time you go to the cellar you have to carry a shovel - but mostly always there's no snow on top of the hatch - I'd have two hatches, one right down low, right where the roof begins, then you have the other one on top - and then I'd fill a couple of oat sacks full of hay, and I'd put them between the two hatches.⁵⁶

56 Robert Mellin, "The Material Culture of Tilting," 70.

BIBLIOGRAPHY

- “Bell Island #2 Mine And Community Museum 13 Compressor Hill, Bell Island, NL.” 2018. <https://www.bellislandminetour.com>.
- Bell, Jonathan, and Ellie Stathaki. *Todd Saunders: Architecture in Northern Landscapes*. Basel: Göteborgstryckeriet, 2016.
- Besse, Jack, and Danielle Dechaine. “Distillery Design: Producing Vodka and other Spirits.” Dissertation, Worcester Polytechnic Institute, 2014.
- Bill, Roger. “Muskrat Falls brings to mind N.L. government boondoggles of the past.” *CBC News*, July 28, 2018.
- Booth, Lisbeth, “When to Pick Juniper Berries?” Accessed June 1, 2019. <https://www.hunker.com/13428363/when-to-pick-juniper-berries>.
- Choay, Françoise. *The Invention of the History Monument*. Cambridge: Cambridge University Press, 2011.
- “Damen launches second of two ferries for the Government of Newfoundland and Labrador.” 2018. https://www.damen.com/en/news/2015/07/damen_launches_second_of_two_ferries_for_the_government_of_newfoundland_and_labrador.
- Economic Council of Canada. *Newfoundland: From Dependency to Self-Reliance*. Hull: Canadian Government Publishing Centre, 1982.
- Esch, Arnold. “On the Reuse of Antiquity: The Perspectives of the Archaeologist and the Historian.” In *Reuse Value: Spolia and Appropriation in Art and Architecture, from Constantine to Sherrie Levine*, edited by Richard Brilliant and Dale Kinney, 13-27. Farnham, UK: Ashgate, 2011.
- Gien, Lan T. “Land and Sea Connection: The East Coast Fishery Closure, Unemployment And Health.” *Canadian Journal Of Public Health* 91, no. 2 (2000): 121-124.
- Government of Newfoundland and Labrador. “Municipalities and Local Service Districts.” Accessed October 25, 2018. <https://opendata.gov.nl.ca/>.
- Government of Newfoundland and Labrador: Dept. of Natural Resources Mines Branch. Call For Proposals On Exempt Mineral Land: Bell Island. St. John’s: Government of Newfoundland and Labrador, 2004.
- Hamilton, Lawrence C., and Melissa J. Butler. “Outport Adaptations: Social Indicators Through Newfoundland’s Cod Crisis.” *Human Ecology Review* 8, no. 2 (2001): 1-11.

- Heritage Newfoundland and Labrador. "19th Century Cod Fisheries." Accessed May 28, 2019. <https://www.heritage.nf.ca/articles/economy/19th-century-cod.php>.
- "How to Make Vodka: Potato Mash Recipe." *Mile High Distilling*. March 27, 2018. Accessed April 9, 2019. <https://milehidistilling.com/how-to-make-vodka/#potatomashrecipe>
- Ingersoll, Richard, and Spiro Kostof. *World Architecture: A Cross-Cultural History*. Oxford: Oxford University Press, 2012.
- Larsen, Janike Kampevold, and Peter Hemmersam. *Future North*. New York: Routledge, 2018.
- Maritime History Archive. Smallwood Statement, Feb. 1957. Accessed November 10, 2018. http://www.mun.ca/mha/resettlement/documents_full_view.php?img=001_1957feb_smallwood_statement&galleryID=Doc1.
- McGunnigle, Nora. "How to Choose the Right Distillery Equipment." *The Equipped Brewer*. Accessed May 28, 2019. <https://www.equippedbrewer.com/equipment-and-supplies/how-to-choose-the-right-distillery-equipment>.
- Mellin, Robert. *Newfoundland Modern: Architecture in the Smallwood Years, 1949-1972*. Montreal: McGill Queen's University Press, 2011.
- Mostafavi, Mohsen, and David Leatherbarrow. *On Weathering: The Life of Buildings In Time*. London, England: The MIT Press, 1993.
- Neary, Peter. "The Book Of Newfoundland: The Epic Tragedy Of Bell Island." Newfoundland's Grand Banks, 2002. <http://ngb.chebucto.org/Articles/epic-hm.shtml>.
- Pallasmaa, Juhani. *The Eyes of the Skin Architecture and the Senses*. 3rd ed. Hoboken: John Wiley & Sons, 2012.
- Pavia, Audrey. "7 Classic American Barn Styles." *Hobby Farms*. February 18, 2009. <https://www.hobbyfarms.com/7-classic-american-barn-styles-4/>.
- Perez-Gomez, Alberto. "Spaces In-between." In *Present and Futures, Architecture and Cities*, ed. Ignasi de Sola Morales and Xavier Costa, 273-279. Barcelona: Actar, 1996.
- Poole, Cyril F., and Robert Cuff. "Salt." *Encyclopedia Of Newfoundland And Labrador*. St. John's: Harry Cuff Publications Ltd., 1994.
- Portland Cement Association. *Plans or Concrete Farm Buildings*. New York, Portland Cement Association, 1924.

- Ruskin, John. *The Seven Lamps of Architecture*. New York: Dover Publications, 1989.
- “Shorefast: Integrity Of Place.” *Shorefast Organization*. 2018. <https://shorefast.org/>.
- Smallwood, Joseph Roberts, and Robert D. W. Pitt, ed. *Encyclopedia Of Newfoundland And Labrador*. St. John’s: Newfoundland Book Publishers Ltd., 1981.
- Statistics Canada, “2016 Census Of Population – Data Products.” 2018. <https://www12.statcan.gc.ca/census-recensement/2016/dp-pd/prof/details/Page.cfm?Lang=E&Geo1=CSD&Code1=1001494&Geo2=PR&Code2=10&Data=Count&SearchText=bell%20island&SearchType=Begins&SearchPR=01&B1=All>.
- Tourism Bell Island Inc. “History.” 2018. <http://www.tourismbellisland.com/page/Tours-Lookout-Bellfest-on-the-Beach-NL/Harrys-Lookout-Bellfest-on-the-Beach-NL.html>.
- U.S. Geological Survey. “Global Data Explorer.” LP DAAC. Accessed October 18, 2018. <https://gdex.cr.usgs.gov/gdex/>.