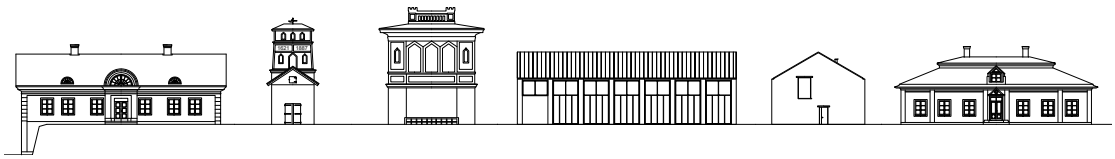
Silver Streak

Exploring the Translation, Mine to Building



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CHALMERS
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Abstract

Sala Silver Mine dates back to the 15th century and was once the main provider of silver for the Swedish crown. Although its glory days are long over, it still serves as a well visited heritage site and backdrop for events such as weddings and conferences. Today many requests must be turned down due to a lack of facilities. The organisation behind Sala Silver Mine has therefore expressed a wish for a new combined restaurant and conference building to be designed.

The silver mine in Sala is one of three big mines in the county of Västmanland. Silver is the most famous mineral extracted but big quantities of zinc and lead was also found. When the last part of the mine was closed in 1962, it ended an era of nearly 500 years of continuous mining. Around 50 historically listed buildings are still standing throughout the area today. The ground, upon which they stand on, is unstable and beneath lays many kilometres of tunnels down to the depth of 319 meters.

The purpose of this project is to design a building which can host up to 200 people for conference and dining as well as a new office for a minimum of 12 people. The goal becomes to make the program into a building which not only works logistically but also explores and reflects upon the historical, material and emotional perspectives both above and beneath the ground.

Working with a mixture of design by research and research by design the progress of the design comes from references, both historical and current ones, as well as trying out the endless possibilities of layouts. During the project a dialogue is continuously kept with the CEO of Sala Silver Mine to make sure the outcome will work logistically. With the help of photography, the façades of the current buildings as well as the situation underground has been documented to be used as references throughout the process.

The ambition is to present a high quality, detailed building which can work as inspiration when it comes to future developments of the heritage site.

RESEARCH QUESTION:

How can the historical, material and emotional perspectives of Sala Silver Mine be combined and translated into a building?

List of Content

Student Background

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BACHELOR

Architecture
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Introduction

PURPOSE

The purpose of the thesis exploration is to look at how new buildings could be added to the selected area of Sala Silver Mine. Where would be a good place to add these and how do you add something modern to such a delicate environment. How much should be imitated? And where do you draw the line of alienating the building? Also, how can factors such as history, choice of material and emotional perspectives on the project affect the design?

The exploration also includes finding a suitable floorplan and logistic flow for the assigned program.

QUESTION

How can the historical, material and emotional perspectives of Sala Silver Mine be combined and translated into a building?

BACKGROUND

Adding to already existing environments can many times be a challenging and questioned decision. Imitating the already built often creates a false façade while adding something contemporary to a historical location often is frowned upon and opposed by the county administration unite as well as the public.
Sala Silver Mine is a beloved and important part of the identity of the Sala. The citizens are very protective of the area and very negative to change. This thesis is a try to find the middle road of adding something new to the site but at the same time find a way to continue to tell the story of the traditional setting.

METHOD

During the process a dialogue has been carried out with the management of the site. History studies and multiple site visits has been made, both above and below ground, to catch the essence of the place, and collect information which has otherwise been hard to access. Façade studies have been done with the help of photography which have later been turned into drawings.

The additions to the site have been made through research by design in combination with looking at, and visiting, precedents and references. As well as adapting to the limitations of the site.

Working with a landscape model from the very start helped with bettering the understanding of the site and its conditions.

DELIMITATIONS

The majority of the silver mine as a whole is listed because of historical reasons and are in many cases not allowed to be touched or changes without the permission of the county administration. Their rules as have not been taken into account during the process, since they would likely not allow for any changes.

The ground of the silver mine is fragile but exactly how fragile it is and to which capacity it can hold a building has not been taken into consideration since there is no data on this nor were there enough time or resources for an engineer to research it.

READING INSTRUCTIONS

In the research chapter all necessary information to understand the site can be found. Precedents and a list further references can be found thereafter. In the process-chapter information about decisions and project development can be found. After that follows the resulting proposal and later the conclusion with thoughts and ideas about the process and the result.

Part I

RESEARCH

Sala Silver Mine

Growing up in Sala, the silver mine has become a part of my childhood and representation of home. Since an early age the thought of room and space has fascinated me. How you move, feel and experience different environments. Sala Silver Mine and its surroundings pushed that fascination even further and 15 years on it now feels like the optimal site for my master's thesis.

The mine was closed just over 50 years ago and today serves as a heritage site. They offer guided tours down to 155 meters and events such as weddings and concerts underground. Sala Silver Mine is also the home of the world's deepest hotel room, down at 155 meters. Each year the mine has about 36 000 visitors, with the majority visiting during the summer months. (https://www.salasilvergruva.se/?huvudlink=FFJUWICJ493retaget&underlink=FFJUWICJ493retaget&plats=fotnot)

I first reached out to the manager of the mine, J. Hesslöw, in September 2018, the response was fast and positive. She expressed the need and wish for a new conference and restaurant building. Today's facilities are situated in old buildings designed for housing 150-200 years ago. The facilities are too small and the accessibility bad, since the buildings are listed, they cannot be changed, this holds the business back.

During our first meeting in January 2018 we had a look at the suggested site. It is located just north of and next to the current conference building, on the edge of the area known as Sala Silver Mine. I was told that it once stood another building there, which is positive since the ground around the mine is fragile and this tells us that at this specific location it is strong enough to carry a building.

Today the facilities can host 40 guests at most for a conference, J. Hesslöw (personal communication, January 25, 2019) says she hopes to be able to double that. The perfect solution according to her, is a space which can be split up, or opened up, and used for both conferences, lectures and the restaurant business, that way the building will always be in use. In addition to these facilities the new building should also include offices spaces for at least 12 of the 15 fulltime workers. J. Hesslöw expresses a wish for separate and private office spaces.

Sala Silver Mine, 155 meter level.

History

Traditionally they say that the mining industry in Sala started in the early 16th century, under the rule of King Gustav Vasa. Although some say it as early as year 200 A.D. there is no proof that silver was mined until the beginning of the 11th century. To start, with the silver was mined in shallow holes and the visible bedrock by local farmers on their own private land in and around current day town of Sala. (Lundgren, 2012, pp. 1-5)

Big scale mining then started in the 16th century, when given the right to do so by the state in 1512. The area first mined is known as Herr Stens Botten, and it is the oldest part of what today is known as Sala Silver Mine. With the help of fire-setting the workers started to dig downwards and not only work the surface. (Lundgren, 2012, pp. 7)

King Gustav Vasa was the one who kept the mine going and pushed it forward. He needed the silver to pay of his debt to the Hanseatic League in Lübeck and improve the army. As the pressure of finding silver increased, more power was needed. This resulted in most of, what today is the municipality of Sala, being put under water with the help of man-made dams. These dams were in use for more than 350 years before most of them were drained and transformed back into their old state. (Lundgren, 2012, pp. 11-14)

During the years of 1530 to 1545 almost 4000 kilos of pure silver were found each year. The ore was dug out from what became rooms or halls underground. These rooms are so big they could in many cases fit a whole church. Only thin walls and pillars were left to separate them and keep the mine from collapsing. (Lundgren, 2012, pp. 12)

The pieces of rock not containing any silver was called warp stone, it was sorted out and discharged in piles in the area of the mine. (Lundgren, 2012, pp. 13) Big quantities of the warp stone were placed close to, and in some cases directly on top of Herr Stens Botten. This combined with the careless way of working the mine resulted in a collapse in 1612. Only ten years later, in 1622, an even bigger collapse occurred in Herr Stens Botten and the mining had to stop. At this time the village next to the mine was also moved a few kilometres north, to what today is the site of the town of Sala. (Lundgren, 2012, pp. 31-32)

After another big collapse in 1646 a new shaft was started. This was to become the Queen Kristina's Shaft, what is today a symbol for Sala Silver Mine, as well as Sala as a town. The findings of the mine would never again see the success of 4000 kilos of silver per year, but thanks to Queen Kristina's Shaft they could now bring up around 1500 kilos of silver each year. The ore was during this time mostly taken from 190 meters below or lower. (Lundgren, 2012, pp. 40)

Due to the collapses of the mine, working in the mine went from being a sought-after job to the opposite. During the 16th and 17th century they had to resolve to having prisoners work in the mine. Since they lacked the knowledge of the work, many was hurt and sometimes even killed. During the 18th and 19th century the working conditions became better and accidents became rare. (Lundgren, 2012, pp. 43-45)

The silver findings became more and more rare in the 19th century. In 1808 the last shaft was lowered to 318 meters but without any luck. It was decided to start looking for silver the more central parts of the mine again. In 1878 the methods used for mining changed from fire-setting to using dynamite and in 1908 the main mine was officially closed.

Parts of the mine was still in use though until just after the Second World War. Lead was mined as well as silver which was then found down at the 55-meter level. The piles of warp stone have also systematically been looked through, but no bigger recourses of earlier missed zinc or silver has been found. (Lundgren, 2012, pp. 59-61)

A new mine, Bronäsgruvan, was created in 1946 a about 200 meters away from the original one. They thought they would find silver between 50 and 150 meters down, and so they did. The first level reached was 55 meters, and later they reached 105 meters. The tunnels underground reached as far as the town centre in Sala. The mining was problematic though, the rock was too porous and after a dispute with the landowner the mining was stopped in 1962. During the night of the 14th of October 1990 there was a collapse and only a big hole was left next to road 56. (Lundgren, 2012, pp. 67-68)

Stone

The bedrock in and around Sala Silver Mine mostly consists of the dolomite marble. Though this type of rock is usually white and glistering its colour is greener in the area of the mine, this due to the fact that it also contains serpentine and chlorite. The silver ore exists as a filling in the cracks of the dolomite marble, though it is very hard to locate. Apart from silver, lead and zinc has also been mined here. Through history Sala Silver Mine has become one of the most important producers of all of these three metals.

East of the mining area the Sala granite is the most common type of rock. Though this type did not contain any silver ore it worked as one of the most important components for building during the times. Many of the buildings at the mine stands on a foundation of Sala granite.

Today the dolomite marble is the only type of rock still mined in Sala, although this mine is located a few hundred meters away from the silver mine and the produce is mostly used for industrial purposes. (Lundgren, 2012, pp. 8)

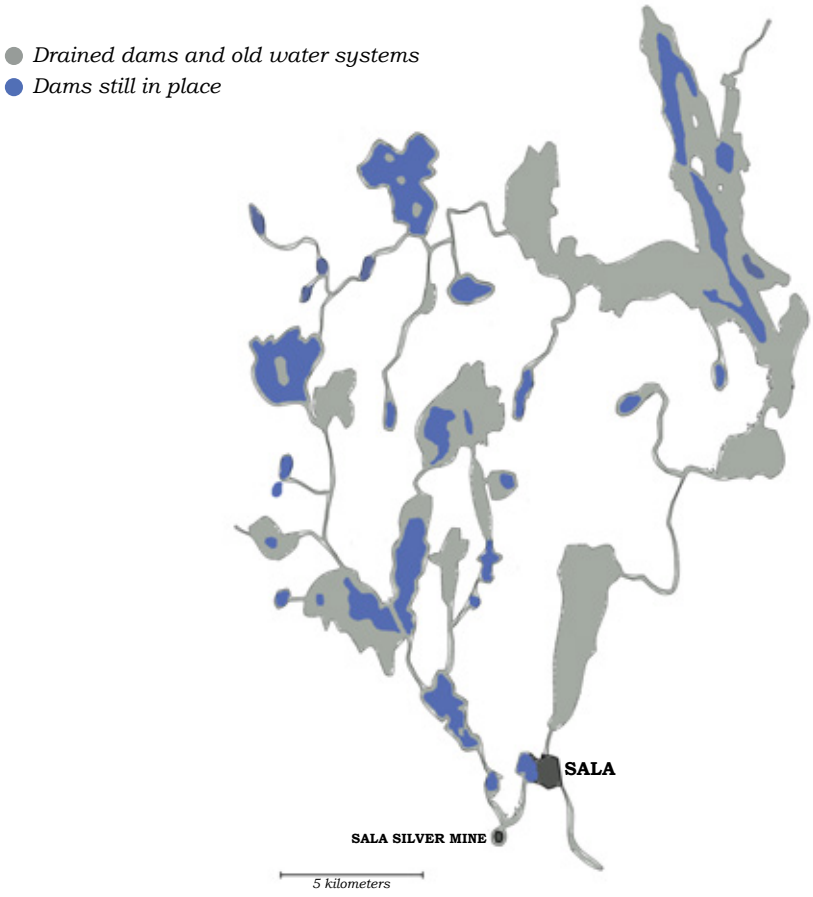
Warp stones of dolomite marble from Sala Silver Mine.

Water

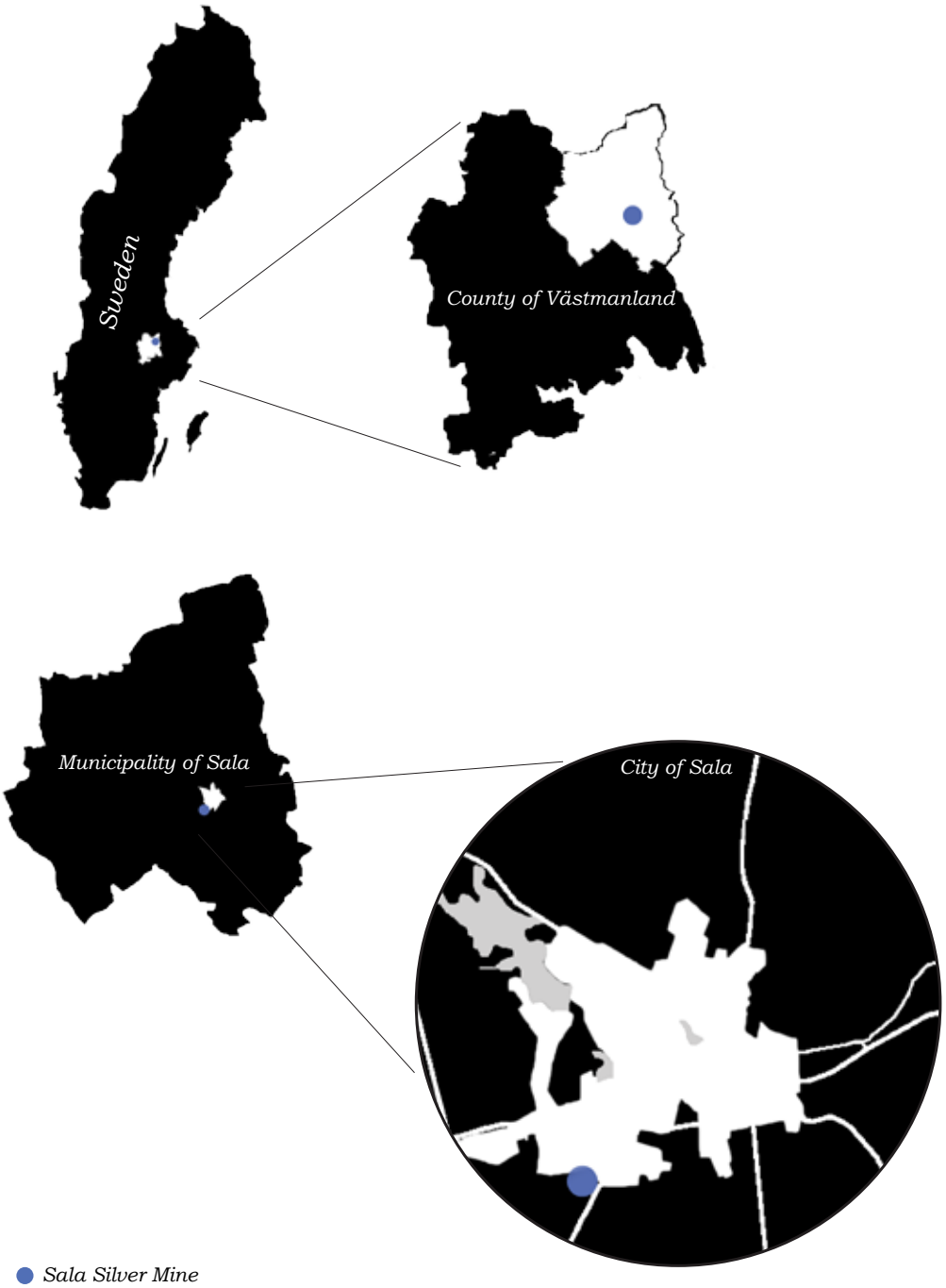
The mining in Sala Silver Mine demanded a high amount of energy. Horses was not enough and therefore they took to waterpower. The first dams were built in the early 16th century, the power was then mostly used for the crushing of the ore.

In the late 16th century a new water system was started and built, this water system helped with running the pumps in the mine to stop them from flooding. In total the water system running the pumps came to exist of 25 man-made dams while the water system running the factory handling the ore, consisted of 35 man-made dams.

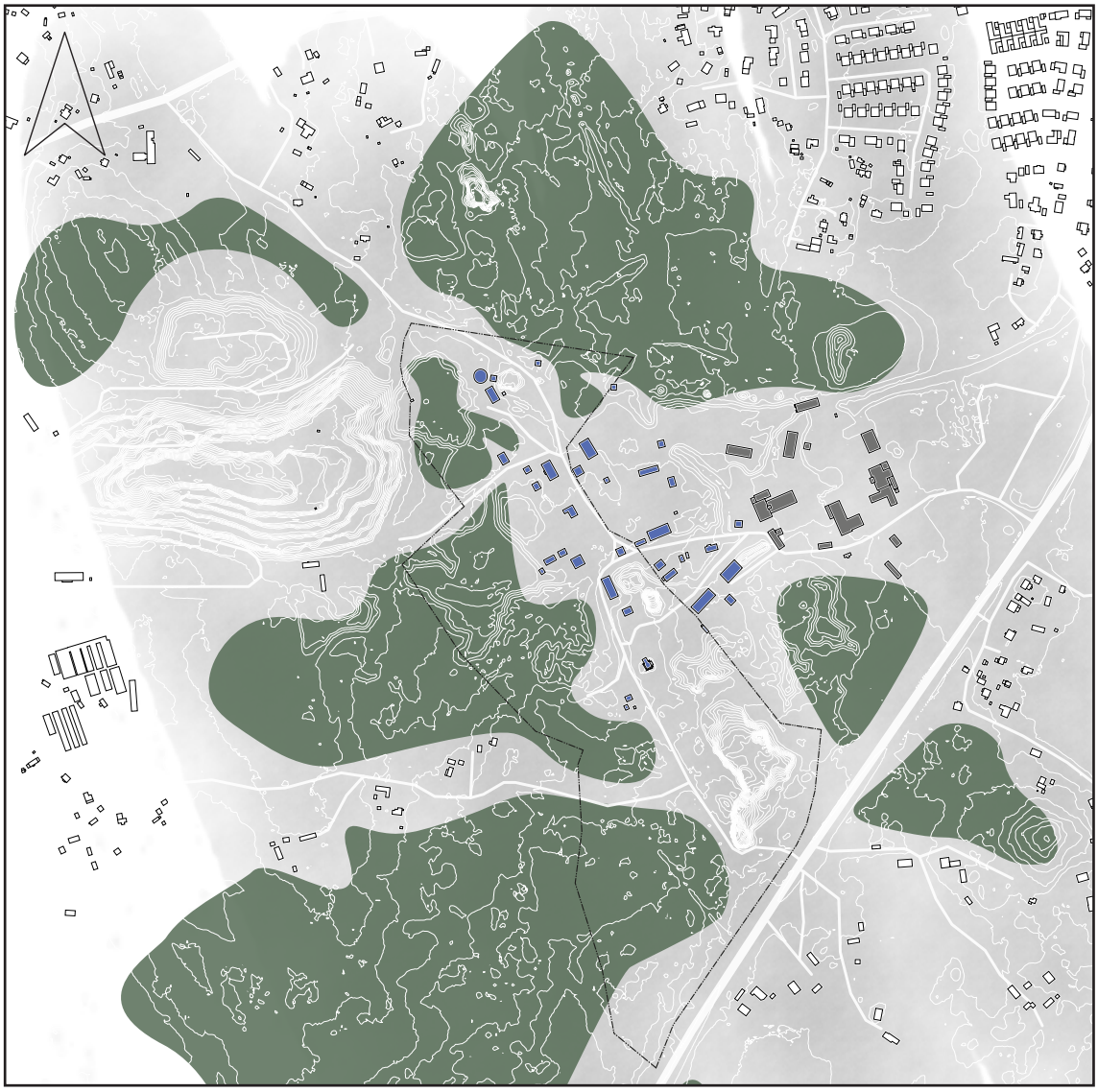
Most of the dams leading to the factory are today drained but has given names for bigger areas in the municipality such as Saladamm, meaning the dam of Sala. The water system running the pumps though are still, to an extent, visible today and include the lakes and dams Långforsen, Olof-Jons Damm and the central Ekebydammarna. During the peak, these water system reached as far north-west as the county of Dalarna. (Andersson, Nordlund, 2011)



The Site


Sweden
County of Västmanland
Municipality of Sala
City of Sala
Sala Silver Mine

Scale 1:10 000



Sala Silver Mine is located just south of the town of Sala. East of the mine runs road 56 which connects Sala to Västerås and north of the mine runs road 256 which connects Sala to Fagersta. By bike or car, the city centre can be reached within 8 minutes while walking takes just over half an hour.

The area of Sala Silver Mine is surrounded by forest (darker areas) and can be dived in to two parts, the heritage site (blue building) as well as the privately run companies and housing (dark grey buildings).

The black line shows a listed ancient monument site.

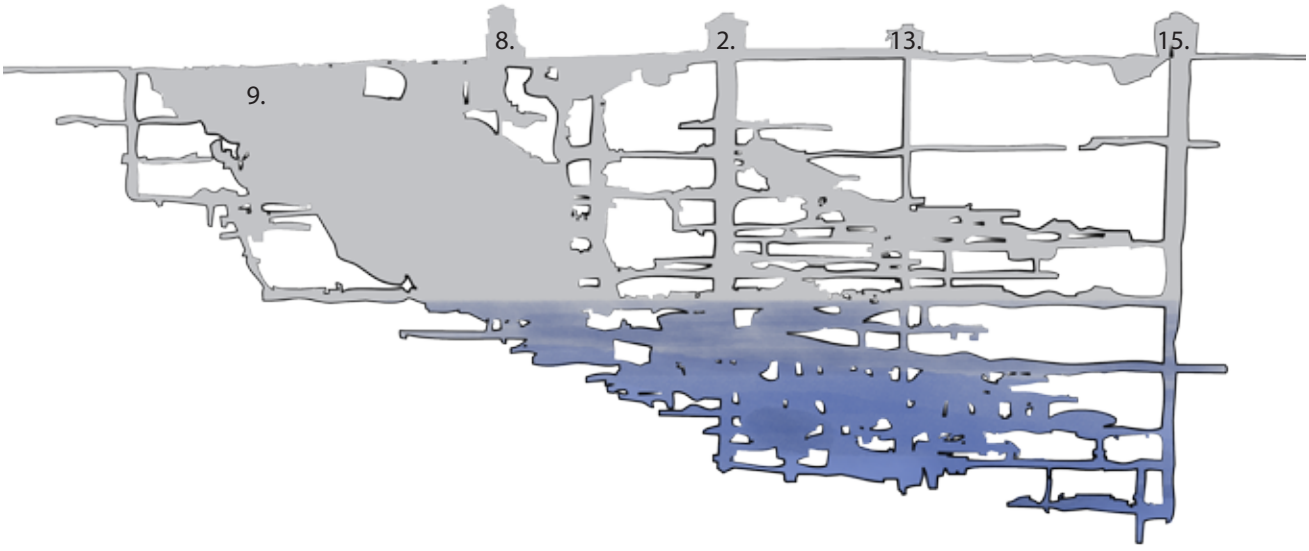
Scale 1:2 500

1. The Restaurant
2. Queen Christina's Shaft
3. Anfarten
4. The Reception
5. The Boutique
6. Wilhelm's Mine
7. The Bed and Breakfast
8. The Jack's Shaft
9. Herr Stens Botten
10. Project Site
11. The Conferens Building
12. House of the Engineer
13. Gustav III's Shaft
14. The Office Building
15. Carl XI's Shaft

The map (previous page) shows the most important buildings numbered as well as the most used entrances marked. The darker areas in mark out the majority of the greenery while the light areas mark out the main piles of warp-stone.

The underground sections in marked out with a thin, grey line and can be seen below, showing the main shafts, sometimes leading all the way down to 318 meters. Although only the first 155 meters are drained, the remaining 163 meters rest under water.

The black line once again represents the protected ancient monument site.



Underground section scale: 1:5000. Based on a histroical map.

The Facades

A selection of strong architectural buildings throughout the area today, facades in scale 1:200 drawn from photographs.

Source of history: Svärd, B. (1994). *Byggnaderna vid Sala Silvergruva: En bilderbok med text.* Sala: Bo Svärd and Andersson, S, Nordlund, J. (2011). *Sala Silvergruva: Sala Silvermine, Sala Silberbergwerk.* Västerås: Edita Västra Aros

House of the director / The conference building

The house was built in year 1828 as the home and office for the mine's material keeper. The building houses ten rooms and a kitchen. Today it houses conferences and events. During the late 19th century a wooden annexe was added to the north of the building. It was a three-story building with towers, it was later demolished.

New mine cottage / The office

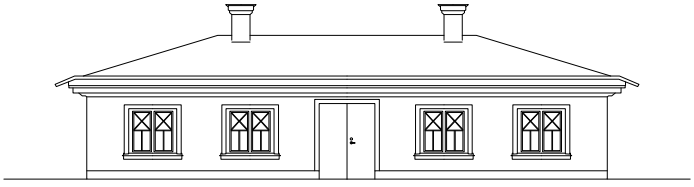
The building, today used as an office, was built in year 1670 to be used for gatherings. Originally it had a tower, but it had to be demolished in year 1731 due to its bad condition. The roof was also changed to its current state in year 1753.

House of the engineer

This building was built in year 1888 to house the mine engineer. The design was inspired by the neo-gothic style.

House of the master of art / The restaurant

The house was built as a seven-room home for the mine's bookkeeper in year 1810, it was not fully finished until the year 1835 though when the second floor was also furnished. Today the house acts as a restaurant and pub.

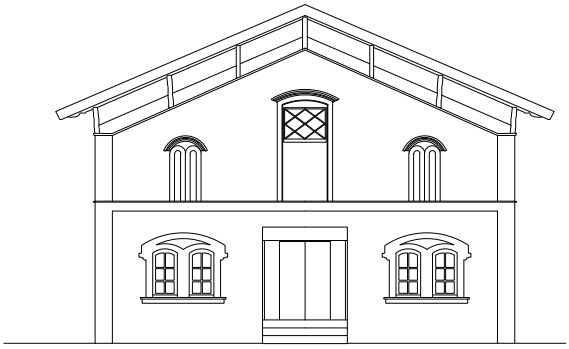


"Anfarten"

This building stands above one of the older mine shafts, Gustav-Adolf's Shaft, which was originally used for ventilation. It was restored in 1992-1993 and given the look it had in the late 19th century. Today it serves as the entrance and decent to the 60-meter-level of the mine.

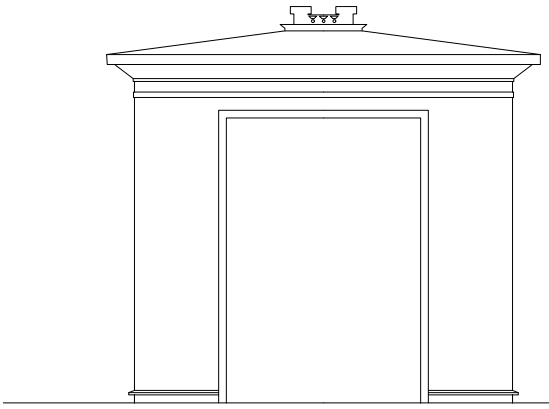
Wilhelm's Mine

This building stands above the mine shaft called Wilhelm's Mine, it was dug and mined in the 18th century although the building was not built until the year 1868.



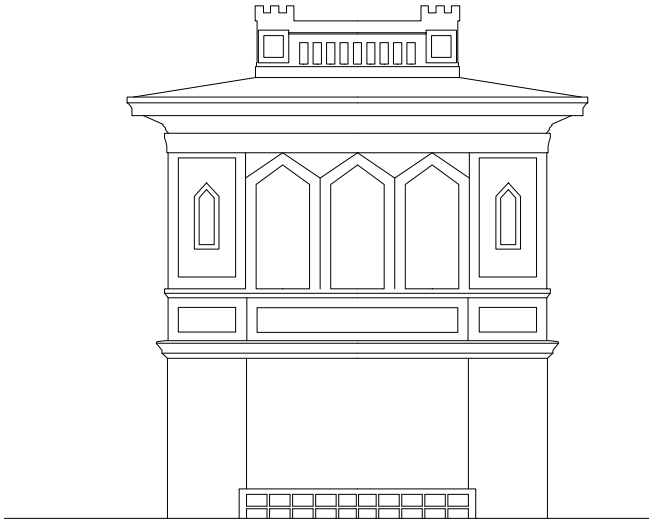
The stable / The boutique

Originally a stable this building was built in 1868 to house six horses. It was kept in use until the 1950s and today serves as a boutique.

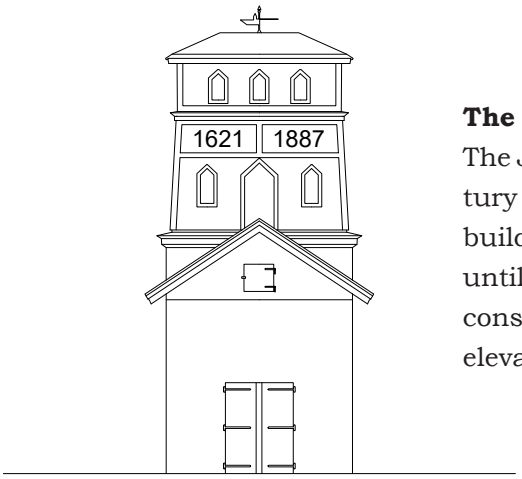


Gustav III's Shaft

Gustav III's Shaft is the youngest of the mine shafts at Sala Silver Mine. It was first dug and mined in year 1725, and its primary task was ventilation. The current building was built in year 1847, a few years after the shaft was extended from 90 to 267 meters.



Queen Christina's Shaft
Queen Christina's Shaft is the most well-known building of Sala Silver Mine. It stands above the shaft which was mined from the year 1650 and reaches down a total of 257 meters. The iconic building was built in year 1858.

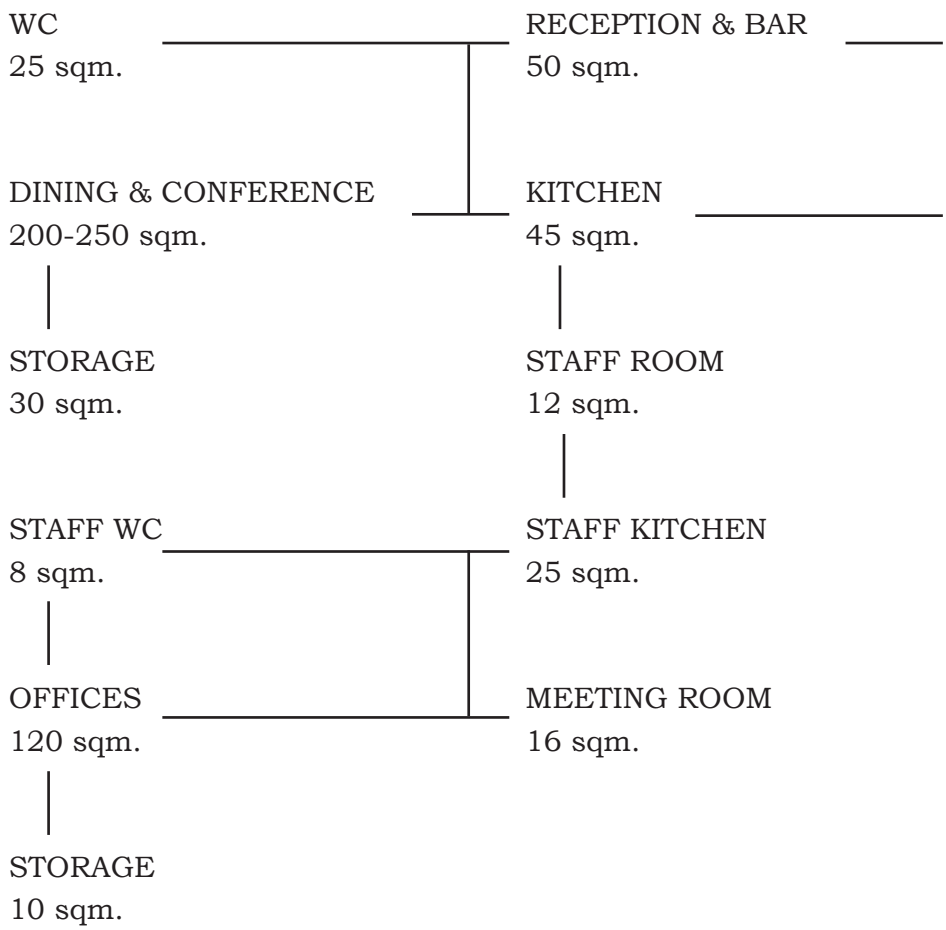


The Jack's Shaft
The Jack's Shaft was until the mid 19th century the most important pump shaft. The building was first built in 1887 and stood until it collapsed in the 1960s. A replica was constructed in 2003 and today it holds the elevators going down to the 155 meter level.

"Marketenteriet" / The B&B
Built in year 1919 this is one of the newer additions to Sala Silver Mine. It was built to house the workers and today serves as a bed and breakfast.

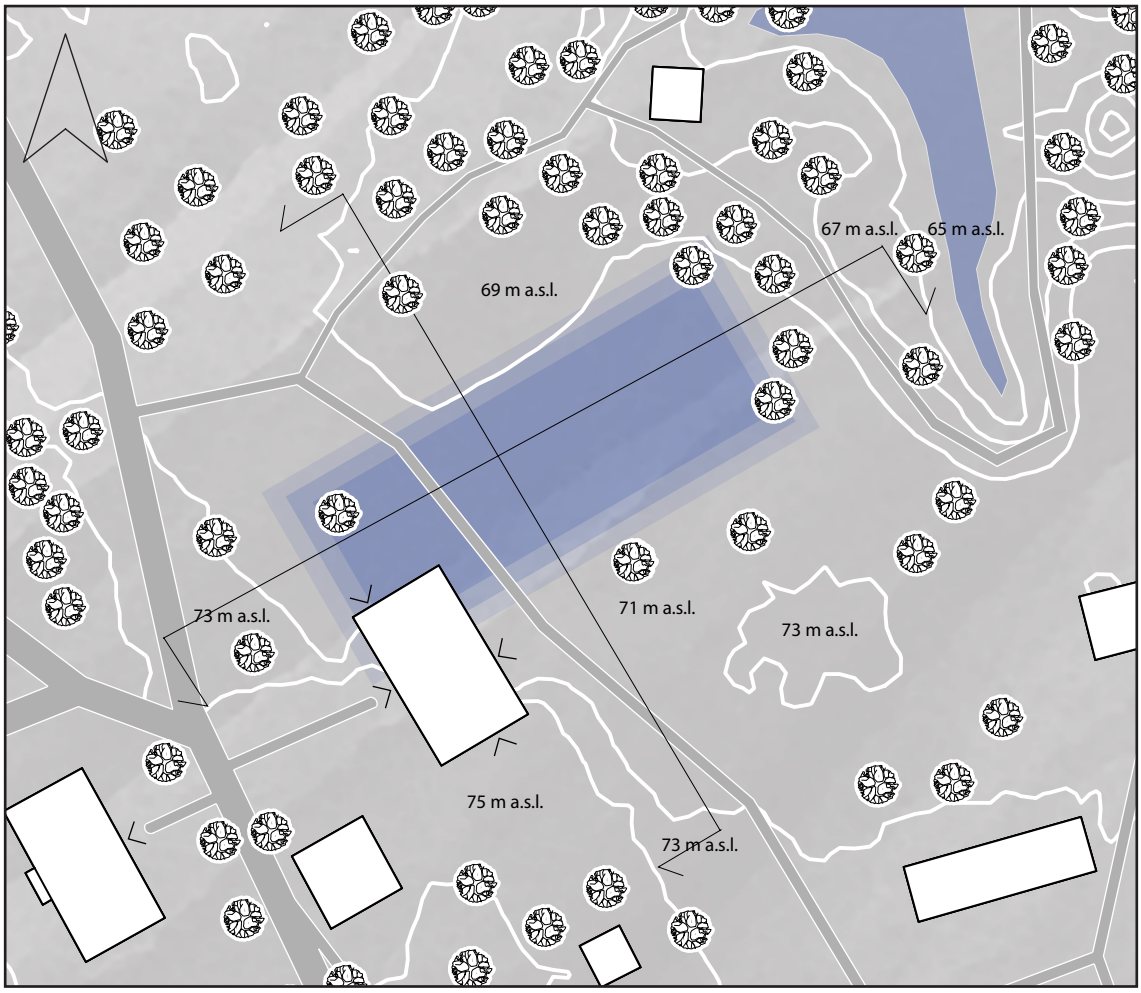
Views from the silver mine. January 2019.

The Program



MINIMUM SQUARE METERS: 540

Site - Scale 1:1000



The plan, scale 1:1000 shows a close-up of the project site marked in blue. It shows the vegetation of the English garden south of the site as well as the more natural forest to the north.

A walking path can be seen stretching through the garden, east of the already existing building and one north of the chosen site. These paths are used all year around and are popular walkways for the sunny day strolls as well as the everyday dog walking.

The garden is currently not a busy location but with its southern exposure and popular walking routes it could be turned into something nice.

Northern facade, scale 1:400

Western facade, scale 1:400

Southern facade, scale 1:400

Eastern facade, scale 1:400

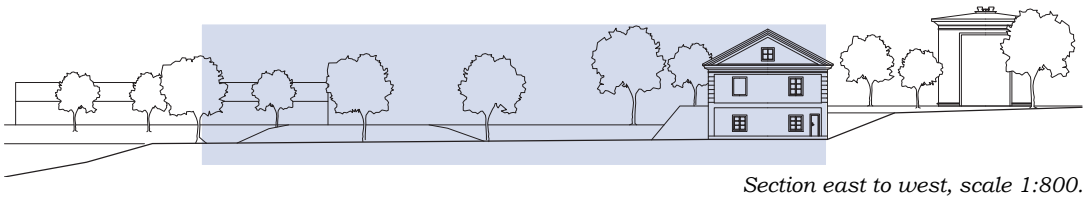
Facades

These are the facades to the building next to the project site. The western facade is symmetrical and a bit more grand than the rest of the building. It is also from this direction you first meet the building today.

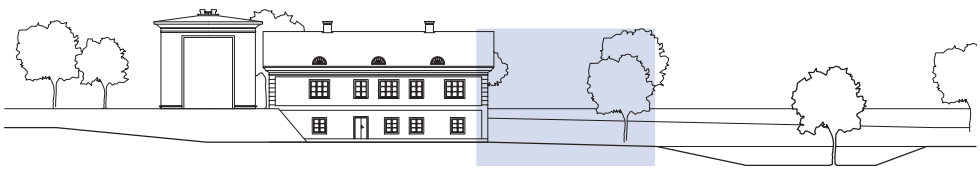
All sides have their own entrances which makes it possible to use and connect the building to additional things all around.

Sections

Sections showing the height conditions at the project location as well as the surrounding buildings and main vegetation. The blue squares mark the area of which the project will be placed within.



Section east to west, scale 1:800.



Section south to north, scale 1:800.

Part II

PRECEDENTS

Lake Pukaki Visitor Centre

2018
Lake Pukaki, New Zealand
by Workshop E

The visitor centre at Lake Pukaki is about taking the raw nature, and with as small means as necessary turn it into something which enhances the place. The big boulders have been taken from nature without being modified, to create this room. Anonymous, thin wires and beams hold the stone in place.

Geschworner Gården

2016
Falun, Sweden
by Murman Architects

With a similar program, similar size and an almost identical and delicate setting Geschworner Gården, at Falu Copper Mine is one of the main references. The materials will differ as well as the purpose but in the end, it is very interesting and inspirational to experience someone else's interpretation of the translation mine to building.

On Site

The restaurant, and part of the conference complex, Geschworner Gården at Falu Copper Mine was designed by Murman Architects in 2016 and first opened up its doors in 2017. The new addition to the old mining location was even nominated to Design S – Swedish Design Awards.

The building is built out of CLT and the outside is painted in the traditional red colour, who's pigments were mined just a few hundreds of meters away. The interior details are leather and of course copper. The floor is polished concrete, it has cracks spreading across it, you wonder if they were meant to be there.

The northern façade is a glassed curtain, from floor to ceiling. The massive wooden pillars are dividing it vertically. In between them you sit, a private nest for those who do not wish to be viewed in the open room, or for those who just wish to have a better look at the sky. The light is constant, and it will stay so throughout the year. Maybe in six months the sun will peak in, when it reaches its most northern position during the summer.

80 seats and about 25 tables in this room. The kitchen is open, still you cannot see the chef prepare the food. Multiple chest-high walls and benches cut off the view. From the sound of it, the heavier machines have also been put I a separate room.

The most interesting spot in the restaurant is the corner behind the entrance. A table has been placed at the window for those who prefer watching over talking. This is the only lookout which is not cut off by a wall a few meters a head. Looking from the outside, this is the part which now connects the two historical buildings who for so long could not touch.

The outdoors does not look very pleasant this day. Snow and ice, people strutting up and down to the restaurant through the garden, or is it a gravel pitch? Maybe the so called garden works better on a sunny summer day, although it is enclosed, facing north and has nothing interesting to offer.

After all, Geschworner Gården offered quirky details and good food. The indoors is pleasant, the big windows and seats next to them, almost in them, gives you the opportunity to enjoy the sky even on days that are grey and cold like this one was. The outdoors gives you a few interesting meetings although the big glass curtains are not as impressive from this direction.

Views from Geschworner Gården, Falu Copper Mine. February 2019.

References

Holy Redeemer Church

2008
Tenerife, Spain
by Fernando Menis

In the Holy Redeemer Church Menis has an interesting take on the many kinds of shapes and form stone can take. He works with both concrete and natural stone as well as gabion walls. The window openings are minimal and thought trough to give the building a real feeling.

Attached Houses with Gabions

2015
Sesto San Giovanni, Italy
by Gino Guarnieri & Roberto Mascazzini

Gabion walls are not the most popular building material and full buildings made from this can easily become too much. This project shows a good example of balance between the stone and the additional materials. It also works as a reference for details since it has a good example of an isolated gabion wall.

Mortensrud Church

2002
Oslo, Norway
by Jensen & Skodvin

Another good example of how fine the finish of the detailing of a gabion wall can get. Compared to Mortensrud Church this is gives the impression of being massive and solid. Almost like the many small stones makes one big one.

House in the Landscape

2013
Zawiercie, Poland
by Kropka Studio

This building was brought up as a suggestion for a reference at the midterm seminar and has stayed with me since. The materials are inspiring, as well as the way of handling natural light and windows. It is a stone building, without being massive. It allows for the light to enter and has many of the qualities I aspire for my project. Although I have since I first looked at it moved in a different direction with my design, I still find this a good precedent.

Additional References

Allmannajuvet Zinc Mine Museum, 2016	by Peter Zumthor
Dominus Winery, 1998	by Herzog + De Meuron
Black Estate Winery, 2012	by RTA Studio
Eggum Tourist Route, 2007	by Snohetta
STONED, 2019	by Stefano Pujatti
Universeum, 2001	by Wingårdhs

Part III

PROCESS

Program Close-up

WC - 25 sqm.
- Preferably five toilets, one according to accessibility standards.
- Should be accessed through the reception or a hallway.

DINING & CONFERENCE - 200 sqm.
- Should be big enough to hold a lecture with an audience of 100 or 150 guests.
- Preferably located to the south, so it can be used in addition to the garden during the summer months.
- Should be able to be divided into multiple smaller spaces.

STORAGE - 30 sqm.
- Ideally dived into at least two separate rooms.
- Should have direct access to the dining and conference hall.

STAFF WC - 8 sqm.
- Two staff toilets, one according to accessibility measurements.

OFFICES - 120 sqm.
- A minimum of twelve permanent office spaces.
- Preferably separate rooms.

STORAGE - 10 sqm.
- Could be divided into multiple smaller unites.
- Should host a printer.

RECEPTION AND/OR BAR - 50 sqm.
- Ideally located in the western part of the building, which provides easy access to people passing by.
- Should be able to host bigger audiences during breaks, alternatively an additional room is added for this purpose.
Is welcoming to both visitors and workers.

KITCHEN - 50 sqm.
- Should have separate rooms for dishes, cold-prepping, fridge and storage.
- Must have access to the north-west corner of the site, due to the logistics.

STAFF ROOM - 8 sqm.
- Have to include at least one toilet, with accessibility standards.
- Can be included in the kitchen area.
- Should have easy access to the outside, at least two entrances and preferably direct access to the kitchen.

STAFF KITCHEN - 25 sqm.
- Should be able to seat about twenty people and double as a meeting room.

MEETING ROOM - 16 sqm.
- Ideally seats five to six people.
- Should be easy accessed from the outside.

Site & Program

Kitchen entrance, for deliveries.
Easy access to the main road.

Connection to the south and the garden.
Allow for sunlight and seating outside.

Main entrance. For visitors to access
from both north and south.

Sizing

By looking at a few different restaurants, in different countries and of different sizes the size of the kitchen could be compared to the size of the dining area, as well as the size of the dining area compared to how many guests it was planned to host. The measurements are not exact but based on the floorplans of the restaurants.

	Dining Area	*Seats*	Kitchen Area
Geschworner Gården by Murman Architects	190 sqm.	*80*	120 sqm.
Qui Restaurant by A Parallel Architecture	180 sqm.	*90*	120 sqm.
El Gordo y el Flanco by VIMARVI	85 sqm.	*45*	50 sqm.
Sierra by Boss.Architecture	750 sqm.	*335*	210 sqm.

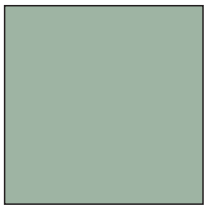
The ratio kitchen to dining area came out to be between 0,66 and 0,75 for three of the restaurants, only Sierra stood out with the ratio being 0,3. Sierra is considerably bigger than the other three and can host over three times as many people on a surface more than three times bigger than the other ones.

The ratio seated guests per square meter came out similar in all four cases with a number of 1,9 to 2,4 square meters per seating guest.

By this, the conclusion could be that for a restaurant to host 100-150 dining guests the dining area needs to be around 220 to 300 square meters and preferably the kitchen around 145 to 165 square meters. Although according to the ratios of Sierra the kitchen could be as small as 66 square meters.

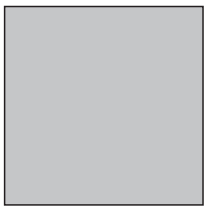
Materials

Thoughts on materials found interesting during the process and which whom can relate to the mine.



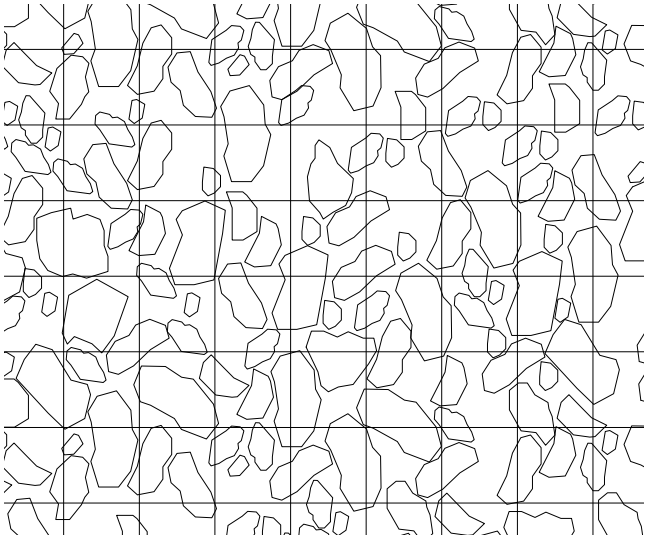
STONE
Stone is a big part of both the physical, historical and emotional identity at the mine. Although it can not be any stone. The pieces of stone taken from the mine, the warp stones, are irregular in size, proportions and colour. They are not bricks or discs which can be neatly placed. The stone there for shows its true identity by being used in a gabion wall.

WOOD
Wood; wooden houses, the use of timber in the mine through time. Wood is not a first-hand choice, but it has an important place at the mine. The softness and warmth of wood also works in contrast to the cold and hard stone. Wooden construction is the main load bearing system used in the present building.



ZINC
Not only silver was found in the mine, zinc was also a big part of the mining history. Zinc shares a similar colour to silver but is a much more common and practical building material which would serve a purpose in the project.

Gabion Walls



Gabions are metal net structures mostly filled with stone. They are common in landscaping, but they can also be used in big scale construction or as wall replacements in buildings. A standard gabion wall has no isolation, wind barrier or water barrier which does not make it great for the Nordic climate.

The expression of the gabion can be regulated by the scale of the metal net, the type of filling and its size. The gabion itself cannot be loadbearing and it needs inner support or an outer support to attach to.

THE GABION AND THE MINE

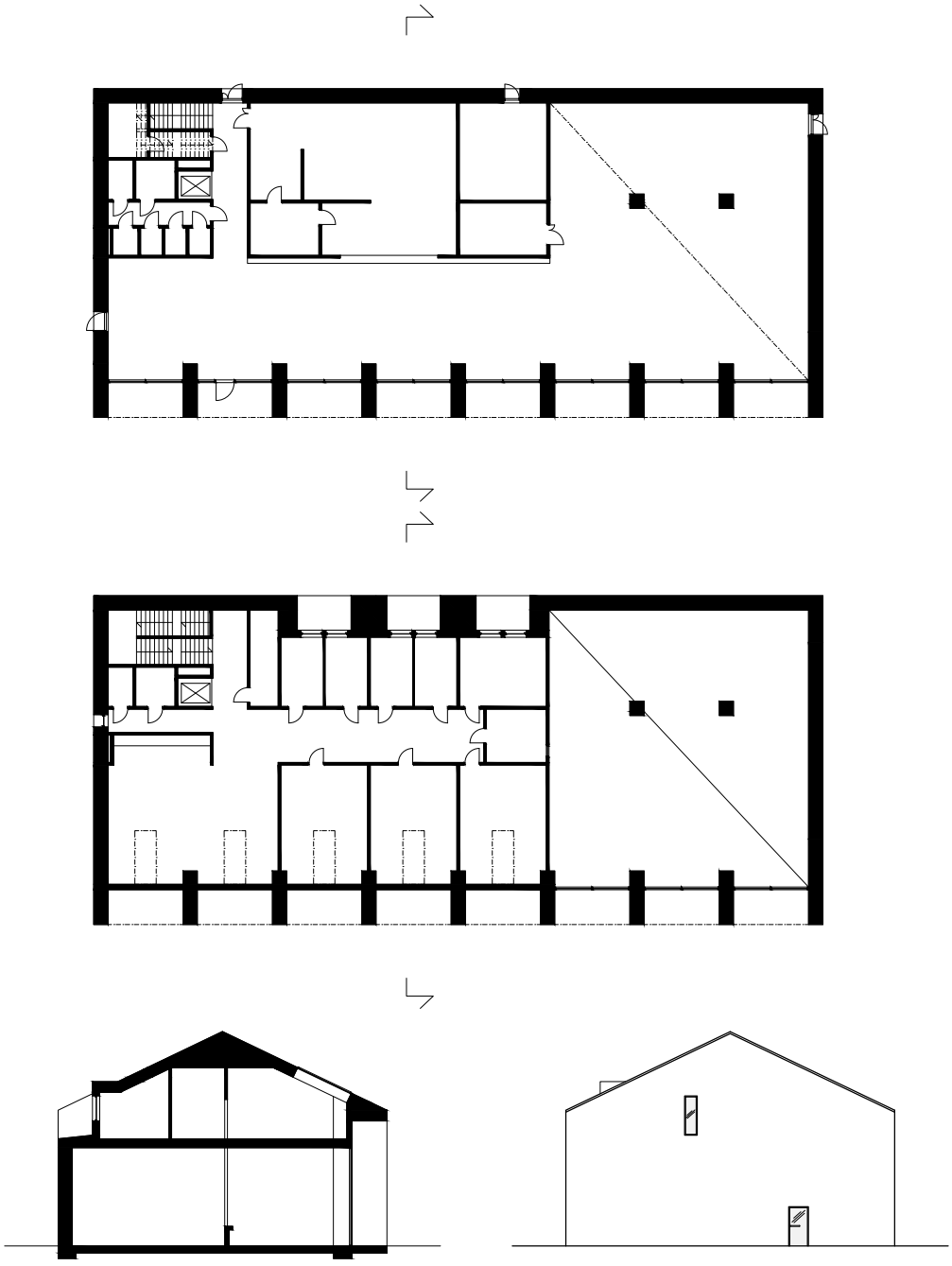
The gabion wall shows off the stone without the stone having to be processed. In that way the gabions can give the expression of being made from the material found on the site, in this case the warp stones.

The warp stones at the mine cannot be touched. Although the same type of dolomite marble is mined a few hundred meters away and can in this case replace the warp stone, but still give the same look. In that way the gabion walls will translate the building into a representation of the warp piles which carry a lot of the history of the mine.

Midterm Proposal

Scale 1:400

Selected drawings



Midterm Feedback

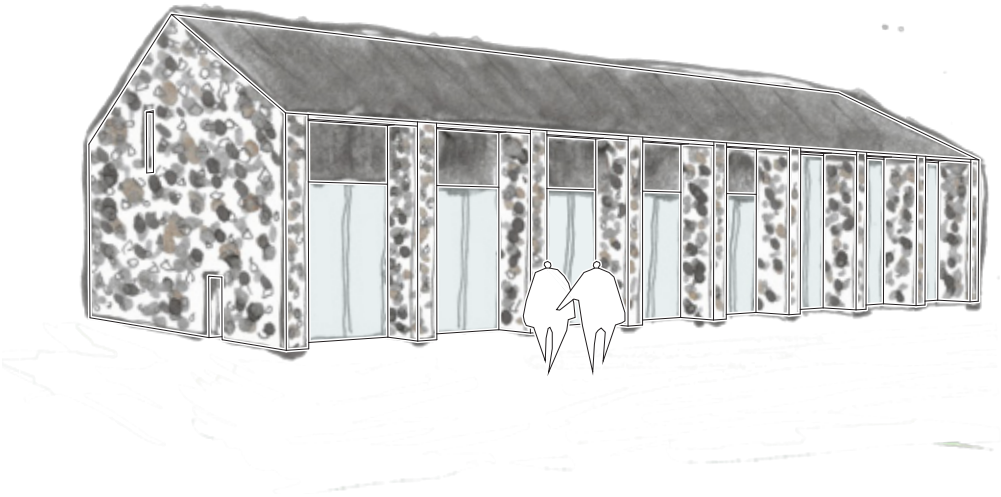
MAIN FEEDBACK

- Very big and lacks scale. Scale it down.

- Create a clear entrance.

- Work more with the outside area.

- Is gabion walls the way to go? They are usually a landscaping tool.

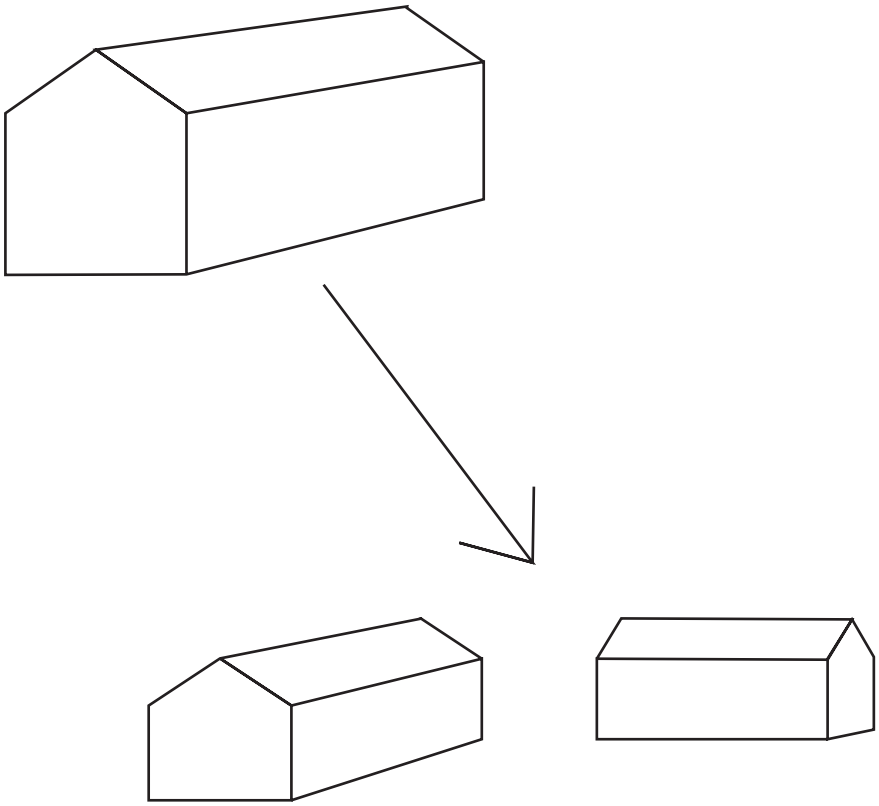


From One to Two

By making the choice to divide the program into two separate buildings the buildings can be made smaller and better adjusted to the site and context. Two buildings also allow for more freedom in plan and section when fitting the program. It does also allow for separate conference and dining rooms or halls.

The two structures, to the north and east, together with the already existing building to the west creates and frames the garden or courtyard. Opens up to the south but protects it in the other directions without creating to much of a city structure, but instead keeps the spread out and random look of the site.

Having two buildings with different programs makes it possible to build in two stages.



Program Close-up

CONFERENCE - 100 sqm.
- Must be able to host multiple groups.
- Spaces with room for 10 - 40 guests.

WC - 25 sqm.
- Preferably five toilets, one according to accessibility standards.
- Should be accessed through the reception or a hallway.

RECEPTION AND/OR BAR - 50 sqm.
- Ideally located in the western part of the building, which provides easy access to people passing by.
- Should be able to host bigger audiences during breaks, alternatively an additional room is added for this purpose.
Is welcoming to both visitors and workers.

DINING - 200 sqm.
- Should be big enough host 100 or 150 dining guests.
- Located to the south, so it can be used in addition to the garden during the summer months.
- Should be able to doubble as a lecture hall.

KITCHEN - 50 sqm.
- Should have separate rooms for dishes, cold-prepping, fridge and storage.
- Must have access to the north-west corner of the site, due to the logistics.

STORAGE - 30 sqm.
- Ideally dived into at least two separate rooms.
- Should have direct access to the dining and conference hall.

STAFF ROOM - 8 sqm.
- Have to include at one toilet, with accessibility standards.
- Can be included in the kitchen area.
- Should have easy access to the outside, at least two entrances and preferably direct access to the kitchen.

STAFF WC - 8 sqm.
- Two staff toilets, one according to accessibility measurements.

STAFF KITCHEN - 25 sqm.
- Should be able to seat about twenty people and double as a meeting room.

OFFICES - 120 sqm.
- A minimum of twelve permanent office spaces.
- Preferably separate rooms.

MEETING ROOM - 16 sqm.
- Ideally seats five to six people.
- Should be easy accessed from the outside.

STORAGE - 10 sqm.
- Could be divided into multiple smaller unites.
- Should host a printer.

Site & Program

Improved parking.

Kitchen entrance, for deliveries.
Easy access to the main road.

Courtyard with outdoor seating.

Connection to the south and the garden.
Allow for sunlight and seating outside.

Main entrance. For visitors to access
from both north and south.

New path to parking.

Part IV

PROPOSAL

Final Program

CONFERENCE
110 sqm.
8 - 40 people.

WC
35 sqm.

DINING
160 sqm.
80 - 100 people.

STORAGE
30 sqm.

RECEPTION
25 sqm.

KITCHEN
60 sqm.

STAFF ROOM
12 sqm.

STAFF KITCHEN
25 sqm.

STAFF WC
15 sqm.

OFFICES
190 sqm.
18 - 25 people.

MEETING ROOM
15 sqm.

STORAGE
4 sqm.

The Proposal in Words

The final proposal is an addition of two separate buildings located in the norther part of the mine, just east of the current conference building. Together with this current building they will frame a courtyard which can be used for outdoor events, such as pub nights, or seating for the restaurant.

The courtyard itself has a pond in the centre, with a surrounding area of gravel. The outer square of the courtyard has cobblestone to favour accessibility and lead the way. Around the courtyard trees has been placed, both to give shade and to help leading the way to the main entrance of the restaurant. Referring back to the alley of trees along the main road. To help with framing, stone benches has been placed around the yard.

The main entrance to the restaurant is located in the south-west corner of the bigger building. It can be seen straight ahead when entering the site from the south path or to the left if entering from the north. The dining area facing south, with the kitchen facing north, and can be opened up to the garden through glass doors. The conference rooms are located on the upper floor with limited views to the north. The three rooms can host groups of 5-40 people.

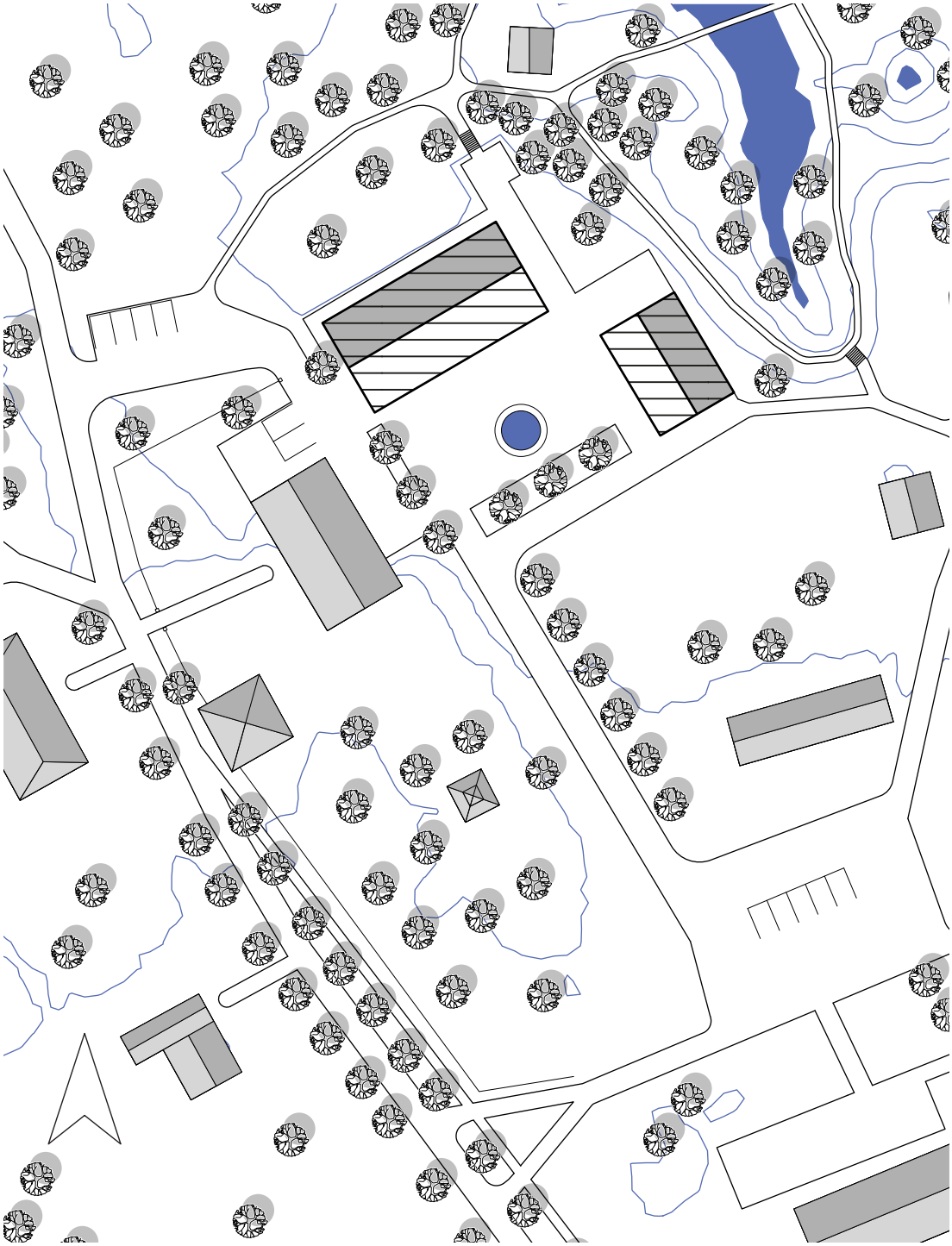
The office building, to the east, has more of two discreet entrances but which can still easily be accessed from the courtyard. This building is for the people working there, who knows where to go. The office spaces vary in size and can fit one to three desks, allowing the workplace to grow and adapt over time.

The site can be accessed from the north and the south just like before, although the paths and patches have been turned into proper walkways and parking. The majority of the car parks is still thought to be in other parts of the mine, though bicycle parking has been added both next to the old conference building and next to the office to favour bicycles.

Stairs has been added in the north-east corner of the site to allow for direct access to the walkways and the old dams in the forest.

Site Plan

Scale 1:1000



Site Section

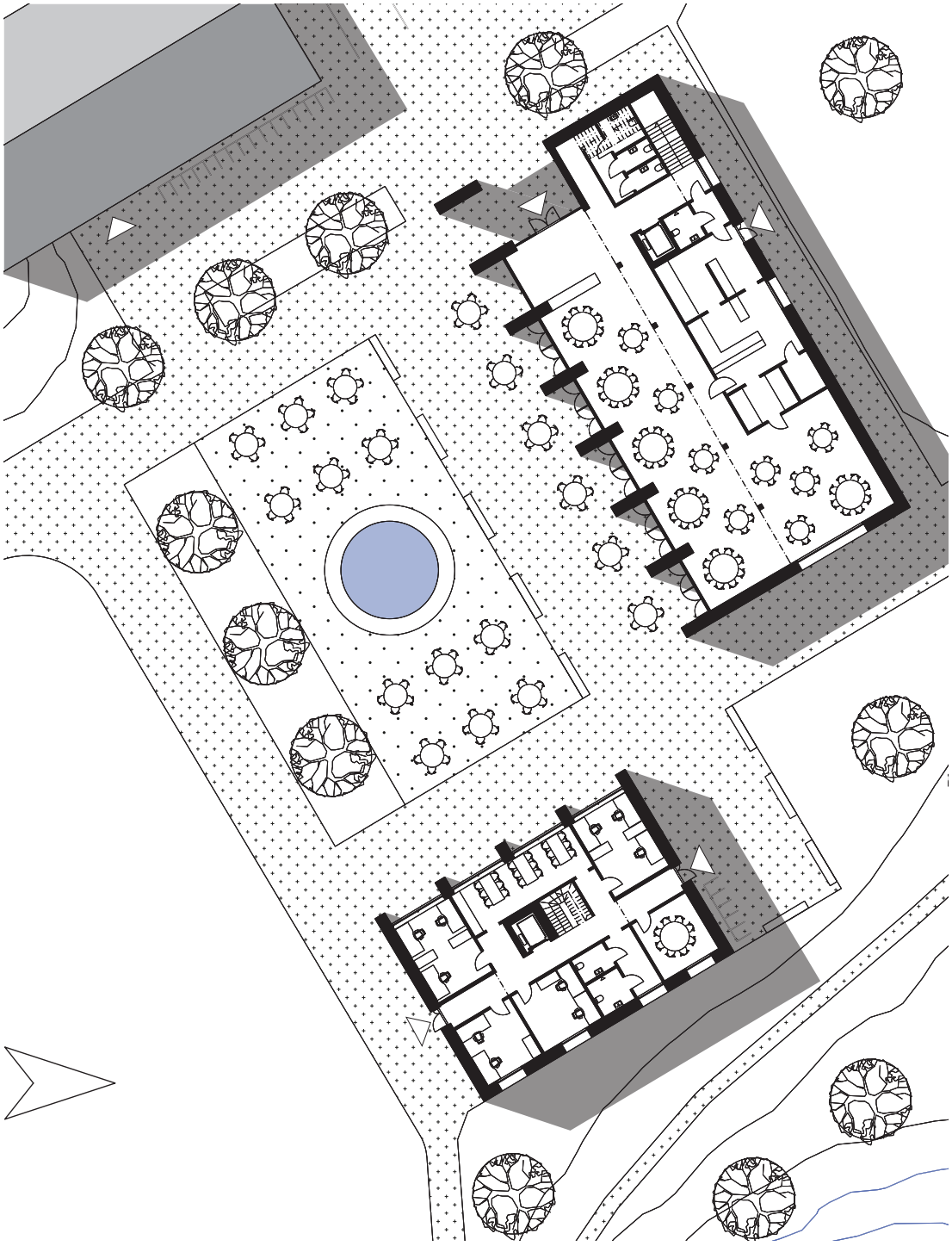
Scale 1:800

East to West

South to North

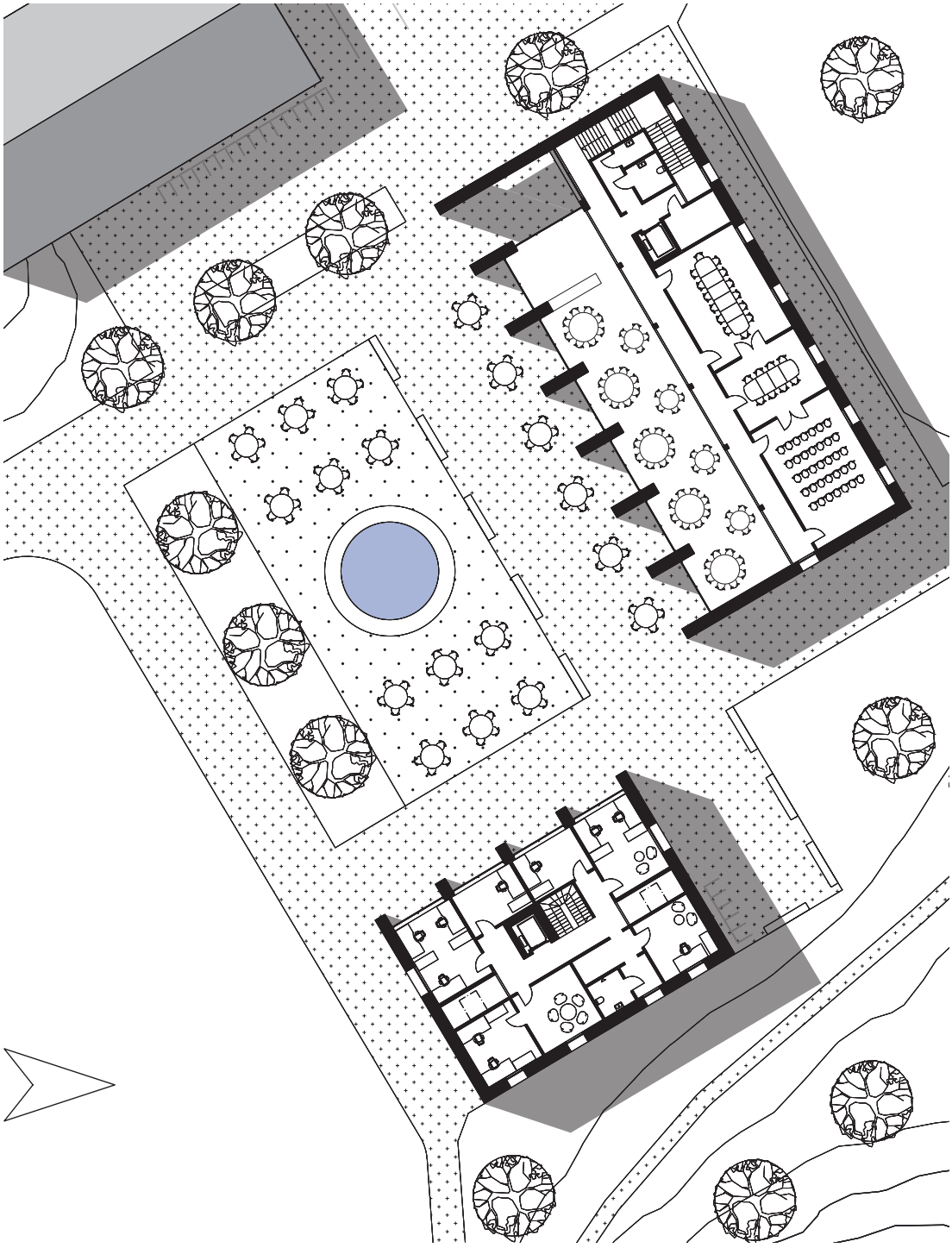
Floorplan - Level 1

Scale 1:400



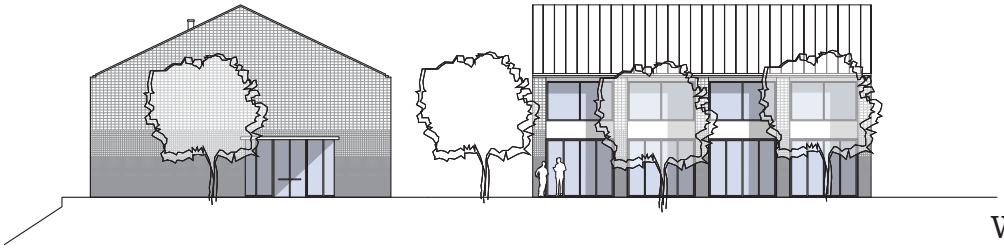
Floorplan - Level 2

Scale 1:400

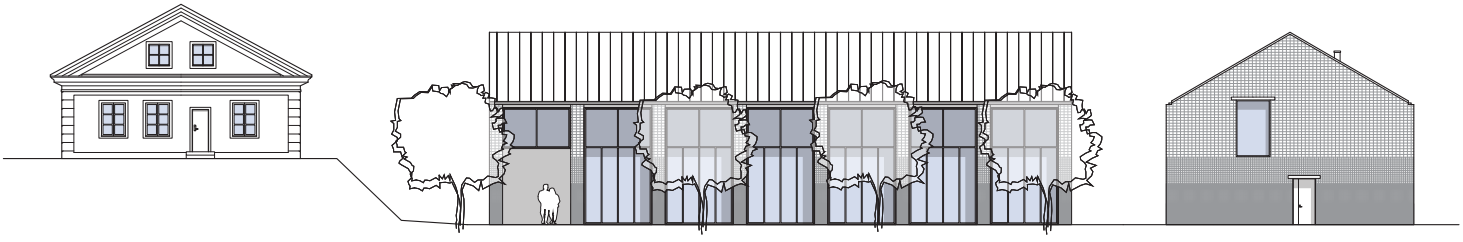


Facades

Scale 1:400



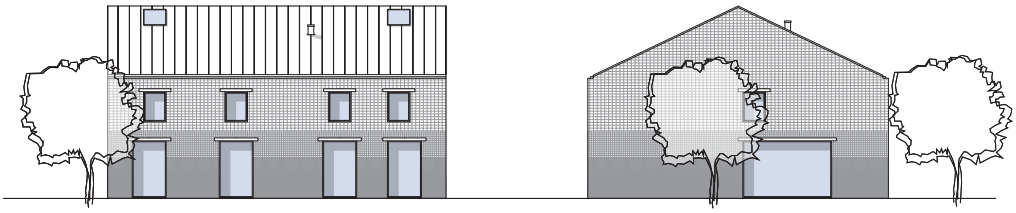
West



South

Facades

Scale 1:400

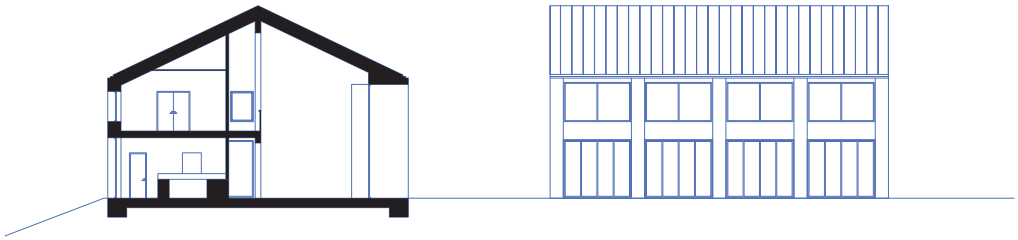


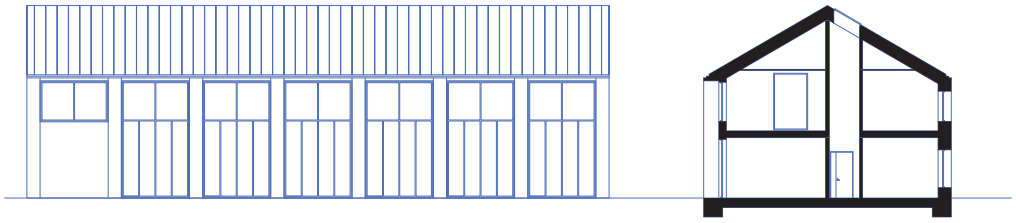
East

North

Sections

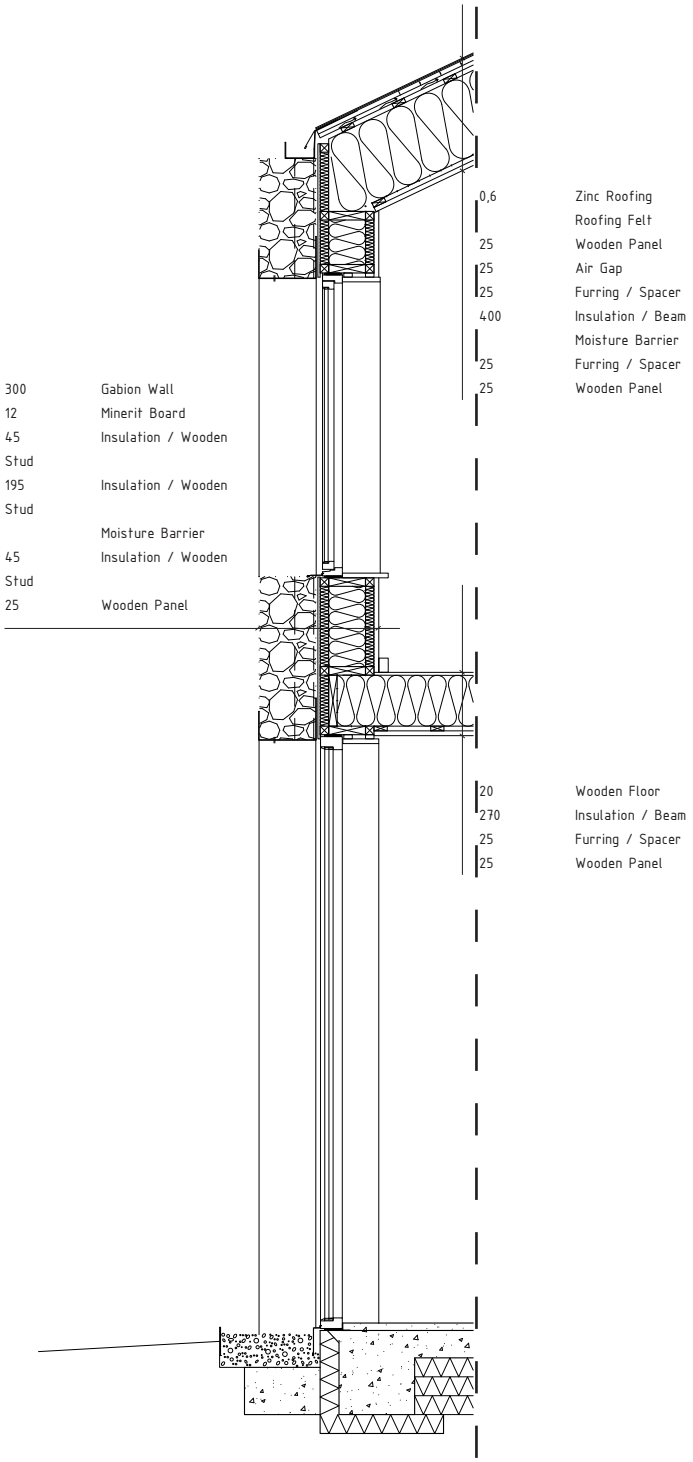
Scale 1:400





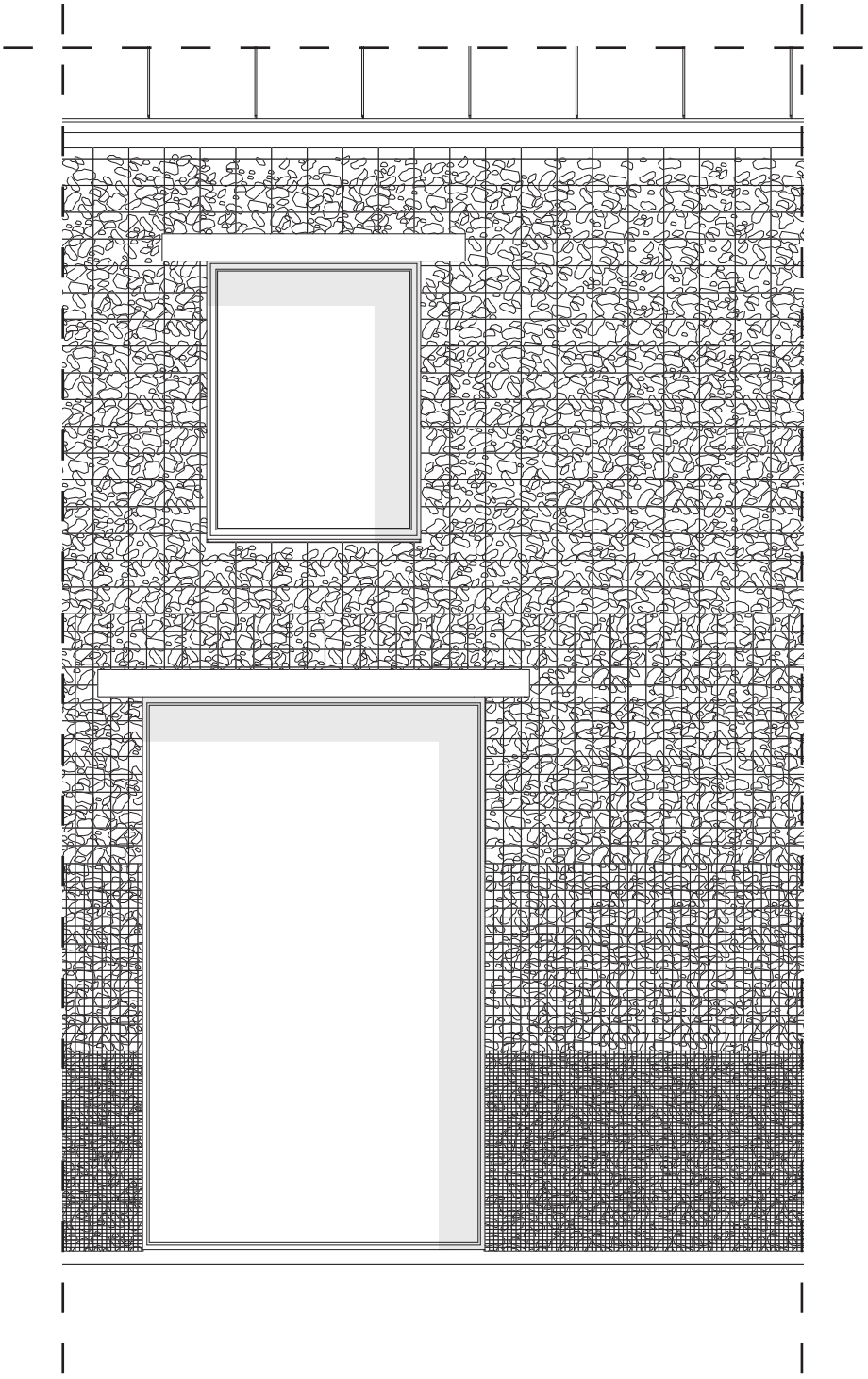
Section

Scale 1:40



Elevation

Scale 1:40



Part V

CONCLUSION

So how can the historical, material and emotional perspectives of Sala Silver Mine be combined and translated into a building?
The result of my thesis, the proposal for the site, might not be what I had in my mind when I first started.

The idea of the mine for me was dark, cold, uncomfortable and wet. Although spending time at the mine, reading the history, meeting the people, getting to know the spirit of the palce have made me change that idea. That dark place, the cold and uncomfortable, is still there, though it is buried deep underground. The mine is more than the tunnels and the shafts. The mine is also what can be found above ground; the nature, the sun, the existing buildings. The mine is the history, what has been left behind. The mine is the feeling you get when emerging to the surface after hours in the dark; the relief and the light. The amazement of the huge halls once carved one millimetre at a time.

The mine holds more history and feelings than I could ever have imagined at the start and I would say it is impossible to translate all of the perspectives into one, or in this case two, buildings. The question of 'how can the historical, material and emotional perspectives of Sala Silver Mine be combined and translated into a building?' has many answers.

By focusing on the stone, more specific a representation of the warp stone, all of the three perspectives in the question are covered. The warp stones carry the history of the mine. They are the leftovers, the many tons of stone shattered and crushed to create the tunnels and the shafts, to find the silver. The warp stone tells the story of the workers and of the landscape, of life and of death, of failure and of success. There is no doubt they should be the centre piece and the building should stand in their honour.

By working with the gabion walls the building can become a representation of the warp stones, a stylised warp pile. Allowing the visitors to come close and discover the stone. With detailing of zinc another local material has been woven into the building, also giving a more visual representation of silver. Helping to create that silver streak.

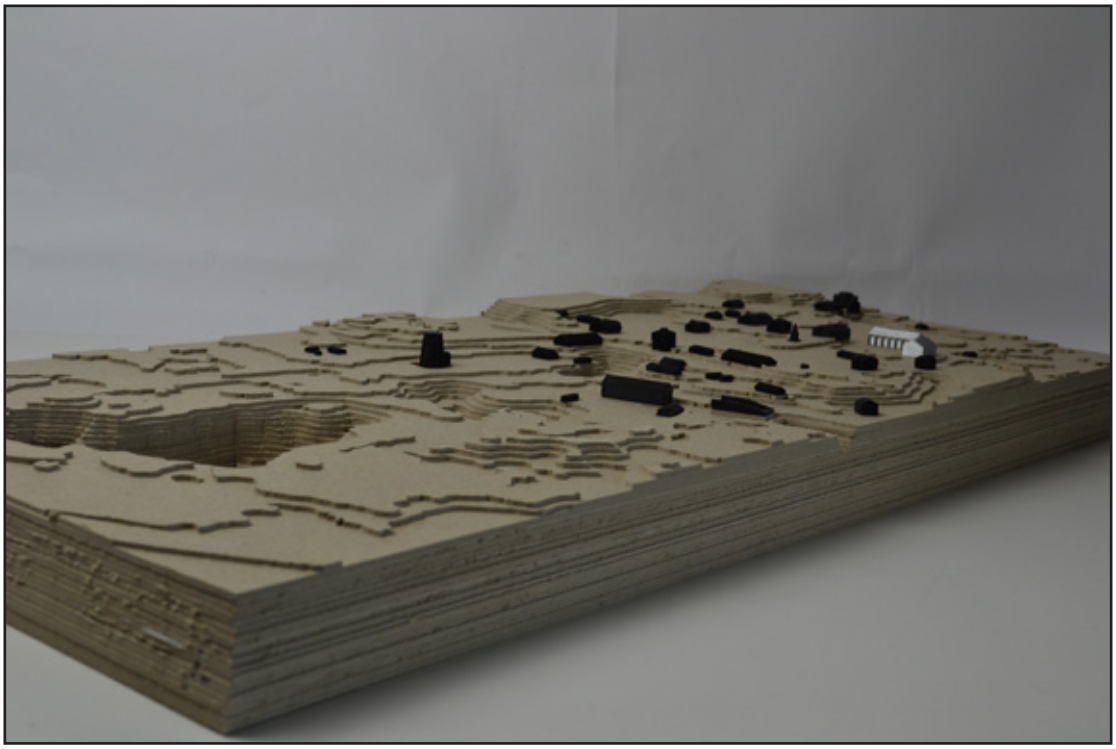
During the design process inspiration from the physical environment of the mine has been collected. The scale differences of the halls and tunnels underground has been translated into the single and double heighted rooms. The different light conditions you experience was taken into consideration when widows were placed. The verticality verses horizontality found and translated into façades and structure. The tradition of wooden construction being used.

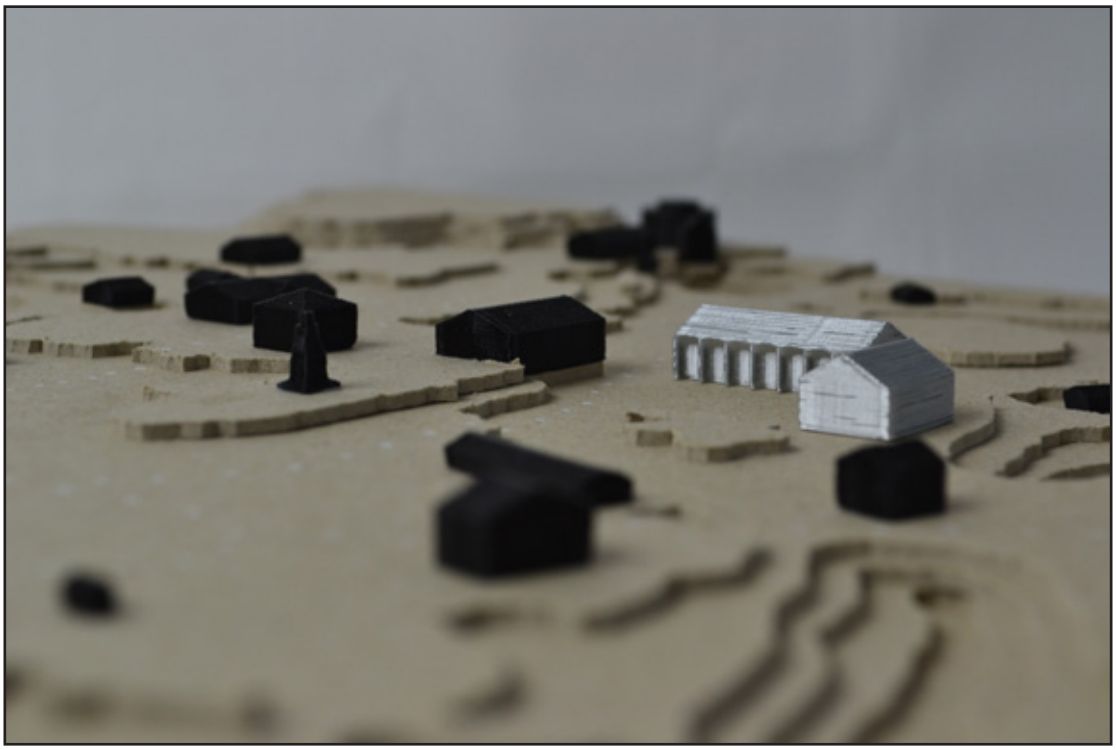
The silver mine is a dark, hard core wrapped in a warm and light landscape, my proposal is the opposite; a warm, light, wooden heart, wrapped in a hard, stone cape.

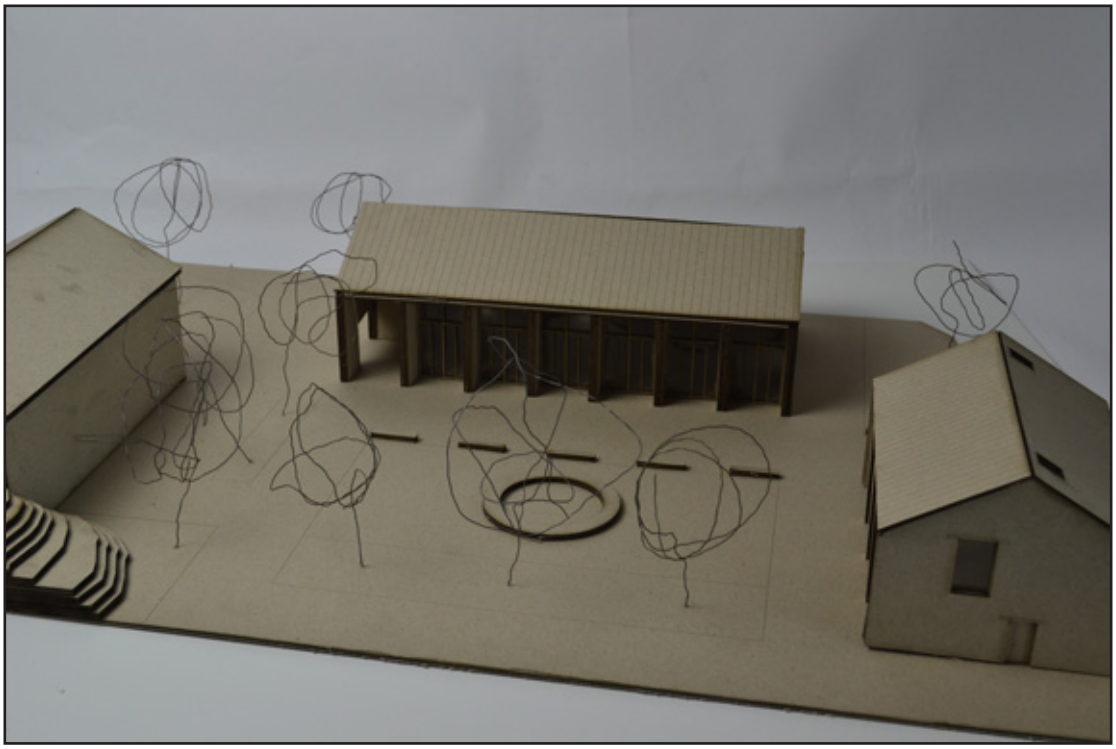
Did I find an answer to the question? Yes. I do believe I translated the mine into two buildings, focusing on the historical, material and emotional perspectives of Sala Silver Mine. Is this the only answer to the question? No. As said earlier; this question has many answers and this was only one of them.

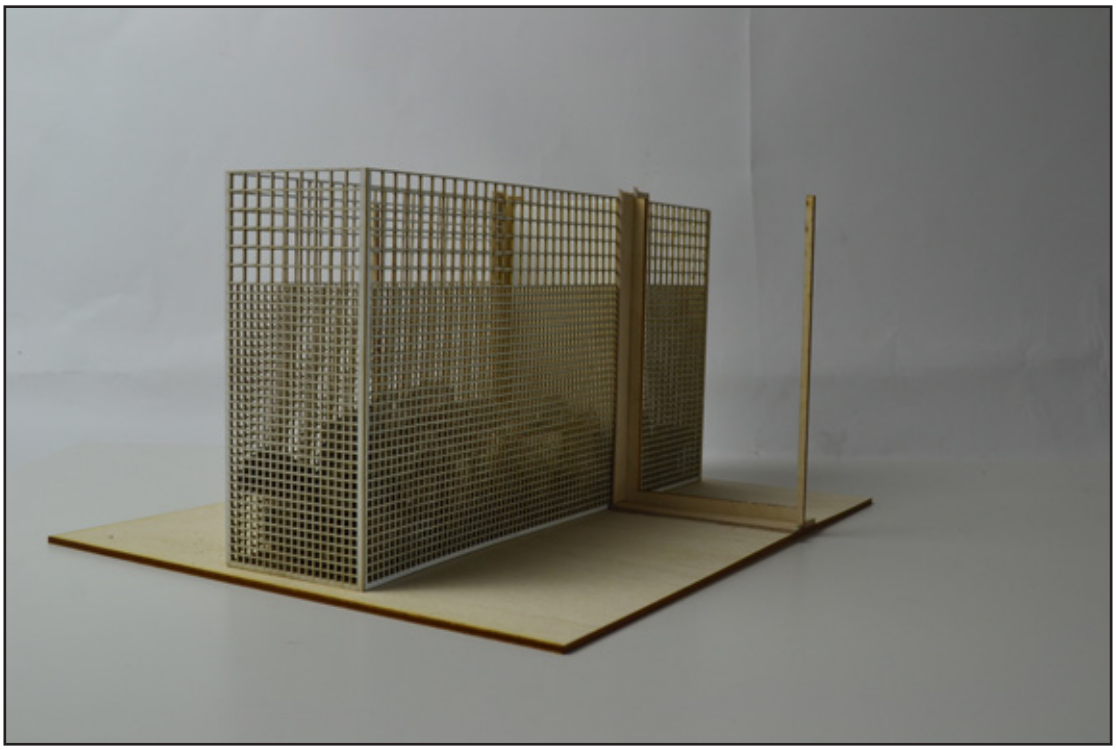
Part VI

MODELS









Part VII

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PHOTOS & GRAFIC IMAGES

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