

# ENCAPSULATED POTENTIAL

*An exploration of alternative scenarios for industrial remnants*

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CHALMERS SCHOOL OF ARCHITECTURE

DEPARTMENT OF ARCHITECTURE AND CIVIL ENGINEERING

EXAMINER // DANIEL NORELL

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AN EXPLORATION OF ALTERNATIVE SCENARIOS FOR INDUSTRIAL REMNANTS



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CHALMERS SCHOOL OF ARCHITECTURE  
DEPARTMENT OF ARCHITECTURE AND CIVIL ENGINEERING

MASTER PROGRAMME IN ARCHITECTURE AND URBAN DESIGN  
MATTER SPACE STRUCTURE

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## / ABSTRACT

This thesis seeks to investigate ways to communicate a critical perspective on contemporary urban development by exploring alternative scenarios for a former industrial site. By analyzing potential design approaches, a speculative design proposal can be presented in order to open up for discussion about what is considered valuable and broaden the general perception of conventionally considered useless structures.

This thesis is situated at the site of the former cement factory in Limhamn in Malmö. The site is characterized by its six large-scaled concrete silos filled with marks from the industry and decay, surrounded by newly constructed housing buildings. The majority of the traces left by the cement factory have already been erased and with the current parallel commission for the site, the remaining structures will soon face the same fate of demolition. How can the transformation of this site be approached to give importance to its industrial heritage and visualize the embedded values?

In order to investigate values the thesis uses a critical reading of the text *The Modern Cult of Monument : Its Essence and Its Development* written by Alois Riegl in 1903 combined with theories of life, death and design values in architecture presented in the text *Buildings Must Die : A Perverse View of Architecture* of Stephen Cairns and Jane M. Jacobs from 2017.

The structure of the thesis is developed by an iterative research by design process. Starting with a inventory of the site as a base for design explorations, in order to translate into design approaches. The design approaches are then applied in relation to the site to visualize the research and how these approaches can be translated into design.

The outcome of the thesis is a speculation on how the remaining structures on site can be deconstructed, relocated and reconstructed, focusing on design in relation to values. The outcome combines a pragmatic view on the silos as reused building material with a discussion about industrial heritage and explores the balance between the silos as symbolic industrial artifacts and a material resource but also the site as a shadow place and the act of moving things.

Keywords:

*industrial heritage, remnants, transformation, values*



FIG 1.  
LIMHAMN  
LARSSON, K. (2015)

////////// INTRODUCTION

## / PREFACE



FIG 2.  
LIMHAMN LIMESTONE QUARRY  
ROSENGREN, E. (1920)

The idea for this thesis project emerged from a personal frustration for general perception of our built environment. A frustration every time I see, or read, about demolition as a solution for structures that have lost their purpose, or simply do not fulfill the requirements of our contemporary view of what is valuable. On the other hand, the solution cannot be to preserve everything, for fear of demolition. Nothing is static, neither buildings nor cities.

With this thesis I aim to work in the spectra in between the brutal demolition and sentimental protection. To accept the fact that structures need to be removed, but not to accept the common uncaring methods of demolition. What if the act of demolition was conducted in a way that gives importance to its heritage but simultaneously could be seen as a resource to something new?

I decided early in this process to focus on abandoned industrial remnants, partly out of my fascination for their inhuman scale and brutal materiality, but also their importance for our industrial heritage. How is it that we so ruthlessly erase the traces of our former industry, when it was so important for us?

When searching for a site to do my research, I found it important to find a place which I had no prior knowledge of or relation to. I wanted to start without preconceived ideas in order to try to stay objective and not be nostalgic, which I predicted might be a problem. The old cement factory in Limhamn turned out to be a far more interesting site than my initial perception. I am glad for the opportunity to learn more about this place former industry and how it has been important, not only for Malmö but for all of Sweden.

This booklet should be seen as a process, both in terms of how the project has developed, but also as a personal process trying to broaden my perception on values within architecture. I have used this project as an opportunity to test ideas and combine theories and explorations in order to find my own approaches to discuss and design in relation to our built heritage and material resources.

*I would like to add a big thank you to family, friends, the studio members and Naima Callenberg for all the support and meaningful conversations.*

/ MAIN QUESTIONS  
 / OBJECTIVES  
 / DELIMITATIONS  
 / DICTIONARY

#### THESIS QUESTION(S)

Which design approaches could be used when transforming an old industrial site and its remnants?  
 & how can these approaches broaden the perspective on values in contemporary urban development?

#### INTENTION

The intention with this master thesis project is to be an additional voice in the debate about what is considered valuable when developing our cities. It aims to broaden our view on conventionally considered useless structures and reflect upon their potential in connection to industrial heritage and material resources.

#### DELIMITATIONS

The thesis is positioned within a speculative scenario and does not take building regulations for the site into account. The thesis will not focus on the criteria stated in the current parallel commission for this site, but rather use the vision and program as a part of the background. Neither does the project review the submitted projects. The thesis will not focus on financial perspectives.

#### USE OF TERMS

##### REMNANT

A part or quantity that is left after the greater part has been used, removed, or destroyed.

##### RUIN

The physical destruction or disintegration of something or the state of disintegrating or being destroyed.

##### SHADOW PLACE

One or more places from which something originated. A place hidden, severed and suppressed from our notice. (Author's own definition.)

##### TRANSFORMATION

A complete change in the appearance or character of something.

##### VALUE

The importance or worth of something for someone.

Definitions from *Cambridge Dictionary* & *Oxford Languages* if not stated otherwise.

////////// BACKGROUND



/ DISCOURSE  
/ CONTEXT

Simultaneously as the pace of urban development accelerates, so does the tendency to erase and demolish unwanted buildings and structures. The fast paced processes reduce the time for reflection and contemplation of our built heritage and its embedded histories and identities.

These decisions and processes are often driven by financial incentives, where economic motivations determine the needs that guides our urban development and therefore decides how to deal with our built heritage. The current development of the old cement factory in Limhamn is one of many examples where the conflict of interest is present. Where remnants of the industry meets the contemporary needs.

The term industrial heritage often refers to the physical remnants of past industrial activities, such as quarries, factories and industrial facilities. A wider definition of the term would be to include the aspects of institutional and social organizations but also the value systems industrial heritage sites. Despite the fact of increasing interest for preserving and re-purposing industrial sites for contemporary use, only the structures that can provide economic value or are aesthetically pleasing are viewed as valuable.

Our industrial heritages need to be treated in the same manner as our cultural-historical heritage, as it is a part of it. By embracing history and its remnants through architectural ideas and concepts, architecture can foster a sense of continuity and connection between past, present and start to speculate about the future. When broadening the general perception of what is considered valuable, present-day residents can re-connect with a community's industrial past and understand their shared history and cultural identity.

On the other hand, our contemporary context requires a pragmatic view of building resources and transformation. Cities will continue to develop, as there is nothing static. Meaning that a static preservation of our heritage not is a possible solution. What would happen if shifting focus from the static built form to the potential of transformation, building reduction and relocation of material resources without losing the identity of the heritage. Would it provoke a re-imagination of values in our built heritage?

As the concept of value can be perceived as subjective and often defined by the viewer, this thesis combines multiple theories and definitions of values within architecture in order to present a multifaceted definition.

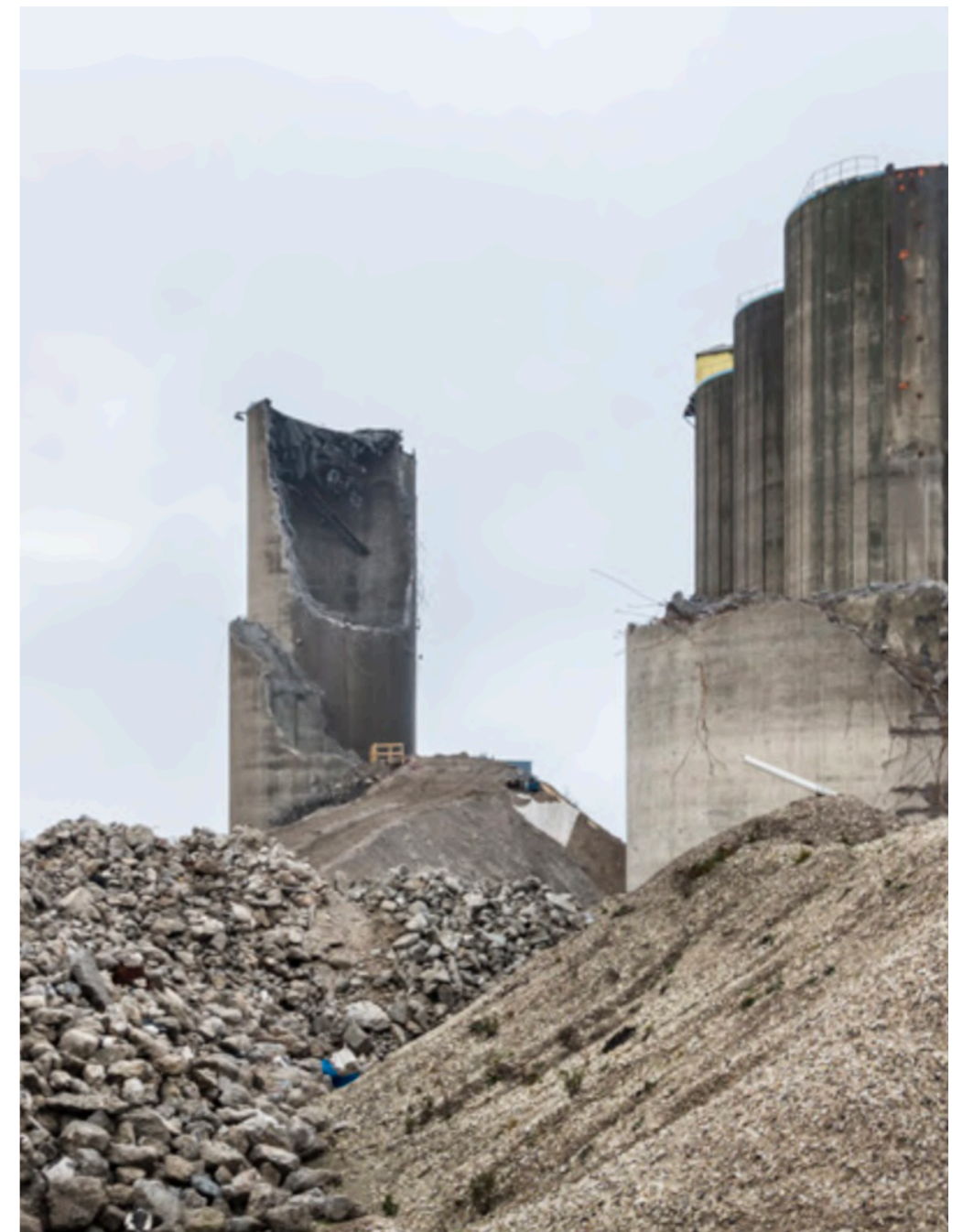


FIG 3.  
DEMOLITION OF INDUSTRIAL  
REMNANTS IN LIMHAMN  
LARSSON, K. (2015)

/ DISCOURSE  
/ DEFINITIONS  
/ THEORY

## LIFE AND DEATH OF STRUCTURES

Buildings are often assumed to have a life and the architect is assumed to be its conceiver and creator. But when a building loses its function, it is usually considered to be dead. Stephen Cairns and Jane M. Jacobs investigate concepts such as decay, demolition and rubble in their book : *Buildings Must Die : A Perverse View of Architecture* (2017). The book presents a contemplation of architecture in relation to theories of waste and values as well as re-imagines the design potential with 'dead' buildings. (Cairns, Jacobs, 2017)

Traditionally, ruinous buildings and structures have been viewed as evidence of a lost golden age. They provided evidence of the past, visualize layers of time and decay and were an important source for inspiration and knowledge. However, modern ruins are often seen as dysfunctional and testifies to economic and social defects. Arata Isozaki presents a more pragmatic view of ruins and consider them as symbols of the harsh reality rather than romantic traces of the past. (Cairns, Jacobs, 2017)

Max Rynnänen and Zoltan Somhegyi discuss the potential of structures in decay in their text : *Learning from Decay : Essays on the aesthetics of Architectural Dereliction and its Consumption* (2018). Arguing that dilapidated structures do have aesthetic, historical and existential potential, rather than practical. (Rynnänen, Somhegyi, 2018)

The concept of decay and ruination encourage us to become aware of temporal perspectives in our constructed surroundings. Both Cairns and Jacobs, and Rynnänen and Somhegyi opens up for new ways of view the potential of this process, where a building never is stable in their appearance and their state. (Cairns, Jacobs, 2017)

This thesis uses these theories and concepts to speculate about the lifespan of industrial remnants, the potential of its ruinous state and the possibility to re-introduce a new purpose. Micheal Guggenheim writes about the need for buildings threatened with death to be reborn or reanimated to be able to enjoy a new life. (Cairns, Jacobs, 2017)

The end of a building can be an opportunity for ceremony and reflection, which in the case of this thesis can give importance to the site's heritage. The silos will not be left at site long enough to become natural ruins, which is why this thesis investigates alternative design approaches to fulfill similar purpose.

*“When we admire the ruin, we concentrate on the remaining, since this is what leads us to the original and what is not there anymore is up to the viewer's imagination.”* ( Rynnänen, Somhegyi, 2018)

## VALUES AND MONUMENTS

Alois Riegl, an Austrian art-historian and philosopher, published an article in 1903 called *The Modern Cult of the Monument: Its Character and Its Origin*. An article where he describes the values to be considered when approaching the conservation and transformation of historical buildings. Riegl distinguishes four types of monumental values and two types of monuments. (Bruins, 2017)

The two types of monuments are the intentional and the unintentional. An intentional or deliberate monument is a result of a work produced for the specific purpose of keeping particular human destinies or deeds alive. When discussing monuments, we rarely think about intentional monuments but rather the unintentional artistic and historical monuments. According to Riegl, unintentional monuments contain a certain meaning assigned by the modern man, and not from the value or their original purpose. (Riegl, 1903)

The four introduces monumental values are : age, historical, artistic and use value. All these values are overlapping and dependent on each other. Riegl describes the spectra stretching from newness value, via the stages of patina, decay and ruination with different levels of age value, to rubble with no value. (Riegl, 1903)

In this thesis, the term value includes both a critical reading of Riegl's definitions but also a reading on the contemporary discussions and visions for this site. The aim of the reinterpretation is to challenge our perception of values within architecture.

Matter and mattering are two framing concepts manifested in the values in conception and destruction of buildings. The first one, matter, can be described as the materialization of architecture and the satisfaction that concepts are realized into built form. But as built form, architecture will face its fate of dematerialization, deform and decay. The definition of mattering is connected to how buildings are valued. This value can both operate in term of how buildings are connected to cycles of economic value creation but also in the realm of aesthetic appreciation. The materialized object is unavoidably connected to valuation, be they cultural, social or economic. It is important to keep in mind that fates of matter and mattering can not be separated. (Cairns, Jacobs, 2017)

## SHADOW PLACE

The idea of the Shadow place was initially introduced by the Australian feminist and eco-philosopher Val Plumwood in her text *Shadow Places and the Politics of Dwelling*. (2008) Her poetic and influential concept of Shadow places offers a framework for discussion regarding social justice, capitalist exploitation and environmental questions in relation to a materially grounded context of place. (Plumwood, 2008)

The Shadow places provide material and resources in order to create better places somewhere else. They depend on each other, nevertheless we tend to focus on the nice places and not the shadows. Plumwood describes the need to include a justice perspective and learn to recognize the shadow places, and not only the ones we admire, love or find nice to look at. (Plumwood, 2008)

Shadow places are to be found everywhere but are rarely made visible. We tend to ignore the places which provides us with material and financial support and only focus on the end result of the supply chain.

As this thesis is situated at the former cement factory in Limhamn, the concept of the shadow place is relevant. In regards of both the site's history of being an important producer of cement, but also as a new shadow place for the material being relocated from the site. Plumwood suggests a shift in the perception from the nice places to their shadow place, which could be applied in this thesis as an argument of the importance of this place. (Plumwood, 2008)

The concept of Shadow places is rich in its complexity and involves a wide spectra of theory and ideas, where this project mainly focuses on the part relating to the extraction and movement of material and resources.

*“Contemplation of the agency, power and mystery of places potentially has a lot to contribute to understanding our relationship to the earth.”*  
(Plumwood, 2008)

## BUILDING REDUCTION AND RELOCATION

The concept of subtraction in architecture was presented by the architect Keller Easterling. Arguing that subtraction, through demolition and removal, are necessary parts of architecture but are often responded with resistance in form of preservation. Easterling entreats architecture to accept subtraction as “a productive technique” and as “both a tool and a new territory”. Easterling's theories open up for a more nuanced cohabitation of demolition and conditions of wasting. (Cairns, Jacobs, 2017) 41

Gustavo Giovannoni, an Italian architect, presents ideas connected to Easterling but proposes “building reduction” (*diradamento edilizio*) instead of demolition and removal. By combining cautious demolition of existing structure and a gentle introduction of new ones, he found the solution for accommodating change in our cities without disrespecting the existing texture of the city. (Cairns, Jacobs, 2017) 40

Mélanie van der Hoorn describes the often contradictory relation the public have to eyesore structures in her ethnography : *Undesired Architecture* (2009). She defines the eyesore building as something rejected and disconnected to its host circumstances, be they aesthetic, use-based or economic. Van der Hoorn describes the rejected buildings as “corrupt in themselves” because they have lost their purpose of use and have begun to be marked by decay. Although such buildings often are subject to hate

and death wishes their demolition can generate mixed feelings. Due to the cost of demolition, these buildings are often left standing and can sometimes gain status, despite being seen as undesirable. (Cairns, Jacobs, 2017) 213

When analyzing the potential of building reduction and subtraction, temporal aspects gains relevance. Architecture is not limited to the state of being static, matter must move through space to create trajectories in order to use architecture, realize its purpose and create emotive potential. Tim Anstey, a professor at Oslo School of Architecture and Design, investigates the meaning of material translations in relation to the discipline of architecture in his text: *Things that Move, Domenico Fontana and the Vatican Obelisk* (2012).

The text questions which characteristics defines architectural work by studying historical architectural monuments such as the obelisks in Rome and the Florence cathedral dome in combination with the meaning of movement in early architectural theories such as Vitruvius and Alberti. The text reflects upon the hierarchy between the permanent and the transient, aiming to broaden the definition of architectural work by showing how architecture choreographs movement and move subjects. (Anstey, 2012)

## / REFERENCES

### APPROACHES

Relocation of matter, structures and therefore also values has been done in many different ways during history. These reference projects are therefore collected to gain an understanding of the varying aspects and perspectives of this discussion, and to provide insights on how they can be approached.

The city wall around Visby is one of the most well preserved historical monuments in Sweden. Parts of it have collapsed, been looted and later rebuilt. It is partly made of limestone and during periods in history the demand has been so high that material from the wall has been used to construct new buildings. If the city had not suffered from stagnation and

poverty in the 16th, 17th and 18th centuries, the wall's desirable material would have been used for new building in a larger extent. (Mitt Visby, 2023-03-05)

Tim Anstey writes about and discusses the relocation of the giant obelisk in Rome. Even though moving the obelisk took a year, the complicated logistics, drawings and design of delicate details required to achieve this unthinkable mission, suggested that the move had become more significant than just the monument itself. The mission created an event, using architectural means. (Anstey, 2012)

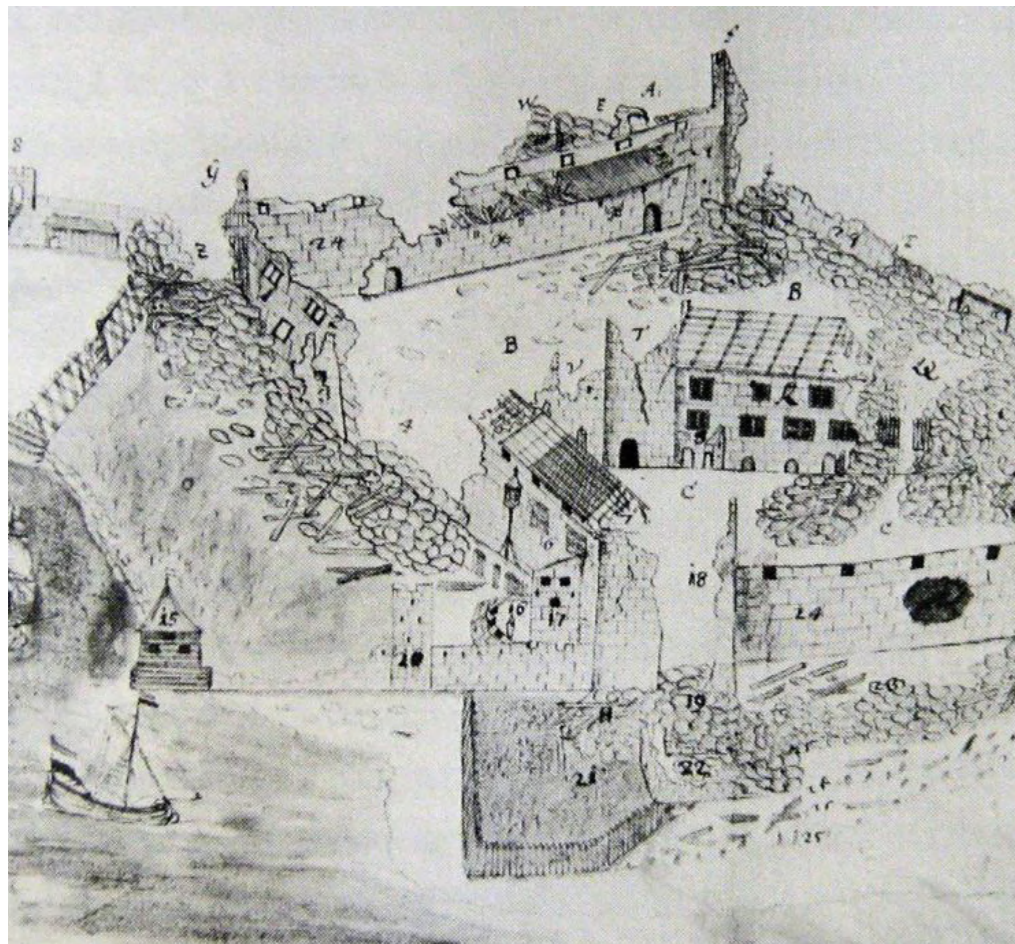


FIG 4.  
DRAWING VISBY  
TIDEMAN (1679)

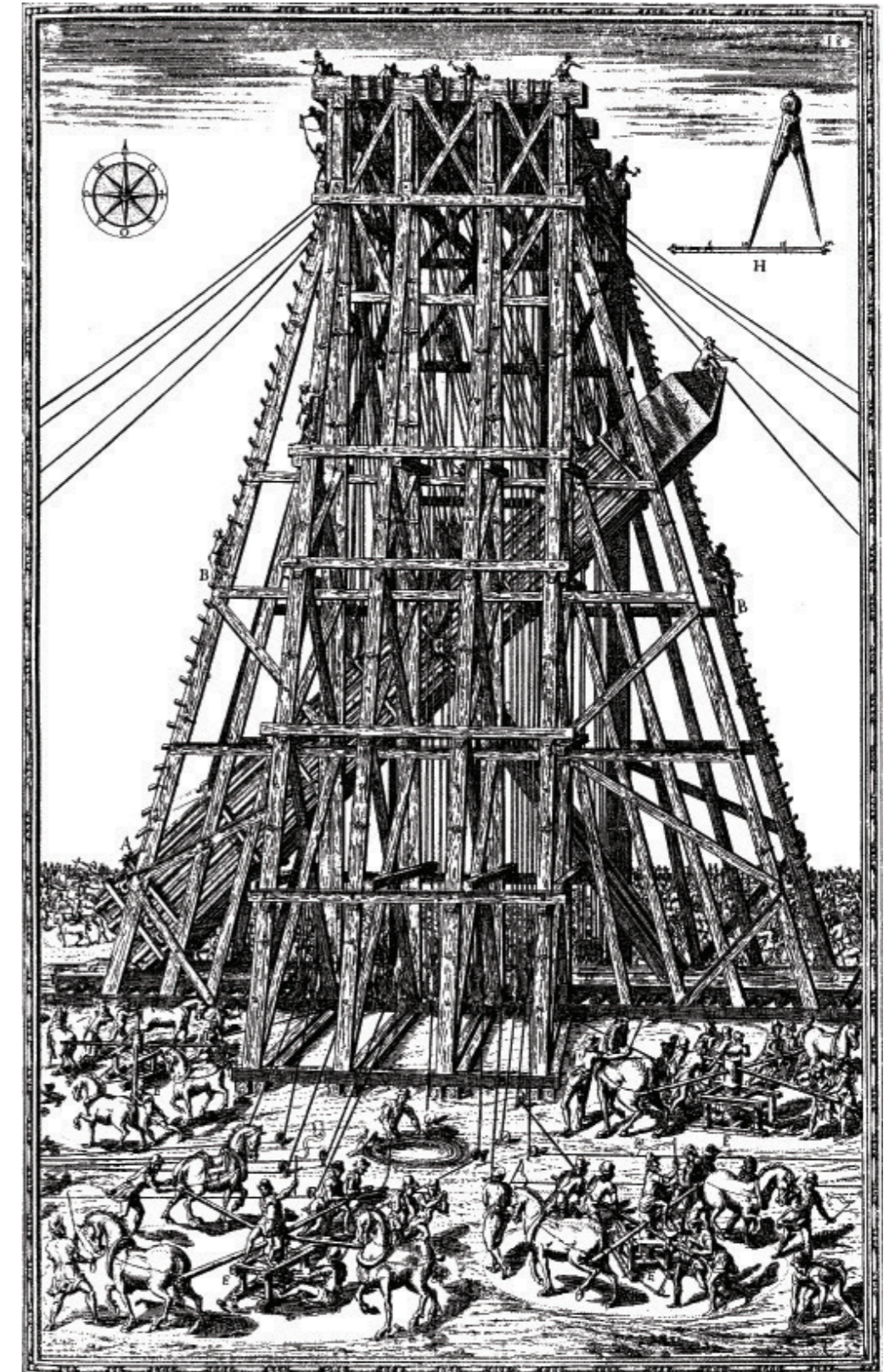


FIG 5.  
LOWERING OF VATICAN  
OBELISK IN ROME  
FONTANA DOMENICO (1586)

## INSPIRATION

Joseph Michael Gandy's painting of the Bank of England (1830) inspires this thesis in terms of representing the non-static and the constant evolution of a building, rather than presenting a fixed and static drawing.

Evita Vasiljevas installation at P/////AKT shows elements of labour and production presented in sculptural materiality. According to the artist, there is something more philosophical about the non static state of falling apart or becoming, than about the fixed and static state or situation. Her work visualizes the objects' strong physical presence, showing cracks and marks of decay and doubt, but also the potential to grow into something new. The viewer is left to use its own imagination to speculate about the future for the object.



FIG 6.  
AN IMAGINED VIEW OF THE  
BANK OF ENGLAND IN RUINS  
JOSEPH M. GANDY (1830)  
PHOTO: © SIR JOHN SOANE'S  
MUSEUM, LONDON



FIG 7.  
MANHOURS IN HEADQUARTERS  
INSTALLATION VIEW AT  
P/////AKT  
VASILJEVA, E. (2017)

////////// SITUATION

/ SITE  
/ INTRODUCTION

The thesis is mainly located in Limhamn, south of central Malmö, where the former cement factory once was positioned. This area previously served as one of Sweden's largest producer of cement. The production was divided into two main areas, the quarry in the south and the factory two kilometers to the north, located by the sea to enable shipping by

boat. The two areas were connected by train, and all the material was transported on the railway above ground until 1968 when tunnel connecting the areas was built. This thesis focuses on the part of the industry where the production of cement was placed, not the quarry. (Wickström, 2008)



SITE IN 2023  
DASHED LINE MARKS WHERE  
THE FORMER CEMENT FACTORY  
WAS SITUATED AND THE  
SOLID LINE THE ONLY RE-  
MAINING UNTOUCHED AREA.



LOCATION IN RELATION  
TO THE CITY OF MALMÖ

## / SITE

## / HISTORY

The factory was founded in 1888, but the excavation of limestone have always been of interest to the population of Limhamn. The bedrock is very shallow and consists mainly of limestone, which made quarrying an relatively accessible side business for farmers in the area. (Schlyter, 2009)

In 1930, the cement production doubled and after the end of the Second World War, the demand was enormous. Between 1900 and 1950, the consumption of cement in Sweden had increased twenty-fold. Production double again between 1950 and 1969 as a result of the national housing initiative. The factory was modernized to achieve the production capacity needed to fill the demand.

In the 1970's, the construction slowed down and the oil crisis made energy more expensive. In 1978 the last kiln at the factory in Limhamn was shut down. The island and the ground was sold to the city of Malmö but the quarrying continued until 1993. (Schlyter, 2009)

Since the closure of Cementa Malmö in 1979, the majority of the infrastructure and the building which constituted the factory have been demolished. A few traces remain to reminisce about the past. At Fendertorget, located by the old loading quay, remain six silos. Three was partly demolished in 2012, but the other three remain intact. The silos, along with the quarry and a locomotive shed, are what remains visible from the industrial era. (Schlyter, 2009)

The site was chosen because of its history, current context and the industrial structures that remain.



FIG 8.  
OVERVIEW OF THE  
FORMER FACTORY  
MALMÖ STAD (1973)



FIG 9.  
ON-GOING DEVELOPMENT  
AT FENDERTORGET  
LARSSON, K. (2018)



## / SITE / TODAY

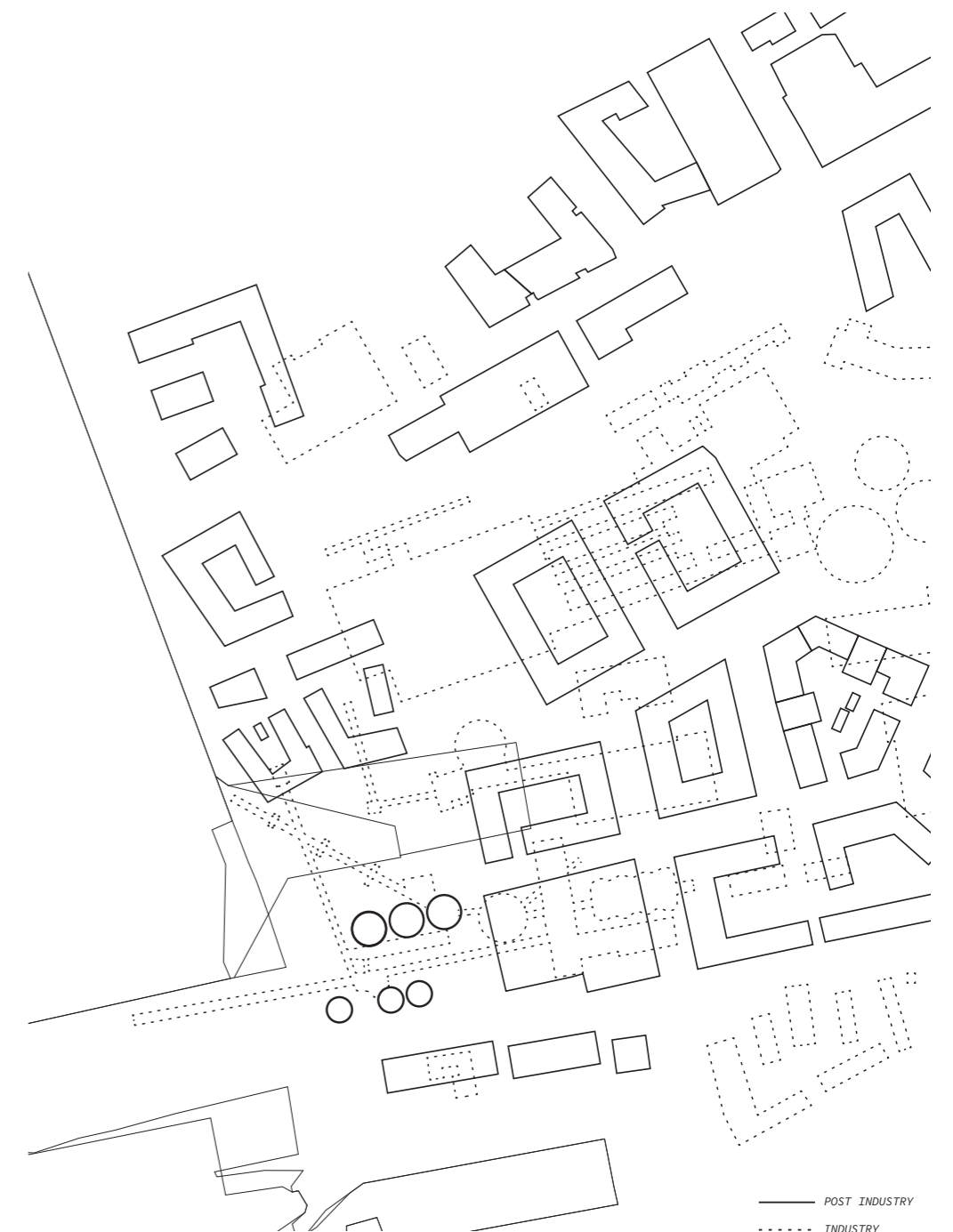
As most of the old factory buildings have been demolished, plans for new construction have been shaped. Around the six remaining silos, new buildings have been constructed and now the time has come to transform the silos and the ground which they stand upon.

In 2009, a cultural and historical analysis was produced by the heritage consultant Olga Schylter for the City of Malmö. She states that the quarry is a huge and tangible psychological trace of the cement industry that will remain and be visible for all time. In order for people to understand the industrial heritage, it is crucial that the quarry and the cement factory's location in Limhamn are somehow visible in the physical environment in the future. (Schylter, 2009)

The cultural and historical analysis proposes to keep some of the structures to transform them into symbols for Limhamn's industrial heritage and make it a landmark for the area. The history of the site and the remaining structure is what makes it unique, and needs to be kept in future developments. The report also argues that the structures are only worth preserving if they have a function, either housing or office. (Schylter, 2009)

Housing and office spaces are two of the functions that Malmö stad, Fastighets AB Trianon and Lerbacken Fastigheter AB wish to add to this area when presenting their vision and the parallel commission in 2022. (Malmö stad, Fastighets AB Trianon, Lerbacken Fastigheter AB, 2022)

The gentrification process of this type is common, especially in areas with economical interests. What is being demolished of our industrial heritage is mainly determined by norms of aesthetics and what is considered valuable, often with economic incentives in mind. There is however, in my opinion, much more potential with these industrial remnants that reaches beyond aesthetic and economic values.



////////// METHOD

## / PROCESS

## / METHOD

### PROCESS

The thesis focuses on developing methods to observe and inventory a site, exploring its embedded potential, and translating the explorations into design approaches for the site. The method can be described as research through design.

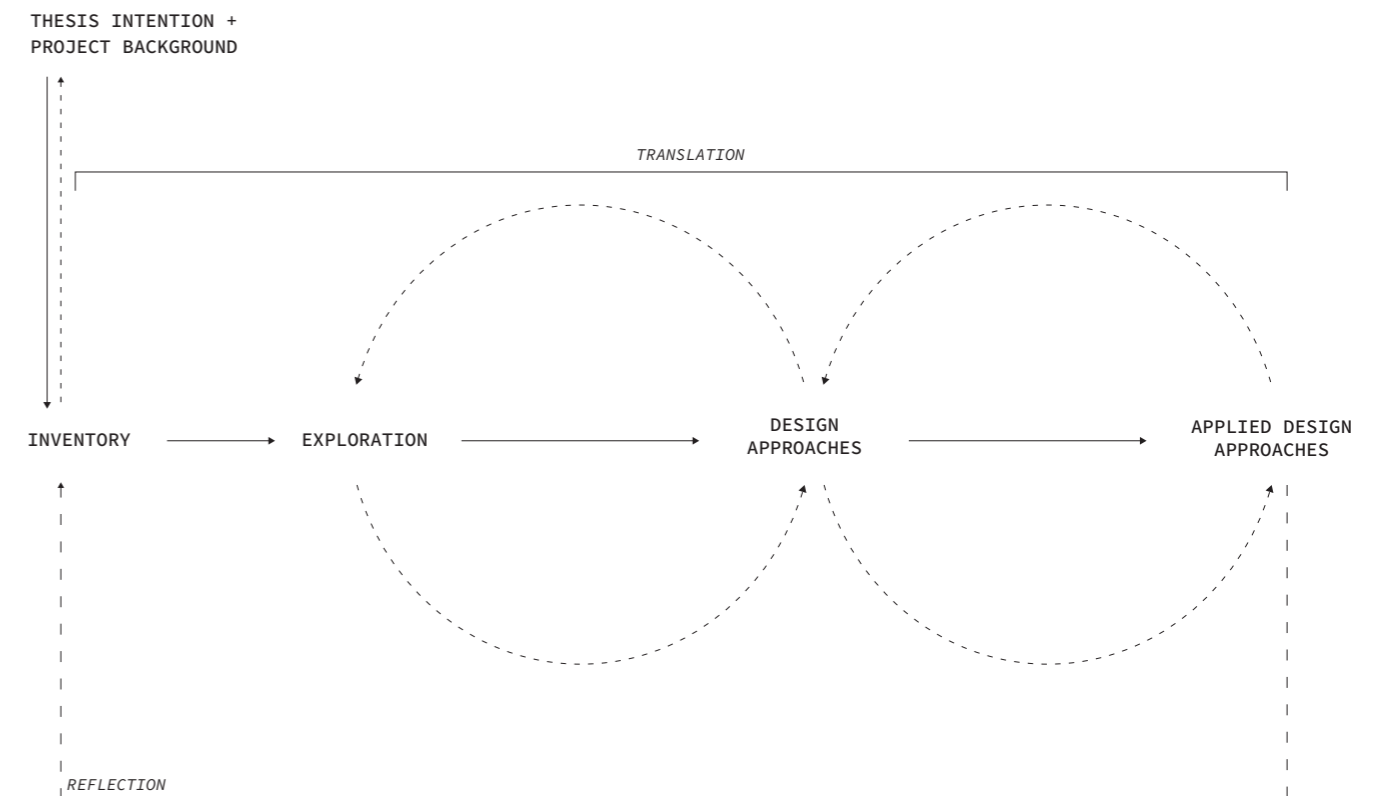
With this as a starting point, the thesis aims to explore the question: *Which design approaches could be used when transforming an old industrial site and its remnants? and how could these broaden the perspective on values in contemporary urban development?* as well as opening up for contemplation and discussion about our perception of industrial heritage.

The first phase of the thesis uses theory and contemporary visions for the selected site in order to start to position the project in a wider debate. In parallel, an inventory of the site is done to understand the project's prerequisites as well as its history and former purpose. This is made by analyzing archive drawings and a site visit to document the current state of the site and the structures.

The inventory is later used to test the different theories presented and to investigate the structures and site in different scales, methods of demolition and the concept of designing by erasure, building reduction and relocation. The explorations are analyzed and translated into design approaches, but it should be emphasized that this part of the process is made iteratively.

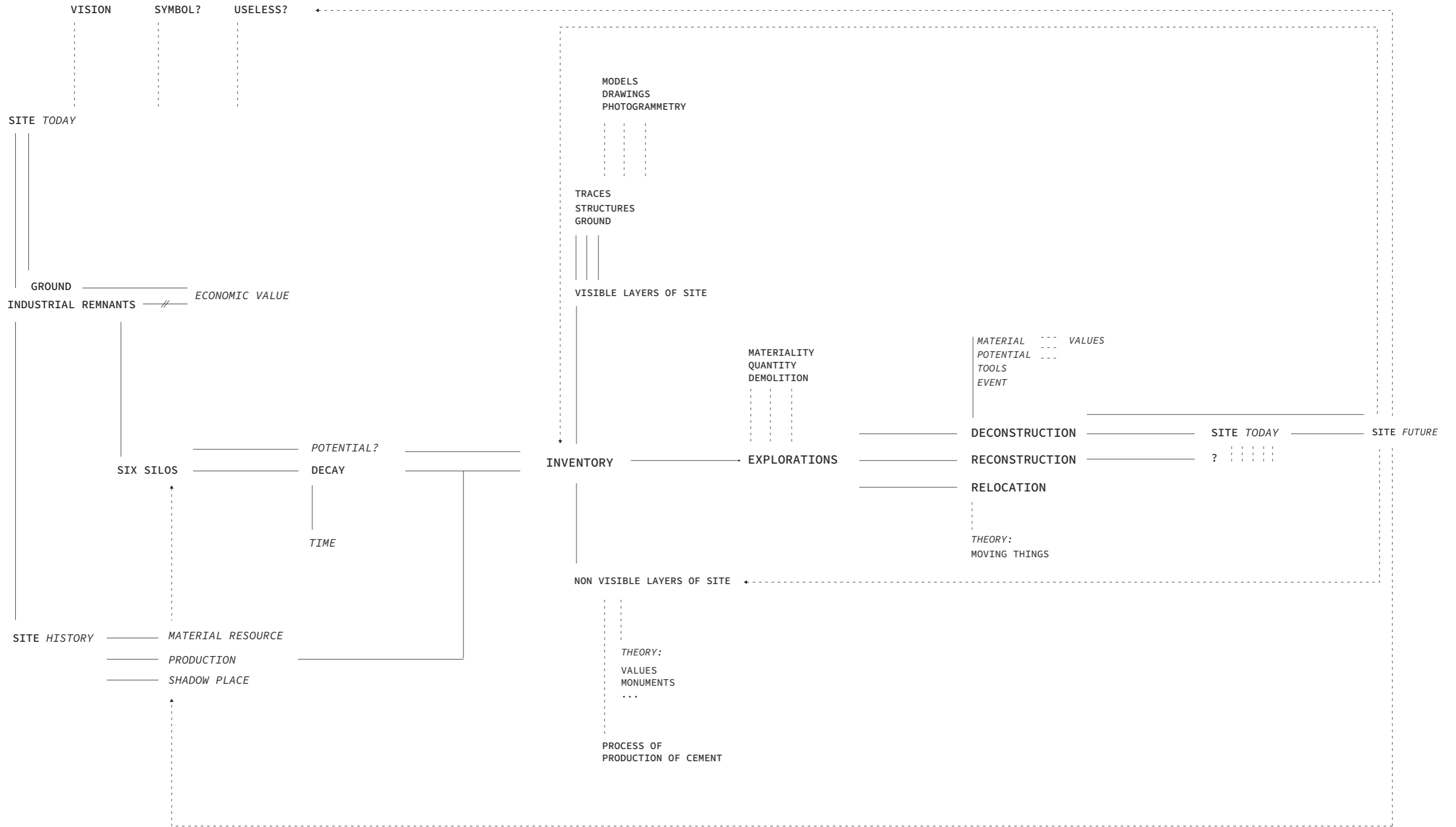
The formulated design approaches are implemented on the site and its structures to visualize the result of the explorations and to reflect and discuss the outcome in relation to the thesis' intention.

The project should be seen as an iterative process, where each step has led to new knowledge and influenced the trajectory of the project. Within the process of this thesis lies the act of interpretation and creative speculation in combination with theoretical ideas and concepts.



OVERVIEW OF WORKFLOW AND PROCESS

# / METHOD CONNECTIONS



/ INVENTORY  
/ SITE



TOP LEFT  
MARKS AND TRACES OF FORMER  
CONNECTION BUILDINGS  
AUTHOR'S PHOTOGRAPH (2023)

TOP RIGHT  
PERFORATION IN SILO  
AUTHOR'S PHOTOGRAPH (2023)

BOTTOM  
TRACES OF FORMER INDUS-  
TRY, HUMAN INTERACTION  
AND DECAY.  
AUTHOR'S PHOTOGRAPH (2023)

In order to collect material for design explorations and to understand the site in its current context, a site visit was made. Using camera and drone to capture the site and structures as a whole but also the marks of human interaction and decay. The visit was an important starting point to grasp the site, the scale and its on going transition.

The collected material was used to produce a photogrammetry, as texture for design explorations and to calculate the amount of material captured in these structures. The result of the inventory of the site was gathered into one

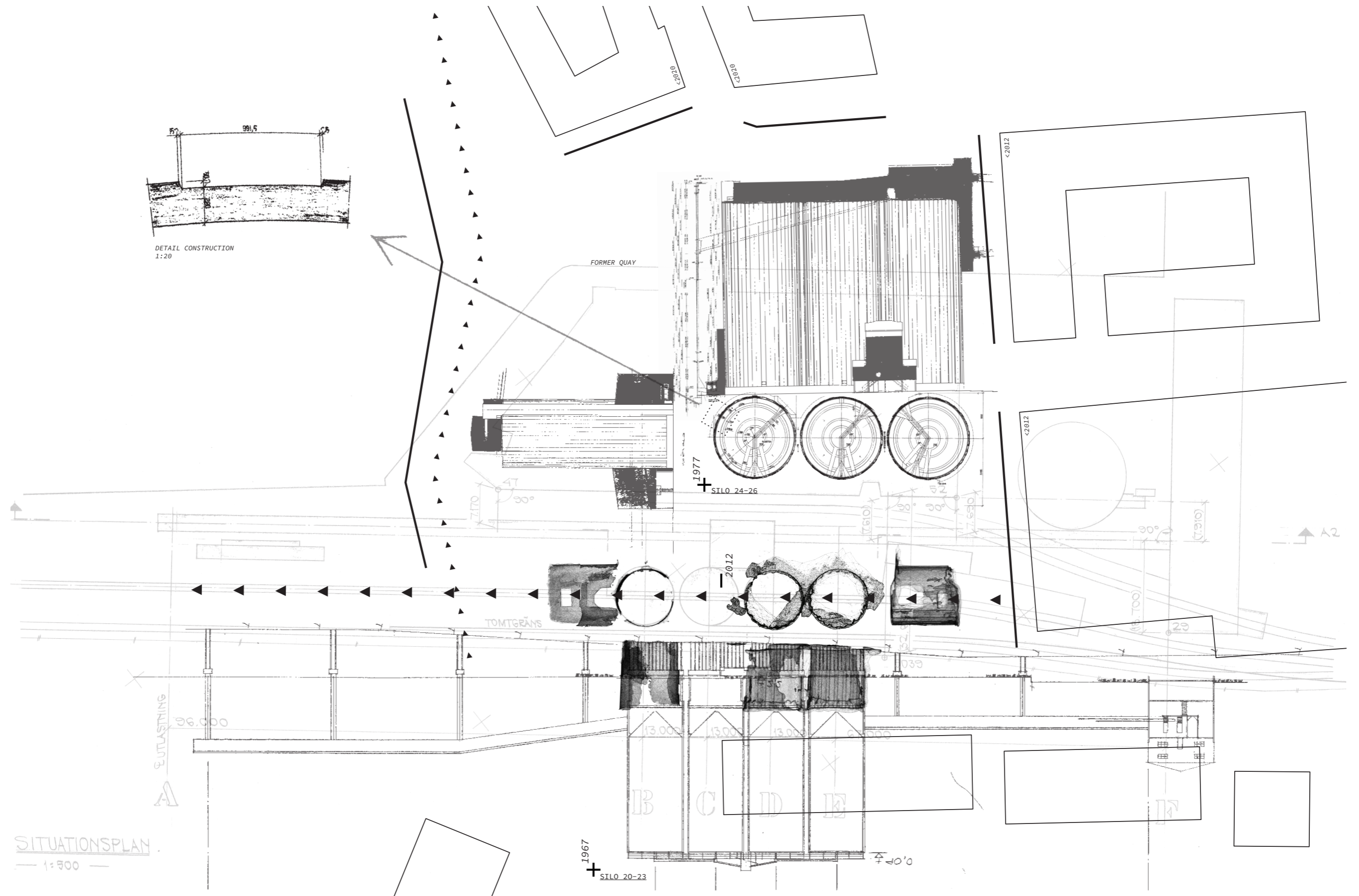
drawing showing original drawings, the structures' state today and their current context.

In addition to the inventory of the site's physical and historical content, a inventory of the site's values was made. By interpreting and applying the theories presented in the previous chapter, historical and current values could be mapped. Although this inventory departs from several theories and ideas, it is more subjective than the first one. Evaluating the value of the site is an important part of the process and was conducted on the presented outcome of the project as well.



THE REMNANTS IN THEIR  
CURRENT STATE  
AUTHOR'S PHOTOGRAPH (2023)

/ INVENTORY  
/ SITE AND STRUCTURES



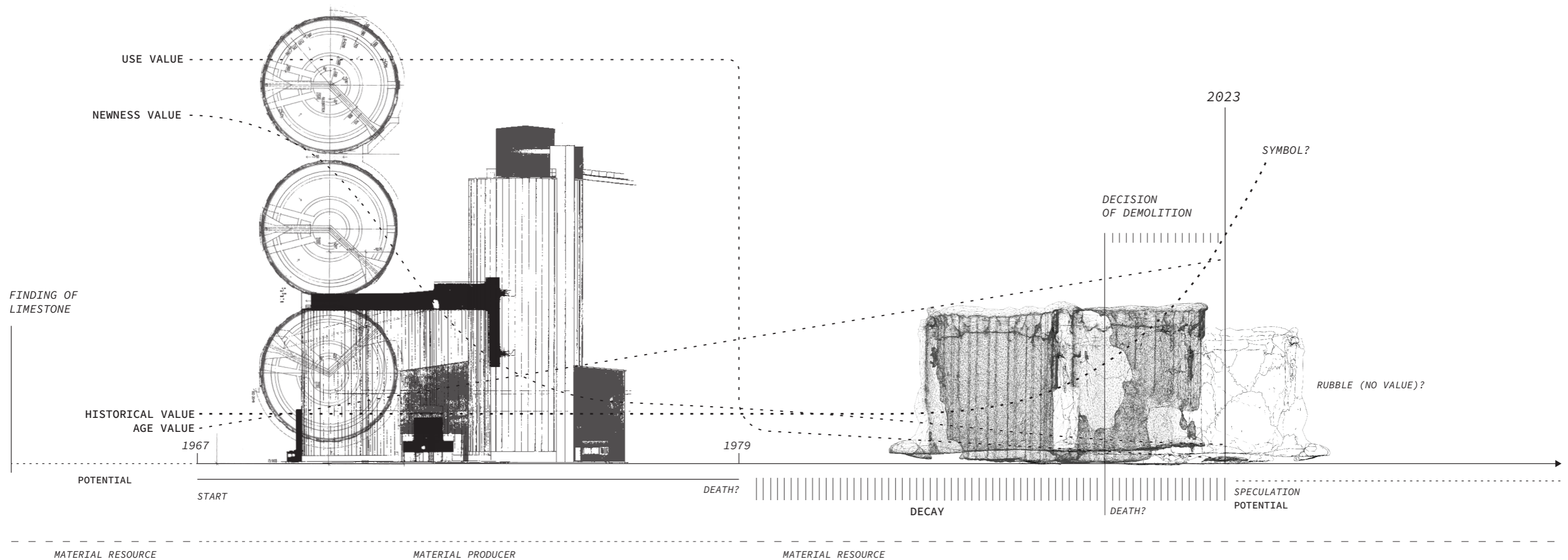
/ INVENTORY  
/ VALUES

The current and historical values can be mapped by combining concepts of the life-span of a structure and Alois Riegl's theories about values within unintentional monuments. The inventory shown below ranges from the initial finding of limestone and the potential it offered, through the active industrial era but also the post-industrial era up to today.

The inventory uses an interpretation of Alois Riegl's four categories of values: use, newness, historical, and age value.

The use value is lost when the factory is shut down and the structures lose their initial purpose. The newness value decreases over time, as the age value slowly increases. The historical value is low as the structures are relatively new and their appearance not pleasing enough.

This mapping of values lays the basis for speculation for future potential where this thesis aims to broaden Riegl's theories and therefore also our perception of industrial remnants.



////////// EXPLORATIONS



## / EXPLORATIONS

The inventory of the silos worked as a starting point for design explorations investigating form in relation to symbols, heritage and materiality. The explorations also visualize the connection between the process of demolishing a building and simultaneously extracting material. The extracted material are later used for explorations on reconstruction to investigate potential new scenarios.

The aim with the explorations was to creatively test different approaches, theories and methods in order to evaluate consequences and potential.

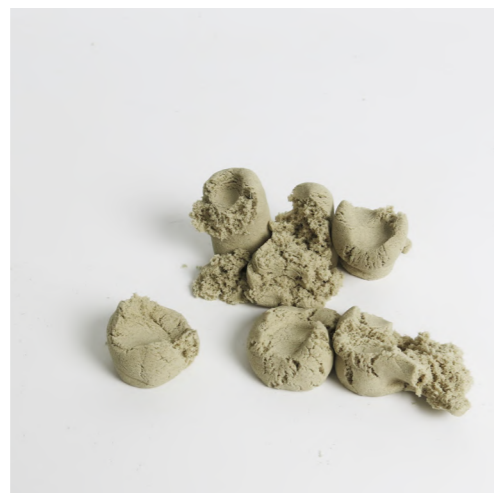
Seen to the right, a selection of the explorations is presented. Representing the methods of demolition and deconstruction, material resources, temporal aspects, the act of relocate matter and a speculation on what is left after deconstruction and relocation.

Following pages present four explorations that have been extra influential when finding trajectories for this project.

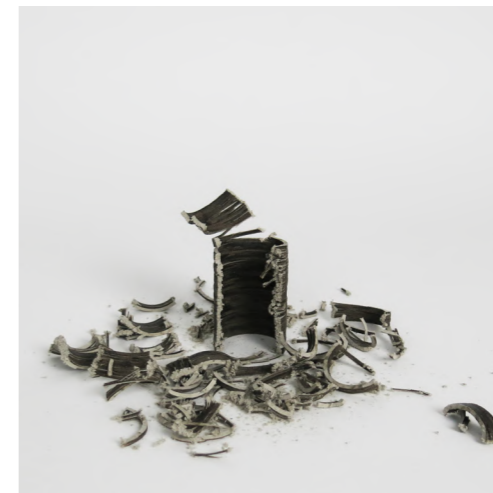


SELECTION OF EXPLORATIONS  
AUTHOR'S PHOTOGRAPH (2023)

Using prototypes made out of cardboard and clay-sand in scale 1:200 to study demolition, material excavation and traces of disassembly. Visualizing relocation of matter and imagine what is remaining after removing the structure.



RELOCATION OF MATTER AND THE REMAINING ECHO  
AUTHOR'S PHOTOGRAPH (2023)



DEMOLITION AND MATERIAL EXCAVATION  
AUTHOR'S PHOTOGRAPH (2023)

By using photogrammetry and the fragments from previous inventory, 3D meshes could be produced to continue the explorations digitally. An important aspect was to find methods to not lose the marks, scars, dirt and materiality when designing. As shown below, photographs from the site visit has been reintroduced to the

fragments. The fragments were also used to re-model the silo, which can be seen to the right. This was the first study of how to work with assembly after disassembly. The study emphasizes that the fragments are partly their own, but also a part of something larger.



RE-INTRODUCING TEXTURES ON  
3D-MESHES



RE-MODEL OF THE SILO USING  
FRAGMENTS FROM PREVIOUS  
EXPLORATIONS

//////////////// DESIGN APPROACHES  
+ APPLICATION

## / DESIGN APPROACHES

The iterative process of analyzing the inventory, the site's history, and the explorations led to a finding of multiple possible design approaches that could be implemented to investigate the embedded potential.

The first design approach is the concept of deconstruction. Both in terms of physically dismantling the structures but also their history and values as industrial remnants. The approach of deconstructing is inspired by the site's history as a material producer, where the excavation of limestone was justified based on its perceived potential.

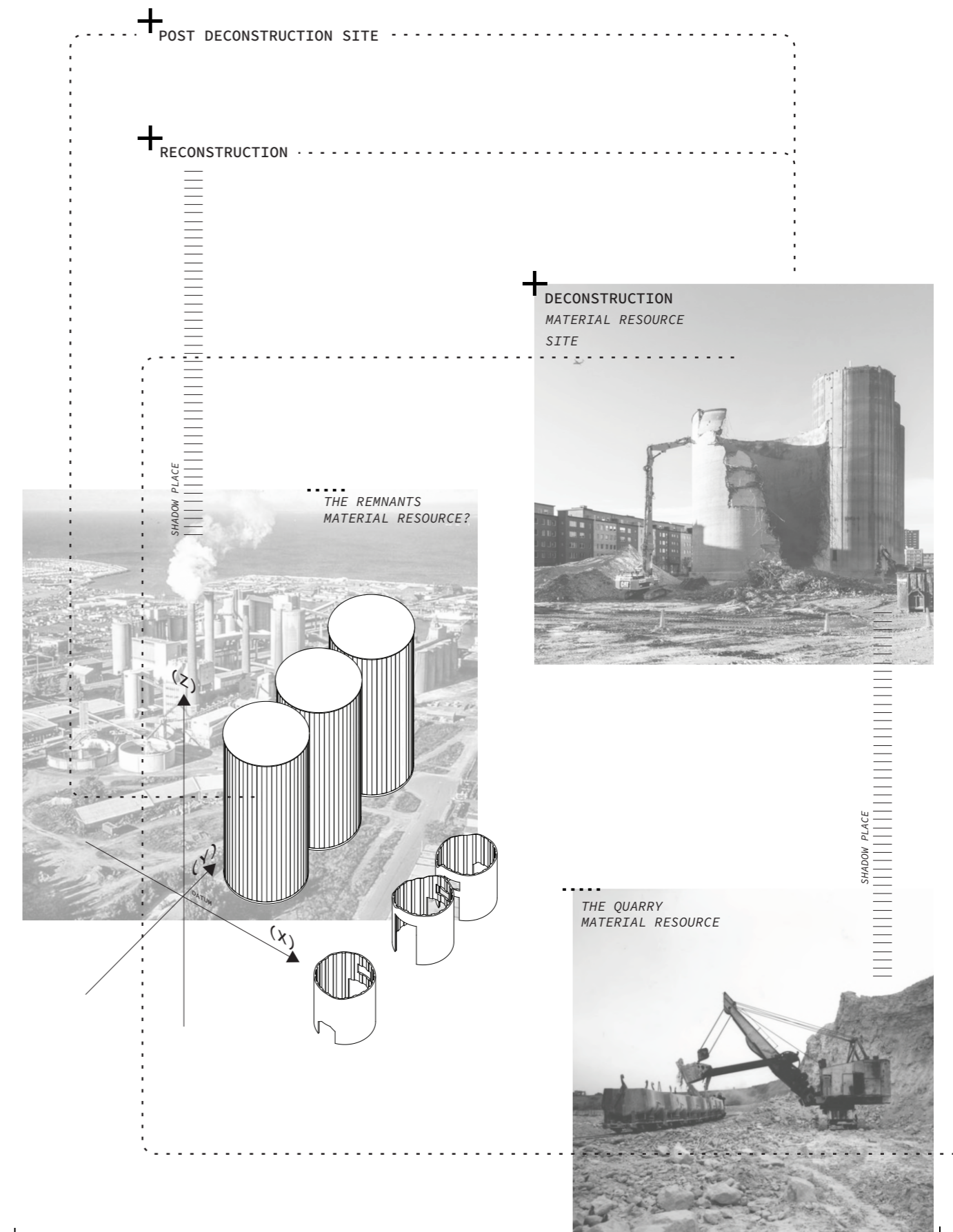
As a result of deconstructing a site, in this case, to dismantle and relocate the material it consists of, a post-deconstruction site is created. The extraction of material indirectly also means to design what is left when finished.

Reconstruction is the next design approach. Where this thesis focuses on the material resource, the fragments from deconstruction, and how to assemble them into new designs. In addition to the physical assembly, comes the speculative assembly of values and potential.

Relocation as a design approach is integrated into the concept of deconstructing and reconstructing. This design approach is applied to this site to emphasize the site as a shadow place, its history of producing material for another site, and how material considered useless can be useful somewhere else.

The formulated design approaches do not aim to find an ultimate solution, but rather to be applied on a site and its remnants to investigate the alternative potential.

EVALUATION AND TRANSLATION OF EXPLORATIONS INTO DESIGN APPROACHES



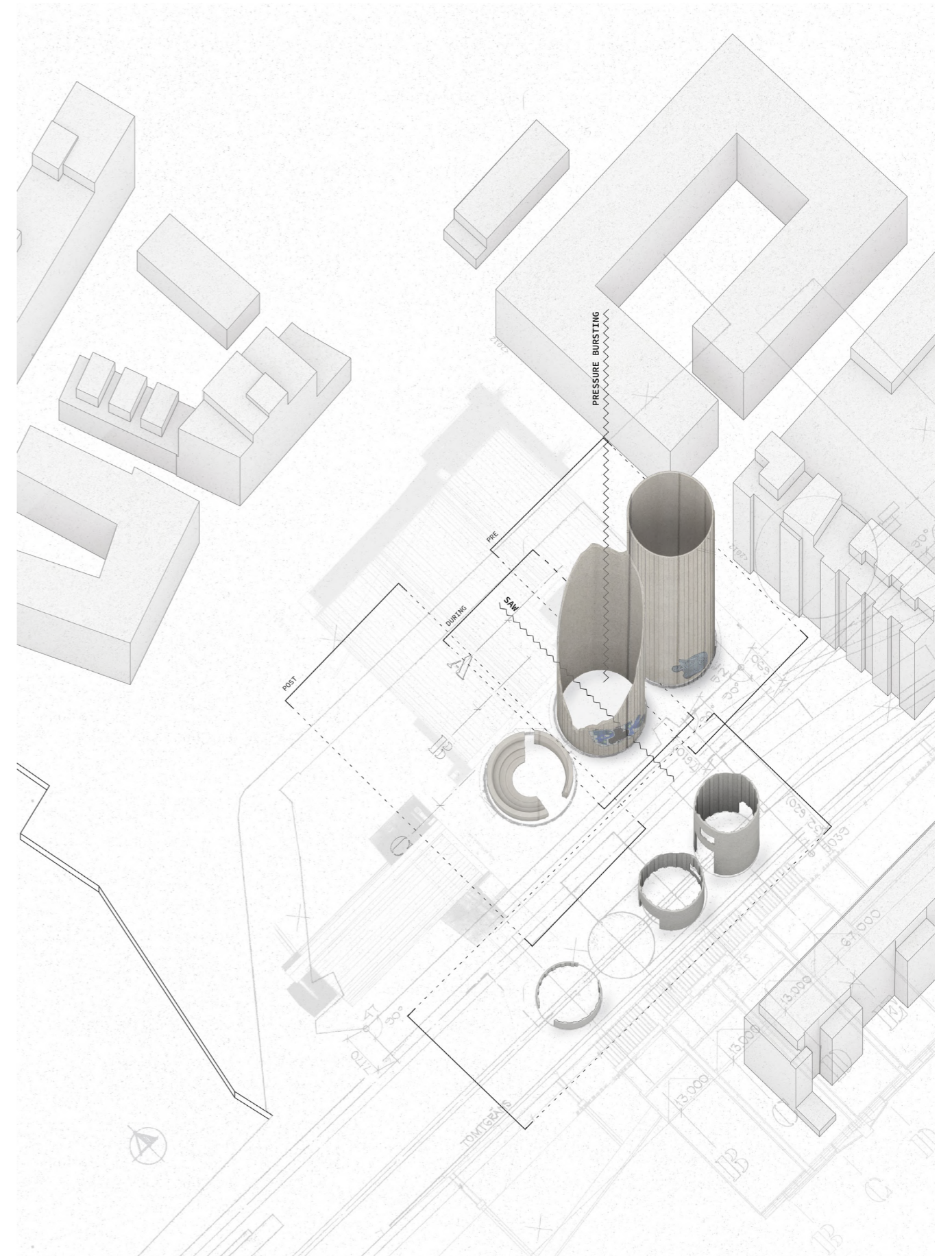
## / DECONSTRUCTION / APPLICATION

The first applied design approach is deconstruction. Where the remnants of the site are dismantled in a controlled way in order to transform the site and visualize the excavation of material to reconnect to the site's industrial heritage. The transformation of the site can be divided into three phases: pre-deconstruction, during deconstruction, and post-deconstruction. All important to discuss and reflect upon material resources, potentials and values.

The deconstruction is a slow process where the demands control the extraction of materials, not vice versa.

The tools and methods of deconstruction are chosen to give importance to the heritage and to provide useful conditions for the excavated material.

The horizontal deconstruction will be conducted using a saw or thermal lance resulting in a sharp and clean surface with no protruding reinforcement bars. The vertical deconstruction will be carried out with pressure bursting, in other words by drilling holes in the structures to control where the cracks occur and therefore control how the pieces are disassembled. This method leaves the reinforcement bars untouched and can therefore be cut where it is suitable.



VIEW OVER SITE DURING THE  
DECONSTRUCTION PHASE

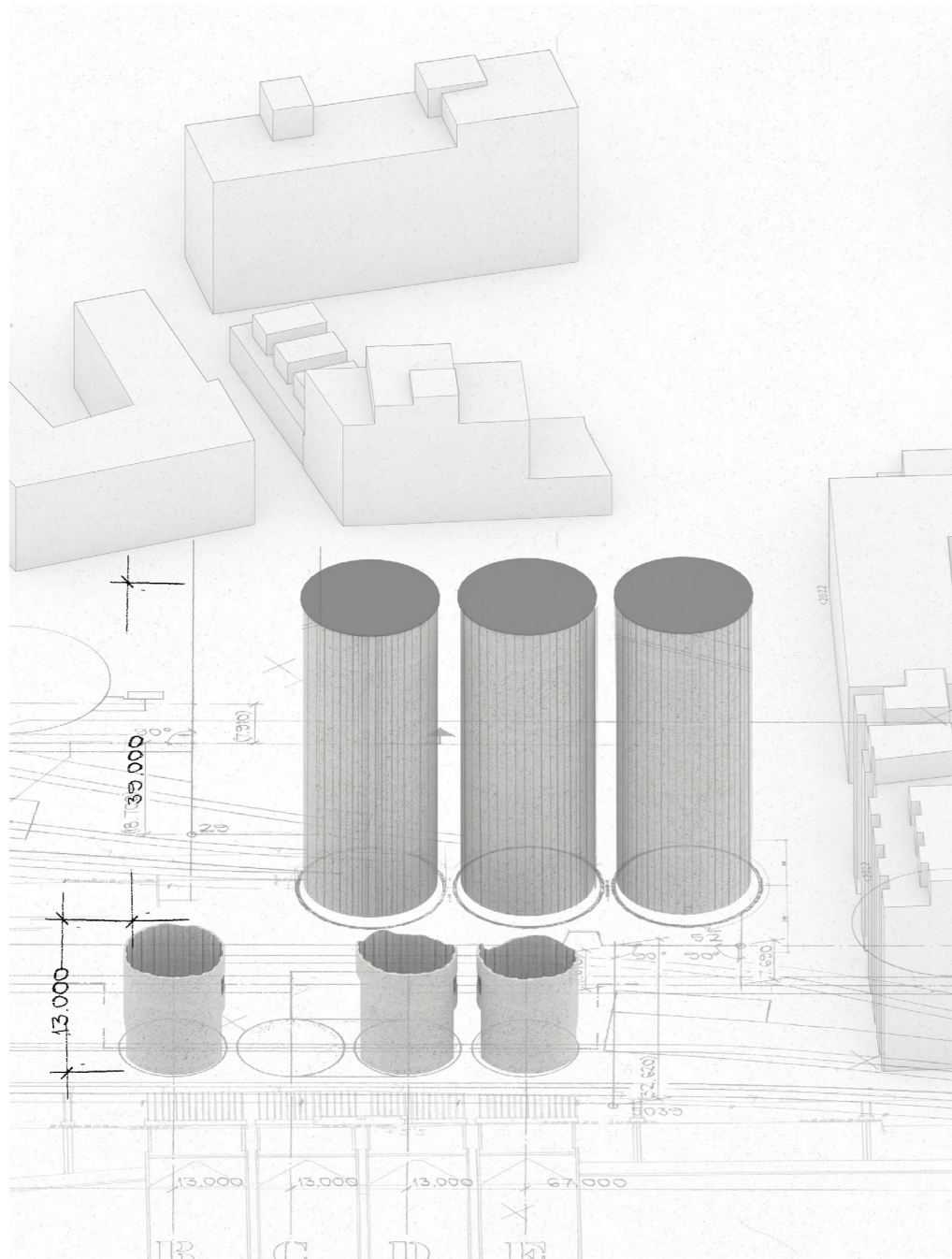
## / DECONSTRUCTION

### / TIMELINE

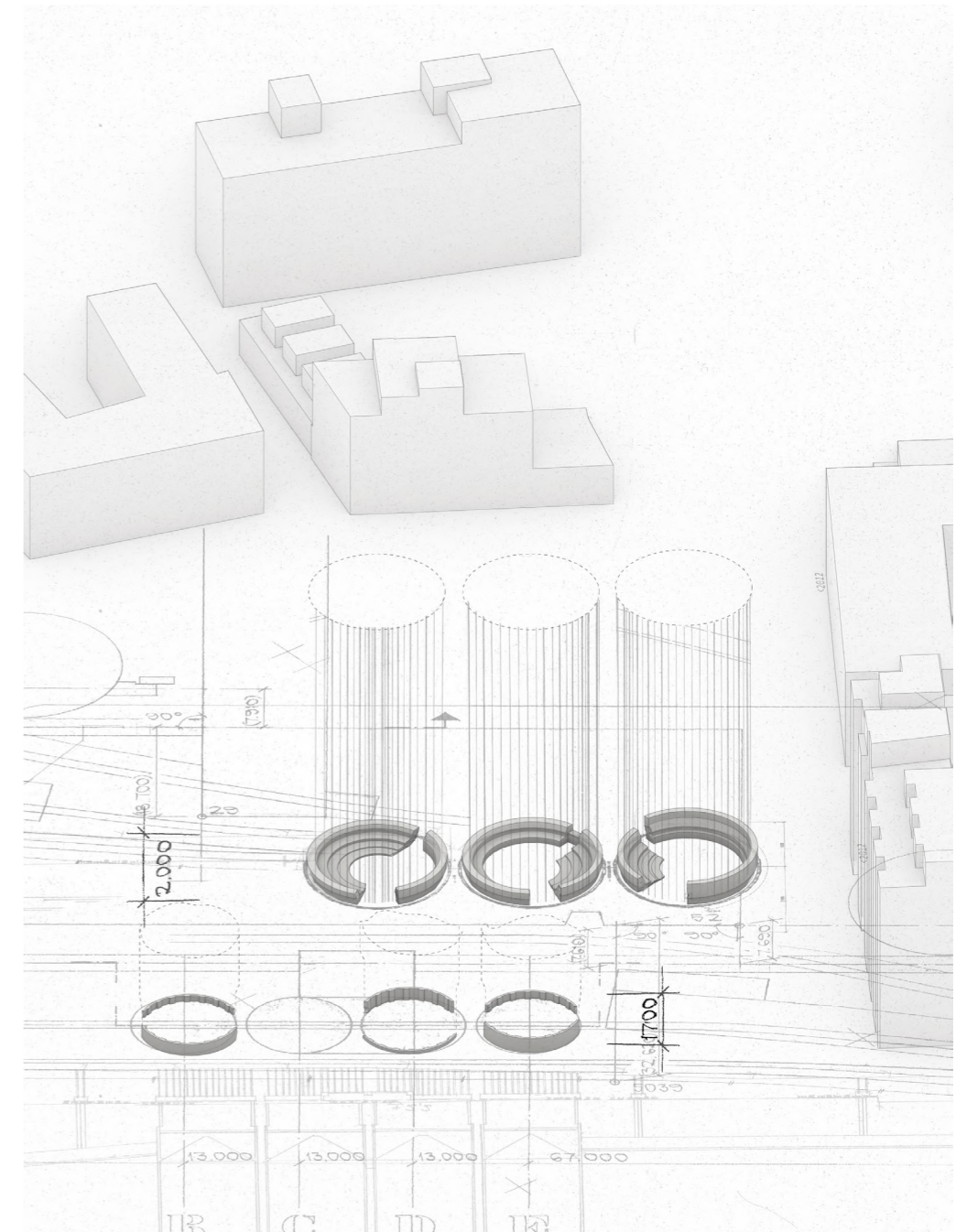
What is worth emphasizing is the movement, the non-static, of deconstruction. Ranging from intact structures to only the echo of the past. Three of the silos are intact, and the other three have already started their deconstruction journey as they were partly demolished in 2012. The deconstruction can be seen as an act, an

event larger than the structures themselves as Tim Anstey mentions in his theories. (Anstey, 2012)

The post-deconstruction site is the result of the material excavation where almost the entire site has been demolished and will be presented in detail on page 72.



PRE-DECONSTRUCTION SITE



POST-DECONSTRUCTION SITE

## / MATERIAL RESOURCE / FRAGMENTS

The fragments, which can be described as a product of deconstruction should be seen as a material resource with both potential and prerequisites to create something far more than being waste material. If applying Riegl's theories on values, he would call it rubble with no value and therefore no potential. However, as the fragments are carefully excavated from the remaining structures with tools and not explosives, it can be argued that the fragments already moved beyond the state of rubble into a resource with value.

Each fragment consists of six sides, one is the former exterior of the silo with its marks of human interaction and climate. The opposite side will be the former inside of the silo, that have only been in contact with cement. The other four sides will all be marked by tools from demolition. Two sides will have a clean and precise surface with visible reinforcement bars after being deconstructed with a saw. The last two sides will be rougher and have traces of pressure bursting together with the remaining reinforcement bars. These properties will apply to all fragments, regardless of their dimensions or proportions.

The fragments seen to the right visualize possible outcomes from deconstruction. All contain marks from previous functions, human interaction and deconstruction and with an embedded rounded shape and massive materiality. The remaining silos all together consist of 2,791 m<sup>3</sup> of concrete, whereas these three fragments only constitute 2,61 m<sup>3</sup>. Although this thesis does not focus on the quantities of reusable concrete, is it important to understand the scale and proportions of these structures.



FRAGMENTS FROM  
DECONSTRUCTION

1:20



/ MATERIAL RESOURCE  
/ ASSEMBLY

Once the deconstruction methods are defined, and therefore also the properties of the deconstructed material, the fragments are assembled to explore the architectural potential.

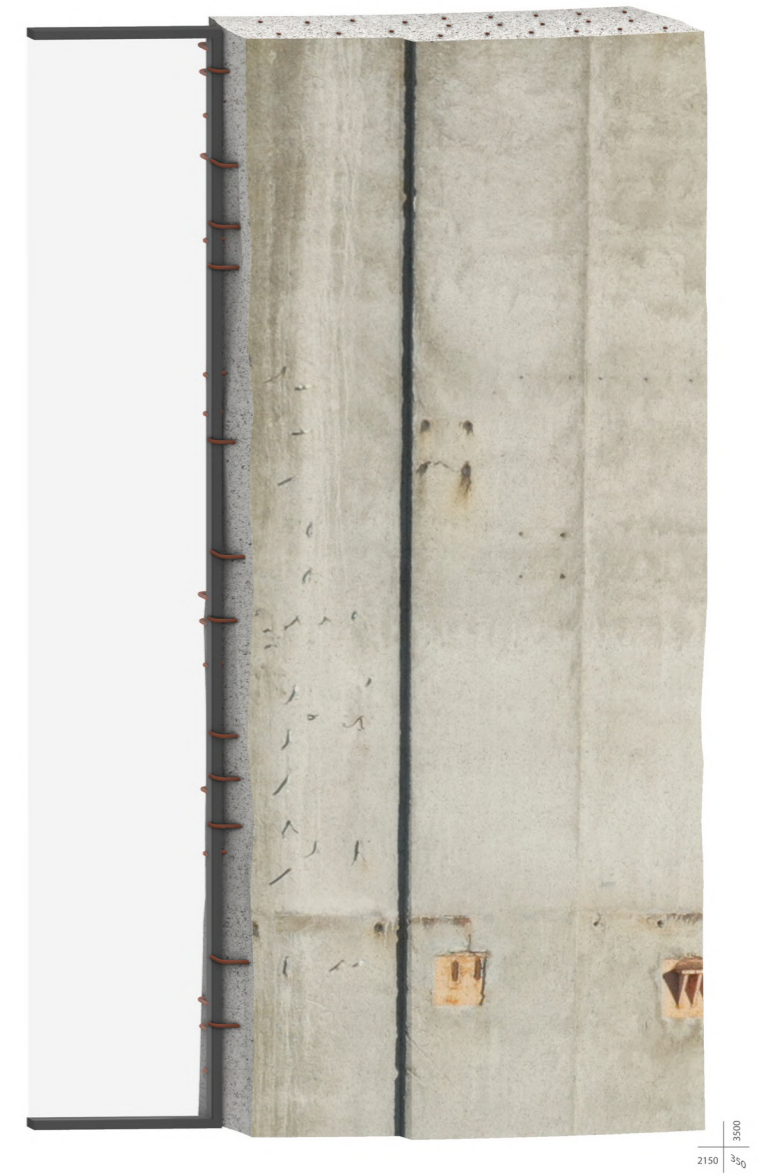
By using the remaining reinforcement bars the fragments can be reassembled into different compositions for different use and purpose.

This thesis explores four different concepts of combining fragments into architectural elements. A vertical and a horizontal element, an opening and how to attach a window. The different sides of the fragments will be displayed depending on the assembly.



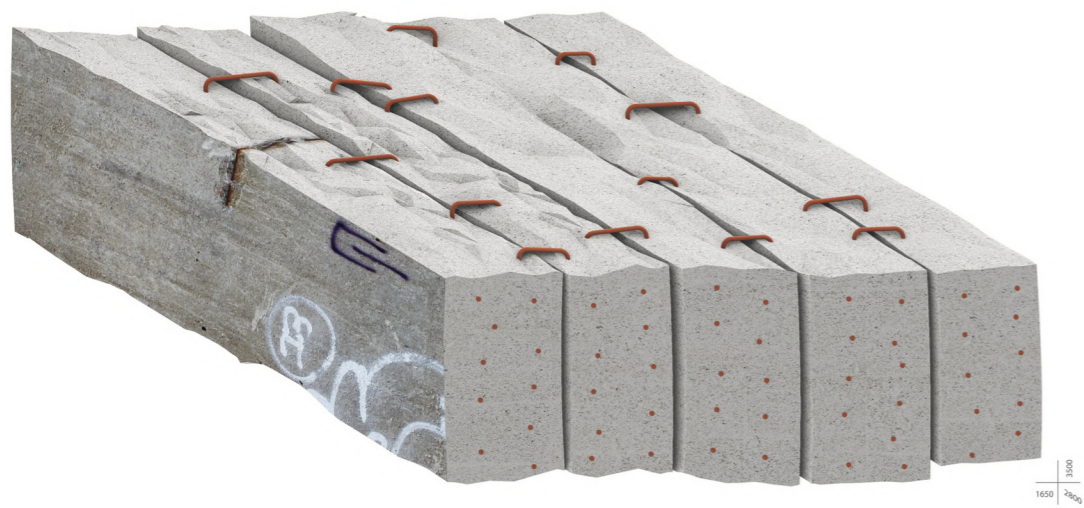
ASSEMBLY CONCEPT /  
VERTICAL ELEMENT

1:25



ASSEMBLY CONCEPT /  
WINDOW

1:25



ASSEMBLY CONCEPT /  
HORIZONTAL ELEMENT  
1:25



ASSEMBLY CONCEPT /  
OPENING  
1:25

## / ASSEMBLY / SITUATED DESIGN

The four concepts of assembly are used to design a structure situated in the center of Malmö. It consists of two small scaled units connected using a larger circular fragment from the silo.

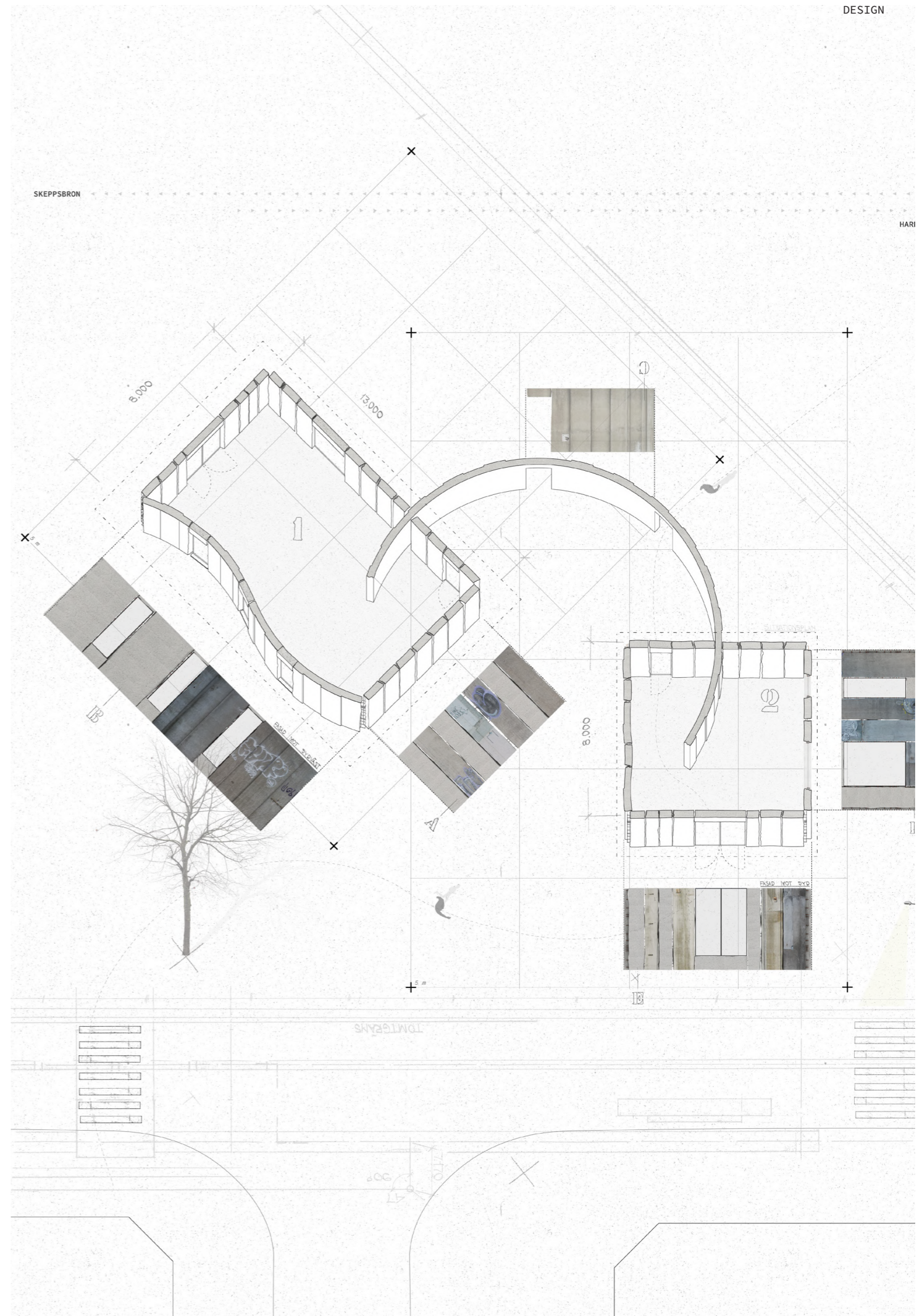
The reconstructed structure relates to a new context and a new program, but maintains its identity from its former use. The characteristic rounded shape reminds about its original purpose as a silo and the fragments scars, rough edges and visible reinforcements bars tell that it used to belong to something larger.

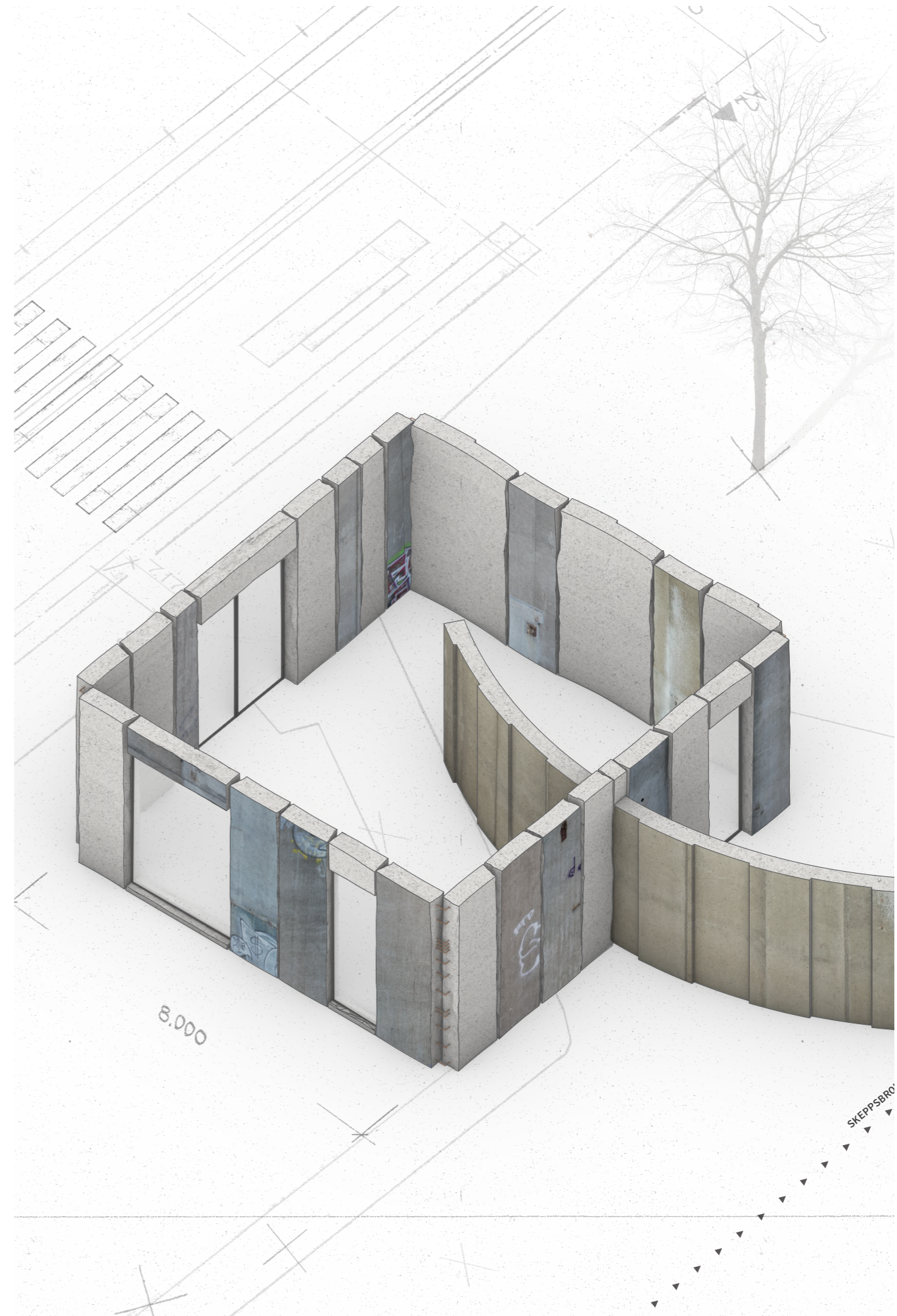
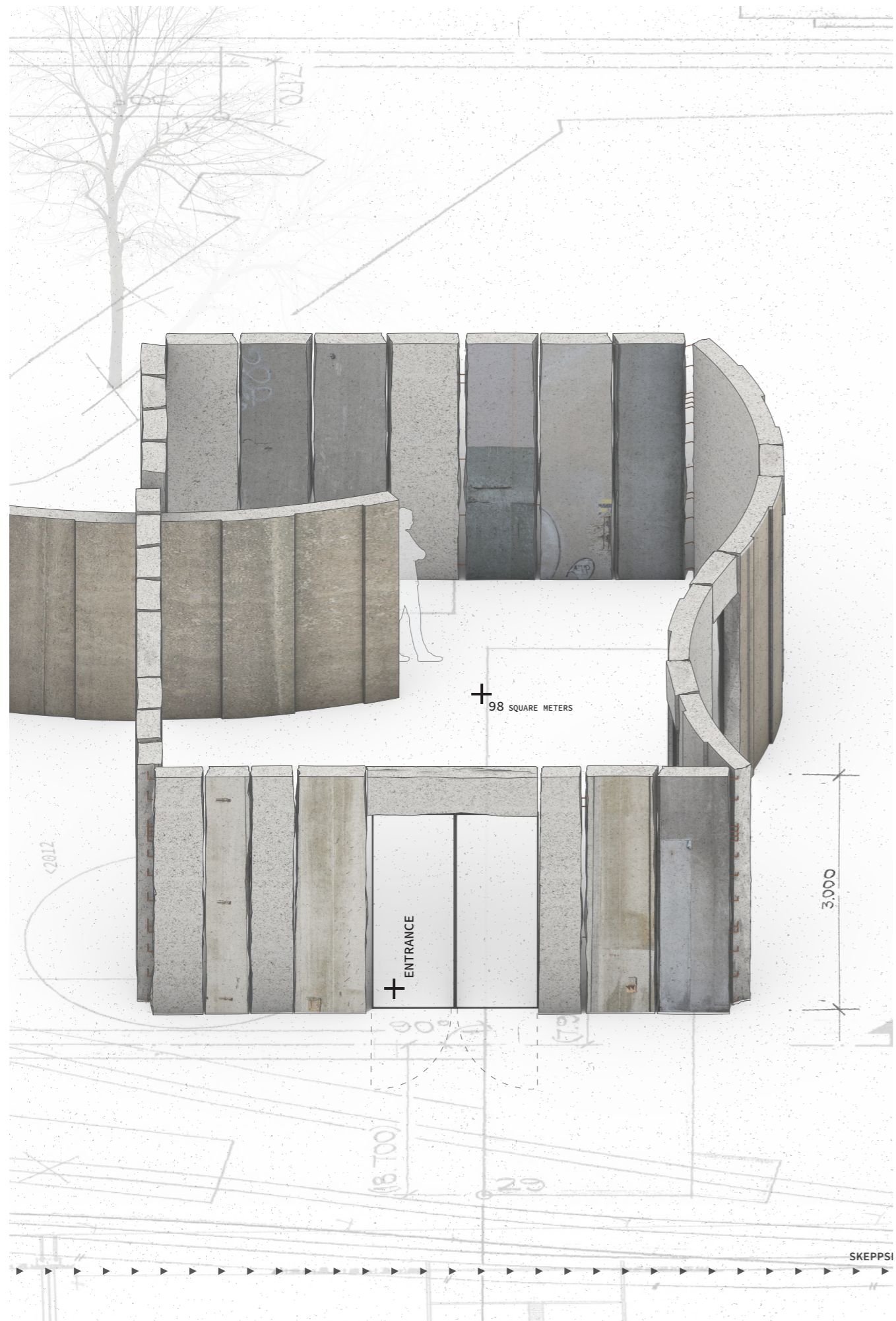
The role of the assembly is to highlight the architectural potential of the fragments and to reconnect to the theories of moving material and the architectural values it brings. The situated design proposal is not designed to respond to a specific program or need formulated by stakeholders, but is positioned in a central location in Malmö with a familiar context such as streets and residential blocks.

The composition is designed to use fragments of varying dimensions to use the rounded shape in different ways. The units are rotated and positioned to face different directions and lines of sight. The larger fragment connecting the two units creates a sheltered courtyard and a welcoming façade, both enhancing the scale of the silo and its heritage.

DECONSTRUCTED FRAGMENTS  
RELOCATED AND RECONSTRUCTED  
IN CENTER OF MALMÖ

1:200





## / POST DECONSTRUCTION SITE

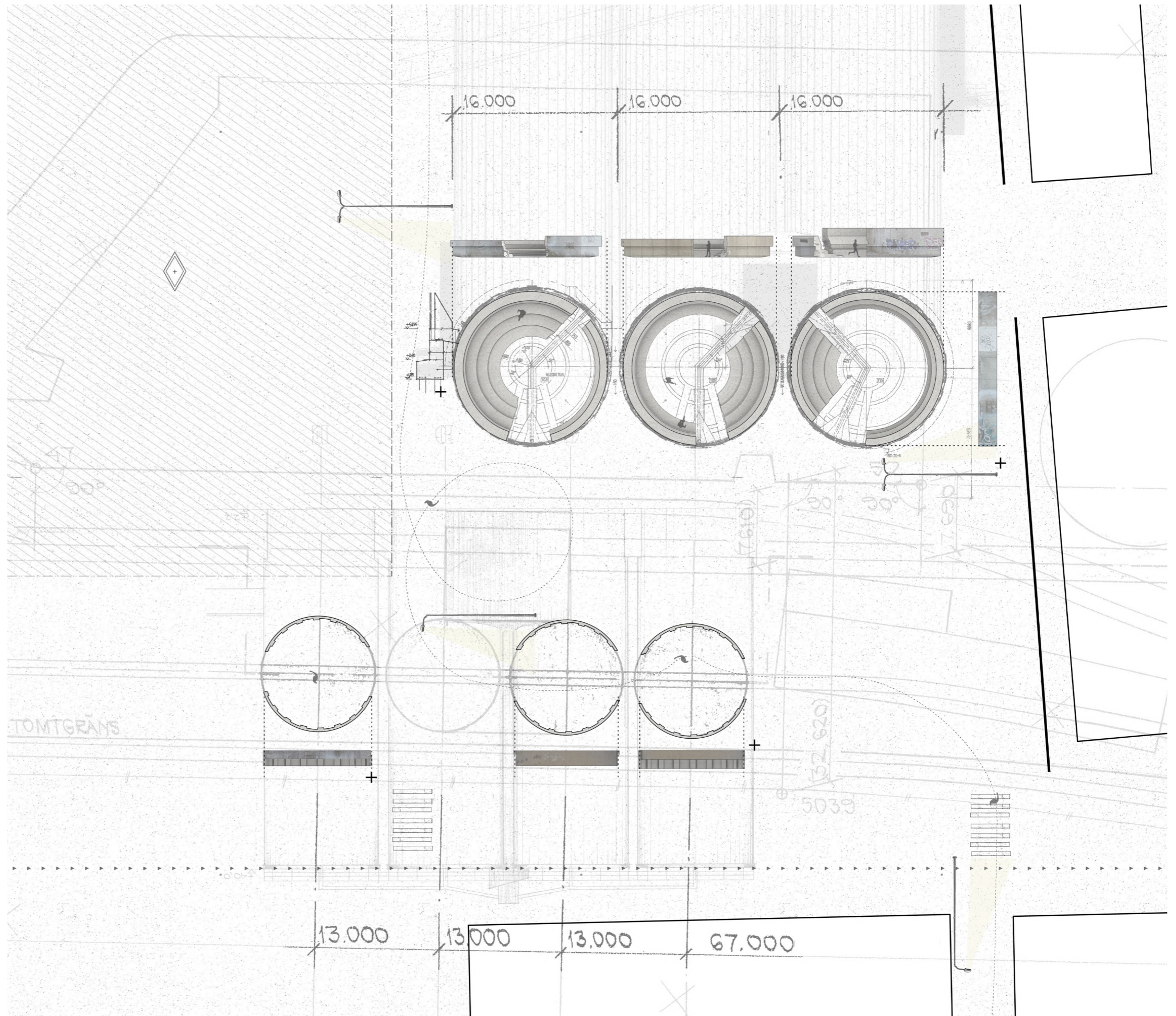
When perceiving the silos as a material resource and dismantling them, means there will be a post-deconstruction site. An alternative would be to level the structures with the ground and pretend that nothing ever stood there. A blank canvas for new things to grow.

Inspired by the presented Keller Easterling and Gustavo Giovannoni's theories of subtraction, design by erasure and building reduction, this thesis speculates on what is remaining post-deconstruction. By not demolishing the whole structure can a new design on-site be presented, connected to the new vision of creating an urban space but at the same time keep traces of former purpose and use. Just as the old quarry is left to visualize its former activity.

The remaining structures do not prevent, and neither aims to prevent, future development of the site. But their presence requires a reflection on this site's heritage and the embedded value it contained and contains.

As the silos never would have been left untouched long enough to become ruins, one can argue that this presented transformation can be seen as designing modern ruins. The remaining structures will never be actual ruins of course, but perhaps they can fulfill a similar purpose. As written by Max Ryynänen:

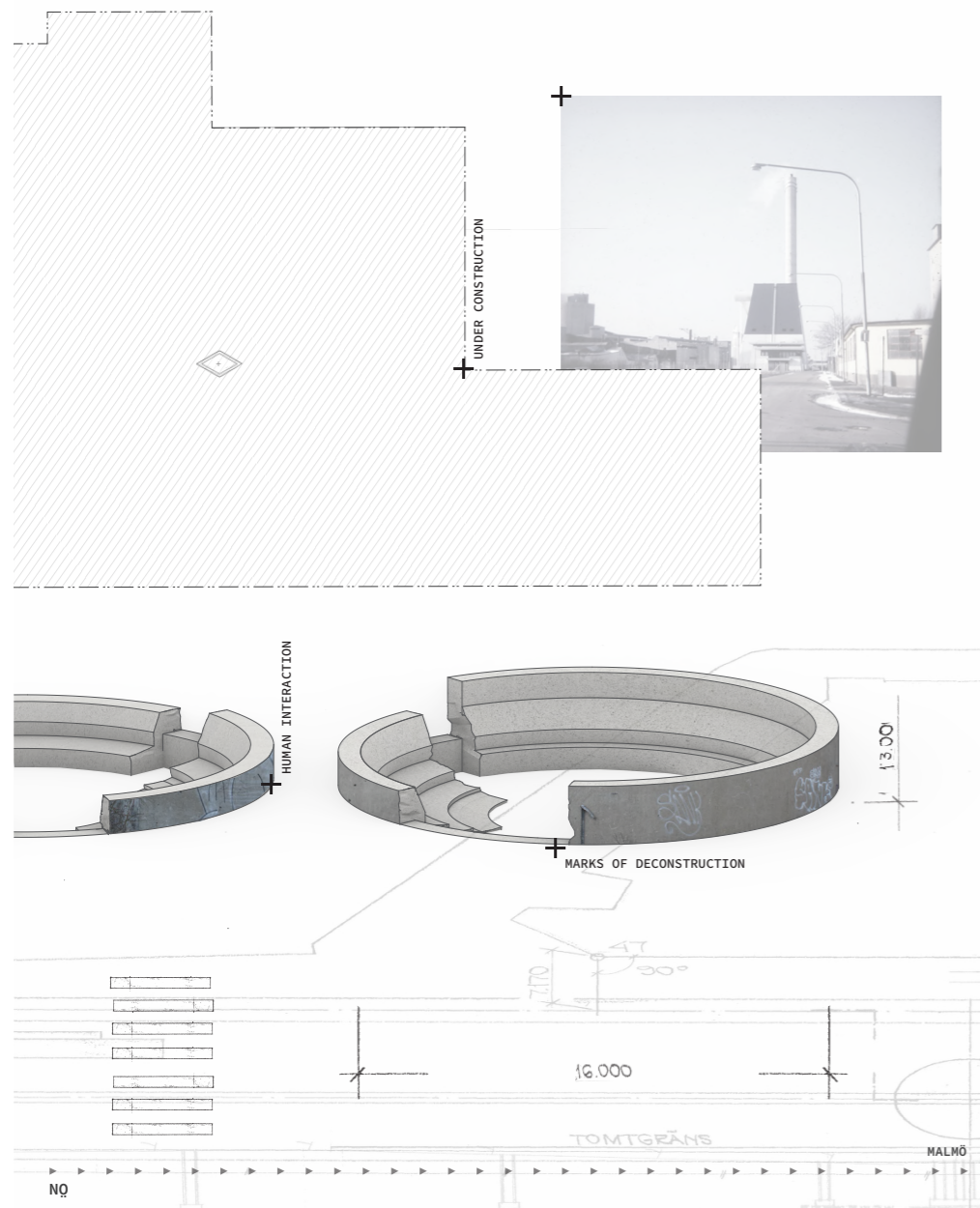
*"When we admire the ruin, we concentrate on the remaining, since this is what leads us to the original and what is not there anymore is up to the viewer's imagination."* (Ryynänen, 2018)



VIEW OF SITE POST  
DECONSTRUCTION

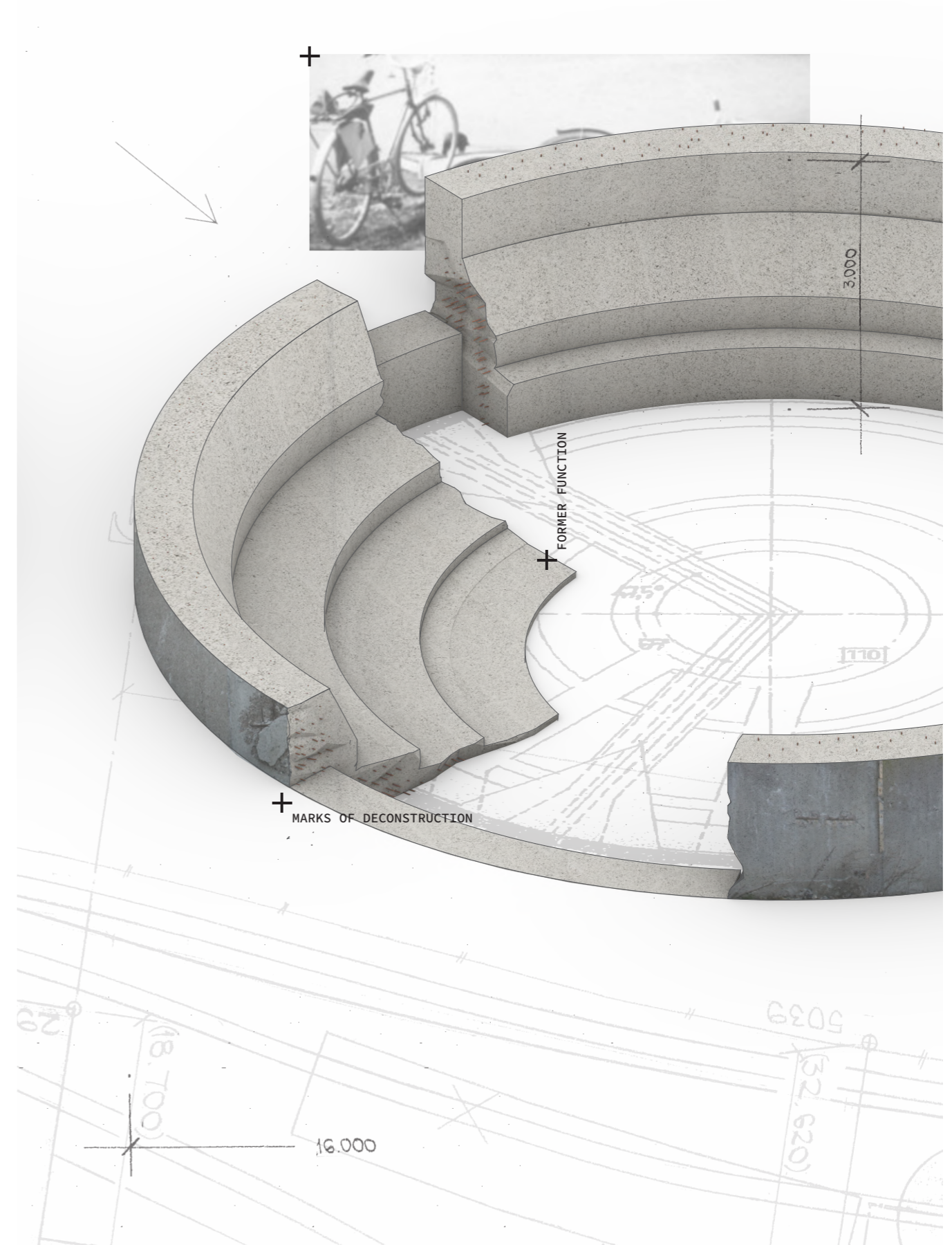
The design of the post-deconstruction site is to a large extent inspired by the structures' former function. As it used to serve as a silo, the foundation is formed as a cone with multiple steps where the cement was stored. The massive cone structures had integrated channels functioning to control the flow of the cement to the packaging area. The foundation is positioned one meter below ground level as the silos used to be connected to an underground network of tunnels.

The remaining structures are designed to open up for human interaction but simultaneously reflect their former function. The former silo wall is opened up where the old outlet channels were positioned to enable it to enter the structure. The surrounding walls are cut at different heights to create diversity in spatial qualities and to enhance the variety of use.



RIGHT  
VIEW OF  
POST-DEMOLITION DESIGN

LEFT  
VIEW OF  
POST-DEMOLITION DESIGN



////////// DISCUSSION

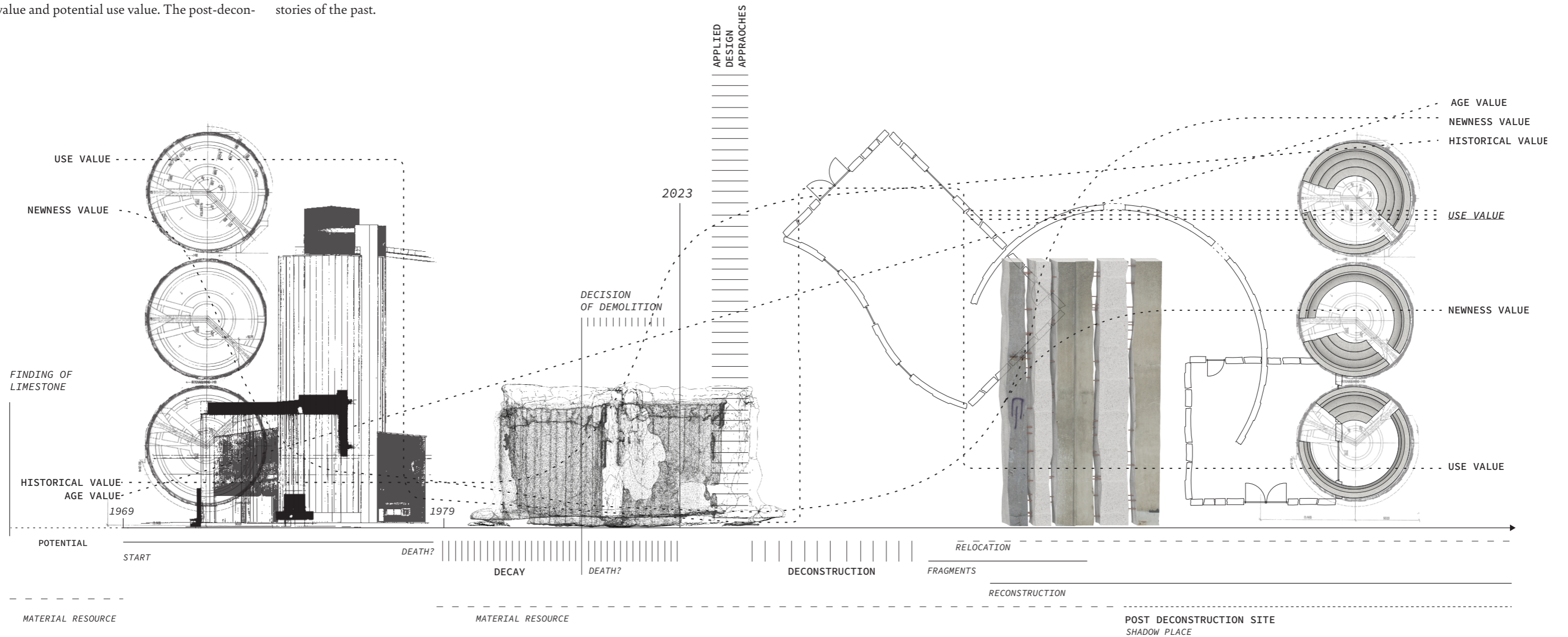
/ INVENTORY  
/ POST APPLIED APPROACHES

As a continuation of the inventory made before design explorations and applied design approaches, a post-implementation inventory is made. By using the same interpretation of ideas and theories an extended evaluation of values can be conducted. Ranging from the initial start of the industrial era, through the state of today to the presented speculative scenarios for the site and its remnants.

By applying different design approaches, new values can be created and evaluated. The deconstruction of the structures generates material resources, fragments with both newness value and potential use value. The post-decon-

struction site will be reprogrammed with a new use value, as the deconstruction transforms the silos into a new design. The transformation entails an increased newness value embedded in the historical value.

The reconstruction, through concepts of assembly and a situated design, will contain an age value as the material which they consist of does so. At the same time, the reconstruction will generate both use value and newness value. The scars and marks will show the intrinsic historical value which may continue to increase as the new design continues to tell the stories of the past.





/ DISCUSSION  
/ POST APPLIED APPROACHES

The inventory visualizes how the values are intertwined and strongly connected to each other, making it crucial to mention cause and effect when discussing the outcome of the thesis. The newness value in the reconstruction would not have been possible to achieve without the phase of deconstruction. And the newness value of the post-deconstruction design would neither be possible to achieve without emphasizing the structures' embedded materialistic potential.

When evaluating the potential beyond the structures as a material resource, lays the importance to discuss value-making by architectural methods in a broader context. Using deconstruction and transformation of industrial remnants to signalize the importance of its industrial heritage, and as a shadow place. Plumwood suggests a shift in the perception from the nice place to their shadow place, which is explored by deconstructing, transforming and re-valuating the structures and the site. The deconstruction site will always be connected to excavated fragments and the new design, as it serves as their shadow place.

A relevant aspect when discussing the relation between architecture and value creation, is the act of relocation. It is not only the static state of before-deconstruction and post-deconstruction that is relevant to evaluate in this thesis. The event of deconstruction requires reflection and is an important factor when conveying the vitality of a building. The event of deconstructing the silos can be assimilated or compared to the former event of excavating limestone for the production of cement. But one big difference

is worth mentioning. Extracting material resources from an old structure does not require excavating new material, but rather re-imagine the potential of the already existing.

The intention of this thesis was to be an additional voice in the debate about what is considered valuable when developing our cities. The intention derives from the ongoing parallel commission of the former industrial era of Limhamn, with a proposal to partly demolish the silos to build something new twice as high instead. The argument for demolishing the silos departs from the lack of potential to transform the silos into housing, which was presented as the only solution to consider them valuable. By speculating upon alternative approaches the thesis can broaden the perspective on value within industrial remnants and hopefully influence future development of the site.

When observing the silos today, after exploring, evaluating and designing speculative scenarios, the embedded potential is made visible. The before conventionally considered useless structures can provide material resources to reconstruct newness and use value at another location and by doing so, the structures themselves can provoke a re-imagination of their own value and highlight their history. A variety of new values are created only using existing utilities, meaning that newness value, historical value and age value can evolve in symbiosis.

VIEW OF MATERIAL MOVEMENT  
AND THEIR SHADOW PLACES IN  
THE CITY OF MALMÖ

1:30 000



## / REFLECTION

The thesis started with the intention of investigating alternative approaches towards our industrial heritage to explore its embedded potential and to challenge the conventionally considered life span of a structure. I wanted to find alternative ways to explore a site and its remnants' values and potential, rather than transforming an old structure in a traditional sense.

The former cement factory in Limhamn was chosen because of the current parallel commission, which presented an interesting debate where I wanted to insert my thesis project. I saw the potential to use the debate as a part of the background to position and delimit the project. A personally important aspect of this project has been to learn the site's rich history and use it during multiple parts of the project. Both when it comes to the background and the intention of the project and also as an inspiration when designing and creating the visual material. Almost all drawings are influenced by the building permit drawings for the remnants or old photographs.

The method of the project has been developed constantly and iteratively, which is important to mention as the outcome of the project is strongly connected to this process. I spent the first weeks establishing a position of the project through theories, an inventory of the site and its history, but only to use it as a foundation for further explorations and not to define desired outcomes. The design approaches was later formulated after testing multiple trajectories using form studies, theories and design explorations.

The formulated design approaches are not limited to this site and these structures, and can be implemented on any site. On the other hand, I find it more relevant and interesting to apply the inventory of values as a method for discussing and analyzing existing buildings. The application might be useful to other industrial sites where the same discussion is present, and using the inventory to focus on visualizing alternative use of sites and material resources.

As the thesis uses Alois Riegl's theories regarding values, it is worth mentioning that the definition needs to be interpreted critically as it was presented in 1903. His perception of use value would gain complexity if combining it with sustainable and environmental values. Although the thesis does not primarily focus on sustainability and environmental values, the aspect is of major importance when discussing how to develop architecture in a contemporary context. Due to our urgent climate crisis, it is important to value the material resources already produce instead of producing more. I hope a broader perspective and alternative approaches towards our built heritage can provide a re-imagination of material resources but also visualize the potential to create something new, while using the existing.

The thesis has inspired me to continue to question conventional considered methods for developing our cities and to broaden my perspectives regarding our built heritage and how to deal with it in a contemporary context. To work iteratively with theories, explorations and design motives me to keep investigating and developing alternative methods for creating architecture.

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## IMAGE SOURCE

- Figure 1. *Title unknown* (2018) Photo © Kjell Larsson [image] Retrieved 2023-01-28 from <http://limhamnsmuseum.se/besok-bildarkivet/>
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- Figure 4. *Title unknown*. (1679) J. Tideman [drawing] Retrieved 2023-02-28 from <https://www.mittvisby.se/visby-ringmur/>
- Figure 5. *Lowering of Vatican Obelisk in Rome*. (1586) F. Domenico [drawing] Retrieved 2023-04-28 from <https://blogs.getty.edu/iris/obelisks-on-the-move/>
- Figure 6. *An imagined view of the Bank of England in ruins*. (1830) Joseph M. Gandy [watercolour on paper] Photo: © Sir John Soane's Museum, London Retrieved 2023-04-20 from <http://collections.soane.org/object-p267>
- Figure 7. *Manhours in Headquarters*. (2017). E, Vasiljeva. [Installation view at P/////AKT] Retrieved 2023-04-28 from [https://artviewer.org/evita-vasiljeva-at-pakt/?utm\\_content=buffer793b4&utm\\_medium=social&utm\\_source=facebook.com&utm\\_campaign=buffer](https://artviewer.org/evita-vasiljeva-at-pakt/?utm_content=buffer793b4&utm_medium=social&utm_source=facebook.com&utm_campaign=buffer)
- Figure 8. *Title unknown* (1973) *Photographer Unknown* [image] Retrieved 2023-01-28 from <https://bildarkivet.malmo.se/asset-bank/action/viewAsset?id=160340&index=56&total=86&view=view-SearchItem>
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MASTER THESIS SPRING 2023

CHALMERS SCHOOL OF ARCHITECTURE  
DEPARTMENT OF ARCHITECTURE AND CIVIL ENGINEERING

MASTER PROGRAMME IN ARCHITECTURE AND URBAN DESIGN  
MATTER SPACE STRUCTURE

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