# CURATING CITY INTENSITIES

The unravelled sensory experience of the urban public realm

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The unravelled sensory experience of the urban public realm of London

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‘Heterogeneous City’
Architectural Design Crossovers
Graduation Studio 2021 - 2022

Faculty of Architecture and the Built Environment
Delft University of Technology
MSc of Science

# TABLE OF CONTENTS

Research Portfolio


Preface 005

Glossary 006

Motivation 010

Fascination 012

Research Plan City Intensities 014

Research Essay Entering the senses 032

- Abstract
- Introduction
- Redefining the phenomena
- Mapping the senses
- Implementing the sensescape
- Conclusions
- Appendix A - F
- Bibliography

Design Research Exploring the sensescape 104

- Site analysis
- Precedents
- Mass studies
- Programme
- Impressions

Design Proposal 168

- XL The Manifesto
- L The Network
- M The Master Plan
- S The Sensescape

Reflection Report 202

# PREFACE

NOVEMBER, 2022

The past year, I had the opportunity to develop my personal fascination for architecture through multi-sensory experience within a psychological, multi-scalar and interdisciplinary research frame.

In this booklet, I bundled my explorations, outcomes, and reflections from the Graduation Studio of Architectural Design Crossovers 2021/22. This research portfolio booklet contains my research plan, research essay, design research, project documentation, and reflection in which the relevance and relationship between the research and design are explained. The booklet is supplemented with multi-media and haptic matter where pure visual content is insufficient as a research method or as documentation.

Foremost, I would like to thank my Design mentor, Johan van Lierop, my Research mentor, Joran Kuijper, and my Building Technology mentor, Florian Eckardt, for their contributions and support throughout the process. Moreover, I am grateful to all the knowledgeable people that were willing to help me expand my research through interviews and interesting conversations.
Special thanks go out to architect Gerard Maccreanor, who is a pioneer on the public domain in London with regard to all recent developments. He gave me insight to the significance of the current issues around City Intensities. Additionally, I would like to thank architect and former tutor Stephanie Appenzeller for her enthusiasm and innovative ideas for the inclusive design of a Sensescape. I would also like to express my gratitude to my fellow graduates, friends, and family for their support, positivity, and inspiration over the past year of my graduation journey. I shall conclude by expressing my love and appreciation to Jasper for being my steady, loving support.

Due to my health, participating in the studio has not always been easy for me. Nevertheless, I really enjoyed the journey and I worked on my personal project with a lot of passion, which I hope to continue in my future career.

# GLOSSARY

## Metropolitan area
A city that includes a heavily populated central core and its less densely populated outlying territories, all of which are under the same governmental jurisdiction and share industries, commercial areas, transportation networks and housing. In the central core, activities are more exposed, complex and concentrated due to their focus on public character and interests. Therefore, the overstimulation and its consequences are perceived by participants in a greater measure.

## CAZ
The Central Activities Zone is the heart of London, including parts of the ten core boroughs, and one of the most vibrant and competitive commercial districts in the world. The public realm of the Central Activities Zone of London will be the focal point of this research due to the most concentrated and diverse differences in activities, and the highest density in dwellings and people.

## The public realm
All the publicly-accessible space between buildings, whether public or privately owned, from alleyways and streets to squares, parks and internal or elevated spaces. It is a physical place where a great part of public life occurs. The majority of public spaces are outdoors, however publicly accessible government buildings, public institutions, retail, cafes, restaurants and theatres are in this research all considered as public spaces.

## Drift
The dérive. The drifter in this research is guided by their transient desires on an unplanned journey through the metropolitan public realm, measured by sensory stimuli. The method, used by Guy Debord in the Naked City, is based both on randomized walking explorations and on the perceived relationships that emerged from these walks between themselves, the building scale and the urban scale. The drifter could be any participant of an accelerated city.

## The 15-minute city
The concept, developed by academic Carlos Moreno, promotes the idea that cities should be designed or redesigned so that people should be able to live the essence of what constitutes urban life within a 15-minute walk. It establishes a new relationship between citizens and the urban rhythm and it provides a balance between vibrant and tranquil urban environments.

## Sensory overexposure
It means normally to put someone or something through too much or for too long of an experience, potentially causing damage. In this context, overexposure is not literally used in the relation to light but comprises overstimulation of the senses of the participants by the contextual networks and layers existing in the metropolitan area of the city.

## Sensory deprivation

This perceptual isolation is the reduction or removal of stimuli from one or more of the senses to its participants. A natural cause is a form of sensory impairment, such as blindness or deafness. An experimental cause could be deliberately designed in the build environment. This can counteract the consequences of a temporary overexposure, but too long sensory deprivation can also have negative consequences for someone. A balance between the two is therefore very important.

## Urban Rhythm

The pace of a city that consists of space, time, and an expenditure of energy. The urban rhythm elaborates on the impact of place rhythms, an embodied experience, and the character of urban spaces. One can recognise rhythms everywhere in human activity and life in public urban spaces, but also in means of transport. The perception and spending of time will be restored when processes do not heavily affect the urban rhythm. This prevents the physical and mental bodies from accelerating and thus becoming overstimulated or disembodied.

## Intensification

To prepare for the growth and acceleration of the city, this development allows for more people to connect, work and reside within the existing urban boundary. Creating a higher intensity refers to increasing intense feelings, stimuli and response to context, site and people participating; it goes further than the static dimensions of densification. The aim is not to provide a temporal or ephemeral high or low intensity but an environment that includes (semi-)permanent relatively high intensities, alternated with an environment with relatively low intensities. This form of city intensities will provide a happier and healthier society.

## Tranquil urban space

This space serves as a soothing, withdrawal or recovering mechanism from the fast-paced city life; defined as a positive state of “calmness, serenity, and peace” that triggers restorative benefits within a relatively tranquil environment. It contains a public, quiet programme embedded in the city fabric, at a walking distance from the places we work and live, where social interaction and spoken communication are not disturbed. The programme often contains a recreational or natural setting and is associated with low intensities and sensory deprivation.

## Vibrant urban space

This space is defined by a positive state of city chaos wherein the quality of being energetic, exciting and full of enthusiasm can be sensed within an urban environment; it is bustling with activity and life. When designing these spaces one must think of creating safe, attractive and comfortable walking environments with a diversity of activities in an urban area. This form of vibrancy is associated with high intensities and overexposure of the senses.

## Atmosphere

An architectural ambience (atmosphere) refers to the mood, conditions, or sensorial qualities of a space. Thus, atmosphere is both subjective and objective as it is involves the experience of people as well as the spatial and material presence of the built environment. It is an intuitive form of physical perception that is detected through emotional sensibility. In architecture, the notion is used to support the idea that the built environment is designed for human use and experience. Aspects of architectural design such as light, object, air, material and sound have been identified as contributing to atmosphere.

## Embodied experience

The 'lived experience' of a person. A drifter, caught by the acceleration of the contemporary city, will pursue to feel embodied within a certain environment. When experiencing this, the drifter will interact, connect and commit to this architectural context with their whole human being; a feeling of belonging. This awareness of the connection between the body, the mind and the environment will slow down the perception of the urban rhythm and thus, will restore the notion of time and space. This embodied experience is necessary to physically and mentally halt or slow down to be able to use the senses in the right way again.

## Sensescape

A sensescape is a designed environment with one or multiple architectural interventions that processes people's perceptions, understandings, and experiences of the sensory environment in a qualitative design for its fitting social and environmental context. An urban sensescape activates all the senses and can help to relieve psychological and physiological stress and anxiety. The introduction of a sensescape could potentially give way to the embodied practises of being in the world, including ways of seeing but extending beyond sight to both a sense of being that involves all the senses and an openness to being moved.

GLOSSARY

# MOTIVATION

## ARCHITECTURE AND THE SENSES

One of my previous projects for the Masters of Architecture in Delft was called Pavilion of the City Window. It was a project for the course 'Form & Inspiration' wherein we got the freedom to develop an architectural art installation based on our own fascination. The project on the everyday life in the city, with a surreal perspective on reality, aimed to place the observer in an uncomfortable position; manipulated and dislocated through the use of ones senses (see fig. 1-3). The layers of a window where transformed and wrapped around the observer, which created a fine line between dreaming and reality. Nature, escapism, perception and even humour were important aspects of this process. At first, photography of the existing environment helped me to trick the eye. Moving on to poetry, storytelling, video and sound taught me that all these media combined could create even a stronger suggestion of another world or scene. The architectural intervention shows how intense the stimulation of all the senses could feel, when they are carefully curated. It is interesting how much control the installation has over the sensations that the observers experience without causing them to feel captured. My interest in this particular topic was sparked by how accurately a sensory approach to architecture may curate a city's public realm, potentially creating a more liveable and beneficial environment for its participants. The narrative below describes the observer's encounter with the installation.

*"I just entered The City Window. This room takes me out of the real world while still being conscious. I feel controlled, but not captured. I can still see the blue skies and the green around me is even greener, but not a healthy green. All these layers of the window are mingled around me, industrialized but still recognizable as basic elements. It is loud and the curtain flaps flutter in the wind. But it is not as loud as this city. In which city am I? Just for a moment, I am in another universe. Lookaside! I can even see myself standing in the city behind me through the window in front of me. I can hear the raindrops on my umbrella and my footsteps in the puddle, but it is not even raining. I have to walk on because traffic lights will turn red soon on this crossover. The traffic in the window will be awakened after a moment of rest, just like me."*

Noor Boreel - Form & Inspiration 2020

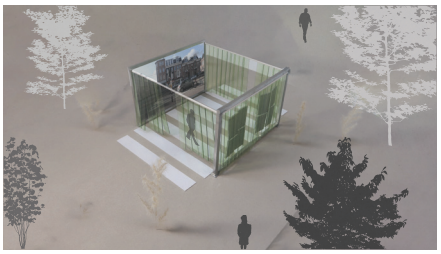


*Fig 1-3. The Pavilion of the City Window for form&inspiration, Images by author 2020*

# FASCINATION

## CITY INTENSITIES

Since Gerard Maccreanor is an architect who works closely with London's national and local governments, it was very interesting to get in contact with him about my graduation topic of city intensities to explore this more thoroughly. He lives and workes half-time in London and is thus an expert and participant of the public realm. We talked in particular about the topic more focused on London with regard to the homogeneous character of the public realm of the city. The city's homogenous character can be attributed to the built environment's emphasis on the sense of sight. Other senses are not getting the same amount of attention, or are only seen as a thread in stead of an opportunity. Therefore it is important to redefine the phenomena of city intensities as sensorial experiences of the built environment. The architectural notions of density and densification should be replaced by intensity and intensification to design for affect rather than for the architectural discourse itself. According to Maccreanor, the increase of building densities is still an important aspect of intensification in a metropolitan city due to the character that will be brought in such an environment. Maccreanor emphasised the need for these intensities to be planned to span a range of relative intensities that are carefully distributed within the public realm. He mentioned conditions of intensity for optimal and pleasant use of the public realm, that include the following points of attention:

- Average Floor Area Ratio (FAR) of 8 (density)
- Activation of the plinth & street profiles (activity)
- Mixed-use including housing (programme)
- Rhythms (night and daytime)
- Wind & daylight (atmospheric qualities)
- Security & safety (publicity)
- Relation between modes of transport (accessibility)
- Urban greenery (ecology)

*Fig 4. Gerard Maccreanor, MLA 2021*

When we discussed potential drifting locations, Maccreanor brought up Bankside, which is the area along the south bank of the Thames between Blackfriars Bridge and London Bridge. In Bankside, one can wander off the beaten track and rapidly come to a city with a rich historical background and whose prehistoric topography is still visible today.
In this area, the word 'diversity' is commonly used to refer to form, population, and experience. Along with this mix of uses ans sizes, built forms of various types are found on this post-industrial landscape.

# RESEARCH PLAN

## CITY INTENSITIES

# TABLE OF CONTENTS
## Research Plan


| | |
|---|---|
| Keywords | 016 |
| Introduction | 017 |
| Argument of Relevance | 020 |
| Theoretical framework | 021 |
| Methodological positioning and research methods | 022 |
| Annotated bibliographical references | 028 |
| Appendix: Additional bibliographical references | 030 |

# KEYWORDS

Metropolitan, Public Space, Chaos, Tranquillity, Experience, Drifting behaviour, Multi-sensory.

# INTRODUCTION

In the eighteenth century, according to novelist Peter Ackroyd, the city centre of the metropolis London was the most chaotic in the whole world due to its immense industries and excessive noises and smell.[1] A changing intensification of systems of work, technology, density, production, and consumption all contribute to overstimulation which will in turn conceivably cause stress and anxieties to its participants. The problem of this 'fast pace' living for its participants in economically developed countries, including the United Kingdom, has been raised by multiple architects and planners since the twentieth century as a tipping point wherein architecture should intervene as a counterpart and allows to disconnect from this acceleration of life.

The still existing concern around experiencing chaos in city centres led to urban public spaces, often in the form of natural or educational environments, that could have the ability to offer a place to escape or soothe; to experience tranquillity within a body and mind.[2] In theories about embodiment, the body, mind and the environment are closely related. As participants engage in the public realm through the body, the senses mediate and structure the engagement with urban experience: "The city exists in my embodied experience".[3] It could be argued that the most significant sensory experience that architecture creates is tranquillity. Tranquil space is a place where your mind can wander and reflect freely, and you can roam, sit, or relax in your own way. While 'absolute tranquillity' in the sense of low or no stimulus may be undesirable in a city, 'relative tranquillity' is more commonly available. One could think of external public programmes such as courtyards, parks and gardens or internal public programmes such as libraries and museums. In addition to the more private home and work environment, these public spaces were necessary to slow down the pace of the dense and demanding city to promote a healthy and qualitative lifestyle (Tranquil City Central Committee, 2019). With the first member in London posting in September 2016, Instagram users contributed a photo or video with a description that included the hashtag #tranquilcitylondon and the geotag. The sole requirement was that the spaces be open to the public. From then on, funding and research were put in place to illustrate the benefits of tranquil spaces.

On the other hand, enhancing the chaos of the city through architecture could be necessary to the vitality and viability of a city and its inhabitants. Japanese architect Kazuo Shinohara confirms this and believes that the metropolitan mode of living could be understood as a mechanism of chaos that represents a productive basic condition of the city.[4]

1. Ackroyd, P. *London: The Biography*, 2000

2. Pallasmaa, J. *The Eyes of the Skin: Architecture and the senses*, 1996

3. Pallasmaa, J. *The Eyes of the Skin: Architecture and the senses*, 1996

Shinohara and other Japanese architects researched the beauty of chaos and even address the need for the experience of this high state of chaos in European cities. This chaos in a city will be produced by increasing architectural complexity, contrasts and disunity, and a lack of political control; a more open ordering system. In the rigidity of the United Kingdom, there is no need for designing with chaos in the Japanese way Shinohara describes it but rather designing with a relatively high intensity to enhance the vibrancy of the public realm.[5] The vibrancy of city centres is dependent on the presence of safe, activated, attractive, and comfortable walking environments with a diversity of activities.[6] Because vibrancy is being wished for as a (semi-) permanent experience, the street and square as the most traditional and frequently used public space are fitting. Through different contextual layers and networks, the vibrant spaces could be identified. Vibrancy as an atmospheric experience can then evoke excitement, belongingness, safeness, ambition, inspiration and efficiency. Thus, chaos might be described as an overly vibrant state, where the balance between the different characteristics is lost.

Gerard Maccreanor, an architect who works closely with London's national and local governments, states in a personal interview how intensity is the contemporary substitute term for density that is employed in many strategies and design guidances nowadays. However, the phenomenon intensity is more difficult to define, not least because it appears to contain a subjectively emotional component; it refers to feelings, responses and stimuli.[7] The essence of intensity is that there is a transaction, whether it is economic, social, cultural, intellectual, factual, or just straightforward. Nonetheless, intensity is always a response to context, site and people within a static and kinetic dimension. Therefore the use of urban spaces and their spatial components and composition on the spectrum of intensities depending on its tranquil and vibrant state will be identified and explored through the eyes of the drifter (see fig. 3). Drifting by means of unconscious explorations of urban environments as an empirical research method unravels the relations between someones sensory perception and the physical urban and building forms that are tied to this. The drifter could be any inhabitant of a chaotic city, but is used in this research to behold the meaningful and beneficial atmospheric experience and bring about an embodied experience. The degree of intensity on this spectrum perceived by the drifter could be identified by tangible and intangible conditions such as sensory values, cultural values, accessibility, natural elements, density and activities. Creating a balance where tranquillity and vibrancy may coexist seems the

4. Shinohara, K.
*Wien und Tokio*, 1990

5. Maccreanor, G.
*Interview by author: City intensities*, Rotterdam, November 26, 2021

6. Balsas, C. J. L.
*Walkable Cities: Revitalization, Vibrancy, and Sustainable Consumption*, 2020

7. Maccreanor, G.
*Interview by author: City intensities*, Rotterdam, November 26, 2021

intended range of the spectrum for any metropolitan city. Anything below tranquillity can provoke a lack of stimuli, whereas anything above vibrancy can provoke overstimulation (see fig. 1).
The research goal is to establish what tranquillity coexisting with vibrancy truly means in the context of London's urban fabric and how these spaces can be identified, protected, enhanced and created for the health and well-being of its participants. Thus, the position towards this goal can be stated as followed. Enhancing the sensory quality of urban tranquillity and vibrancy on a spectrum of intensities as synergic components of cities will provide the potential for shaping our public realm to evoke an embodied, multi-sensory experience to its participants, as well as the city as a whole. The following main research question arises as a result of this:

*How can urban public spaces evoke a meaningful and beneficial atmospheric experience to drifters through multi-sensory embodiment from the perspective of the spectrum of city intensities?*

To establish a clear position, the following sub-questions are provided:

*How do distinct contextual networks and layers make up the spectrum of city intensities?*

*Why and where is the spectrum of city intensities important for the accelerated metropolitan mode of living?*

*Which spatial conditions and compositions from urban public spaces can identify the tranquil and vibrant experience of space?*

*How can human behaviour and the multi-sensory embodiment of drifters in the public realm influence the spectrum of intensities and vice versa?*

*Fig 1. Spectrum of intensity, Image by author 2021*

# ARGUMENT ON RELEVANCE

The oppressing mechanization together with the digitalization of systems has changed the way participants perceive and spend time.[8] Disconnecting from this global overstimulating system is necessary to give the mind and body rest to improve health. Additionally, the perception and spending of time will be restored. Given that such activities are generally linked with avoiding the city in favour of natural environments, it can be difficult to locate suitable tranquil space and time. However, travelling outside of the city regularly to find tranquillity is not feasible for all. Besides, the urban population is expected to increase to 68% of the world's population by 2050.[9] As a result, it is critical to make the most of the tranquil public realm as cities worldwide grow and even become more intense.

Intensification embedded in the public realm is a trending topic. The 15-minute city concept relates to intensity by focussing on localization. Without having to travel far, all neighbourhoods should be equipped to fulfil the six social roles of living, working, supplying, caring, learning, and enjoying. Adoption of mixed-use development, higher density, and a variety of public open spaces to enjoy are all key components of this system. Putting people at the centre of the identification of urban space and these components are all also part of the intensification towards more vibrant public spaces. The findings regarding spatial and experiential degrees of intensity on the spectrum and the use of this alternative strategy should be integrated into the design of the contemporary public realm. The aim is to broaden the perspective of possibilities in how to intervene in urban public space in a variety of cities throughout the world.

8. Virilio, P.
*The over-exposed city*, 2020

9. United Nations,
*World Urbanization Prospects: The 2018 Revision*, 2018

# THEORETICAL FRAMEWORK

The coexistence of different degrees of intensity as a fundamental aspect of the public realm of city centres and the well-being of its participants points to the importance of theoretical redefinition of the phenomenon of city intensity. The historical background of intensity will be identified through the systems over time that have caused overstimulation, which has been criticized and visualized by Ackroyd, Reggio and Virilio. Secondly, the spectrum of intensity will be defined through the lens of sensory city experiences, which Pallasmaa, Degen and Erwine encompassed. Tied to this experiential overview is the mode of transportation that is the closest to the rhythm of the human body and productive disorientation. As a starting point, this practice of walking, 'the drift', is supported by the literature and includes the methodology of Walter, Debord and the bundle of Walking Cities. The experiential translation to spatial conditions of city intensity will be unravelled through the desirable degrees of tranquillity and vibrancy. Koepnick and several recently published essays try to define the measurable and tangible state of tranquil space. The vibrant space described by Crankshaw and many documentations of the Greater London Authority (GLA) oppose that. The interview with Maccreanor helped with taking a position towards the phenomena of intensity, tranquillity and vibrancy and how to eventually design with these notions. The findings along this process will facilitate the redefinition of city intensities on the spectrum. In the diagram of the research structure could be clearly seen how the theory and methods come together and complement each other in the process towards a design solution (see fig. 5).

# METHODOLOGICAL POSITIONING AND RESEARCH METHODS

The theoretical framework will provide an initial positioning towards the phenomenon of intensity and therefore the lens through which the research will be conducted. In city centres, activities are more exposed, complex and concentrated due to their focus on public character and interests. Therefore, the overstimulation and its consequences are perceived by participants in a greater measure. The public realm of the Central Activities Zone of London will be the focal point of this research due to the most concentrated and diverse differences in activities (see fig. 2). Through theoretical and historical literature reviewing, redefinition of the spectrum of city intensities will be initiated.

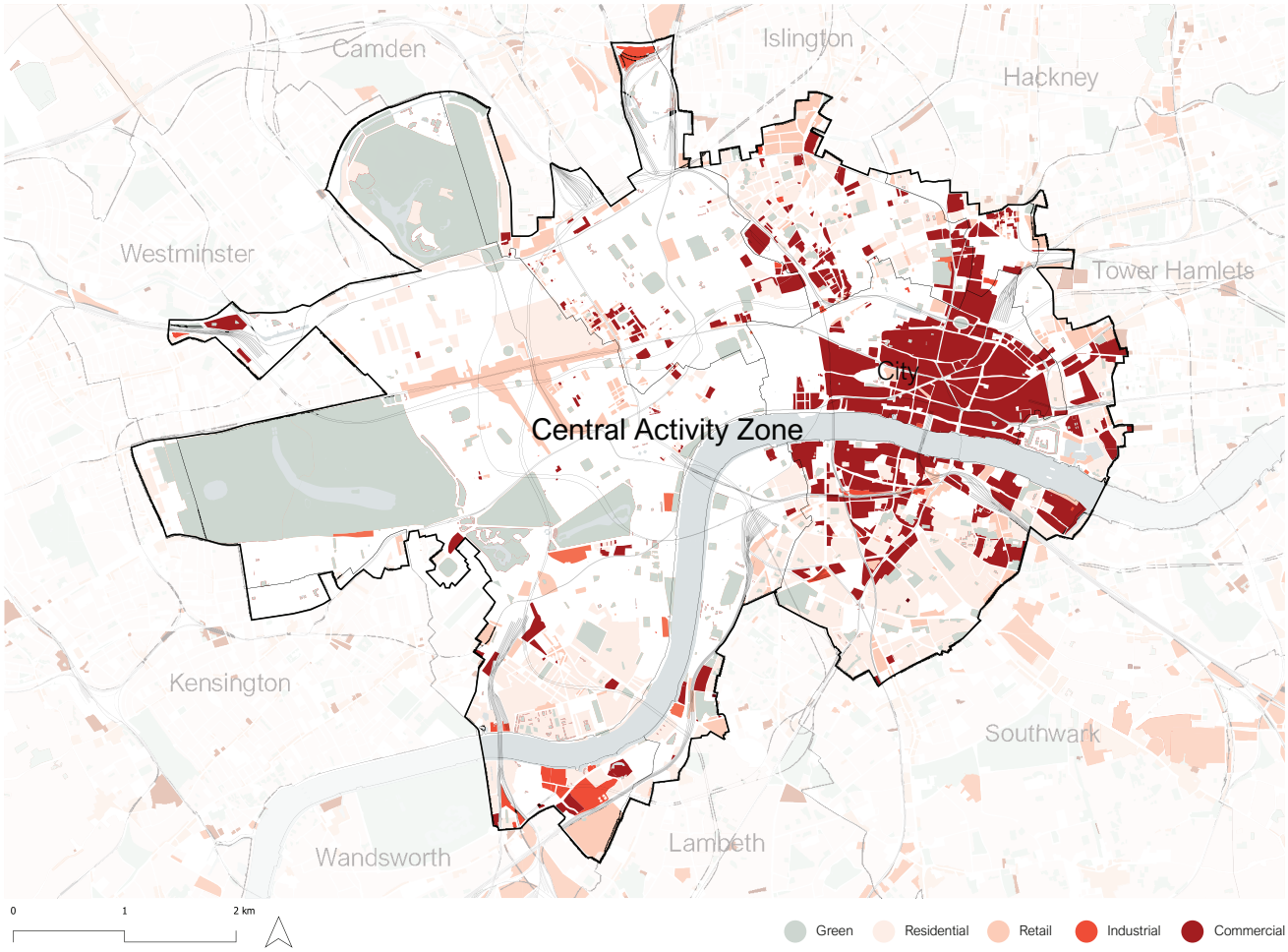



*Fig 2. Map of The Central Activities Zone with mixed-use programme, Image by author 2021*

Additionally, the second-hand geographical and experiential data of platforms like smelly maps, noise pollution, pedestrian route, land-use, and tranquil pavement will be gathered in selective top-down cartographic mappings. The contextual networks and layers from city intensity will be unravelled through these atmospheric qualities that are linked to specific site conditions and compositions (see fig. 3). Other than the density, that is normally measured through numbers of internal or external people or the height or mass of buildings, intensity contains layers that include the perception of individuals and the rhythms throughout the day or year.

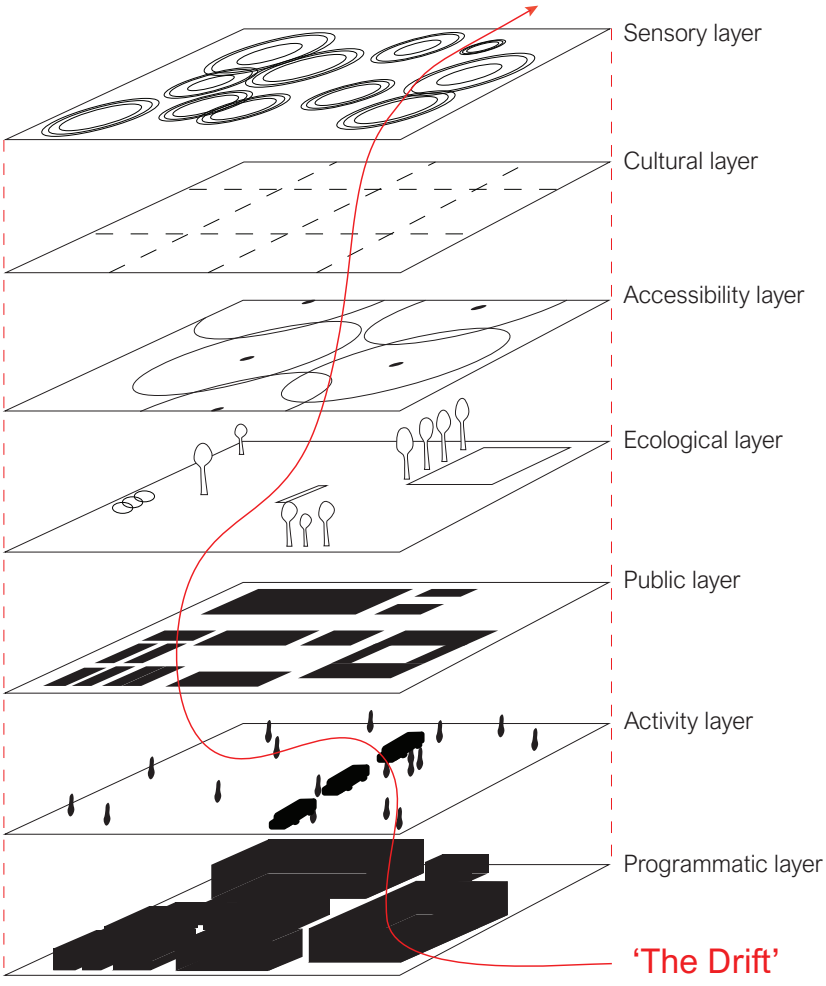



*Fig 3. Drift through layers and networks of intensity, Image by author 2021*

Datasets provided by the GLA together with the conducted interview will give insight into starting points for qualitative research in London from where to start drifting, as well as places where different degrees of intensity are composedly coexisting and where the spectrum is out of balance. This systematic site analysis of the CAZ is supplemented with a first-hand site analysis wherein 'the drift' will be used as a cognitive and empirical method for field survey. The unsystematic trace of the drifter is directly associated with stimuli and feelings considering that atmospheric qualities could be revealed through transient desires. The atmospheric conditions and their composition will be photographed, sketched and recorded through sound, smell and vision. The use of these spaces will be analysed through sensory observations captured in interviews about stimuli and feelings in the public realm. These observations will form the basis for a visual practice of mixed media transects. The transect, like the methodology as a whole, will be a journey of discovery that will reveal the intensity of a public space that can not be expressed any other way; it develops and expands along the path of positioning. The findings regarding spatial and experiential degrees of city intensity must then be ordered through a matrix or catalogue of this spectrum. Several case studies can test and supplement the ordering. In this research, the domains of anthropogeography, psychogeography and urban geography intersect with each other (see fig. 4). This psychological human- and city-centred research could broaden the perspective of possibilities in how to intervene in the public realm to enhance the lifes of the participants and point out potential public spaces for adjustments on the spectrum of city intensities to eventually define a design scope in the city of London. The centre of the diagram is intentionally left blank, since it is yet to be revealed during the explorations through the CAZ what could be the possible architectural intervention in the public realm that could help the participants to overcome the acceleration of the contemporary city.

On the next pages, the diagram of the research structure is simplified visualized. In the diagram the research essay is framed within the research boundaries. The positioning and reflection are a great part of the process and eventually will lead to a nuance in the accepted or rejected hypothesis (see fig. 5).

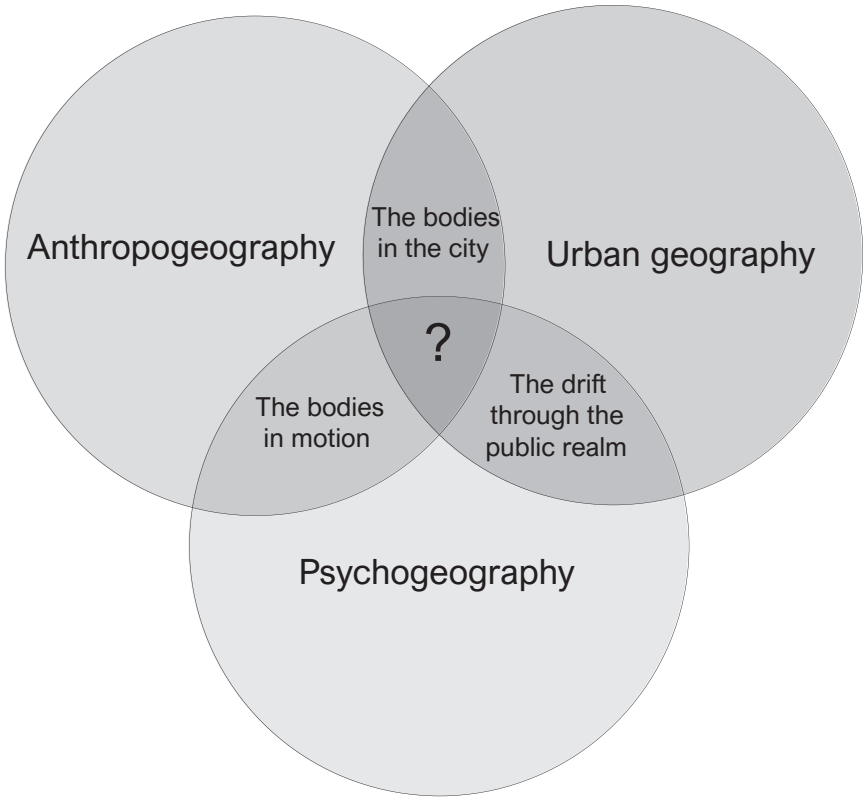
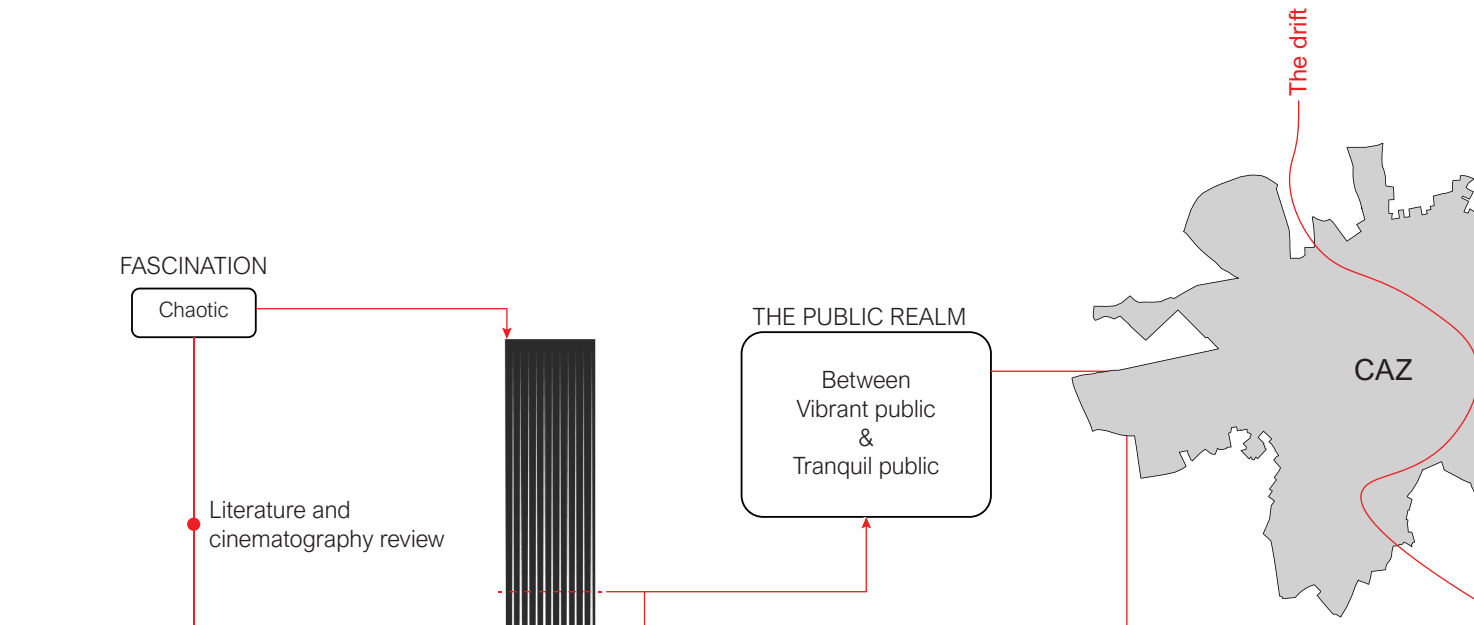



*Fig 4. Interdisciplinary domains, Image by author 2021*




FASCINATION

Chaotic

THE PUBLIC REALM

Between
Vibrant public
&
Tranquil public

Literature and cinematography review

Constructing narrative

Nolli map

Interview Maccreanor

Spectrum of Intensities

Positioning

intensity as sensory drifters experience

How can urban public spaces evoke a meaningful and beneficial atmospheric experience to drifters through multi-sensory embodiment from the perspective of the spectrum of city intensities?

How do distinct contextual networks and layers make up the spectrum of city intensities?

Why and where is the spectrum of city intensities important for the accelerated metropolitan mode of living?

Which spatial conditions and compositions from urban public spaces can identify the tranquil and vibrant experience of space?

How can human behaviour and the multi-sensory embodiment of drifters in the public realm influence the spectrum of intensities and vice versa?

PROBLEM STATEMENT

The experience of urban public space through the accelerated metropolitan mode of living

Boring

THEORETICAL FRAMEWORK

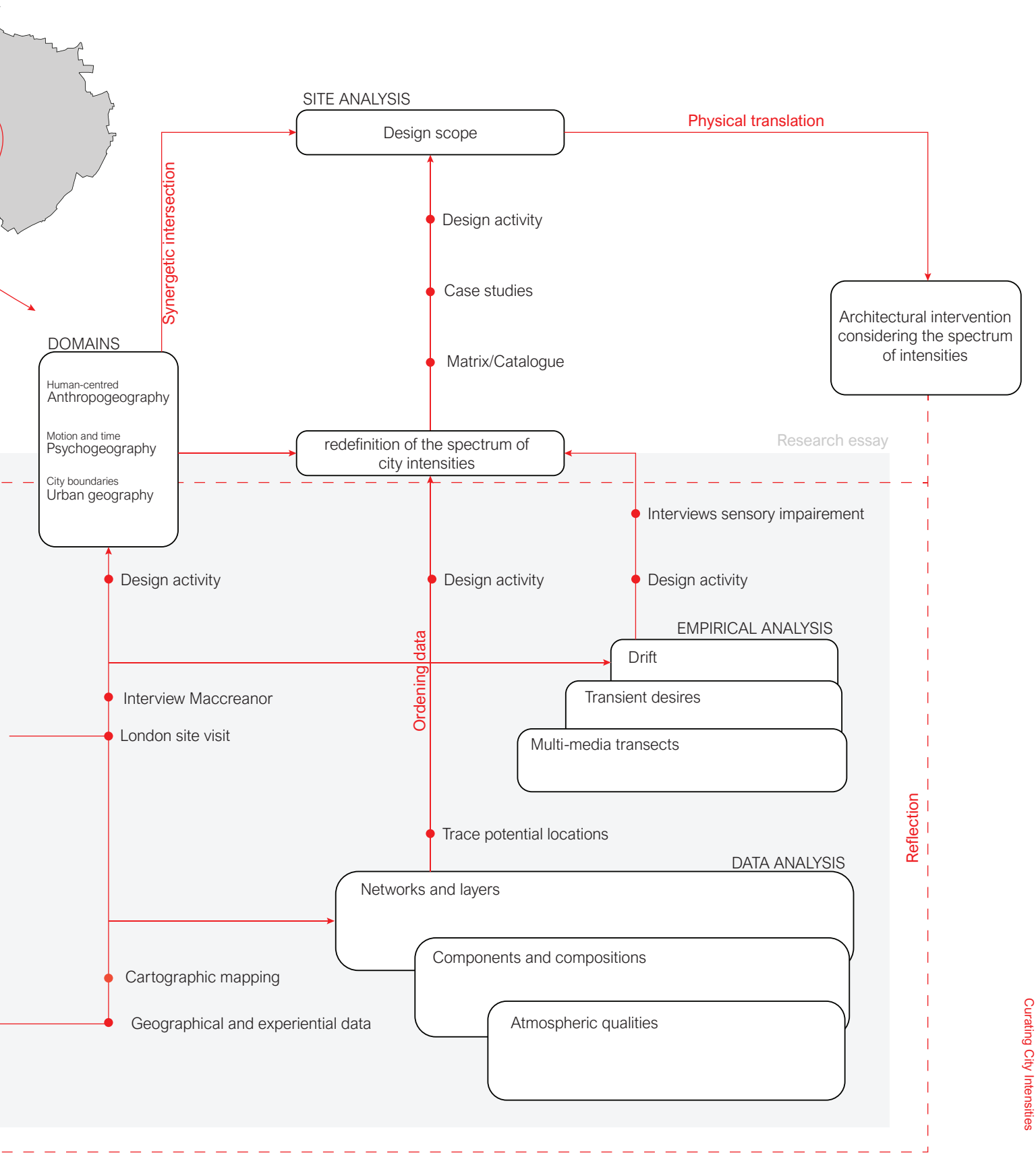
| The senses | The drift | The public realm |
|---|---|---|
| Pallasmaa | Walter | Whyte |
| Degen | Debord | Crankshaw |
| | Joseph-Lester | Koepnick |

Graduation Studio / Architectural Design Crossovers / Research Portfolio

Enhancing the sensory quality of urban tranquillity and vibrancy on a spectrum of intensities as synergic components of cities will provide the potential for shaping our



*Fig 5. Diagram of the research structure, Image by author 2021*




r public realm to evoke an embodied, multi-sensory experience to its participants, as well as the city as a whole.

# ANNOTATED BIBLIOGRAPHICAL REFERENCES


Crankshaw, Ned. *Creating vibrant public spaces.* Washington: Island Press, 2008.
Crankshaw discusses how to examine existing city conditions, and how to evaluate the feasibility of design ideas in advice that can be applied to a variety of locations and scales. Good architecture in commercial centres enables movement, provides dynamic social areas, and contributes to the impression of a "centre"—a place where social, commercial, and institutional interaction is more vibrant than in surrounding districts.

Debord, Guy. *The naked city* [Map]. 1957.
Situationist psychogeographical counter-maps are the product of drifts or dérives practised by Guy Debord and his companions in post-World War II Paris. Often collective rather than solitary, of no pre-set route or duration, and driven by intuition rather than calculation.

Degen, Monica Montserrat. *Sensing cities.* Oxfordshire: Routledge, 2008.
The focus of Degen lays on the important yet largely neglected dimension of urban life: namely the significance of the senses in the (re)configuration of contemporary public space and life. The senses mediate our contact with the world as one engages in public life through the body.

Godefroy, Julie, Grant Waters, Ben Warren and Eleanor Ratcliffe. *Tranquil City: Identifying opportunities for urban tranquillity to promote healthy lifestyles.* Cities & Health, Volume 5: Issue 1-2, 138-144. London, 2021. Accessed October 6, 2021. https://doi.org/10.1080/23748834.2019.1617918
Rest and recovery are essential for good health. Experiencing peaceful locations can help meet this need. Tranquil Pavement London explores linkages between subjective and objective datasets to enable people to discover and share tranquil city locations and navigate through low-pollution pathways. A collection of studies on tranquil space identification linked to the senses can be found in appendix A.

Joseph-Lester, Jaspar., Simon King, Amy Blier-Carruthers, Roberto Bottazzi. *Walking Cities: London.* Oxfordshire: Routledge, 2020.
The contributions include short stories, illustrated essays, personal musings, and reports of real and fictitious drifts. The book investigates how the city includes narratives, knowledge, and contested materiality that are best accessed through walking.

Koepnick, Lutz. *On Slowness.* New York City: Columbia University Press, 2014.
Koepnick seeks to reframe previous discourses on slowness to challenge both its praise and critique. The focus of this book is on artistic work dealing with methods of hesitation, delay, and deceleration, to make us stop and experience a passing present in all its heterogeneity and uniqueness.

Maccreanor, Gerard. *Interview by author: City intensities.* Personal Interview. Rotterdam, November 26, 2021.
The scope of the interview includes personal and governmental insight of an architect, residing half-time in London, in London's public realm and the phenomenon of intensity and its conditions. Intensity as a soft measure tool in London is upcoming because of the inclusion of feelings and stimuli of people participating in the public realm of an area, instead of measuring the static population or housing density.

Pallasmaa, Juhani. *The Eyes of the Skin: Architecture and the senses.* Hoboken: John Wiley And Sons Ltd, 1996.
The suppression of the other four sensory worlds, according to Pallasmaa, has resulted in the general impoverishment of our built environment, with an emphasis on the spatial experience of a building and architecture's potential to inspire, engage, and be life-enhancing.

Stonor, Tim. *Intense relationships: measuring urban intensity*. Architectural Review, Issue 1451, 2018.
Stonor's point is that great urban places are not created by density; they are created by intensity. It describes the outcomes that people experience rather than the inputs that have gone into creating them.

Virilio, Paul. *The Overexposed City.* In the Blackwell City Reader. 440–48. Malden: Blackwell Publishing, 2002.
A radically intense and dynamic metropolis was given the term "Overexposed City" by Virilio, a French cultural theorist, urbanist, and philosopher. He alluded to his favourite theme: the city's dematerialization as a result of information technology's impact. These technologies have changed how humans perceive time.

Walter, Benjamin. *The arcades project.* Cambridge: Harvard University Press, 2002.
Unfinished research of German philosopher and cultural critic, written between 1927 and 1940, on the subject of the Paris arcades, which he considered the most important architectural form of the nineteenth century. Arcades were linked to certain phenomena characteristic of that century's preoccupations. It is one of the first critiques where the role of public architecture for the flaneur (drifter) is linked to chaos and anxiety as part of the metropolitan mode of living.

Whyte, William Hollingsworth. *The social life of the small urban space.* New York: Project for Public Spaces INC, 1980.
With this publication and its companion film, it is experienced how we can learn a great deal about how to make our cities more liveable using simple techniques like observation and interviews. Whyte, in doing so, created the framework for a huge movement to transform the way public spaces are designed and built.

# APPENDIX
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# RESEARCH ESSAY

## ENTERING THE SENSES

# TABLE OF CONTENTS
## Research Essay


| | |
|---|---|
| Keywords | 034 |
| Abstract | 035 |
| Introduction | 036 |
| Chapter 1 Redefining the phenomena | 042 |
| Chapter 2 Mapping the senses | 056 |
| Chapter 3 Implementing the sensescape | 076 |
| Conclusions | 078 |
| Appendix A - F | 080 |
| Bibliography | 100 |

# KEYWORDS

City Intensities, Sensory Stimuli, Public Realm,
Embodiment, Inclusive, Urban Rhythm, Drift.

# ABSTRACT

This essay explores the redefinition and mapping of city intensities and follows the process of creating an urban sensescape. The root of the problem lies in the experience of city intensities as perceived by the senses of its participants. It appears that there is an imbalance between vibrant public spaces and more tranquil public spaces in the contemporary city of London. This disparity in space, together with the ocular-centric view of society, will result in an imbalance in the sensory systems of its participants, resulting in a disregard for the body and its senses. The implementation of a sensescape in the urban public realm could create an inclusive, embodied, and multi-sensory experience in order to curate a balance within the vibrant and tranquil public spaces on the spectrum of city intensities. The design recommendations made through the different scales will constitute a critical reframing of architectural design concerning a UX-centred society within the urban public realm of London or other large cities in economically developed countries. This will allow the overemphasis on the intellectual, aesthetic, and conceptual aspects of architecture to disappear, making room for the tactile, sensual, and embodied essence of architecture to emerge. The knowledge gap between the built environment and its impact on society is being narrowed by designing for the balance between vibrant and tranquil public spaces with a sensorial and empirical design approach. It lays the foundation for future research into the interdisciplinary link between psychology, urban planning, and user experience building design (UX).

# INTRODUCTION

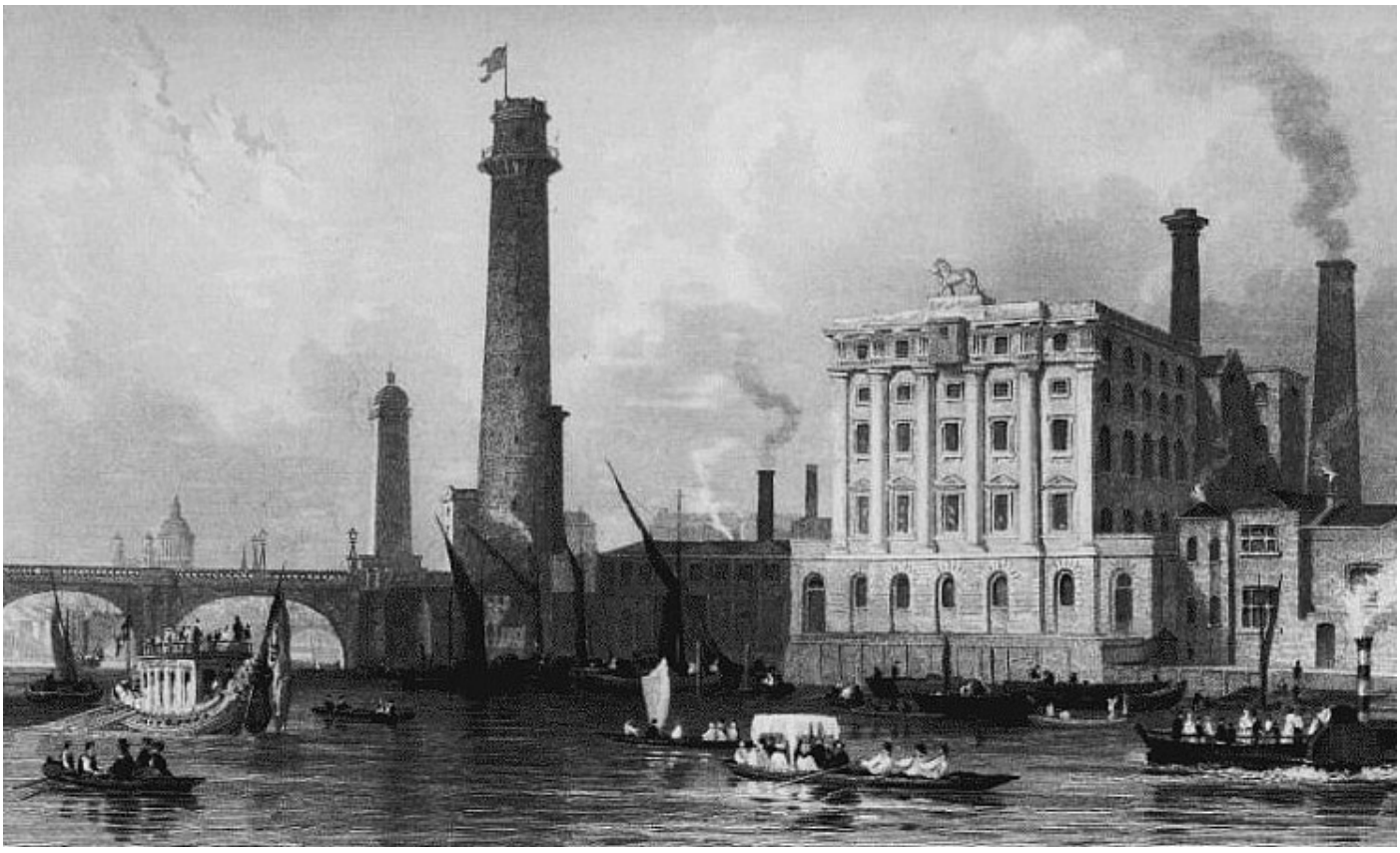


*Fig 1. Blackfriars Bridge 19th century Victorian era: London after industrial revolution, British Library 2022*

In the eighteenth century, the city centre of the metropolis of London was the most chaotic due to its immense industries and excessive noise and smell, a forerunner of the current "fast-paced life" (see fig. 1).[1] A still-growing intensification of systems of work, technology, density, production, and consumption all contribute to cities becoming faster, busier and louder. These intensified systems are drivers that cause a lot of sensory stimuli that can have a negative impact on the well-being and health of their participants. For example, overstimulation of the hearing can cause stress and anxiety, which will in turn cause self-isolation from public life and thus feelings of loneliness.[2]

This social concern about the "fast-paced" lifestyle of its participants in economically developed countries, including the United Kingdom, has been raised by multiple architects and planners since the twentieth century as a tipping point wherein not only private but also public architecture and urbanism should intervene as a counterpart. This poses various concerns. On the one hand, the improvement of everyday life is found in the rise of self-consciousness and intellect of the Modernists. Unfortunately, modern architecture has been greatly affected by sight as the dominant human sense (see fig. 2).[3] Most modern architects sought to create designs that are visually appealing while ignoring the needs of the other human senses. Through these events, architecture has evolved to be a source of attraction rather than accommodation,[4] with aesthetic values taking precedence over social concerns. The human bodies affected by this, exist in the physical realm that is experienced through the five senses of sight, hearing, smell, taste and touch. Only after all of these senses have been used is the body able to feel embodied in space and time.[5]

1. Ackroyd, P. *London: The Biography*, 2000

2. Schafer, R. M. *The soundscape: Our sonic environment and the tuning of the world*, 1993

3. Pallasmaa, J. *The Eyes of the Skin: Architecture and the senses*, 1996

4. Porteous, J. D. *Environmental aesthetics: Ideas, politics and planning,* 2013

5. Pallasmaa, J. *The Eyes of the Skin: Architecture and the senses*, 1996

*"The fundamental event of the modern age is the conquest of the world as picture"*

- Philosopher Martin Heidegger, The Age of the World picture 1977

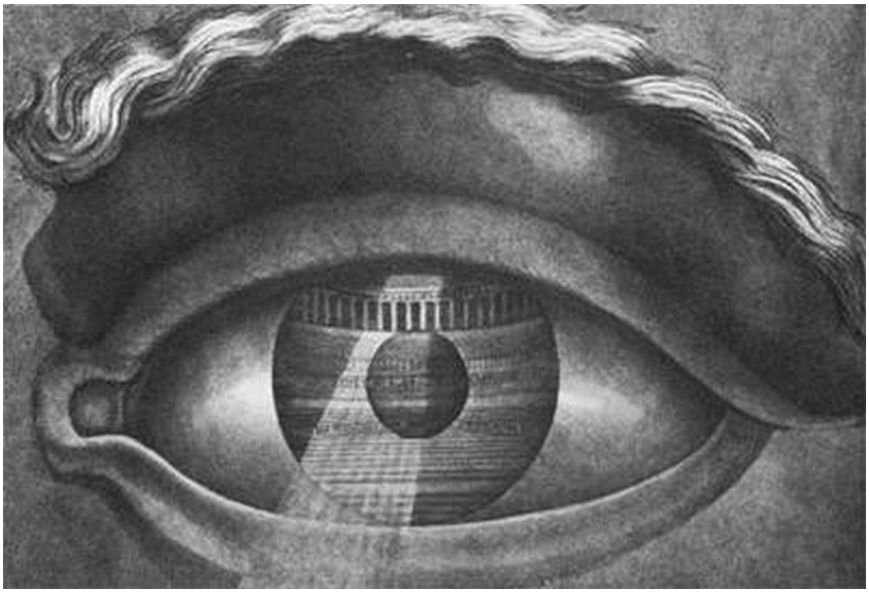


*Fig 2. Architecture regarded as an art form of the eye, Claude- Nicolas Ledoux 1804*

On the other hand, regulating the level of intensity by locating suitable tranquil space and time in the buzzing city can become difficult. Such tranquil activities are generally linked with avoiding the city in favour of natural environments. However, travelling outside of the city regularly to find tranquillity is not feasible for all. In today's world, dense urban areas are already home to more than half the population. Besides, the urban population is expected to increase to 68% of the world's population by 2050.[1] Consequently, it will get even harder to escape the intensity by seeking sensory deprivation or pleasure in a private indoor setting or public tranquil space. The denser our cities get, the more difficulty we have focusing on the sensory stimuli we actually do want to feel (see fig. 3). As a result, it is critical to make the most of the public realm as cities worldwide grow and even become more intense for their participants. This would allow them to disconnect or slow down from this acceleration of city life within the boundaries of the city.

The video still in figure 4 depicts the human urban activity flows in London, demonstrating how the city's centre is highly concentrated with people engaged in transportation, work and consumption (see fig. 4). The concentration of these systems are indicators of possible overstimulation of the senses and an overexposure to vibrant environments. The root of the problem lies thus in the experience of the spectrum of city intensities as perceived by the senses of its participants (see fig. 3). It appears that there is an imbalance between very intense, vibrant public spaces and less intense, tranquil public spaces in London's Central Activities Zone, which encompasses the ten core boroughs and the highest density of people, dwellings, and activity (see fig. 4).[2]

1. United Nations, World Urbanization Prospects, 2018

2. Maccreanor, G. *Interview by author: City intensities*, Rotterdam, November 26, 2021

3. Pallasmaa, J. *The Eyes of the Skin: Architecture and the senses*, 1996

This disparity in space will result in an imbalance in the sensory systems of its participants, resulting in a disregard for the body and its senses. The Western hegemony of sight, which has its roots in ancient Greek ocular-centric civilization, is fostering this disregard for the other senses (see fig. 2).[3] It would be negligent and ignorant on the part of the designer, considering past developments, to leave the sensory impact and value of the public realm to chance, with potential unsustainable health and well-being effects on its participants as a result. This leads to the following main question:

*// How can the design of a sensescape in the urban public realm evoke an inclusive, embodied, and multi-sensory experience for its participants, achieving balance in the perceived city intensities?*

To establish a clear position towards the main question, the following sub-questions are provided:

*// Why and for whom is the balance in the perception of city intensities important for the impact of the accelerated metropolitan mode of living?*

*// How can the phenomena of city intensities and the senses in architecture be redefined?*

*// Where should the inclusive, embodied, and multi-sensory experience be introduced in London's Central Activities Zone?*

*// Which atmospheric, spatial, and material representations of sensory stimuli from the urban public exterior and interior spaces can be identified to help an inclusive, embodied and multi-sensory experience?*

*// How can these atmospheric, spatial, and material representations be translated into a programme and design for a sensescape in the urban public realm a the city on different scales?*

*Fig 3. Spectrum of city intensities based on concept of Russell, Image by author 2021*

The essay consists of 3 chapters, wherein in the first chapter, the phenomena of city intensity, the senses, and their link to architecture and the perceiver will be redefined. This section explains the interdisciplinary research's theoretical framework and historical positioning toward the phenomena of intensity and the senses in architecture and gives an answer to the first and second sub-question. Chapter Two, Mapping the Senses, consists of an experimental outlay of the phenomena towards a specific site location and the measurability and operating of the senses in the public realm. This chapter primarily comprises empirical data that is explained by psychogeography and a manifesto with guidelines for an urban sensescape, all of which is supported by the visuals and words of the participants and the author (see fig. 5). The chapter answers the third and fourth sub-questions. The third and final chapter, Implementing the Sensescape, explains how the sensescape emerged on different scales as a solution for the curating of city intensities. This chapter concludes the research by discussing the findings and potential for the implementation of a sensescape, ending with the scale of the selected site location and therefore, providing an interpretation of the last sub-question. This final chapter determines the architectural positioning for the final design.

*Fig 4. Video still of video with one year of data on the pulse of London throughout an average day matching with the CAZ, Foursquare 2013*

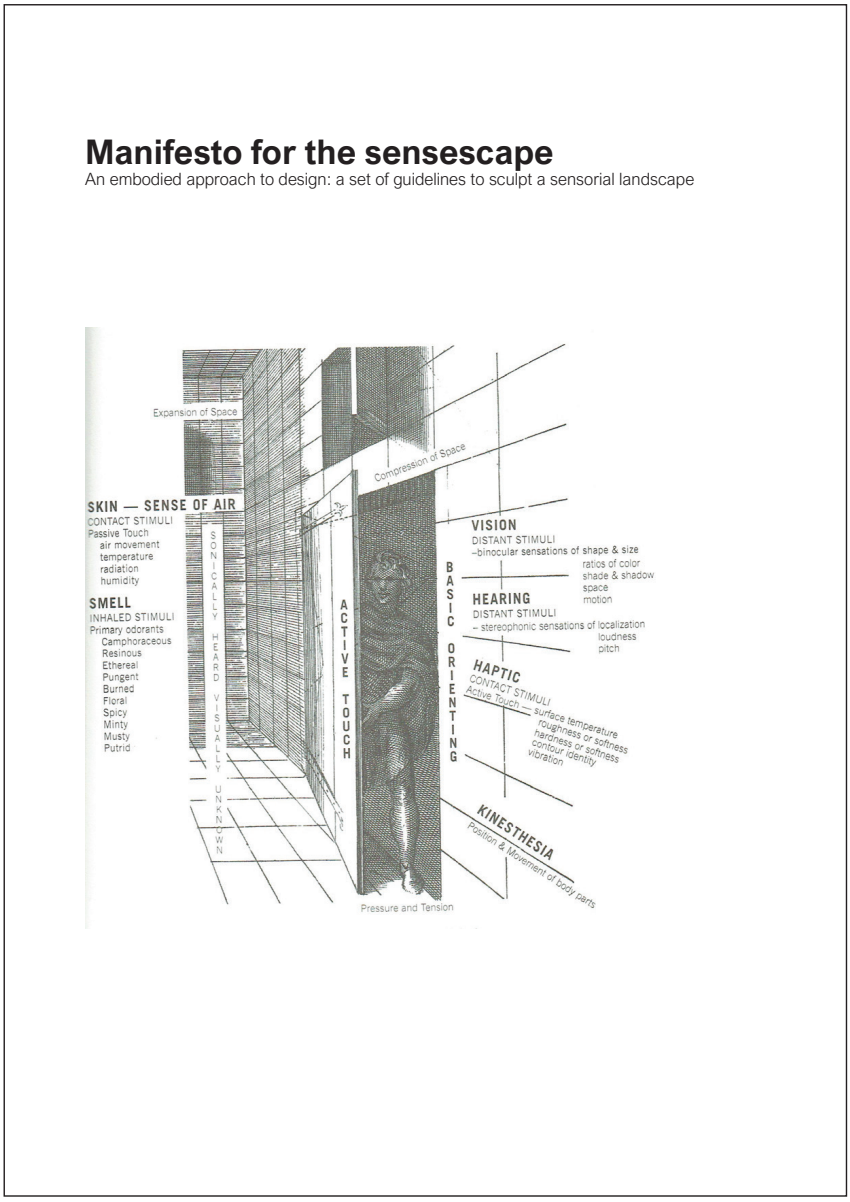



*Fig 5. The manifesto with guidelines for the design of a urban sensescape, ranges of the senses 2004*

# 1. REDEFINING THE PHENOMENA

*Fig 6. Video still of motorised and lightened vehicles in motion, Koyaanisqatsi 1982*

## 1.1 THE SUBSTITUTE FOR DENSITY

### 1.1.1 Fast-paced living

The intensification of social, environmental, technological, and economic systems is causing cities in economically developed countries to keep expanding and becoming exponentially faster, busier, and louder. The space that is created to make this intensification work affects the perception and spending of time for its participants. Thus, these systems are drivers that can speed up or slow down the mental and physical bodies that are part of them, affecting the urban rhythm. As a consequence of this acceleration of city life, space has taken over time in human consciousness, leaving no space for an embodied experience.[1] Alternatively said, these cities are becoming the cities of the eyes, which are isolated from the body through motorised motion or an aerial view of an aeroplane, as shown by the events shown in the movie Koyaanisqatsi (see fig. 6).[2] City plans are highly idealised and schematic visions seen via the look from above. With the other senses contributing little to none at all, the representation of the buzzing city is incomplete.

Since the beginning of time, our ears and nose have alerted us when danger is nearby. Even though their functions have remained similar, the dangers of contemporary cities are distinct from those of the past. Unwanted sounds and smells can have serious health effects on city participants, but this also applies to other sensory pollutants that co-occur with this new notion of space and time.[3] These sensory pollutants, such as a rise in ambient heat and exposure to loud noises or unpleasant odours, make it difficult to rest and focus, which leads to temporary health consequences such as stress, loneliness, disturbed sleep, irritation, raised adrenalin levels, increased blood pressure, and a decline in general functioning. More permanent damage can also occur in the form of depression, anxiety, or sensory loss.[4] We must physically and mentally halt or at least slow down to be able to use our senses in the right way again; we must stop being a "human doing" and start becoming a "human being". Naturally, a suitable context as a foundation is essential to achieve this embodiment. This concern must not just be addressed in the private sphere but also in how public space is constructed. This research gives the public realm more prominence. Public space is defined as a space that is open to all. It is a physical place where a great part of public life occurs.

1. Virilio, P. *The over-exposed city*, 2020

2. Reggio, G. *Koyaanisqatsi* [video], 1982

3. Schafer, R. M. *The soundscape: Our sonic environment and the tuning of the world*, 1993

4. Castro, R., & Carvalhais, M. *Psychological well-being: Emotional health focusing on human feeling and functioning,* 2014

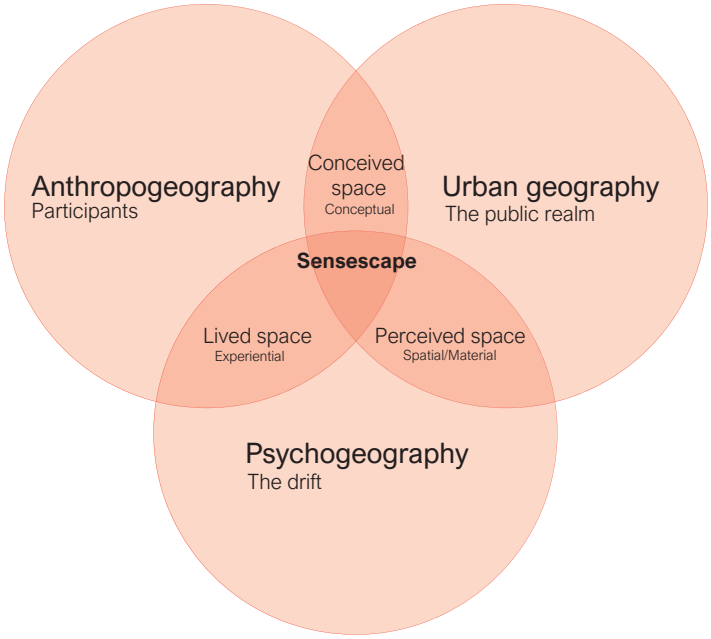



*Fig 7. Theoretical framework, Image by author 2022*

The majority of public spaces are outdoors, however publicly accessible government buildings, public institutions, retail, cafes, restaurants and theatres are in this research considered as public spaces. Even when they are not owned and managed by the public sector. Studying the urban geography of London can help to understand, analyse, and interpret the landscapes and groups of participants of cities in economically developed countries. Mapping the public realm of this fast-paced society will give insights into its sensory shortcomings. Subsequently, anthropogeography examines the connections between these urban environments and groups of participants and how they affect one another (see fig. 7).

## 1.1.2 Intensity

Gerard Maccreanor, an architect who works closely with London's national and local governments, states in a personal interview how intensity is becoming the contemporary substitute term for density. Intensity is no longer a word that is only used by the public to describe an atmosphere or mood, as can be seen in the work of Maccreanor in cooperation with the government. The phenomenon of intensity is employed in many of their new strategies and design guides nowadays.[1] Density fails to convey the essence of how it feels to be somewhere because it refers to the static dimensions of the city; it counts a fixed number of physical states.[2] The phenomenon of intensity distinguishes the outcomes that people experience rather than the processes that went into making them. Thus, professionals in the built environment are starting to see that designing with and for intensity increases the well-being of people and the appreciation of the public realm.

1. Maccreanor, G. *Interview by author: City intensities*, Rotterdam, November 26, 2021

2. Stonor, T. *Intense relationships: measuring urban intensity,* 2018

However, intensity is more difficult to define than density, not least because it appears to contain a subjectively emotional component; it refers to feelings, responses, and stimuli.[1] Through our emotional sensibility we perceive intensity in space; a certain atmosphere that moves people. Nonetheless, atmosphere is always a response to context, place, and people within a static and kinetic dimension (see fig. 8).[2] As a result, the public realm's intensity is multi-layered and related to how sensory stimuli are represented in space, in material form, and in the atmosphere.

Therefore, the layering of intensity can be unravelled through the experience of the drifting participants through these networks and layers that can be found in the city (see fig. 9). The drifter is derived from psychogeography, an approach that aims to use playful explorations of urban environments in order to examine their architecture, spaces and the urban rhythm. In this approach, the effect of a geographical location on the emotions and behaviour of individuals is described.[3] The senses are linked through kinaesthetics, learning by physical activity and motion relating to a person's awareness of the body and its position in space. This human-centred and urban approach to architecture is used as an empirical research method to measure intensity (see fig. 7). The layer of intensity that covers the senses is the main focus of this essay, since it has been neglected in the design of the built enviroment. In the following sub-chapter additional details will be provided regarding the level of sensory stimuli that participants perceive through the built environment.

*Fig 8. The intensity of the public realm of London, Oxford street 2016*

1. Maccreanor, G. *Interview by author: City intensities*, Rotterdam, November 26, 2021

2. Zumthor, P. *Atmospheres: Architectural Environments - surrounding objects,* 2006

3. Debord, G. *The Naked City* [Map], 1957

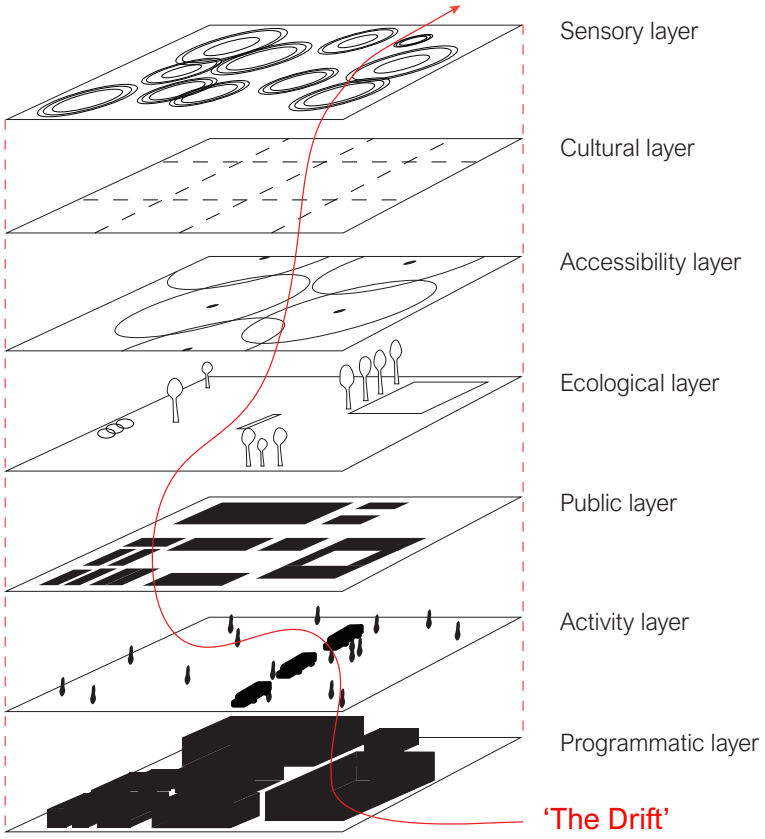



*Fig 9. Drift through layers and networks of intensity, Image by author 2021*

### 1.1.3 The spectrum

When the phenomenon of intensity is applied to the built environment, a gradient between tranquil and vibrant atmospheres is set out on a spectrum (see fig. 3). However, the measured intensity of a city is always relative, as an absolute tranquil atmosphere is not feasible within the acceleration of contemporary city life. Besides, the intensity changes over time and varies per location, and each participant experiences the intensity in a different way. The intensity of urban public spaces and their spatial, material, and atmospheric representations of sensory stimuli depending on their tranquil and vibrant state will be identified and explored through the eyes - and the other senses- of the drifter, based on the concept of German philosopher Walter Benjamin.[1] The degree of intensity on this spectrum perceived by the drifter could be identified by tangible and intangible representations of sensory stimuli related to cultural values, accessibility, ecology, publicity, activity and programme of the near context. According to Russell's model of emotions in space, creating a balance where tranquil and vibrant atmospheres - seen as calm and lively in figure 10 - may coexist but not become too chaotic or boring seems to be the intended range of the spectrum for any metropolitan city (see fig. 10).[2] Anything below tranquillity can provoke a lack of stimuli, whereas anything above vibrancy can provoke overstimulation (see fig. 3). Sensory deprivation and exposure should be applied to the right degree.

1. Walter, B. *The arcades project*, 2002

2. Russell, J. A. *Affective appraisals of environments*,1988

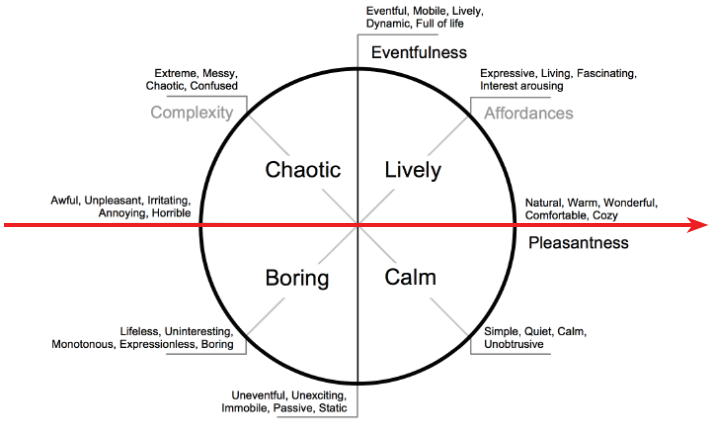



*Fig 10. Emotions in space (atmospheres), Russell 1988*

1. Moreno, C. The 15-minute city: a new urban model [webinar], 2020

The urban model of the 15-minute city, developed by academic Carlos Moreno, relates to the spectrum of city intensities by focusing on localization and the coexistence of both tranquil and vibrant spaces that are mentioned above. The concept promotes the idea that cities should be designed or redesigned so that people should be able to live the essence of what constitutes urban life within a 15-minute walk, referring to the six social roles of living, working, supplying, caring, learning, and enjoying.[1] It establishes a new relationship between participants and the urban rhythm, consisting of space, time, and the body. Putting people at the centre of the identification of urban space is the first step towards a balance in the spectrum of city intensities. A gradient of diverse, tranquil pockets and a network of vibrant public spaces should be within the reach of the participants in the buzzing city (see fig. 9). During the elaboration of this research into a design, the focus will be on one of these areas where the balance between these tranquil and vibrant atmospheres has been lost. It will be a showcase for the implementation in other parts of London or other intense cities in the world.

*Fig 11. London as the 15-minute city, Carlos Moreno 2020*

## 1.2 ARCHITECTURE AND THE SENSES

### 1.2.1 Ocular-centric view

The sense of sight was traditionally supposed to be the finest in Western cultures, and thought itself was looked at in terms of sight. Certainty in classical Greek thought was founded on eyesight and visibility. The Greek philosopher Heraclitus wrote, “The eyes are more exact witnesses than the ears,” and Plato regarded “vision as humanity’s greatest gift."[1] Likewise, the writings of Aristotle, Aquinas, and numerous ancient philosophers equated knowledge with a clear vision and used light as a metaphor for the truth. In the Renaissance, the hierarchical system of the senses was related to the image of the cosmic body: vision as the highest sense was associated with fire and light, hearing with air, smelling with vapour, tasting with water, and touching with the soil.[2] Nowadays, the privileged social senses are sight and hearing. The other senses are only thought to have a purely private purpose in the ocular-centric code of culture. In many non-Western cultures, sound is associated with empathy, participation, and experience and is taught from a young age. Likewise, Japan prizes and teaches children to develop tactility, and Africa applies the same for kinaesthetics.

In today's Western society, the ocular-centric view is much larger, and the focus is less on the actual impact on the self. In his book, The Eyes of the Skin, renowned Finnish architect Dr. Juhani Pallasmaa states that "the narcissistic and nihilistic eyes" are the two sides of the impact of the ocular-centric view on architecture and its participants. The narcissistic eye sees architecture just as a means of self-expression and as an intellectual-artistic game, cut off from crucial mental and social connections, whereas the nihilistic eye creates deliberate sensory and mental isolation from the world.[3]

*“The sight separates us from the world, while the rest of the senses joins him.”*
- Juhani Pallasmaa, The Eyes of the Skin 1994

1. Pallasmaa, J. *The Eyes of the Skin: Architecture and the senses*, 1996

2. Pallasmaa, J. *The Eyes of the Skin: Architecture and the senses*, 1996

3. Pallasmaa, J. *The Eyes of the Skin: Architecture and the senses*, 1996

The expansion of technical innovations with their ongoing creation and production of images has strengthened the hegemony of vision. As images have become commodities, sight is the only sense rapid enough to keep up with the increase in speed in this technological world (see fig. 12). The psychological strategies of advertising and quick persuasion with these image products, such as renders, have been incorporated into architecture. Therefore, it is crucial to critically examine how vision relates to the other senses in our comprehension and practice of the art of architecture. Usually, stimuli that appeal to the sense of sight are primarily used in the built environment; much attention is paid to creating visual delights. More than eighty per cent of our sensory input is visual.[1] Thus, buildings that excel acoustically, tactilely, or smell pleasant receive little attention.

The built environment's strong visual orientation of Western society is deeply ingrained in history, beginning with the ancient Greeks. Philosophers have exposed the ocular-centric standard that defines our relationship to the world and our perception of knowledge and the self; understanding ourselves as visionary beings.[2] The neglect of the body and the senses, as well as an imbalance in our sensory system, can be interpreted as the cause of the inhumanity of contemporary architecture and cities. Our tendency to become detached, solitary, and exterior in this architecture and in these cities is a result of the eye's predominance over the other senses and their repression. This phenomenon on the level of participation of the body and the mind in the built environment is described as a disembodied experience. Such separation makes it too simple to view the environment as a collection of objects that are only suitable for disregard or exploitation.[3]

1. Porteous, J. D. *Environmental aesthetics: Ideas, politics and planning,* 2013

2. Pallasmaa, J. *The Eyes of the Skin: Architecture and the senses*, 1996

3. Porteous, J. D. *Environmental aesthetics: Ideas, politics and planning,* 2013

*Fig 12. The image as commodity, Piccadilly Circus 2021*

However, the interpenetration and mutual definition of the body and architecture, as articulated by French philosopher Maurice Merleau-Ponty: "Our body is both an object amid objects and that which sees and touches them," could potentially contribute to an embodied experience with simultaneity and interaction of all the senses.[1] This multi-sensory architecture should recreate the experience of an undifferentiated inner world, in which we are not mere observers but to which we inseparably belong. This awareness is slowly rising among architects, as they attempt to re-sensualize architecture through an enhanced sense of materiality and hapticity, texture and weight, density of space, and materialised light.[2] Frank Lloyd Wright's tactile and kinaesthetic buildings, Alvar Aalto's muscular and tactile designs, and Louis Kahn's geometric and imposing architecture are the forerunners in this field.

1. Merleau-Ponty, M. *Phenomenology of perception*, 1945

2. Pallasmaa, J. *The Eyes of the Skin: Architecture and the senses*, 1996

3. Porteous, J. D. *Environmental aesthetics: Ideas, politics and planning,* 2013

### 1.2.2 Sensory Perception

Visual perception is usually meant when the word "perception" is used. This narrow-mindedness is caused by cultural prejudices and values, as well as by how much easier it is to learn or control vision than other sense. Space, distance, lighting, colour, shape, textural and contrast gradients, and other factors all have a role in how we perceive things visually.[3] However, the importance of sight should not automatically imply the denial of other senses. As evidenced by the tactile sensibility, materiality, and prestigious weight of Greek architecture, the sense of sight may integrate and even strengthen other sense modalities.

*Fig 13. Vision and tactility, Herbert Bayer 1932*

This tactile aspect of vision is sadly less present in contemporary architecture than it was in historical architecture (see fig. 13). If we look at modern architectural theory, the aspects that are the most heavily discussed are visual perception, composition, and proportion. An example of this is the Gestalt laws of visual perception, dating back to 1923. Gestalt theory is founded on the premise that the mind will make an effort to simplify and organise complicated visual data by subconsciously arranging the elements into an orderly system that generates a whole rather than just a collection of random elements. The foundational principles are similarity, proximity, continuity, closure, simplicity, and common reason.[1] Even though this theory focuses exclusively on sight, the other senses and their perception could be designed in the same simple and ordered way. Instinctively these things are safer. They take less time for us to process and create fewer harmful surprises. Hence, the the perception of the urban rhythm will be lower for its participants when making use of gestalt theory. The perception of time can then be restored. Nevertheless, architecture also needs to acknowledge and connect to the existence of the individual mind and body in the city related to sensory perception and space. The theory of social space by philosopher and sociologist Henri Lefebvre conceptualised the social aspect of the built environment. The three dimensions of this social space are perceived space, conceived space, and lived space (see fig. 7).[2]

Perceived space often forms the basis for architectural practice and represents the practical basis of the perception of the built environment.[3] It gives information on space as a spatial and material given, how it is seen, and therefore is not atmospheric and multi-sensory oriented. A misleading or incomplete representation of space would be presented if one of the senses would dominate. Conceived space is structured as conceptualised space that depicts space without the bodies in it. This conscious space reflects the aims, principles, and goals of the designers and their context based on their own sensory perception.[4] These verbal statements of the designers should not just be accepted as they appear, as they frequently only serve this conscious justification that may well be in direct contrast with the unconscious intentions that bring the architecture to life. Thus, conceived space shows the representational space that is unfortunately not inclusive to all sensory perceptions of the participating individuals or groups. Lived space is the spaces of representation, wherein individual perception and non-physical spaces are experienced in the mind. It puts feelings, social relations and memories at the centre of attention but does not include the physical bodies.[5] Although this subjective approach to space takes perception and experience into account, it is hard to measure and should see human bodies as embodied entities.

1. Wertheimer, M. *Gestalt laws of perceptual organisation,* 1923

2. Lefebvre, H. *The Production of Space,* 1992

3. Lefebvre, H. *The Production of Space,* 1992

4. Lefebvre, H. *The Production of Space,* 1992

5. Lefebvre, H. *The Production of Space,* 1992

*"We look; smells and sounds come to us."*

John Porteous, Environmental Aesthetics 2013

In any case, the conceptualisation of social space gives insight into the physical and mental approaches to the experience of space and their shortcomings in multi-sensory focus, inclusive perceptions and embodied experience. This understanding is necessary for further analysis of the context to eventually pursue the sensescape.

Moreover, according to a study by scientist Schifferstein, vision is not always the most significant sense in people's daily interactions with objects.[1] Also, the privileging of sight should not imply a rejection of the other senses. We have entered the era of "secondary orality," according to Walter Ong, due to the telephone, radio, television, and many types of sound recordings.[2] It lays emphasis on the present moment and encourages a sense of community. What other qualities of the senses can be found? People can see the colour, form, and size of objects quite well, but the haptic sense is required to determine an object's softness, firmness, temperature, or weight. The French philosopher Descartes equated vision with touch since this is more certain and less vulnerable to error than vision.[3] Touch gives minimal information in large spaces, while sight and hearing play the most important roles in orientation, and smell plays a role as well. Objects are seen from a great distance by the eyes. The eyes normally examine product details first, followed by the touch, with the eyes registering product properties slightly faster than the touch. Sounds may be heard from a long distance and are the most common means of communication between individuals and between people and their surroundings. People have control over how they feel and how they look; they can close their eyes and use or not use their hands. Sounds and odours, on the other hand, impose themselves. Although the perception of sound lacks information, it is filled with emotion. Sound is spherical, surrounding, and non-locational in contrast to vision, which is sectoral. It tends to emphasise space itself rather than the objects in it and has no obvious limits.[4] Design considerations for both sound and light include diffusion, absorption, and reflection. The way participants perceive the environment is influenced by these diverse qualities of the senses.

1. Schifferstein, R. *The relative importance of sensory modalities in product usage: a study of self-reports,* 2006

2. Ong, W. *Orality and Literacy: The Technologizing of the Word,* 1982

3. Pallasmaa, J. *The Eyes of the Skin: Architecture and the senses*, 1996

4. Porteous, J. D. *Environmental aesthetics: Ideas, politics and planning,* 2013

## 1.2.3 Inclusive design

Imagine if hearing, feeling, and smelling could count on the same attention in architecture as seeing. What would our built environment look like? To fully understand this subject, people with sensory impairments—a minority in the discipline of architecture—will be researched.

"The blind" do not exist, just as "the sighted" do not exist. There are those who cannot see at all or can not see well, and the same is true for other sensory perceptions. Usually, the senses work well together and support each other. The cooperation between the senses and the processing of all sensory stimuli ensures one integrated perception. People with sensory impairments perceive through other combinations of senses, with their eyes, ears, nose, skin, hands, fingers, feet, toes, and even their tongue, and thus have other kinds of perceptions. It is a natural form of sensory deprivation. The environment provides information for each sense. A loss of it due to a limitation can be compensated for by using other senses if the environment supports it well enough. Their experience in architecture gives the ocular-centric society an insight into the dominance of vision in the design of a building. There is no such thing as a perfect building for sensory-impaired people, but there are many practical guidelines to follow. These people do not want particular buildings designed for themselves; instead, they teach us, the designers and users of buildings, about the essence and soul of a building.[1]

Buildings that are designed for a multi-sensory experience often include a well designed walking route and deliberate sensory deprivation; also called perceptual isolation. But how can this be inclusive to the natural form of sensory deprivation and physical or mobility impairments? The primary question in inclusive design is what is important in a building and its design for all users, including people with all sorts of impairments. Despite the fact that there are many standards and regulations for making a building accessible, practice reveals that many buildings do not follow them and are unpleasant for people with perception impairments or physical disabilities.[2] The building regulations only set minimum accessibility requirements. Other rules are mostly concerned with physical components. Because there are no clear and commonly accepted rules for acoustics, lighting, and tactile orientation support, it is up to the organisations and individual designers involved to make a design inclusive. They will need to include users in the development of a programme of requirements as well as the design process to avoid the need for costly, unregulated, and sometimes even stigmatising changes later on, such as extra striking accents like yellow lines at an entrance, a separate door, or a back accessible entrance.

For visually impaired people, glass, colours, surfaces, and lines can present challenges in environments where these visible features do not always provide effective navigation and orientation possibilities.[3] Modern glass façades, for example, might be inconvenient because the line between the inner and outer world is barely distinguishable.

1. Jordans, M., van de Kraats, B. & van den Wildenberg, M. *Architectuur door andere ogen*, 2012

2. Jordans, M. Et al. *Architectuur door andere ogen*, 2012

3. Anonymous interviewees. *Questionnaires and interviews by author: sensory expertise in the urban public realm, 2022*

Its use intensifies the surreal feeling of unreality and alienation since it is difficult for us to imagine or see what lies behind these walls. In addition, impaired people perceive black steps and black surfaces in a floor covering as holes, and furniture that matches the floor's colour appears to float. These scenarios can be problematic for those who are unable to identify their surroundings properly or at all. A well-designed environment always gives enough information and makes the unseen apparent or the imperceptible detectable. Differences in smell, texture, acoustics, atmosphere, and colour give the senses something to cling to.[1] Designing for inclusion is not easy, but there are a lot of obvious solutions. It thus is not always about a grandiose design intervention; the seemingly obvious, the simple, when applied thoughtfully, can make a huge difference. This sense friendly layer is important for the design of a sensescape wherein not only sensory impaired people, but also elderly or diabled people can feel at home.

1. Jordans, M. Et al. *Architectuur door andere ogen*, 2012

2. Zumthor, P. *Atmospheres: Architectural Environments - surrounding objects,* 2006

3. Zumthor, P. *Atmospheres: Architectural Environments - surrounding objects,* 2006

### 1.2.4 Multi-sensory design

A sensescape is a landscape with one or multiple architectural interventions that will help create an inclusive, embodied and multi-sensory experience. The introduction of a sensescape could potentially give way to the embodied practises of being in the world, including ways of seeing but extending beyond sight to both a sense of being that involves all the senses and an openness to being moved.[2] The sensory values of a sensescape are found not just in the architectural intervention but also in its social and environmental context. When looking into the context of previously analysed and designed sensescapes, preference is given to a natural environment, a place of worship, a museum or a bathhouse. For instance, a walk in a forest is calming because all of the sensory modalities are working collectively. It is obvious that these programmes are highly focused on user experience (UX) and already incorporate this multi-sensory feature within their conditions and typology. Most often, these programmes are related to sensory deprivation, tranquillity and nature. Consider the Kolumba Museum in Cologne and Therme Vals, two of Peter Zumthor's most well-known sensory creations. In his book Atmospheres, he talks about the full devotion to the creation of such atmospheres.[3] However, these buildings are purely recreational, not related to very dense complex urban areas, and they do not include (multiple) functional usage programmes. Despite the effectiveness of these sensescapes, the study highlights a lack of potential in dense urban areas. The difficulty of applying it to a dense urban environment

lies in this.
The intensification of the city as described in chapter 1.1.1 will cause certain sensory pollution, such as noise or air pollution. The scarcity of land in these dense urban areas also requires certain planning and programming requirements. Therefore, the social and environmental conditions of the context for designing a sensescape in such a dense and negatively stimulating environment are not always favourable. Accordingly, a fitting context, programme, and typology are essential to the success of the sensescape and thus must be thoroughly studied. The architectural intervention must eventually mediate between the existing and new conditions of the site.

When observing and reacting to an environment, architects and designers should dig into the workings of the senses. The Multi Sensory Design (MSD) model was created by Schifferstein, in which designers map a product's sensory characteristics and development in seven steps.[1] Although many designers intuitively feel whether the colour, smell, sound, and design of their product support their use, this model takes the expressions of the design as the starting point instead of the endpoint. As a result, designers are obliged to ask themselves what type of expression an object should have before exploring how the senses can best support that expression. The design of a sensescape should use this MSD-object integrated approach to create interior and exterior spaces with a certain atmosphere and experience. Careful design with an eye for all the senses results in more accessible environments.

Furthermore, this method of design produces buildings that are pleasing to the senses of hearing, feeling, smelling, and seeing. The understanding of the environment benefits most from these four senses.[2] The sensescape can be decomposed into a visualscape, hapticscape, smellscape, and soundscape. Taste is excluded from the research towards a sensescape but could be used when consumption is incorporated into the selected programme of the building. It could complement and strengthen the sense of smell.

1. Schifferstein, R.
*The relative importance of sensory modalities in product usage: a study of self-reports,* 2006

2. Porteous, J. D.
*Environmental aesthetics: Ideas, politics and planning,* 2013

# 2. MAPPING THE SENSES

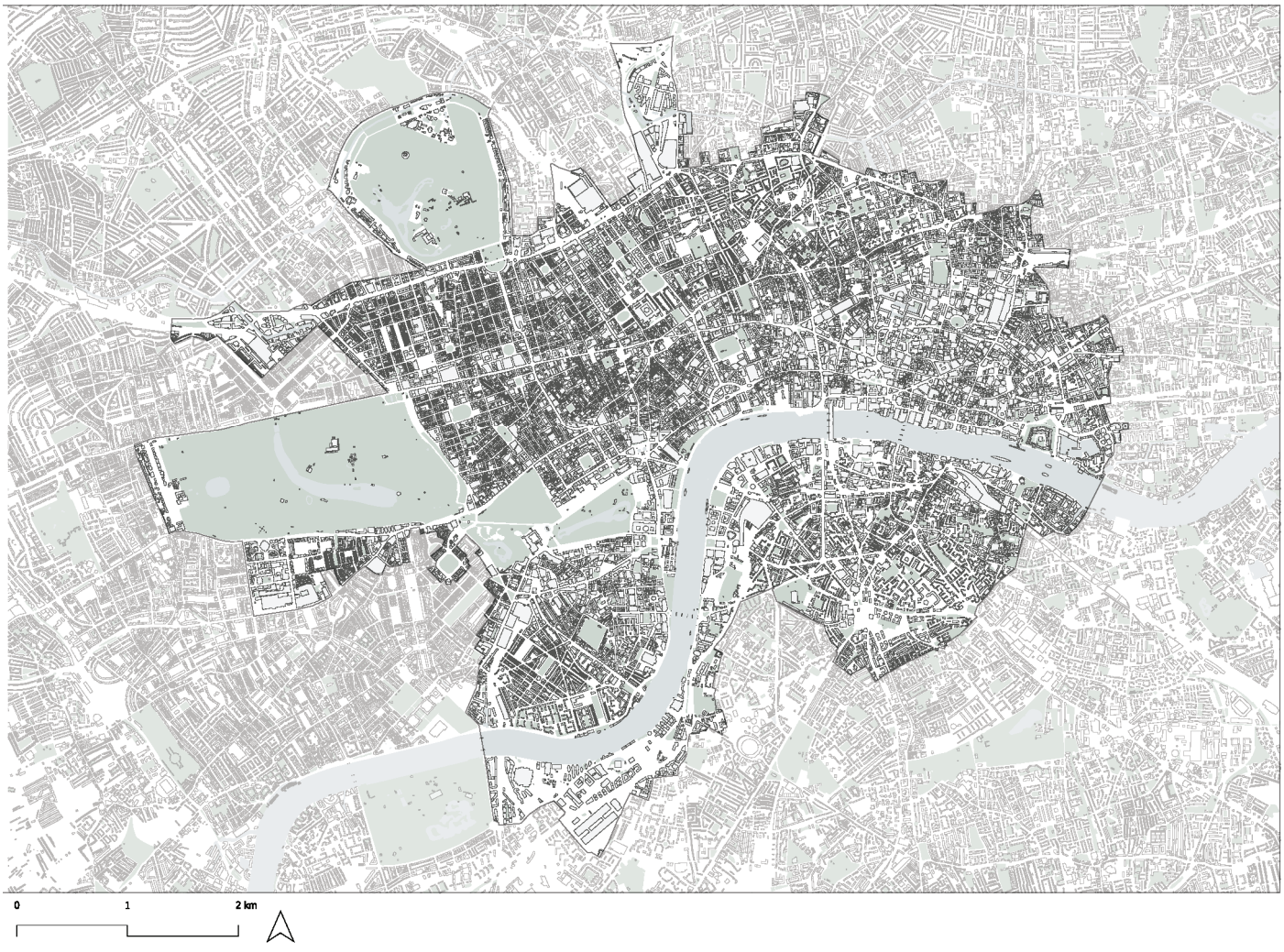



*Fig 14. The CAZ is the heart of London, including parts of ten boroughs, and one of the most vibrant and competitive commercial districts in the world. The Central Activities zone is the area where planning policy promotes finance, specialist retail, tourist and cultural uses and activities, Image by author 2022*

The intersection of the disciplines within psychology, architecture, and geography touches upon urban geography, psychogeography, and anthropogeography. Urban public space, sensory stimuli and the individual perception of intensity are being analysed in the context of contemporary city life. The Central Activities Zone (CAZ) in the heart of London is used as a case study for this research (see fig. 14). This zone encompasses the ten core boroughs and the highest density of people, dwellings, and activity. The analysis is built up as a set of experiments towards a specific site location within the CAZ and the measurability and functioning of the senses in the public realm. The experiments consist of data use, photography, recordings, mapping, field research, interviews, conversations with sensory experts, case studies from sensory experts, programmatic precedents, experiential precedents, the study of archetypes and sampling of the soundscape. The last four experiments will be covered in the follow-up report instead of the research essay due to the scope of this project.Due to the individual and perceptional components of the research described in chapter 1.2.2, the methods that are used are mainly experiments containing an empirical layer. Thus, the subjectivity of these experiments can not be ruled out completely.

## 2.1 TOWARDS THE SITE LOCATION

### 2.1.1 Data analysis London

With the systematic data analysis, with the use of GIS and datasets from the GLA, mapping through different scales of the Central Activities Zone of London is conducted to provide cartographic information on geographical and experientially related data on city intensities.[1] This data-driven research and cartographic mapping will explain the relationship between the senses and space and may point to a problematic site of inquiry. As illustrated in Figure 9, the intensity can be expressed by various layers. Figure 4 depicts human activity flows as an example of this. The figures in the appendix deal with sensory pollution and programme (see appendix A). The other layers of intensity will be described while zooming in on the location. This analysis will give a new, multi-sensory dimension to the perceived space from Lefebvre as described in chapter 1.2.2.[2]

1. Greater London Authority. *London Datastore Government,* 2021

2. Lefebvre, H. *The Production of Space,* 1992

## 2.1.2 Psychogeography

To fully comprehend the CAZ, site-specific field research is required. Psychogeography, drifting by means of unconscious explorations of urban environments, as an empirical research method of the public realm, is used to help unravel the networks and layers of city intensities in the exterior public space of London (see fig. 9).[12] This method for capturing sensory information in transects will try to give a new, more measurable dimension to the lived space as described by Lefebvre in chapter 1.2.2.[3] The sense that most readily helps in the integration of the other senses over time is kinaesthesia, or motion by foot.[45] The pace of a pedestrian as a drifter is chosen to stay as close as possible to the rhythm of the body. Deep listening is the process of listening to learn. It is used by the drifter in motion as a temporary suspension of judgement to receive new audible information. Bankside as the area of interest and starting points for the drifts are set through several interviews with London residents and the architect, Gerard Maccreanor.[6] Bankside lies inside the Central Activities Zone on the South Bank of the Thames, including the northern parts of Southwark and Lambeth (see fig. 16). The interviews emphasised that this location has historically been where the city's intensity is most felt, first by its immense industries and, nowadays, by many large construction and planning developments. Besides, the range of different activities is the most pronounced and varied and the population is growing much faster than the the other boroughs of London.[7] The London Underground station of Elephant & Castle is designated as a starting point. The intensity of the urban city will directly confront the drifter as they exit from the tube station, making the next action as unconscious as possible.

1. Debord, G.
*The Naked City* [Map], 1957

2. Walter, B.
*The arcades project*, 2002

3. Lefebvre, H.
*The Production of Space,* 1992

4. Porteous, J. D.
*Environmental aesthetics: Ideas, politics and planning,* 2013

5. Balsas, C. J. L.
*Walkable Cities*, 2019

6. Maccreanor, G.
*Interview by author: City intensities*, Rotterdam, November 26, 2021

7. Southwark Council.
*The Southwark Plan 2019-2036*, 2022

*Fig 15. Equipment during drifts, Image by author 2021*

*Fig 16. Psychogeographical drifts led by intensity levels by day and night: The study of how the built environment (intentionally or unintentionally) impacts people's emotions and behaviours, Image by author 2022*

During the drifts at day and at night, personal observations were mapped, photographed, sketched, and recorded in transects to document the sensory layers in smell, sound, texture, time, and visual and atmospheric qualities (see fig. 15-18). From these transects, conclusions for designing a sensescape and a potential site location for a master plan with architectural interventions could be drawn. The approach to the development of these transects was not a lineair process, it was a journey in which the value of the perceived sensory stimuli was accepted and used to built the research's foundation.

When looking at the two examples aside, it becomes evident that in our cities, the smell and sound of motor vehicles have taken centre stage, gradually masking smells and sounds that people often consider to be more significant or pleasant (see fig. 17-18). According to research by Schafer, a reduction in these sounds and smells from machinery and motors is an important requirement for an environment that is sensory-pleasant.[1] What is striking is that there were only a few odours to distinguish. As a result, the perceived soundscape dominates the city rather than the smellscape. For this reason, experiments examining the acoustic ecology of a city or building will receive increased attention. Environmental odour and noise are typically only seen as a problem or concern, so it is important to study positive auditory and olfactory stimuli for the design of a sensescape. Tactility, the sense of touch, produces a hapticscape. In the urban drifts, this hapticscape is represented by the types of walking surfaces and the materiality of the environment (see fig. 17-18). Concrete and asphalt can be seen predominating on these surfaces. Thus, the tactile experience is abolished or drastically diminished, just like with the overruling sound and scent.

1. Schafer, R. M.
*The soundscape: Our sonic environment and the tuning of the world*, 1993

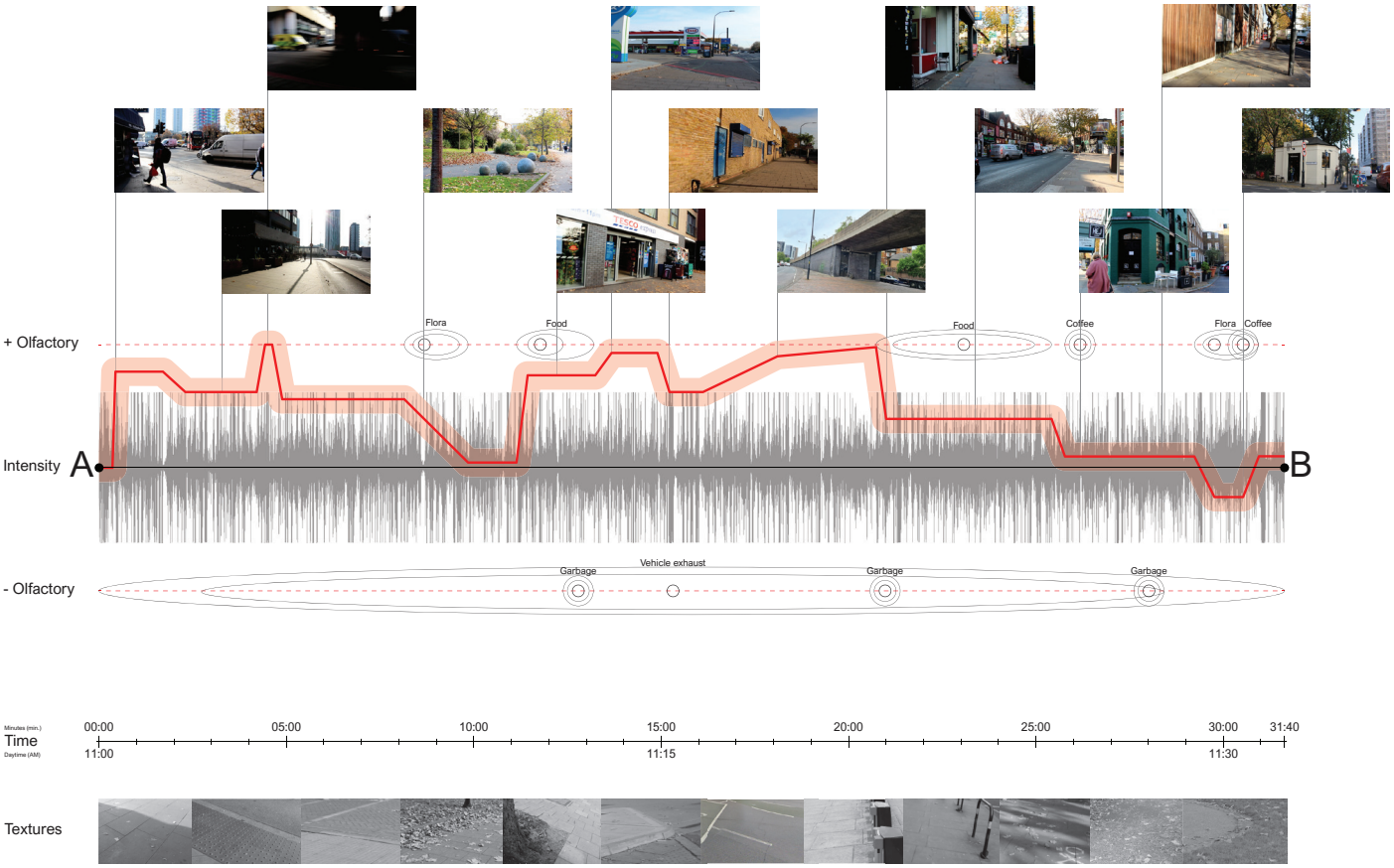



*Fig 17. Transect from drift A-B: Guided by high intensities, Image by author 2022*

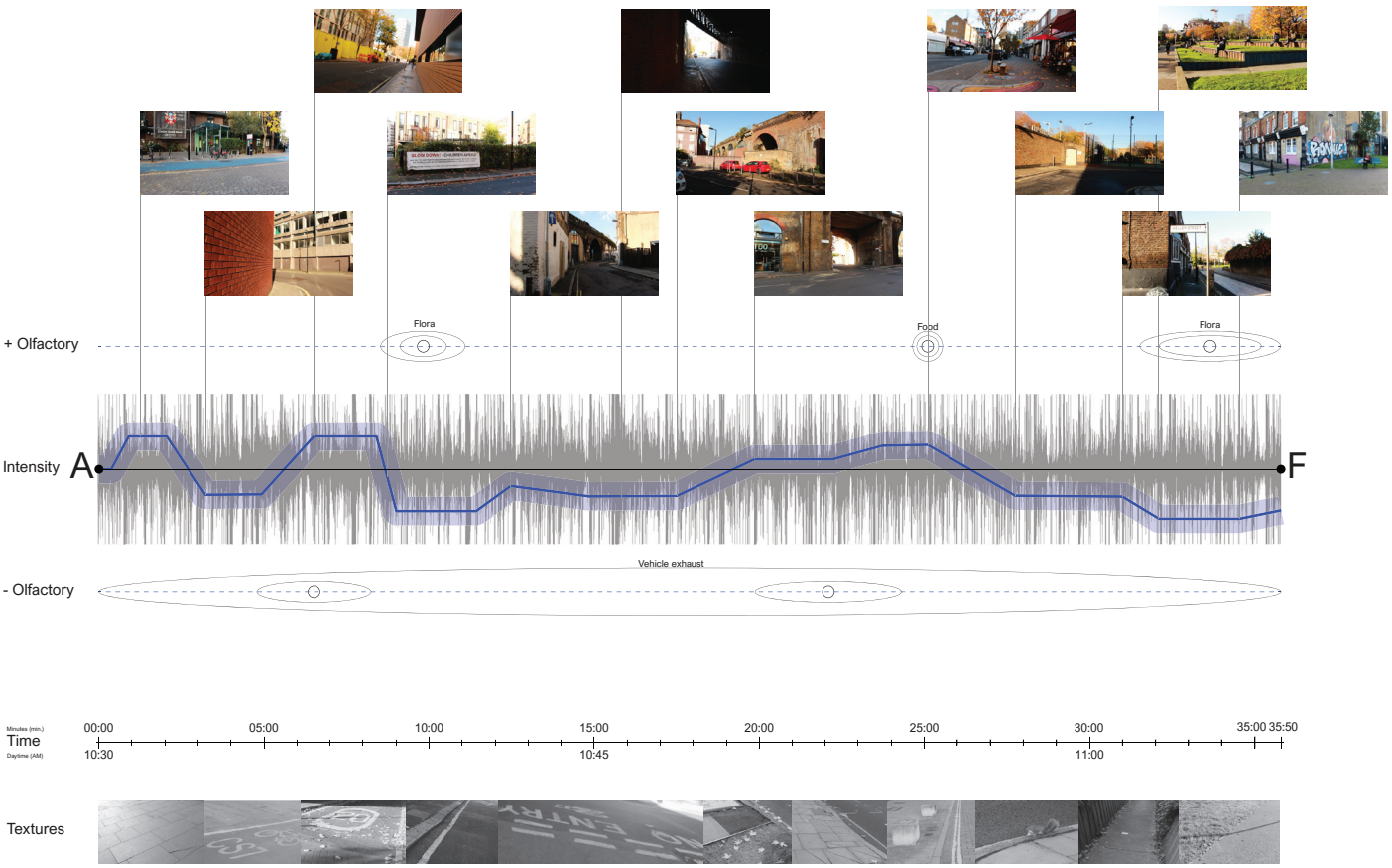
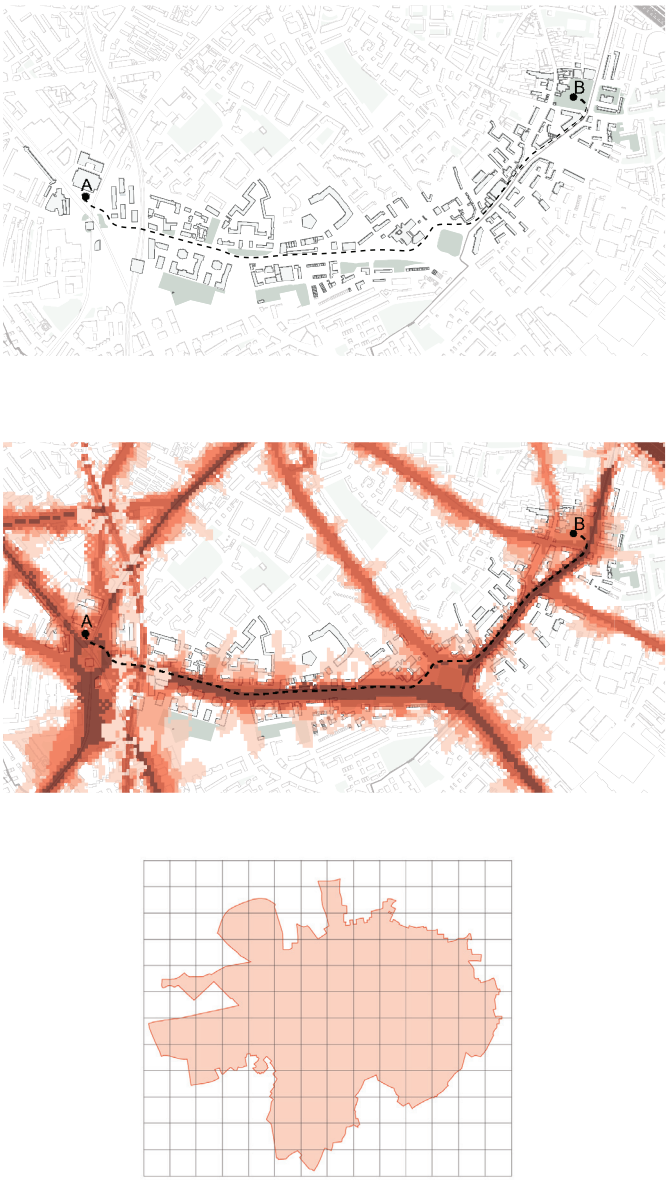



*Fig 18. Transect from drift A-G: Guided by low intensities, Image by author 2022*

The drift A-B

Guided by high intensities




The drift A-G

Guided by low intensities

*Fig 19-24. Urban analysis of the psychogeographical drifts: networks of busy and loud main roads versus pockets of tranquil secondary streets where noises of traffic are unavoidable, Images by author 2022*

By examining the urban scale of the drifts, it can be seen that low-intensity experiences can be mainly sought in pockets of tranquil spaces, as opposed to high-intensity experiences (see fig. 19-24). These vibrant spaces are networked throughout the Central Activities Zone and mainly correspond to the traffic flow of the main roads. In Bankside, this network can be unravelled by following the 'streams' that flow North to South, forming meandering routes from the Elephant and Castle to the Thames. Cuts made through the area allow for more direct and swift movement, creating the 'rides'. The network correspondents with the emerging opportunistic development of high-rise. This 'Manhattanisation' threatens to polarise the tranquil pockets, physically and socially. It is inevitable that this vibrant network will expand, so an essential next step would be to look at where there is a shortage of these tranquil pockets in the network of vibrant spaces. In Bankside, historic courts, shrines, sanctuary spaces, and small gardens create scattered clearings that encourage social interaction and provide spaces for contemplation. The pathways in these pockets create a haphazard network that frequently connects the clearings. But in somes areas, these tranquil pockets are lacking; the network of vibrant spaces takes over. The pockets are very important as a base to unwind the body and mind from the acceleration of city life.

At the building scale, it is discovered that the experience of the level of intensity is inseparably linked to the spatial, material, and atmospheric representations of sensory stimuli in the city. This may relate to sensory values, aesthetic values, accessibility, density, and activities. The intensity increases when narrowing elements, multi-directional infrastructure, contrast in materiality and lighting, or a mixed-use programme are near. Contrarily, the intensity decreases when natural elements, linear infrastructure, coherence in materiality and lighting, or predominantly residential programme are present. These representations are documented and organised in a catalogue of video stills from the drifts (see appendix B). These conditions can be shaped or implemented if a different degree of intensity is desired.

## 2.1.3 Site analysis

From the data analysis of London and the first-hand information from the drifts through London, a problematic site of inquiry has been selected (see fig. 25-27). The three underdeveloped plots within the Borough of Southwark, in the area of Bankside, are located along a path of coordinated train tracks near London Bridge Station (see fig. 26). The three plots are connected by means of underpasses of the elevated railway. These are not currently open to the public. The plots lie on either side of the vibrant Southwark Street and are part of a development plan for brownfields in opportunity areas (see fig. 25).[1] In figures 48 and 56. it becomes clear that the surrounding programme supports the envisioned expansion of the vibrant core of London (see appendix C). There are numerous dining and retail possibilities and the thriving Borough Market is just around the corner  to the North, which results in a crowding of people. The crossing of the railways here generates a public roof that has been expanded with a structure. Below all the ambient noise of the market lingers. This underpass also narrows the busy multimodal and multidirectional infrastructure, which creates a great contrast in light, nuisance from the reflected sounds and a lot of traffic activity. The mixed-use area is full of churches, schools, hotels and offices, but housing and tranquil public spaces such as a square or park are lacking. This description together with the photos of the field trip in figure 61 makes it apparent that this is the ideal representative area, with a lot of overstimulation of the senses, to create a sensescape. Other analyses will be added to the appendix for a complete picture (appendix C).

This site analysis of the individual plots as well as the surrounding context, together with the conclusions of the other experiments, will form a design scope.

1. Allies and Morrison. *Landmark Court: Design and Access Statement Addendum,* 2019

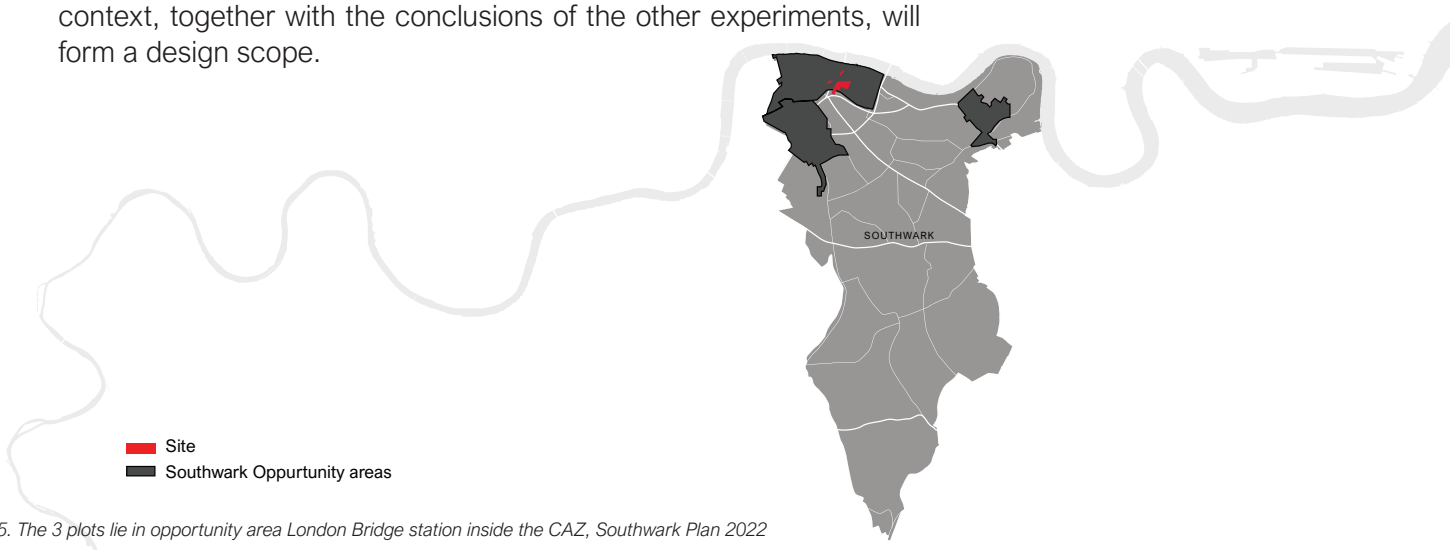



*Fig 25. The 3 plots lie in opportunity area London Bridge station inside the CAZ, Southwark Plan 2022*

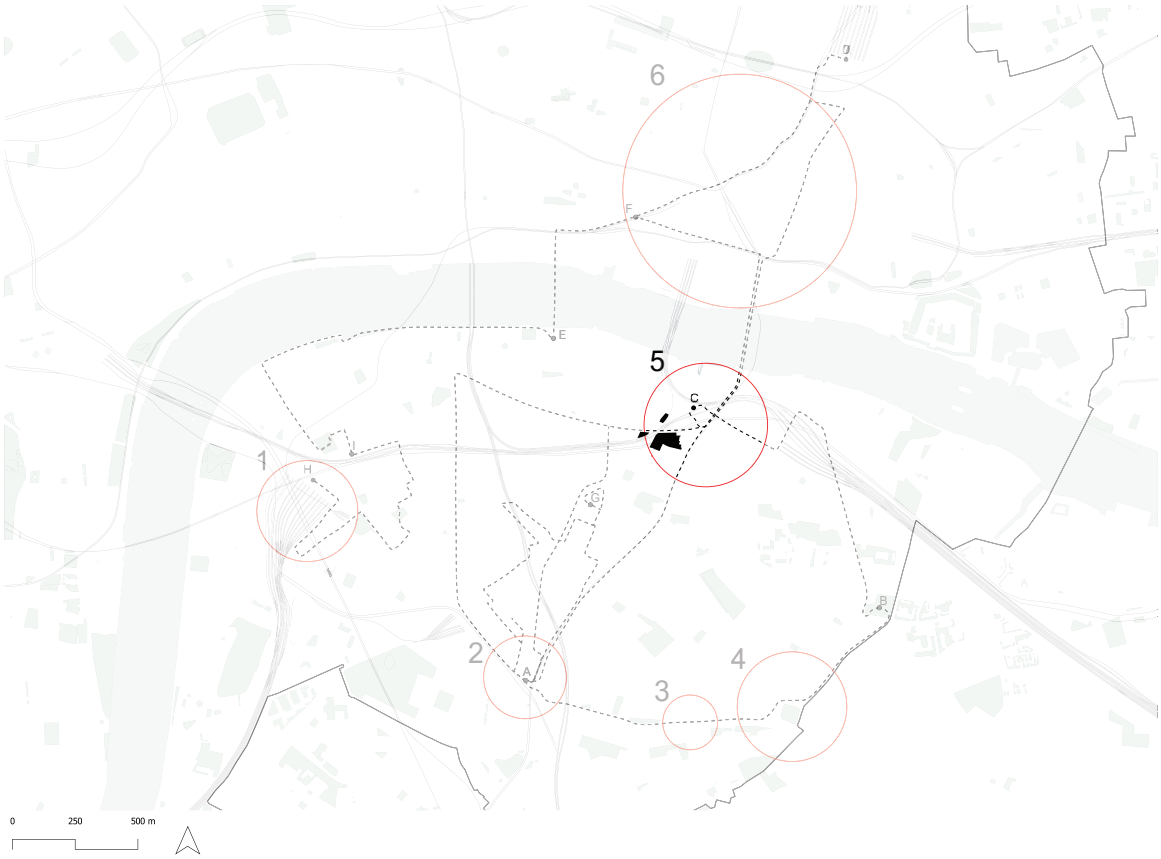



*Fig 26. site of inquiry chosen from several problematic areas: Zoom in on area 5 (Bankside) with undeveloped and unused plots, Shortage of green public facilities, narrowing elements elevated railway, mixed-use programme, multimodal and multidirectional infrastructure, noise from railway and roads, Image by author 2022*

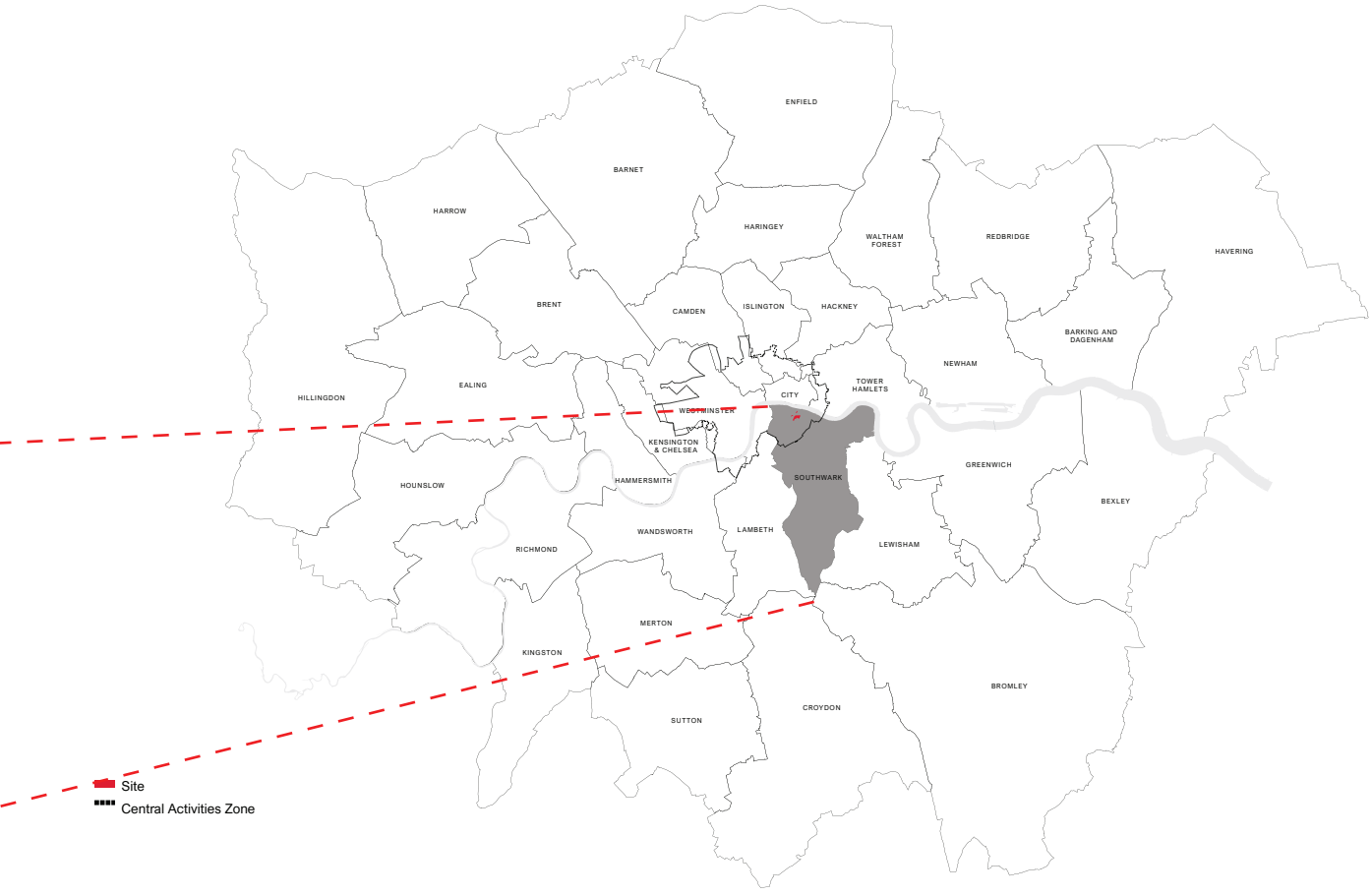



*Fig 27. Contextual analysis: Boroughs and opportunity areas Southwark, Image by author 2022*

## 2.2 EXPERIMENTING WITH SENSORY STIMULI

A manifesto is composed of guidelines for the design of a sensescape that is informed by personal interviews and case studies (see appendix D). This extends the foregoing information about London's public realm through research into the user experience of urban public space, unbound to a specific context. The interior of a building will also be discussed in more detail.

### 2.2.1 The manifesto: personal interviews

Part one of the manifesto consists of personal interviews. By producing a questionnaire for people with a sensory impairment, the expertise and experiences of the individual's sensory perception are gathered to get a grip on what is required, desirable, and unwanted as atmospheric, spatial, and material representations of sensory stimuli. Additionally, the differences in the experience of the exterior, the interior, and the threshold spaces are discussed. The questionnaire touches upon all the layers of city intensities, including programme, accessibility, and ecology (see appendix E & fig. 9).

The Koninklijke Visio, an expertise centre for visually impaired and blind people with several locations throughout the Netherlands, has helped to get in contact with this target group. The requirement was that all interviewees still participate in the bustling, vibrant areas of a city's public realm. There were five responses to this request from people living nearby in The Hague and Rotterdam. The questionnaires were answered in person to ensure the greatest possible communication. The selected participants have sensory disabilities to varying degrees. They represented impaired or distorted vision, blindness, hearing loss, a decreased sense of smell, or a combination of these aforementioned conditions. Their relation to the senses is more actively in use. They are not more sensory-capable, but they are more able to express, combine, and employ their senses. The guidelines in the manifesto are partly extracted from these interviews. Hence, the interviews not only provide a huge inspiration for implementing the inclusive layer to the sensescape design, but also provide valuable information on the perception and utilisation of the different senses in the public realm. In the interviews examples were given of public buildings where the senses are stimulated in a pleasant or unpleasant way. Some will be explained below.

*Fig 28. Monotonous materiality and colours, light reflections, repetition in the roof construction of the city hall in the Hague, Image by author 2022*

It emerged several times from the interviews that the city hall in The Hague is an example of poor sensory design. The use of color is absent and the use of modern reflective materials takes precedence. The skylights let in a lot of light, and certain elements are repeated in an organized sequence (see fig. 28-29). Each floor is more of less the same, with the exception of the ground floor that is connected with a large atrium. These conditions create shrill light and sound reflections against the shiny white material, a shortage of landmarks, and a cold character in which one cannot feel at home. One of the interviewees called it a big white igloo and he said that he would be lost without the people who pick you up at the door. The same applies to large open spaces in, for example, station buildings. Due to their multi-directional traffic space, the sounds and smells come from all sides, distracting the senses and making no orientation or focus possible. There are many functional indication sounds such as beeps from elevators, gates or queues, which drown out the natural and human sounds.

*Fig 29. Slim, modern and repetative elements of the city hall in the Hague, Image by author 2022*

*Fig 30. Wall mounted fountain with raised edge and tile decoration in Gemeentemuseum in the Hague, Image by author 2022*

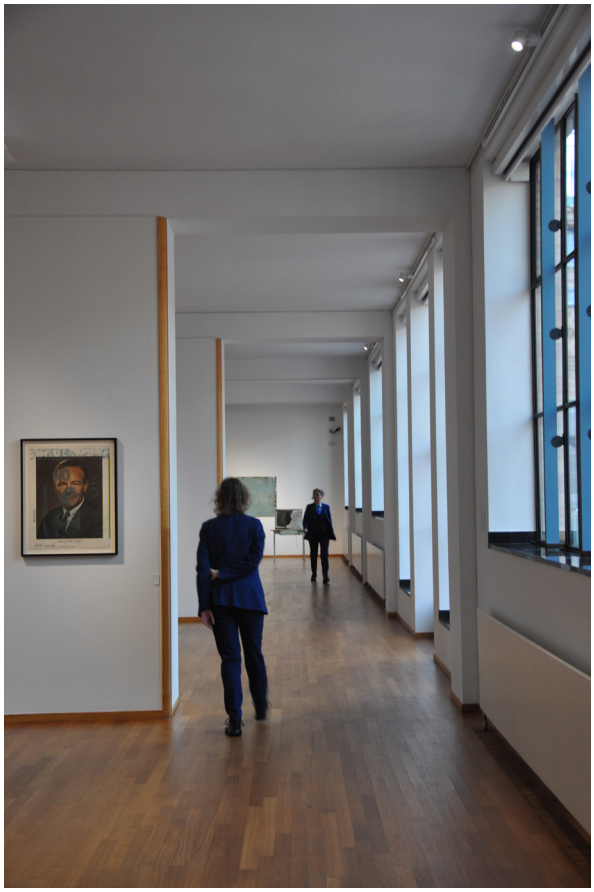


*Fig 31. Lighting and detailing in exposition space in Gemeentemuseum in the Hague, Image by author 2022*

*Fig 32. Newly designed extension of the roof over the courtyard with diffused natural lighting and coherence in materiality in Gemeentemuseum in the Hague, Image by author 2022*

*Fig 33. contrasts in relief, materiality, transparency, colouring, lighting in Gemeentemuseum in the Hague, Image by author 2022*

*Fig 34. Continuation of directional and haptic elements in traffic spaces in Gemeentemuseum in the Hague, Image by author 2022*

In these interviews, het Gemeentemuseum in The Hague was labeled as a pleasant multi-sensory and inclusive experience, although the art is purely visual. During the renovation of the building in 1998, a lot of attention was paid to natural light, but also to artificial light. With canvases, foils and frosted glass, a diffuse composition has been created that support the art and the space where necessary (see fig. 32-33). Softer materials, such as wood, have been used below eye level on many walls and floors to counteract sound reflections and provide haptic feedback. The same panelling, railings and direction indicators have been continued in the traffic areas (see fig. 33-34). These ensure a harmonious and clearly legible whole. Wooden details have also been added at sharp corners to ensure a soft transition (see fig. 31). There is a certain symmetry in the plan and spaces with a clear routing that gives the building orientation that feels not mundane. In the cafeteria's covered courtyard, a small fountain rises above the buzz of the crowds, making even the busiest part of the building feel calm (see fig 30). The interviewees indicated that contrasts are very important to emphasize. This can be applied to the use of light (and shadows), the size of the rooms, materials or colours. For example, a threshold should be of another conspicuous material and an important door can be highlighted by use of a different color or size. The coherence between the building's structure and its ornamentation, as well as the harmony between efficiency and beauty, were central to Berlage's architectural philosophy. An inclusive multi-sensory building should possess these qualities.

## 2.2.2 The manifesto: case studies

Part two of the manifesto consists of the case studies of well-known public buildings in the Netherlands. The case studies are elaborated in interviews of visually impaired people visiting these sites, recorded on CDs (see appendix F). These interviews give audible information on the different building typologies and programmes and how they deal with or lack visual, haptic and sonic design. It makes sense that there was a significant overlap with the face-to-face interviews. The guidelines of the sensory manifesto that were extracted from the interviews are thus complemented with these atmospheric, spatial, and material representations of visual, haptic and sonic stimuli (see appendix D). What is striking is that the buildings that were built earlier are easier to read and more sensory pleasing for the interviewees. They gave several reasons for this, some of which are explained below.

Their preferences for textured, natural, and old materials and their honest scents is confirmed through the link between time and materiality, as described by Pallasmaa.[1] The patina of wear and ageing gives the dimension of time to the building materials. Also, the exposed thickness of the honest materials and ornaments give the design weight, identity and tactility, but this is often hidden or omitted in contemporary buildings. If these dimensions are lacking due to slimmer and smoother machine-made materials such as glass, steel, and plastic, an embodied experience is made impossible.

In the older buildings, the contrasts between colours was made more obvious and colours were used not only as decoration. An excessive or monotonous use of colours can cause confusion. Despite the differing or limited vision from the interviewees, there is a lot of instruction regarding colours. This is, however, not surprising. Colour differs from vision's tendency to remain a remote, detached sense, and as a result, the colour vision has some characteristics in common with the non-visual, more emotive senses. Colours obviously reflect emotional meaning in the observer's mind, just like music does.[2]

Additionally, the complexity of the floor plans and facades should be kept at a minimum and perpendicular angles and shapes should be chosen over diagonal. A fragment of symmetry makes it easier for them to understand the building and its surroundings without making them feel mundane. The older buildings under this research are more related to the accompanying archetypes in terms of architectural form, function, and technology. This simplifies interpretation of the strong symplicity, hierarchy and/or uniformity.

1. Pallasmaa, J. *The Eyes of the Skin: Architecture and the senses*, 1996

2. Jordans, M. Et al. *Architectuur door andere ogen*, 2012

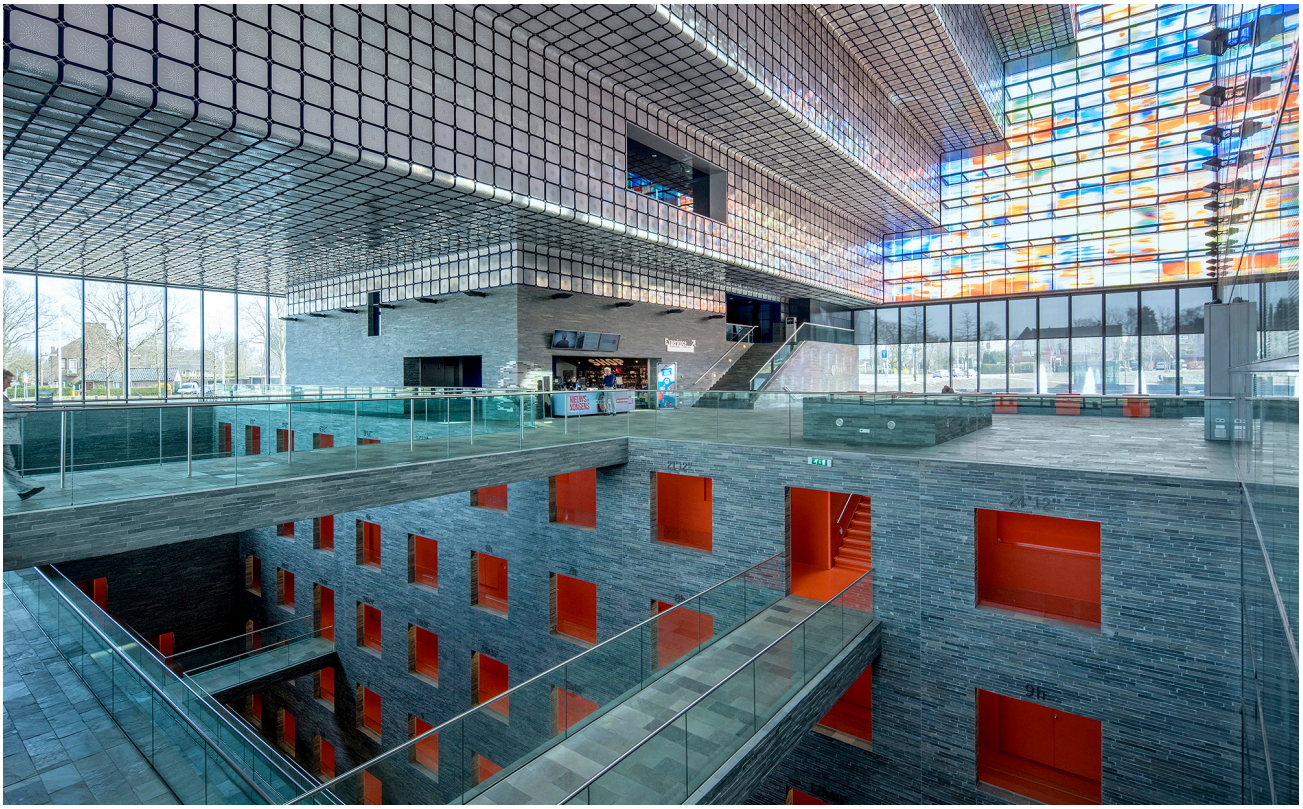


*Fig 35. Screaming colours, large curtain walls and a complex circulation of underground and floating spaces in Beeld en geluid in Hilversum, Beeld en Geluid 2022*

Beeld en Geluid in Hilversum combines modern material use with many glass facades and vivid colours (see fig. 35). The university Library in Utrecht makes use of a black monotonous materiality. Here too, glass facades have been used on a very large scale, albeit with a texture against reflections (see fig. 36). In both buildings, the traffic space is in an atrium that does not have a pleasant temperature. These spaces sound so wide, hollow and quiet that no orientation is possible and the human scale is lost. Mechanical sounds, such as a beep from the air conditioning or automatic doors, together with heavy reverberation of the human sounds causes disorientation. The odors of the rooms are alternately sterile or musty. The vibrating stairs' steps suggest that they are not sufficiently sturdy and strong. Coupled with a complex floor plan that contains several underground layers and a great height, the whole creates an experience that can feel very intense for the user. The experience of vibrancy can then be transformed into chaotic by misuse of spatial, material and atmospheric representations of the senses, according to Russell's model on atmospheres (see fig. 9).

*Fig 36. Large atrium with monotonous colouring and shrill sound reflections in the University Library in Utrecht, Wiel Arets architects 2019*

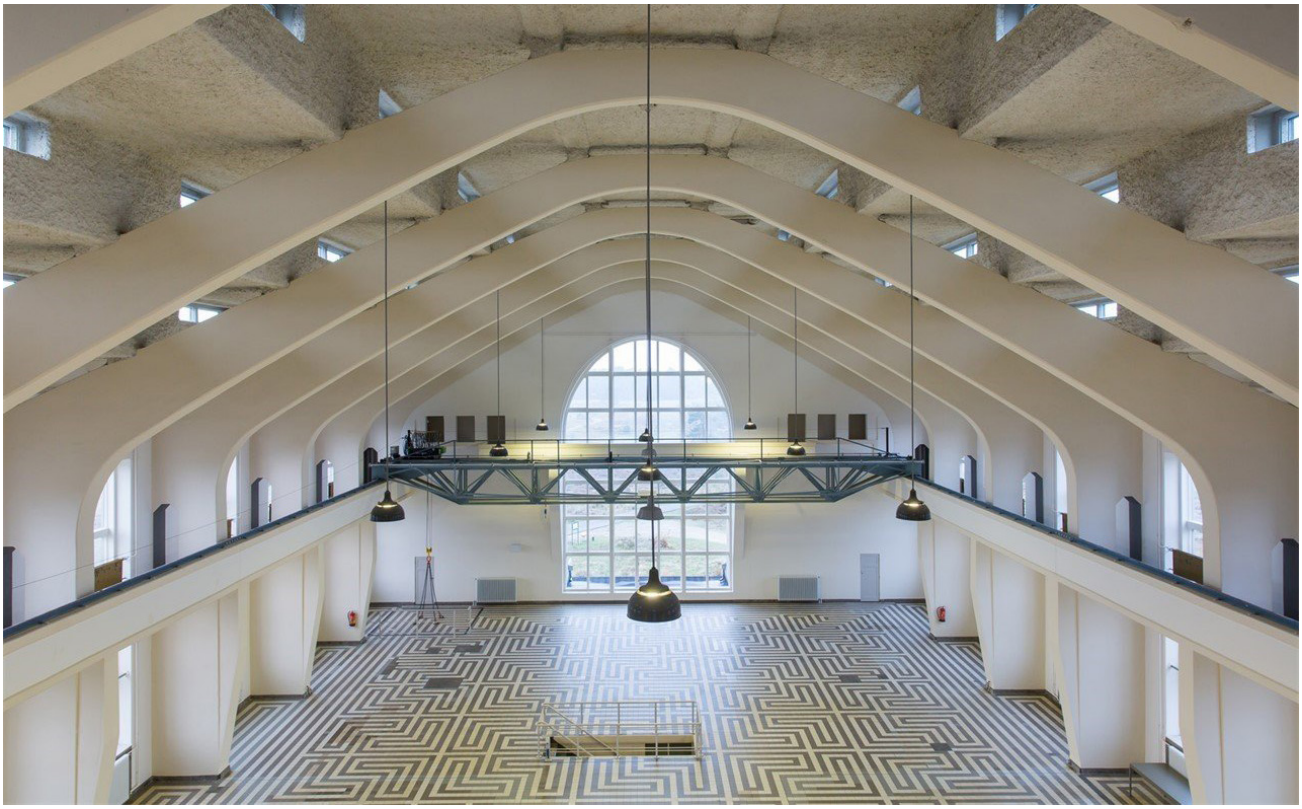


*Fig 37. Heavy and repetitious concrete trusses in contrast with refined art-deco decorations and spaciousness in Radio Kootwijk in Apeldoorn, Staatsbosbeheer 2018*

*Fig 38. Intimacy and gradience in the threshold area towards the large open space and light play and decoration for orientation in Radio Kootwijk in Apeldoorn, Staatsbosbeheer 2018*

Radio Kootwijk and the Beurs van Berlage are characterised as buildings that activate the senses in the desired way despite the size and height of the spaces. The original purposes for these buildings, however, are no longer being utilised. Since these programmes were not anticipated to last, a flexible layout was already considered when designing the floor plan. The interviewees mentioned that Radio Kootwijk has an aesthetic, rational, and symmetrical feel (see fig. 37). This indicates that the building provides something to hold on to that is not too mundane or efficient. Due to its purpose, the building had to be composed of reinforced concrete, but the art-deco style decoration creates a lot of relief that gives the musty-smelling, echoing ensemble a tactile feel. There is a dominant dusty odour owing to its infrequent use as a venue for events. It is very impressive that the reverberation through the thickness of the walls and trusses has created a very deliberate sense of rhythm, construction and spaciousness. With counting of the trusses, it is easy to tell where you are in the space. Also, the heavy squeaky doors, windows and stairs add to the aural and tactile experience. The large windows, great height, monumental layout, and strong reverberation gave the building its nickname: The Cathedral. The traffic space, on the other hand, feels very intimate, due to the low ceilings and the use of dark colours (see fig. 38). It is beneficial when there is a soft transition from outside to inside in such an overwhelming room. These contrasts allow the stimulation of your senses to enter more consciously to your body.

In the Beurs van Berlage there is a lot to touch and feel, because Berlage did not hide anything of what he constructed. The walls in particular have a lot of relief, rounded corners, a variety of panelling and an alternation with glazed bricks; described as stroking walls (see fig. 39). Many elements are of a handy size or even slightly thicker than necessary, such as the thickness of a handrail. This feels more reliable and feels better in the hand than modern, slender materials. Here too, the doors with an important function behind them are very heavy, large, creaking and contrasting in colour, to make a kind of announcement (see fig. 40). The building itself is too large to comprehend in one go, with many different storey heights and a landscape of continuous roofs. Therefore, in discovering the sounds and smells of the variously sized spaces and hallways they never ceases to astound. It feels and sounds like a very solid and robust building. When you enter the building you are totally isolated from the surrounding stimuli of the buzzing city. You can then still hear the acoustics of a naked brick and stone building. The different material types kept their own character.

*Fig 39. Emphasis on the passageways and different textures but coherency in the materiality of the fusion of old and new parts of the Beurs van Berlage in Amsterdam, BiermanHenket 2018*

*Fig 40. Heavy honest construction materials and layering of colours and repetitive elements with some exceptions that provide hierarchy and orientation in the Beurs van Berlage in Amsterdam, BiermanHenket 2018*

Berlage intended the structure to serve as a palazzo pubblico, or a palace for the city, and hence for everyone, in addition to serving as a stock exchange. This building now is a very sensory-friendly experience thanks to this inclusive layer, which is also apparent from the interviews.

Through the case studies it is learned that specific representations of sensory stimuli can establish certain moods or feelings that concern the architectural atmosphere, space and material. The programme however should not necessarily correspond with the essence or soul of the building. These case studies clearly show that a distinction can be made between a recreational building programme and everything in opposition. The preference for recreational buildings is closely related to the desired type of sounds and smells. Natural, human, and societal sounds and smells are preferred over indicational and mechanical sounds and smells. The ability to wander through these buildings without getting lost is prioritised. Therefore, the programme should not be too strict, and leave room for the drifters themselves. Because the sensory stimuli are sometimes time sensitive - think of volatile, momentary, sequential, rhythmic or continuous - places to stay must be included in the programme. They are very important to understand the atmosphere with this sensory perception. The perception and spending of time will be restored when the programme does not allow processes to speed up the mental and physical bodies that are part of it; to affect the urban rhythm. When exterior contextual stimuli become too intense, the programme should turn inward and create a buffer zone for the transition from vibrant to tranquil space. Then they can unwind their senses.

Themes

Contrast and gradience
Soundscape
Sense of basic orientation
Spaces of rest and movement
Light and warmth
Material and colour
Smellscape
Hapticscape
Elements in space

After creating the manifesto, the 54 guidelines are arranged in a distinct hierarchy of 9 themes that could be addressed in different design stages and scales of the sensescape (see fig. 41). It must be noted that these themes are not to be seen in chronological order but must be continuously reflected back upon. This classification deviates from a typical design approach since certain themes have been identified that normally receive little to no attention or are only addressed at a considerably later stage in the design. For instance, the second theme, which is the sonic environment, is typically only highlighted whenever the technical requirements are established.

*Fig 41. Hierarchy of themes regarding different design stages and scales*

# 3. IMPLEMENTING THE SENSESCAPE

*Fig 42. The sensescape as sollution emerged from theoretical framework, Image by author 2022*

The potential architectural challenge is to design a sensescape that creates an inclusive, embodied, and multi-sensory experience in order to curate a balance within the vibrant and tranquil public spaces on the spectrum of city intensities in the Central Activities Zone in London. This balance can be performed on different scale levels. The architectural design solutions through the different scales that are presented in the next paragraph will comprise a critical reframing of architectural UX-design within the urban public realm:

Scale XL: A common set of guidelines to identify, protect, enhance, and create potential sensescapes for implementation in the urban public realm of cities in economically developed countries. This useful design tool is provided by the guidelines in the manifesto for the sensescape (see appendix D). This could be supplemented by a pattern language to give more common examples of these interventions. The patterns should always state the obvious, most simple sollution, and could therefore be can be traced back to the archetypes in form, function and technology.

Scale L: A network of Sensescapes in London's Central Activities Zone that can restore the balance between vibrant and tranquil zones. Only one of the problematic overexposing areas that emerged during data research and drifting has been addressed in this study. The other areas where a sensescape is required are depicted in figure 60 in the appendix (see appendix C).

Scale M: A path for drifting along the spectrum of intensities with architectural interventions mapped out in a master plan with relatively vibrant and tranquil spaces, as well as their interaction. Since this is site specific for the three selected plots, this will be developed through further site and sensory research. The function, form, and technology of these interventions should be fitting to the outcomes of the performed experiments and the analysis of the site specific representations of the sensory stimuli. An outcome of this research is that recreational activity with places to rest/ stay is required in this master plan. Since this path will form the counterpart for the overexposure in the surrounding area, sensory deprivation is crucial, so that it serves the participants as soothing mechanism, but also gives the choice to take a path within a more tranquil environment. The path will create a gradient between vibrant and tranquil atmospheres and, as a result, a sequence of spaces.

Scale S: A sensescape design, incorporating an inclusive building with a public programme and (inward-oriented) public open space, which demonstrates the aspects of designing with the senses to enhance the participants' embodied experience and, as a result, their well-being and health. Plot one from figure 55 will be worked out to the detail scale that can be expressed through diagrams, 3D models, hand sketches, plans, sections, elevations, and renderings (see appendix C). However, this visual narration of the design should be enhanced by more experiential and inclusive outputs such as physical haptic models and compositions of sound, odour, and material. The detailing should touch upon the hapticscape, the soundscape, smellscape and the visualscape and must include sensory deprivation.

# CONCLUSIONS

Cities have always had a spectrum of urban densities, ranging from bustling market squares and main roads to green parks and residential neighbourhoods. However, density relates to static dimensions. These densities bring with them intensities in the form of people, sounds, smells, views, and other stimuli; they include emotional and subjective components. The higher the intensity of a place, the more likely people will be overstimulated, causing stress, anxiety, or other health issues. But not enough intensity and the place lacks 'life'. A healthy living environment requires a balance between these areas of sensory deprivation and sensory exposure. By analysing different parts of the public realm of cities through the layers of intensity, this new environment can be created. The 15-minute city, a term pioneered by Moreno, delves into this subject, stating that this spectrum of intensities should be a walk away anywhere in the city, so people are both stimulated and can unstress their senses. This walk was reproduced employing a drifting method, derived from the urban exploration concepts through the use of one's senses by Debord and Benjamin. This observer will distinguish the spatial, material, and atmospheric representations of sensory stimuli in vibrant and tranquil public spaces.

A lot of people experience the stress of everyday life, not only through their accelerated pace but also through the urban rhythm. One way to combat this is to improve the built environment, i.e., architecture, to move towards a healthier and happier society. Architecture has been linked ever since the art of building has been theorised. The western ocular-centric view of successful and good architecture was considered aesthetically pleasing to the eyes. However, in more recent times, the importance of the other senses in experiencing architecture, space, time, and embodiment has been stressed, for example by Pallasmaa, Lefebvre, and Schafer. The built environment is experienced with all the senses, and it is important to consider all the senses and their interaction when designing the city. The sense of sight can enhance and complement other sense modalities, for example by applying Wertheimer's Gestalt laws. Given that each person's sensory perception is unique, an inclusive framework must be provided. Inclusive space is designed around the obvious and simple, and therefore often refers back to an archetype in form, function, or technology. The necessity of creating more UX-centred buildings and environments must reach the whole architectural community since the requirements set forth by the government fall short. The introduction of an urban sensescape with architectural interventions that activate the senses could lay the foundation for embodiment, inclusivity, and multi-sensory experiences within a dense and overstimulating urban context. The sensescape can be decomposed into a visualscape, hapticscape, smellscape, and soundscape and must mediate between the existing and new sensory conditions of the site.

A few methods of analysis have been used to determine a site location for the design of a sensescape within the Central Activities Zone (CAZ) of London. Firstly, available datasets on intensities led to a closer look at a problematic site of inquiry. Secondly, the site has been analysed by psychogeography. The public realm is explored through photography (the eyes), recording (the ears), materiality (the skin) and smell (the nose) while drifting. In the CAZ, the senses are predominantly overwhelmed by motorised traffic and construction work. Sounds, smells, and the field of vision are overstimulated where this activity is most intense, which is along the main roads of the city. Narrowing elements, multi-directional infrastructure, material and lighting contrast, or a mixed-use programme are the spatial, material atmospheric representations of sensory stimuli of these vibrant spaces. More tranquil places can usually be found in pockets of the city where traffic is less prominent. When natural components, linear infrastructure, coherence in materiality and lighting, or residential programme are present, the intensity reduces. The chosen site location is a dense area with undeveloped and unused plots and a shortage of green public facilities. It includes narrowing elements such as the elevated railway, a mixed-use programme, multimodal and multidirectional infrastructure, and noise from railways and roads. Additionally, the government has plans to only expand and increase the vibrancy. This site will serve as a suitable test case for future sensescape designs since it includes many conflicting and complex conditions.

Further investigation into inclusive multi-sensory design for the built environment has been conducted through interviews and case studies of public buildings with sensory experts. It was noted that monotonous colour schemes, building materials, warmth, and textures created unpleasant experiences for these users because the area lacked feedback from the senses. Complex floor plans with few landmarks, many height differences, or diagonals are difficult to read. Large glass surfaces and modern hard materials ensure bright light and sound reflections. On the other hand, older buildings with complexity in material, colour, space, lighting, and tactility provided much more haptic, visual, olfactory, and sonic feedback, giving the users a much clearer and more pleasant experience. The right sounds and smells frequently correlate with the programme rather than just the building's structure. Recreational sounds and fragrances are given preference. The recreational programme should include places to halt and exclude processes that speed up the urban rhythm. This set of guidelines is bundled and themed in a manifesto for sensescape design. The outcome of this essay has laid the foundation for a manifesto for regulating the intensities of cities with a disrupted urban rhythm (XL), a network of sensescapes for the restoration of the intensities in London (L), a master plan for one of these locations with architectural interventions (M), and an elaborated sensescape within this master plan (S).

# Activity and noise pollution maps from the CAZ

*Fig 43. The experience of the intensity of London's public realm measured by sensory overstimulation: Annual average noise pollution from road and rail sources in London, Image by author 2021*

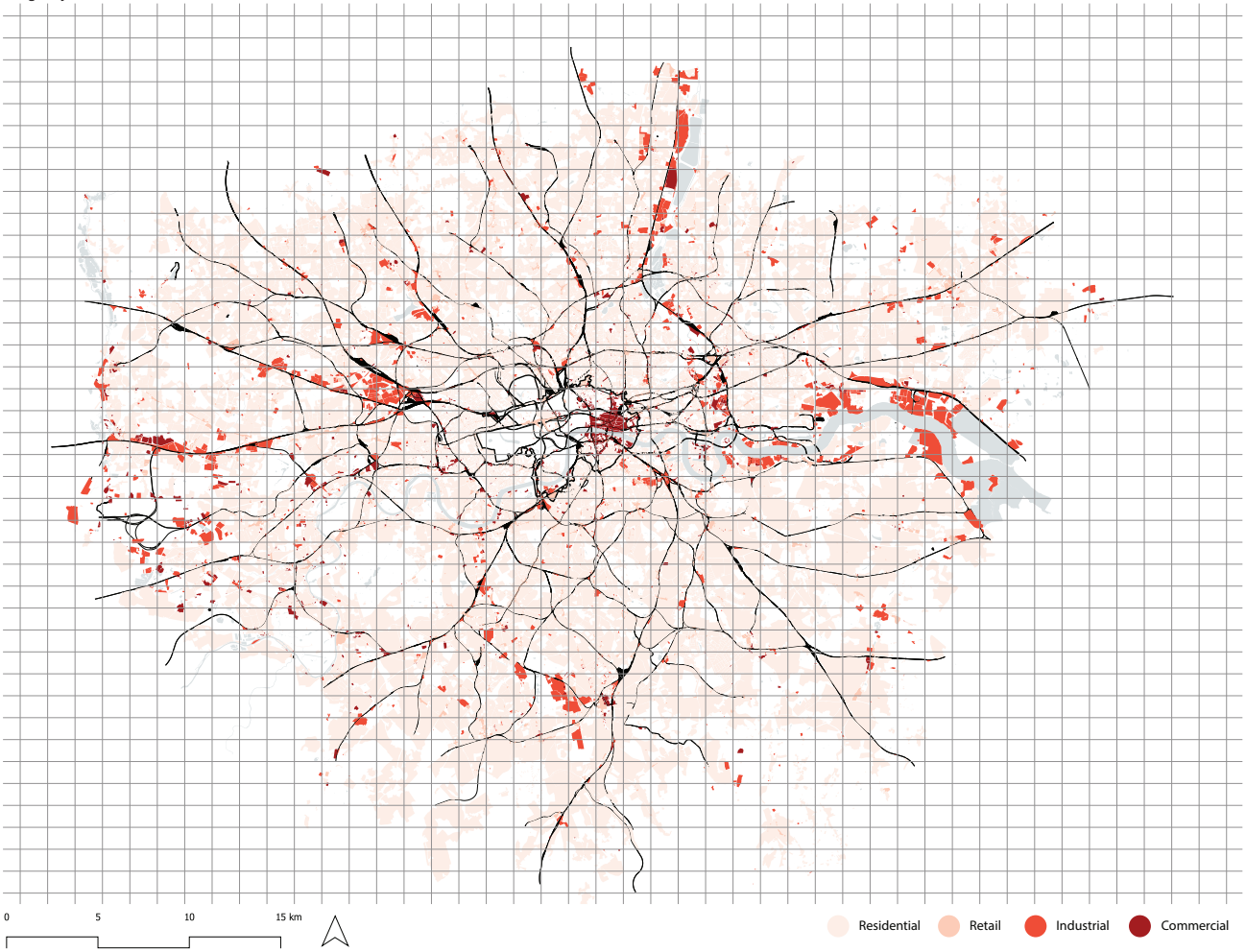



*Fig 44. The intensity of London's public realm measured by programme: When public programmes expands and mixed-use is common, city intensities will get higher, Image by author 2021*

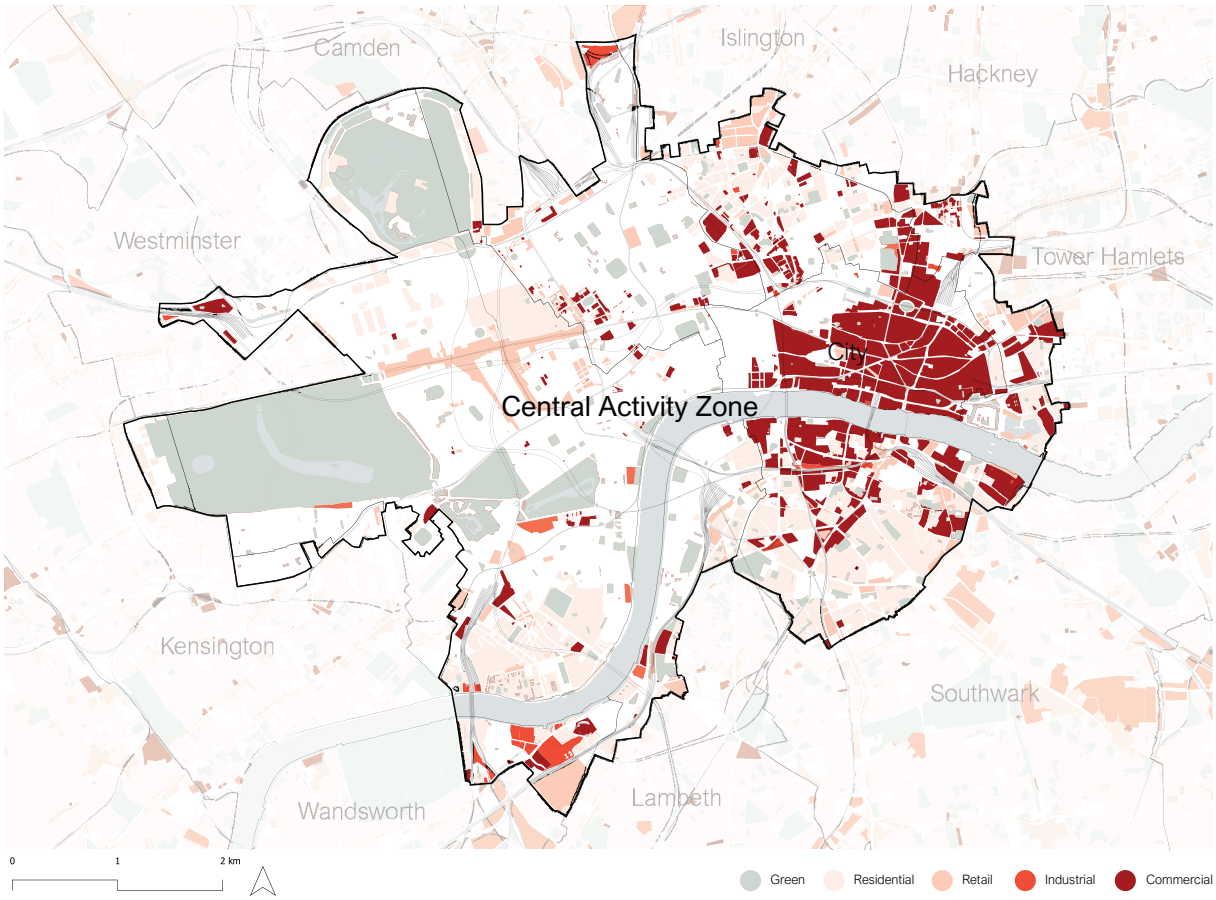



*Fig 45. Imbalance of vibrant an tranquil space inside CAZ: High concentrations of public programme (red), Image by author 2021*

*Fig 46. Imbalance of vibrant an tranquil space inside CAZ: Annual average noise pollution from road and rail sources (red) overlaid on tranquil, green space in the Central Activities Zone in London, Image by author 2021*

# APPENDIX B

## Catalogue of spatial, material and atmospheric representations of sensory stimuli

Narrowing elements

Multi-directional infrastructure

Contrast in materiality and lighting

Mixed-use programme

Natural elements

Linear infrastructure

Coherence in materiality and lighting

Residential programme

*Fig 47. Collection of video stills from drifts through CAZ in London containing spatial, material, and atmospheric representations of sensory stimuli that higher or lower the intensity, Images b*

Conditions for increasing intensity

Conditions for decreasing intensity

*by author 2021*

## Mapping the site location from the perspective of intensity and the senses

This involves the layers of intensity that deal with the senses, ecology, culture, accessibility, the programme and the publicity of the site.

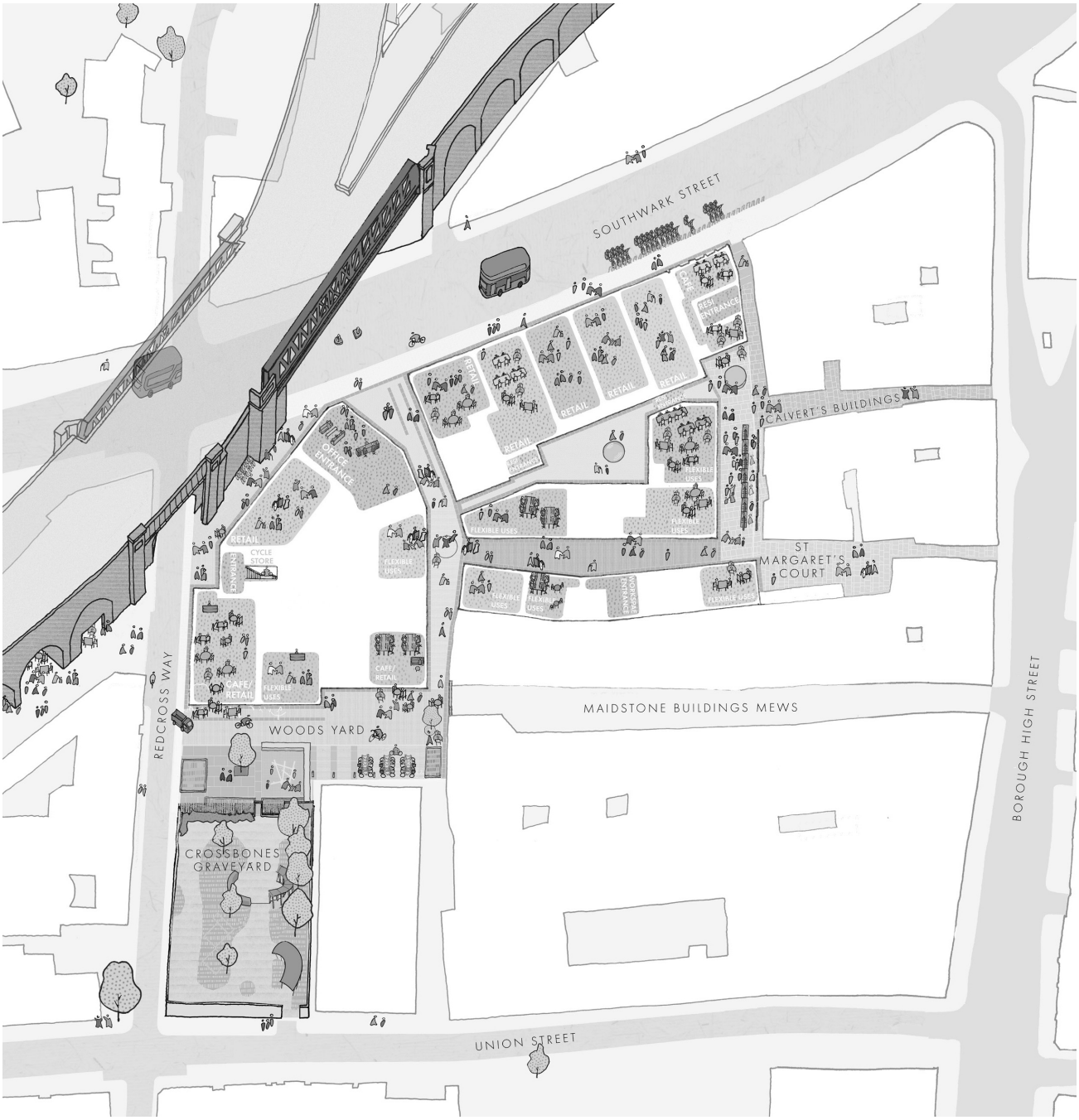



*Fig 48. Previous proposal master plan: programme for brownfield plot Landmark Court as vibrant extension, U+I 2022*

*Fig 49. Analysis site condition ecology: Road network (grey), parks (light green) and trees (dark green), Image by author 2022*

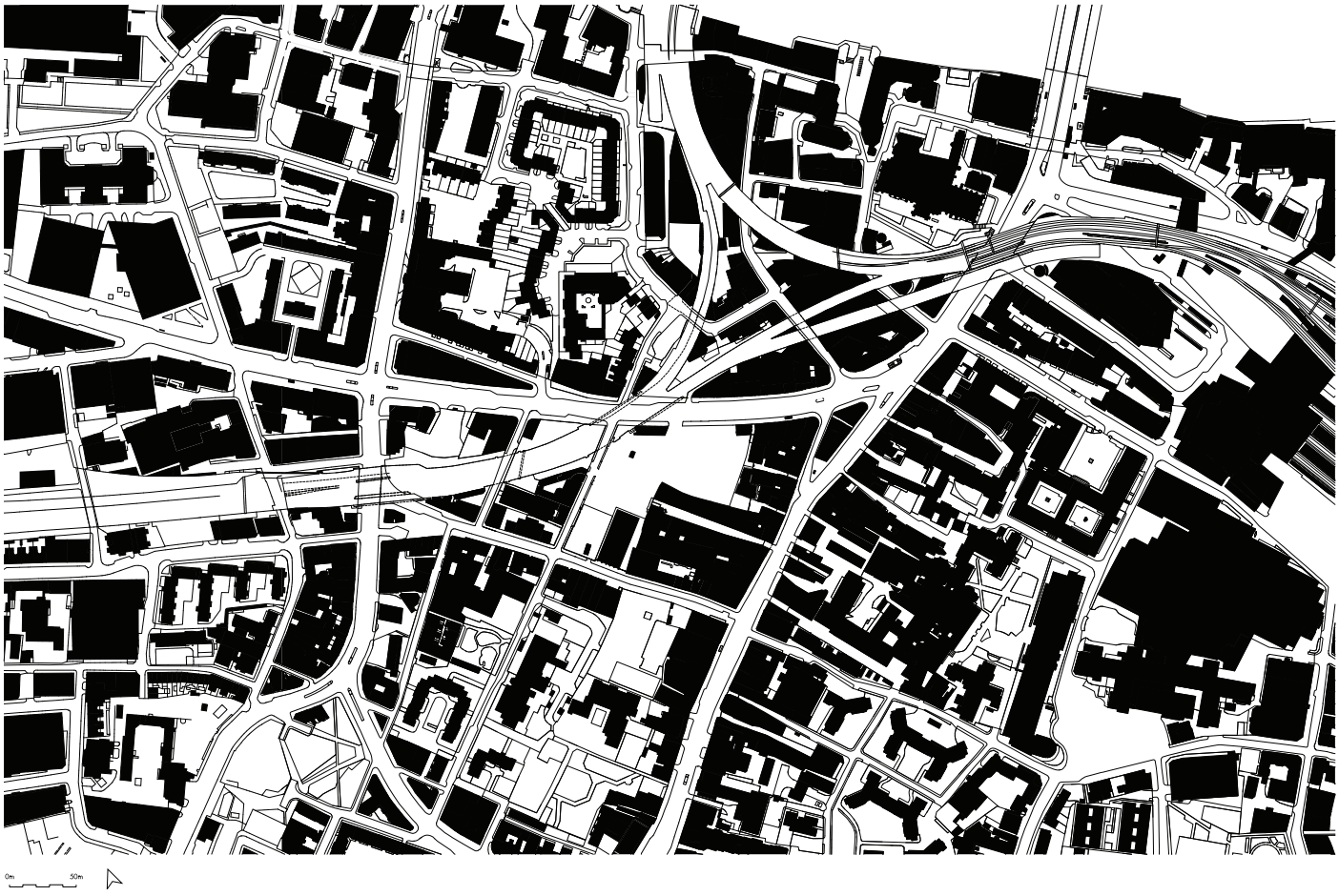



*Fig 50. Analysis site condition publicity of the plinth: Figure ground drawing, private/closed (black) & public/open (white), Image by author 2022*

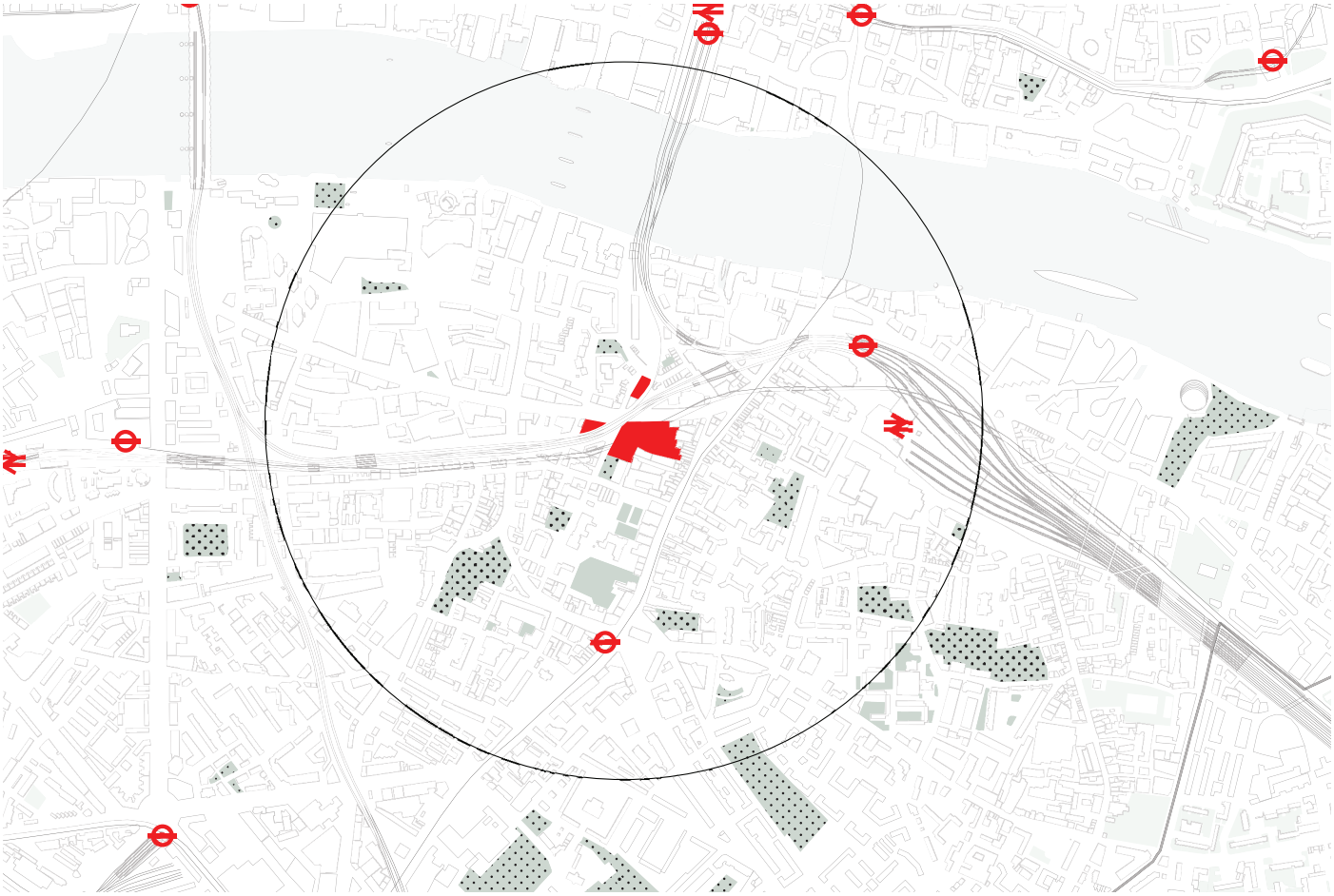


*Fig 51. Contextual analysis Bankside, 15 minute city (1,25 km ø): Plots (red), buildings, waterbodies, (public) green, underground and railway system, Image by author 2022*

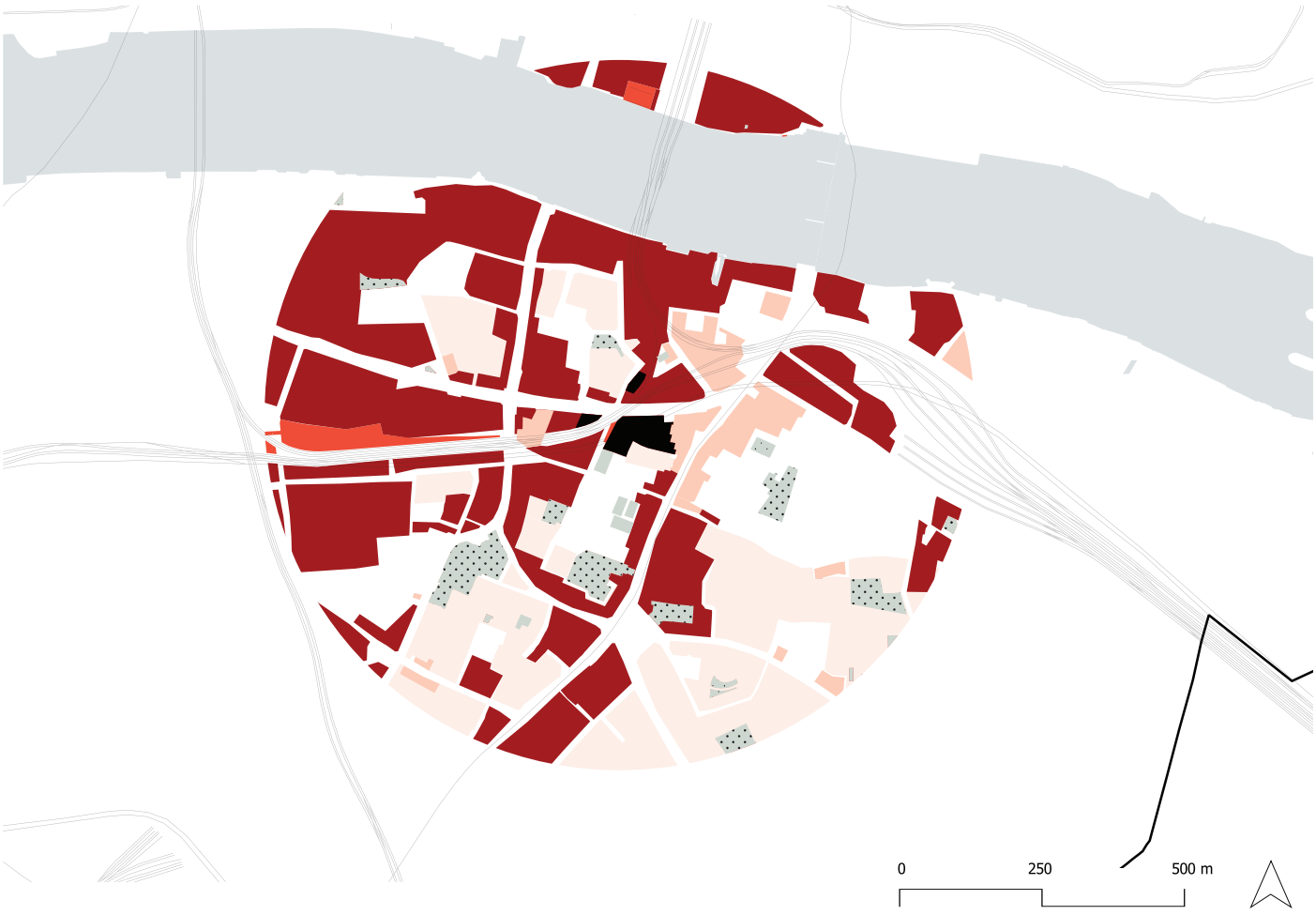



*Fig 52. Contextual analysis Bankside, landuse: Plots (black), landuse, waterbodies, (public) green and railway system, Image by author 2022*

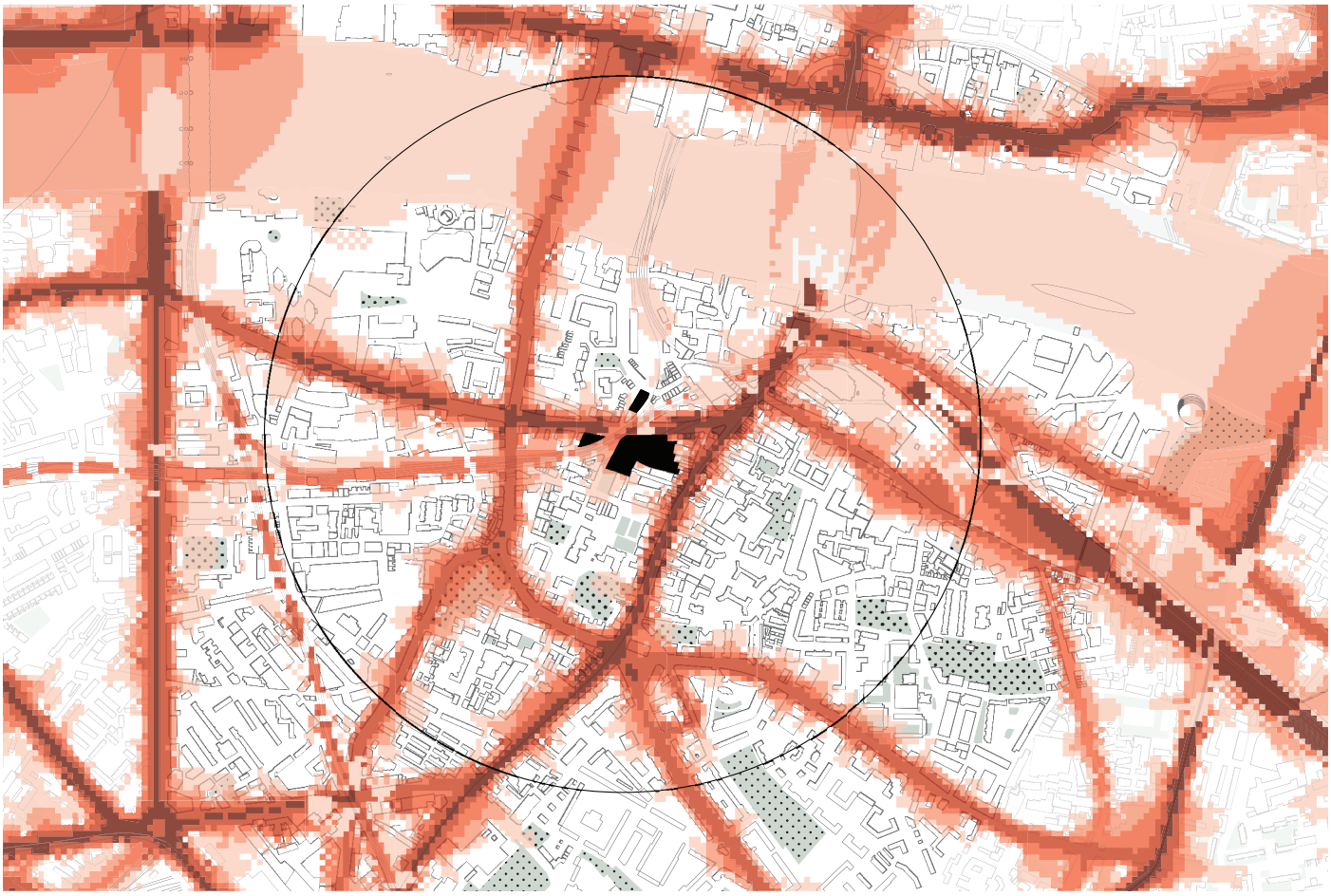


*Fig 53. Analysis site condition noise pollution: Noise in dB, buildings, waterbodies, green and railway system, Image by author 2022*

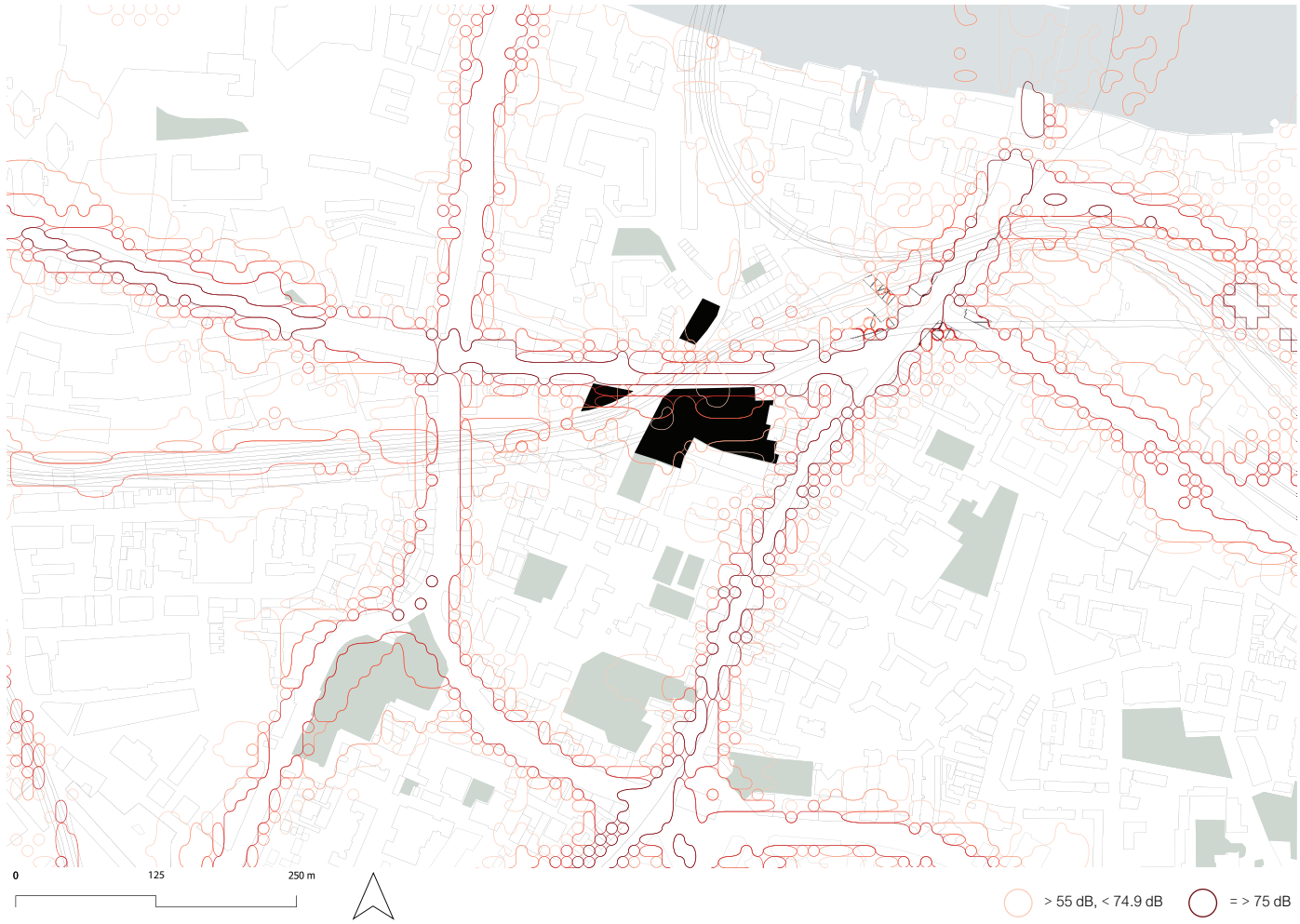
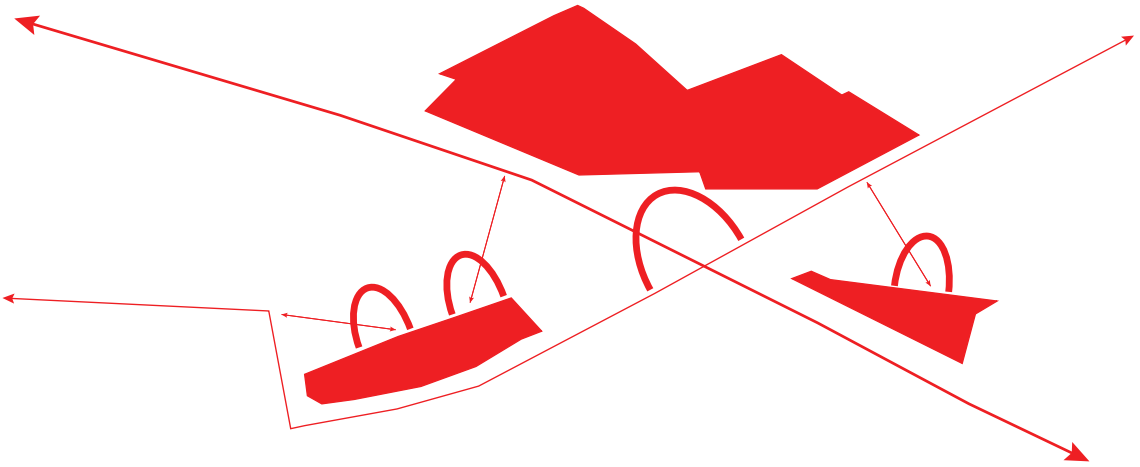



*Fig 54. Analysis site condition zoom in noise pollution: Noise in dB, buildings, waterbodies, green and railway system, Image by author 2022*



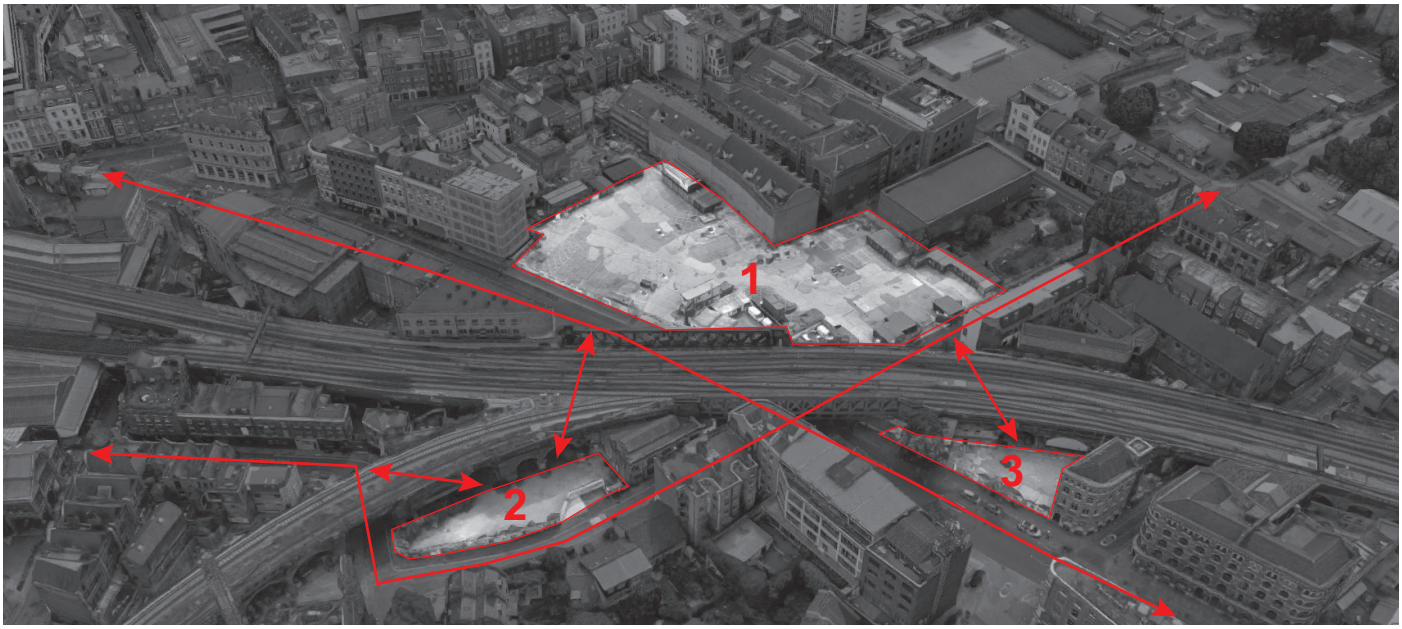



*Fig 55. Analysis site condition zoom in  connections: Abstraction of connection and arches under the elevated railway, Image by author 2022*

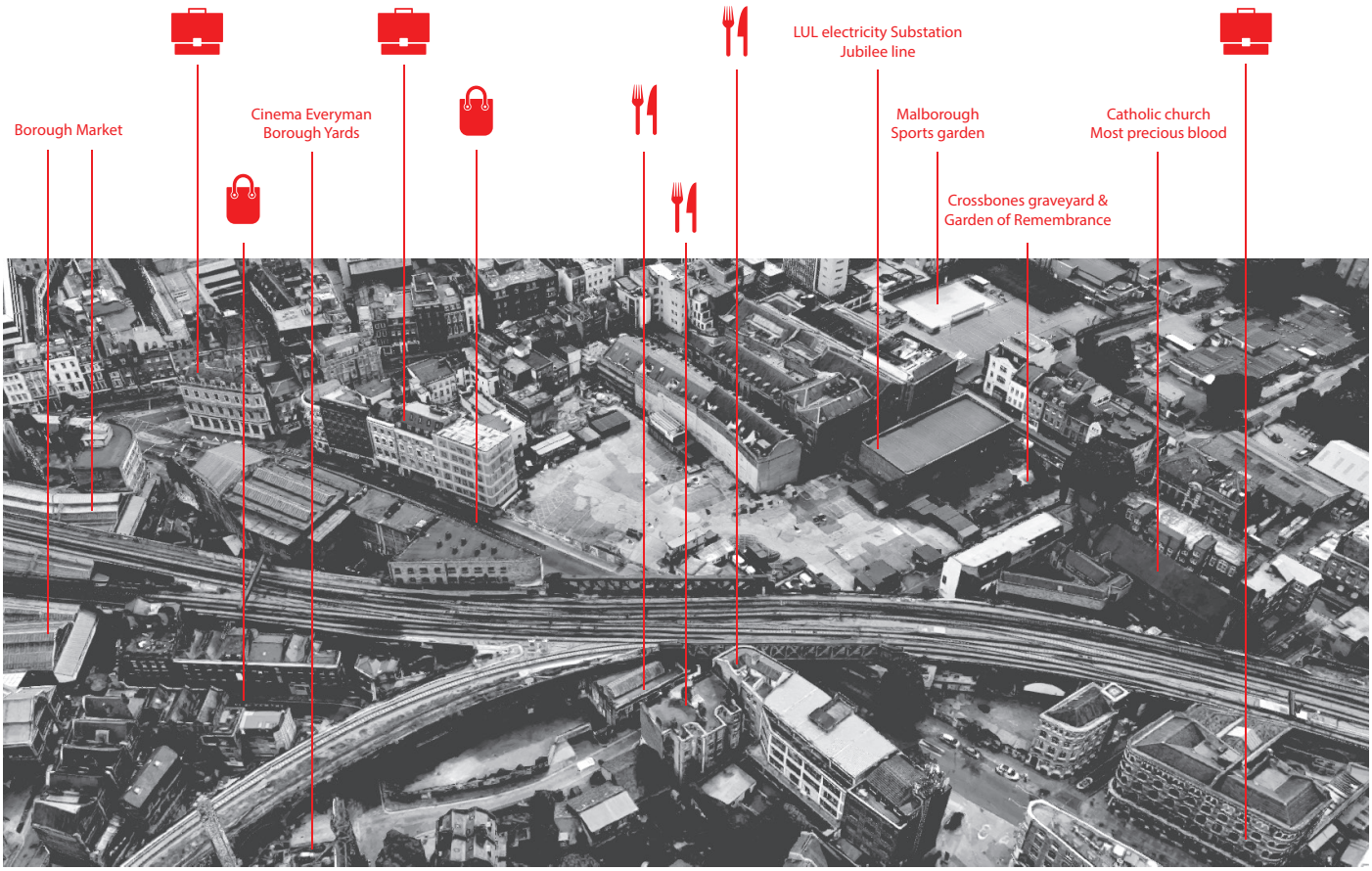



*Fig 56. Analysis site condition zoom in programme: Vibrant rich mix of public programme surrounding plots, Image by author 2022*

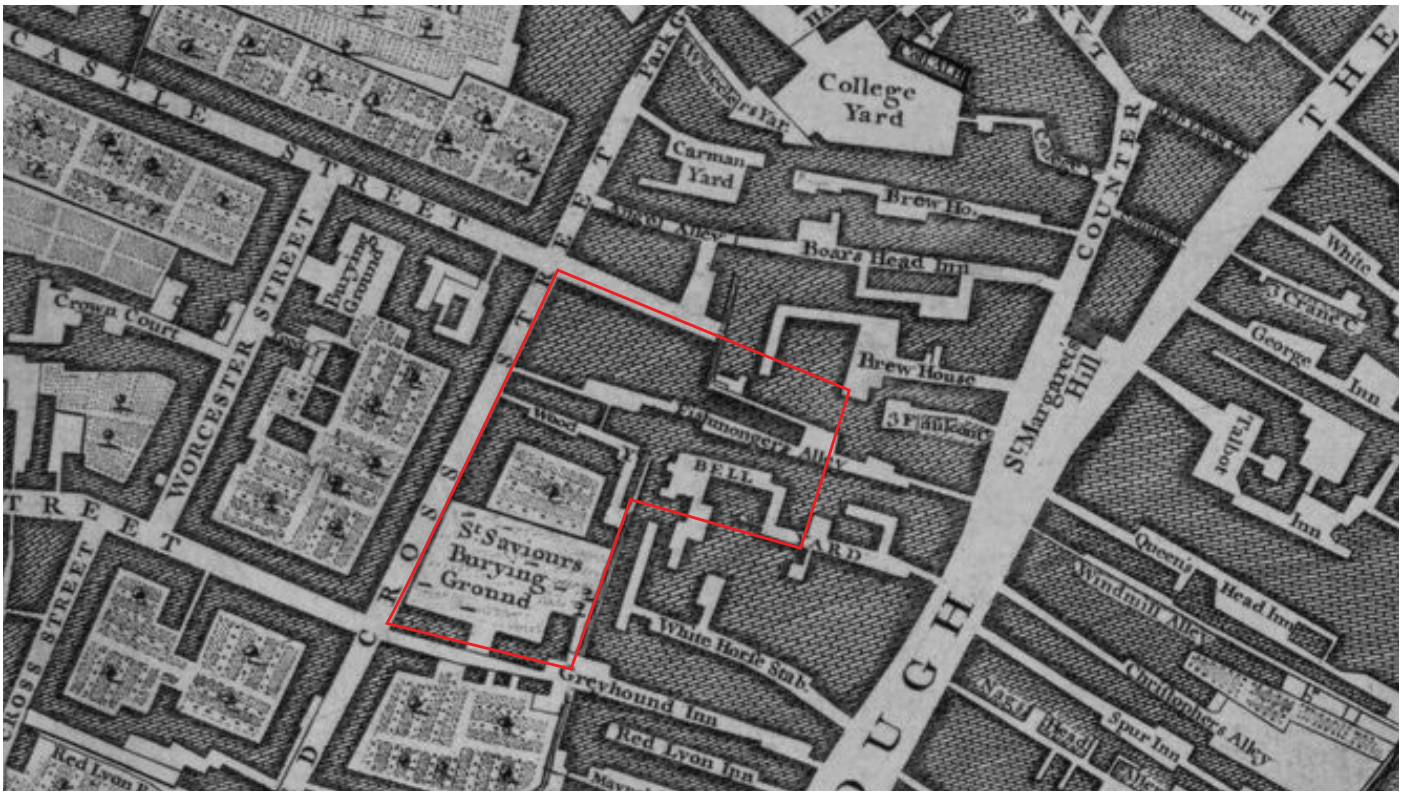



*Fig 57. Analysis site condition zoom in history: Historical map of the site in the Georgian Era with Crossbones Garden standing on the site of a post-medieval burying ground: St. Saviours, John Rocque 1762*

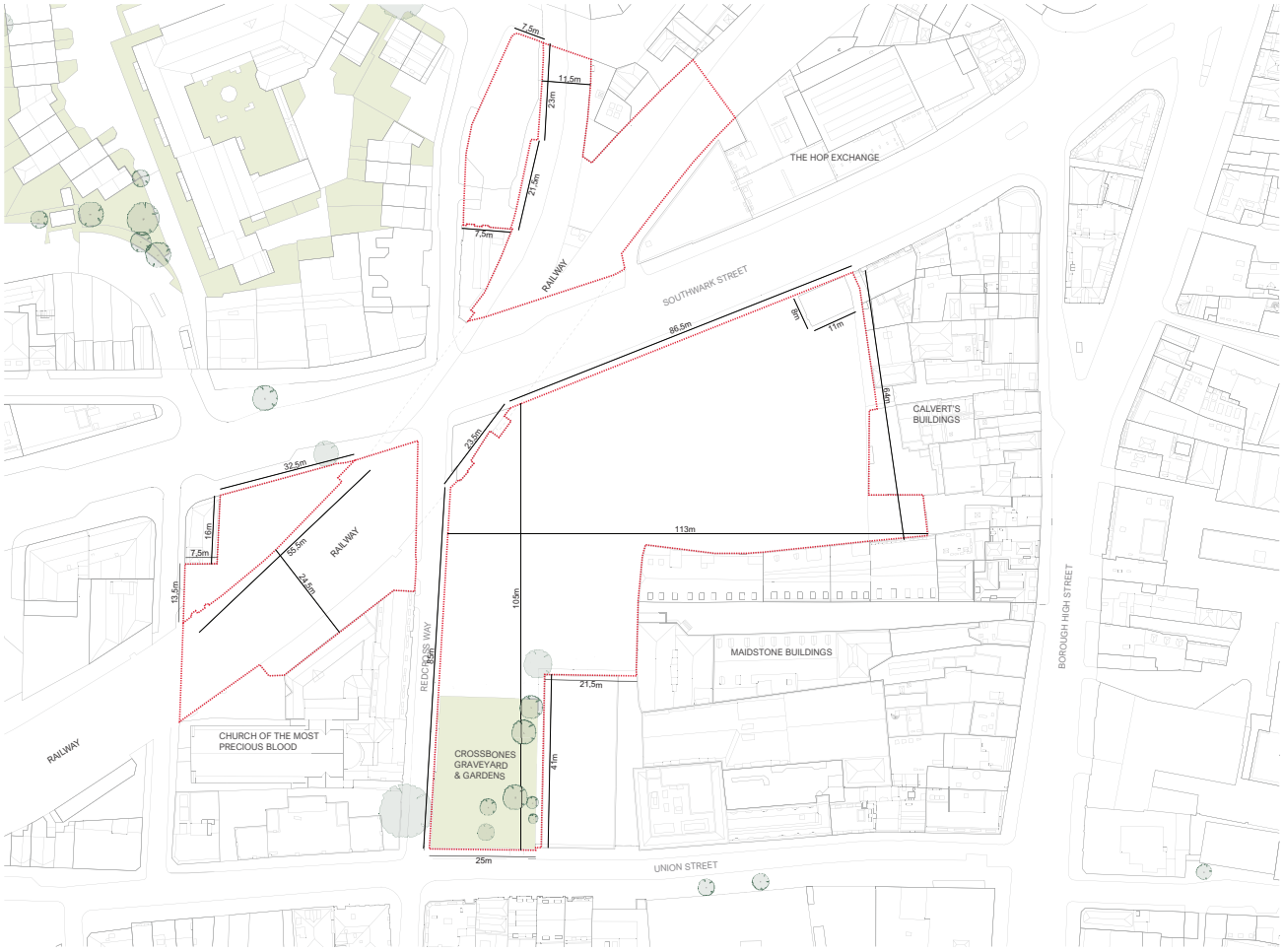



*Fig 58. Analysis site condition dimensions: Plot sizes and surfaces, Image by author 2022*

*Fig 59. Analysis site condition zoom in programme: Landuse surrounding plots, Commercial(dark red), mixed-use(red) residential(pink) Image by author 2022*

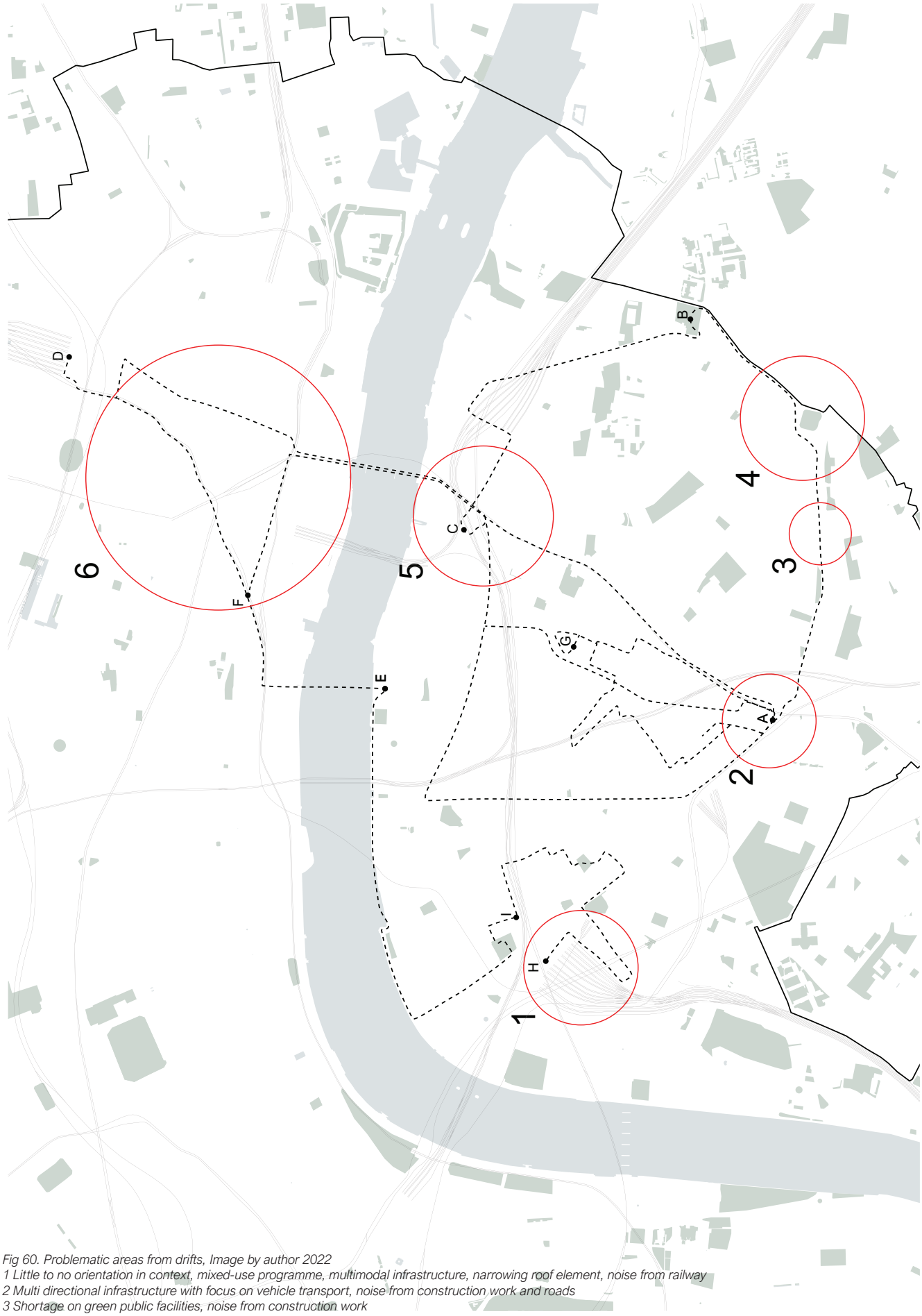
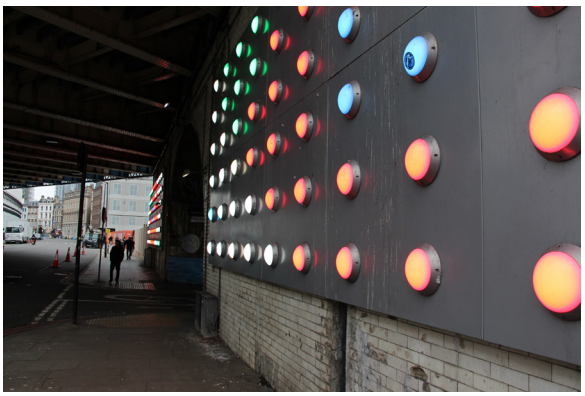



*Fig 60. Problematic areas from drifts, Image by author 2022*
*1 Little to no orientation in context, mixed-use programme, multimodal infrastructure, narrowing roof element, noise from railway*
*2 Multi directional infrastructure with focus on vehicle transport, noise from construction work and roads*
*3 Shortage on green public facilities, noise from construction work*
*4 Multi directional infrastructure with focus on vehicle transport, monotone programme, noise from roads*
*5 Shortage on green public facilities, narrowing elements elevated railway, mixed-use programme, multimodal and multidirectional infrastructure noise from railway and roads*
*6 Great difference by day and night, monotone programme, shortage on natural elements*

## Visual appearance area 5

*Fig 61. Photos of the research location area 5: field trip to London, Images by author 2022*

HOUSE



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# APPENDIX D

## Manifesto with guidelines for a sensescape on inclusive public space

Conclusions based on eight visits of visually impaired experts to well known public building in the Netherlands and five interviews on sensory loss or distortion. Inquire about any reports of additional audio content from the author.

- Utilize the complete sensory palette to give everyone a more immersive visiting experience or a sense of belonging.
- The exterior public space is just as important as the interior of the public building. Take the formal language and the approaching of the entrance in strong consideration.
- From the street or the parking lot, a building's entrance must always be clearly noticeable. The function should be easily identifiable, and visitors should be naturally drawn to it.
- The floor plan and routing should not only be based on functionality or pragmatic thinking. It is thus not about taking the fastest path, but rather about the experience of taking a route through a building or exterior space.
- Natural ventilation and fresh air will give the visitor a more alert attitude, and are therefore necessary for guidance. The indoor and outdoor traffic areas may contain wind for orientation. This is not desired in the living areas.
- Acoustics must not be solved after designing a space but simultaneously or prior to the design. When the reverberation is to strong, it can feel unpleasant hollow or pleasantly sacred.
- Include flora and fauna for lowering the level of intensity of a public space, think of green for sight, smell or to attract fauna. Watch that roots, branches or other green will not grow in the way.
- Biophilic elements and design will connect the visitors closer to nature and will promote tranquil experiences, e.g. the sounds and air circulation of water fountains or ponds.
- Create a play and contrast in temporarily enabling or disabling specific senses (sensory deprivation). When a space disables or reduces a certain sense, the other sensory experiences will get stronger.
- Make use of real and natural materials and their honest scents because it is hard to mimic scents or eliminate unwanted scents.
- Work towards a high-intensity space by slowly building this into the routing, programme and materialization.
- Vary in heights and sizes of outdoor and indoor spaces. Activation of the senses is possible through noticeable contrasts.
- Because daylight has such a significant impact on the safety and pleasantness of a sensory experience, the building and area will primarily be used during the daytime. The programme should serve these hours.
- When artificial lighting is used, the intensity must not be too high and diffusely oriented in the right position and height. Point lighting that is too strong or light sources or the sun shining into eyes can be a discomfort.
- A continual noise-free building or area is undesirable because the building's own sounds and vibrations cannot be understood. It's important to distinguish between rhythmic, repetitive tones and unexpected, arrhythmic tones. Avoid unnecessary background noise like air conditioners or technical installations.
- A fragment of symmetry in the façades and floor plan makes it easy for visitors to understand the building and its surroundings without making them feel mundane.
- Create spatial or material landmarks per space and in the floor plan for orientation. Split-levels and unnecessary (door)steps should be avoided.
- (Traffic) space ought to have tunnels, corridors, stairs, and ramps and the associated helpful elements like railings. Make sure they include design uniformity and hierarchy.

- Use of elements that boost the visitor's speed, such as escalators and elevators, is not necessary. They should not be hidden if they exist. The visitor's perception is sped up, making it less exact and posing a security concern.
- The sound of people and music, synchronised with a recreational programme and at a consistent volume, is extremely important and ensures that the visitor has a positive vibrant experience.
- The floor plan's complexity should be kept to a minimum, and perpendicular angles and shapes should be chosen over diagonals. Round and semi-circular designs are chosen over deviant forms. Avoid stair turning circles that are too tight.
- For the elements that must be distinguished in the space, a suitable but contrasting colour palette is desired. The facade elements, such as a door or opening, must be clearly defined. Glass fronts with a door incorporated should be avoided.
- The objects in a space or the walls itself that are or could be touched by the visitors must not be sharp or breakable and cannot get dirty. Think of, for example, a chair, table, information desk, stairs, railing or stucco. Pay extra attention to the materiality and the relief of these elements and the floor over which the visitor walks.
- The sound insulation of the building must be such that the exterior noises from traffic, construction work or other ambient sounds do not distract the acoustics and ambience of the interior space.
- Use pleasant scents of, for example, plants, flowers or food to guide visitors in a certain direction or to create a landmark.
- Semi-high obstacles such as open planters, hedges, bicycles, mopeds, fences and (lamp)posts on footpaths should be avoided on sidewalks and pedestrian paths. These sidewalks and paths should be wide enough too pass other people or avoid touching elements on the side, also at their passages.
- The floor, walls and elements in the room should not be made of reflective or glossy materials, as a result the visitor can become blinded and distracted from the reflection of light and thus affects their safety. Use dull tiles, cast floors, wood or carpeting appropriate to the programme.
- The signage and building information should be on eye-level on a clear location in large font with relief and preferably audio. Some form of functional guidance in the floor(patterns) is desirable, e.g. a doormat when entering the building or tiles with relief on a certain path.
- Unless they create a trompe l'oeil illusion and thus confusion, ornamentation, aesthetics, and finishing are preferred.
- Rest areas or points in and around the building are required, to be able to stand still in the sensory experience and observe the motions and actions of other visitors in order to interpret the atmosphere better.
- The placement and depth of openings in the walls, such as windows, should allow direct sunlight on the visitors while also taking into mind the reflection of the glass at eye level and the programme.
- The heat of the sun is critical to penetrate the skin. The use of glass fronts is not a consideration. Windows serve as a useful landmark since they identify the inside limit of a building.
- Candles or open fire, for example, provide an intimate ambiance, but they must be covered at all times and not put along footpaths if they are used.
- Heavy materials such as concrete and natural stone create more resonances and reflections of the sound, making it easier to estimate the size of a room. Absorbent and natural materials, such as wood and fabric, ensure a drier sound and a quieter space.
- Any textures, objects or models that visitors can touch should not be breakable, sharp, or overly detailed, and should not be shown behind glass.

- Incorporate the warmth of various materials into the design. For example, stone feels warmer than steel.
- A (stair) railing must be continuous and smooth, not too narrow or inconsistent in appearance.
- The stair treads must be sturdy and not vibrate, as this impacts the visitors' sense of security in the building.
- The size, placement and finish of a door should say something about the program behind it; the larger and more detailed a door is, the more important the program. In addition, the way of opening and the sound that this action makes must be appropriate for this program.
- Materials and thickness of the structural elements are vital, and they should be fair and tactile finished without causing damage. Work with different heights, reliefs and contrasts of finishing layers, such as panelling. The materiality of the building should not be hidden so visitors can hear it.
- Play with the height of the room in combination with the entry of daylight through the roof to increase or decrease the intimacy.
- Visitors' emotions can be deliberately evoked by the frequent usage of a specific colour, e.g., warmth or cheerfulness is represented by orange, rest is represented by green, and crowds or increased intensity is represented by red.
- By experimenting with the positioning and materiality of furnishings in public spaces, you can reduce reverberation. There must also be sufficient furnishings to prevent the building's structure from sounding stark and monotonous.
- So that there are no collisions and a clear routing, clearly distinguish the areas where there is through pedestrian traffic from the places where visitors can have a seat or rest.
- Play with the spacing and height of internal building structures like trusses to create acoustic exceptions or patterns that facilitate orientation.
- It's worth noting that there are some public programmes where enormous crowds are unavoidable, such as a station building, a church, or a market (hall). In order to avoid or escape the crowds while still enjoying the programme, greater attention must be made to the traffic and opposing tranquil space in these programmes.
- The visitor's body can identify more with the structure when it is defective, such as the irregular space between brick joints, than when it is machine-made and perfectly aligned.
- If you want to purposely overstimulate the senses, choose one and keep the others at a moderate level so that the visitor is not uncomfortably overstimulated.
- It's beneficial to become acclimated to a wide, busy or tall space by entering it concealed. If the transition is gentler, the threshold for entering a room is lower.
- It makes little difference how public buildings appear since what matters is that they are experienced rather than seen. What matters is their shape, how their spaces interact and stand in space, how they communicate their material to the visitors, how they reverberate, and how they feel up close.

## Questionnaire for sensory impairment expertise

*General impairment + public space*

1. What is your name and what is your age? And what is your living situation?
2. How long have you suffered from visual impairment/blindness and/or deafness/hearing impairment? Have you ever been able to see/hear?
3. Which sense do you feel most developed? Hear, smell, taste or feel?
4. Which sense do you use most when you are among other people on the street or in a building?
5. Do you mainly walk outside with a cane? Or do you have other resources? And do you usually walk alone or with someone else?
6. Do you often deviate from the paths/routes you know?
7. Does safety play a major role (in this)?
8. Do you ever go out at night? Or are you tied to certain times?

*Intensity + public space exterior*

9. Which sensory stimulus from outside bothers you the most? Compared to sound, smell, touch (you or someone you), feeling (weather conditions)?
10. What noises do you find most disturbing outside? Are those also the loudest sounds? And what about scent?
11. Which sounds do you like the most? Are those also the softest sounds? And what about scent?
12. Do you choose a special route when you walk? If so, why? Does this differ in the evening (if applicable)?
13. Are there spatial elements in the outdoor space that you find annoying? And which one do you like?

*Intensity + public space interior*

14. When you enter a building that is public, what sensory stimulus bothers you the most?
15. What noises do you find most disturbing inside a building? Are those also the loudest sounds? And what about smell?
16. What sounds do you like most inside a building? Are those also the softest sounds? And what about smell?
17. Which buildings or building functions do you go to for tranquillity and which for liveliness?
18. Are there any buildings or building functions that you would rather avoid because of sensory stimulation? Are you over or under stimulated there?
19. Do you have a sense of spaciousness/how do you experience spaciousness?
20. And in terms of materiality or use of colour what is helpful, pleasant, disruptive or counteracts? (Think of hard, soft, round, angular, colour warm, cold, uniformity, differentiation, odour absorption, acoustics, stability)
21. Are there spatial elements inside that you find annoying? And which one do you like?

Additional comments:

# APPENDIX F

Public buildings in the Netherlands that were visited by sensory impaired people experiencing the visual, haptic, olfactory and sonic conditions of the environment.
Recorded on CD's, inquire about any reports of additional audio content from the author.

*Fig 62. Visafslag Scheveningen, S. Schamhart 1964*

*Fig 64. Haka gebouw Rotterdam, H. Mertens & J. Koeman 1931*

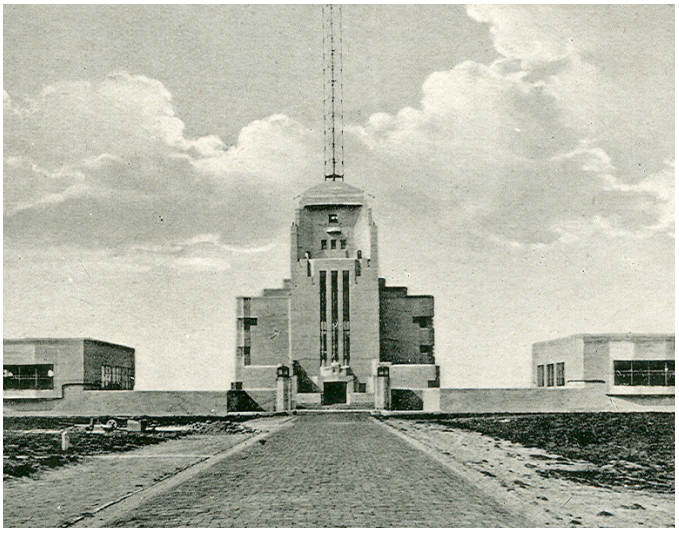

*Fig 63. Radio Kootwijk Apeldoorn, J. Luthmann 1923*

*Fig 65. Beurs van Berlage Amsterdam, H. Berlage 1903*

*Fig 66. Kruisherenhotel Maastricht, SATIJNplus 2003*

*Fig 68. Beeld en geluid Hilversum, Neutelings & Riedijk 2006*

*Fig 67. Catharinakerk Eindhoven, P. Cuypers 1867*

*Fig 69. Universiteitsbibliotheek Utrecht , W. Arets 2004*

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# DESIGN RESEARCH

## EXPLORING THE SENSESCAPE

# SITE ANALYSIS
## Historical map 1900 Bankside

Over time, Bankside's broadly triangular figure became defined by three linear linear structures of development; the medieval Borough High Street leading to London Bridge, the Georgian setpiece of Blackfriars Road leading to Blackfriars Bridge, and the wharves along the river's edge. A sequence of east-west cuts were built over this informal area in the late nineteenth century. Each of these actions contributed to reinforce the area's innate spatial resistance to formal urban planning, including the building of the railway stations and viaducts on brick vaults above the marsh, the cutting of Borough Road, and the destruction of some 400 dwellings to establish Southwark Street.

*Fig 1. Historical map from 1900 adressing the historical programme, urban structures, public realm, allotments and infrastructure, GLA 2022*

# SITE ANALYSIS
## Sensory mapping area 5 Bankside

In addition to the noise pollution maps that are included in the essay, there was some information missing on the other layers of the sensory stimuli. This maps are linking the society to space and its experience through Space syntax. It provides an overview of spatial configurations of various spaces at urban scales. The smelly map below gives insight in the overall smell of the street or a part of it. The health map and tranquil map on the right give insight in how people perceive their environment. Together they support tranquil, calm and mentally restorative journeys that also are in favor of healthy, active travel and lifestyles. The plot as relative tranquil area will form an example of how to create an essential link in this restorative journey. Especially the north of the plot needs extra attention in terms of health and exposure to sensory stimuli. In order to increase the alternatives for the drifters between vibrant and tranquil paths, it is necessary to divide the plot into smaller segments.

*Fig 2. Bankside Smelly map with smells of emissions, nature, food, animals and waste wherein the plot is surrounded by predominantly food, nature and emission, Smelly maps 2022*

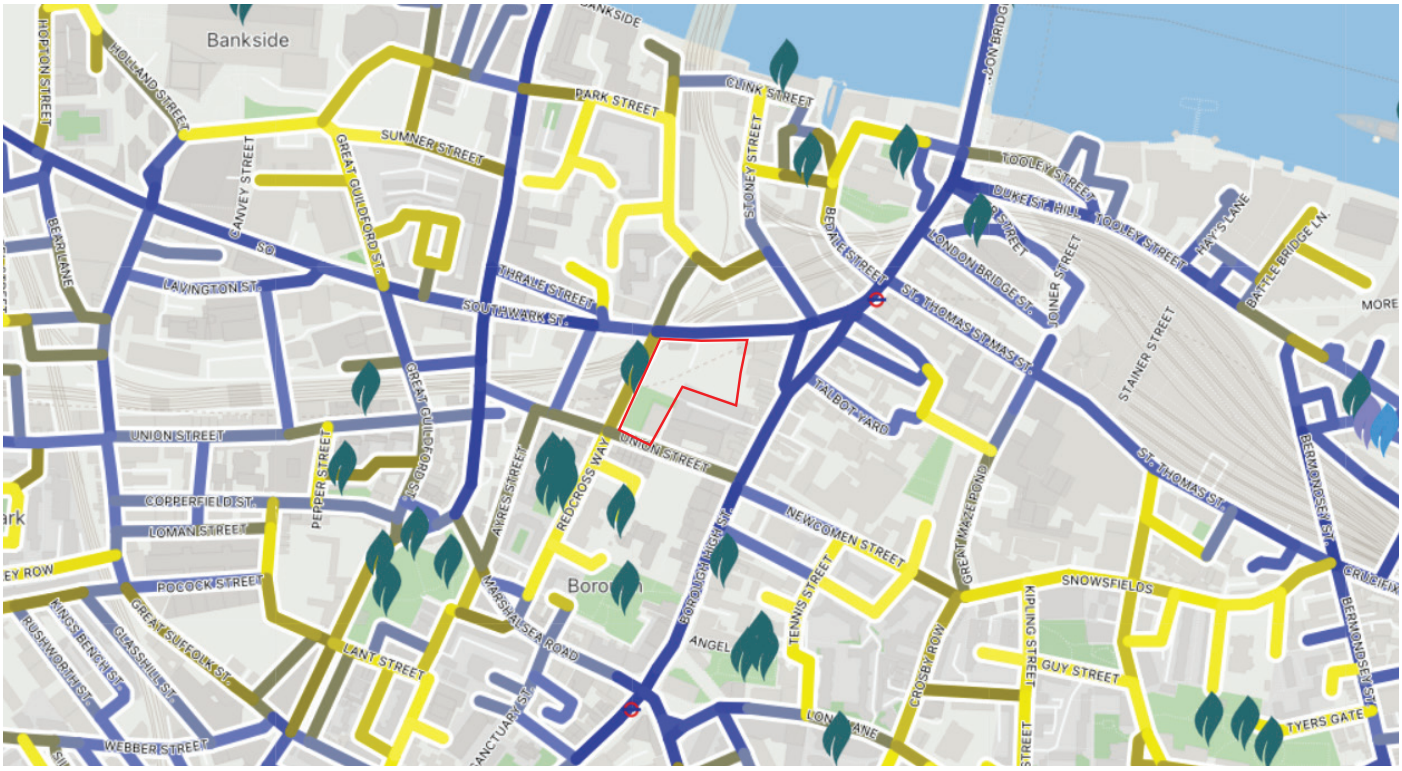



*Fig 3. Bankside Healthy streets map with low to high index, Tranquil city pavement 2022*

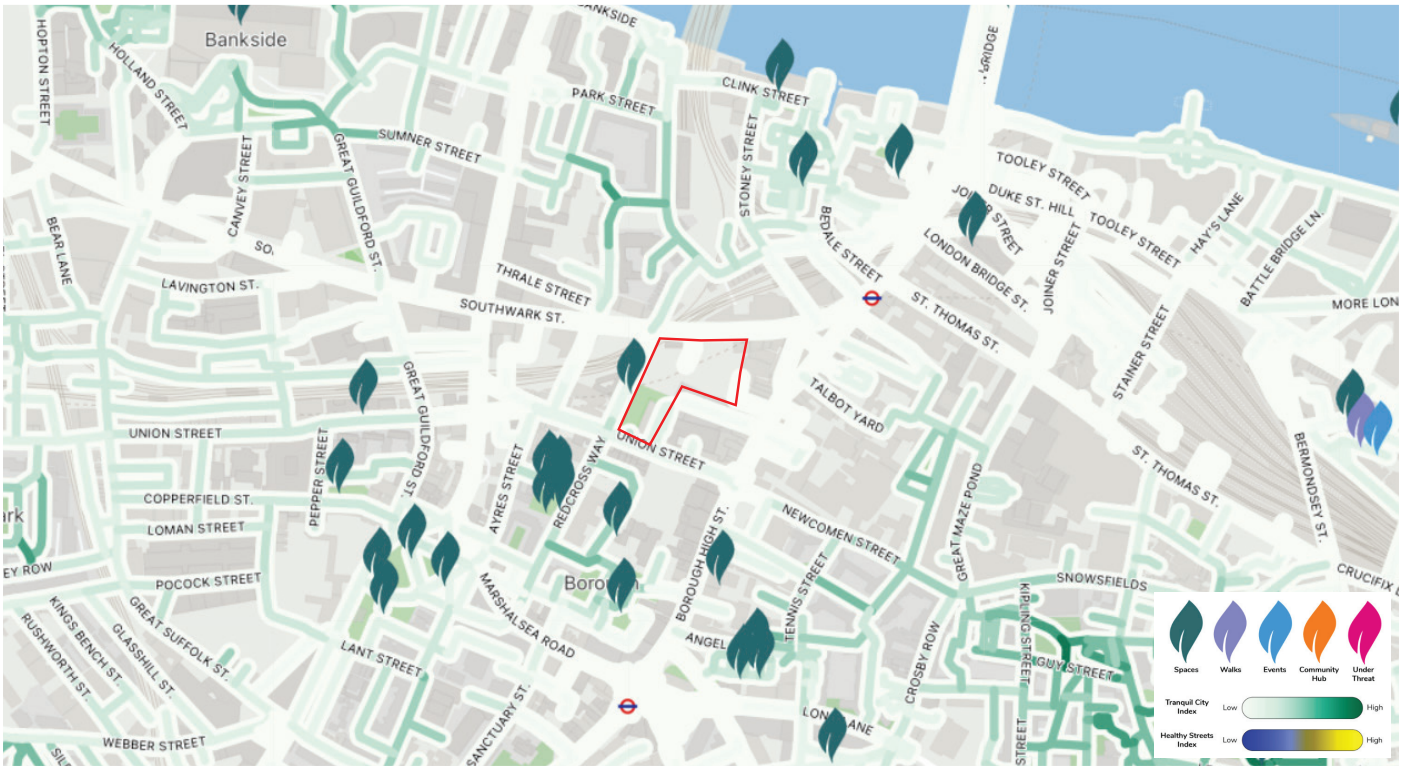



*Fig 4. Bankside Tranquil streets map with low to high index and tranquil city pins, Tranquil city pavement 2022*

# SITE ANALYSIS

## Visual appearance thresholds and urban structure area 5 Bankside

The building block is filled with underpasses connected to alleys that are now mostly seen as back entrances or (semi-)private property with dead ends. These narrowing elements could potentially create multiple public entrances to the plot, in which the compression and expansion of the paths of the drifters will affect their experience of intensity and encourage movement. The thresholds will be lower if these elements will include sight lines and thus a clear visibility of opened up space behind the underpasses. In the map below, the existing and possible creation of these entrances is marked with lines connecting the plot to its adjacent streets. The images on the right show examples of similar junctions, entrances and laneways in the area with vibrant programme or connections to other public spaces. These urban structures refer to the past of Bankside with its vague terrain that had long skinny courts, wiry streets and oddly-shaped yards that were connected by narrow passages and alleys. The design should continue to increase and improve the number and quality of these public spaces into more open spaces, parks and gardens, squares and a pleasant public realm. The same goes for the cycle and walking routes.

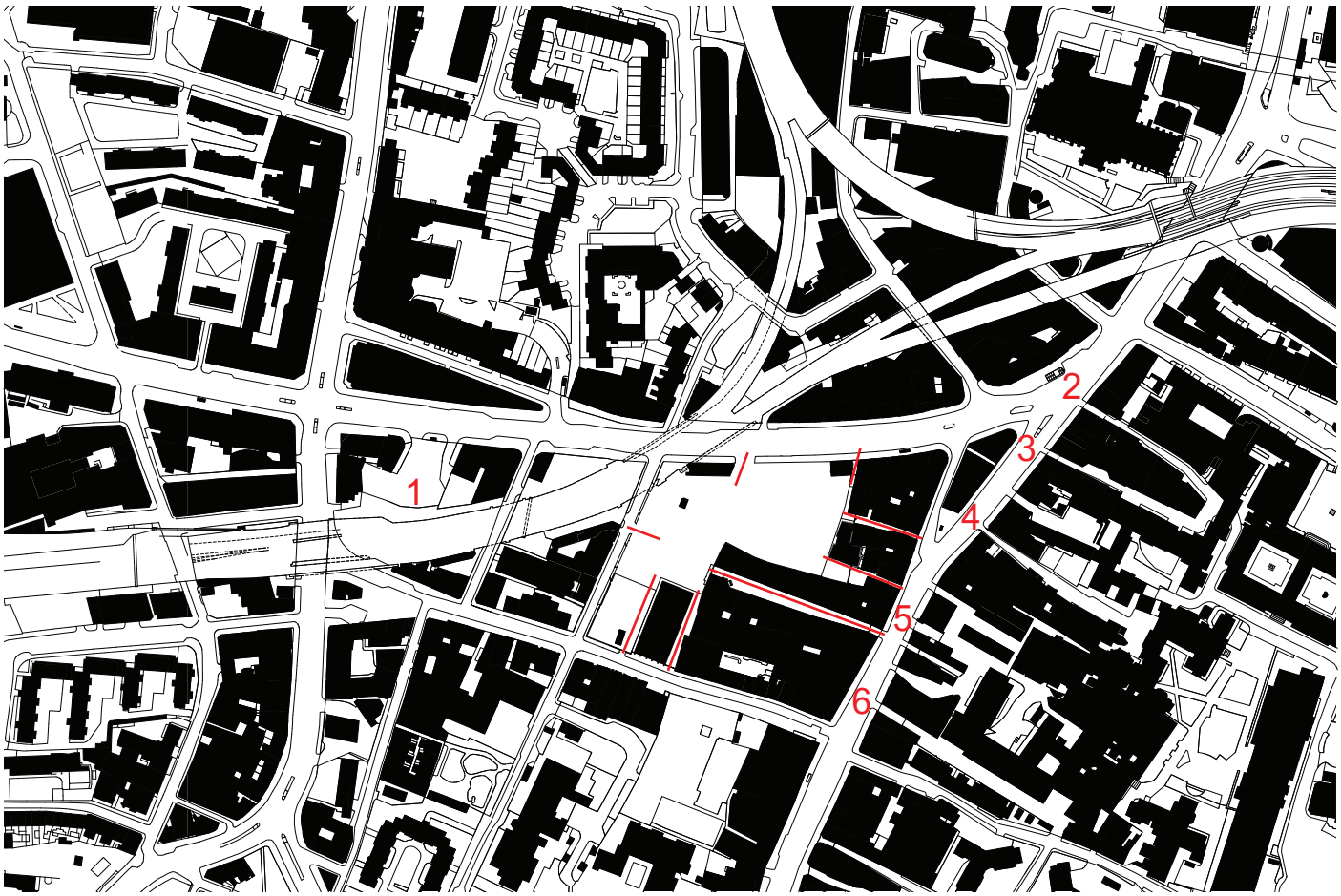



*Fig 5. Bankside Figure ground map with annotations thresholds as underpasses, Image by author 2022*

1

*Fig 6. Infill of arches from railway, creating a vibrant low line, Southwark Plan 2022*

2

*Fig 7. Underpass leading to multiple bars and cafes, Southwark Plan 2022*

3

*Fig 8. Alley leading to multiple bars and cafes, Southwark Plan 2022*

4

*Fig 9. Alley leading to King's College, Southwark Plan 2022*

5

*Fig 10. Semi-public alley leading to coaching inn, Southwark Plan 2022*

6

*Fig 11. Semi-public alley of public building, Southwark Plan 2022*

# SITE ANALYSIS

## Visual appearance leading architecture area 5 Bankside

The leading architecture will show a part of the historical layer from the surrounding context, including even Roman, medieval and post-medieval monuments. This wil form the cultural layer to reveal the perceived intensities. Churches, coaching inns, brothels, a prison, a hospital, a theatre, and a market competed for attention along Borough High Street's swaying line. Nowadays, Bankside has a bold and diverse character shaped by its past as industrial landscape. The coexsistence of the archaic and contemporary city character can be clearly recognized. Along Borough high street and Southwark Street, the insatiable development market is clearly visible. On the other side, the urban interior is almost free of any dominant controlling interests. It is more diverse, identifiable by the almost complete absence of familiar London urban structures such as squares, boulevards and regular urban blocks. Due to its rich historical background, there are many listed buildings in the area, which must be taken into account while designing and opening up the plot. The conservation along these newly creating pathways will enhance its special significance.

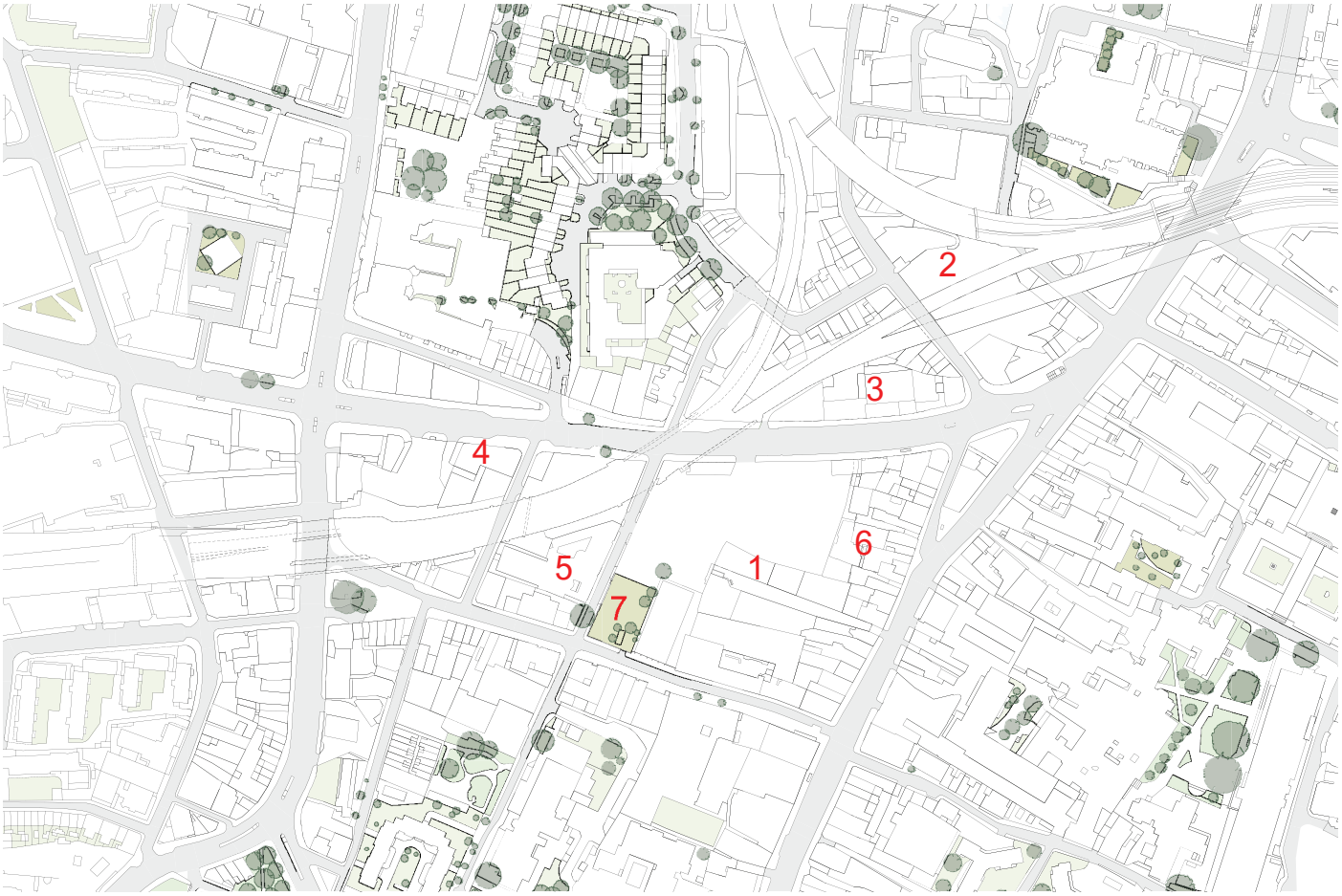



*Fig 12. Bankside Map with leading architecture in surrounding historical context, Image by author 2022*

1

*Fig 13. Maidstone building Mews housing, Southwark Plan 2022*

2

*Fig 14. Borough Market, Image by author 2022*

3

*Fig 15. The Hop Exchange currently as event location, Southwark Plan 2022*

4

*Fig 16. The Menier Chocolate Factory currently as theatre, Southwark Plan 2022*

5

*Fig 17. Church of the Most Precious Blood, Image by author 2022*

6

*Fig 18. Calverts Buildings, Southwark Plan 2022*

7

*Fig 19. Crossbones graveyard currently as garden of remembrance, Image by author 2022*

# SITE ANALYSIS

## Plot 1 Landmark Court's new developments and current use

- The plan is purposed to enrich the vibrancy of the area and to extend the thriving part of Southwark Street and Borough Market
- The new proposal for Landmark Court will provide a phased mixed-use development comprising demolition of 25-33 Southwark Street, restoration of 15 Southwark Street for residential use and erection of new buildings.
- The new buildings are 6, 7 and 9 storey high office buildings, a 3 storey high workshop building, flexible ground floor used, a marketplace with up to 9 permament stalls, 8 storey high building with 36 residential units.
- In total more than 20,000 sqm of new office space, plus shops, restaurants, cafes, flexible small business workspace and new homes will be created.

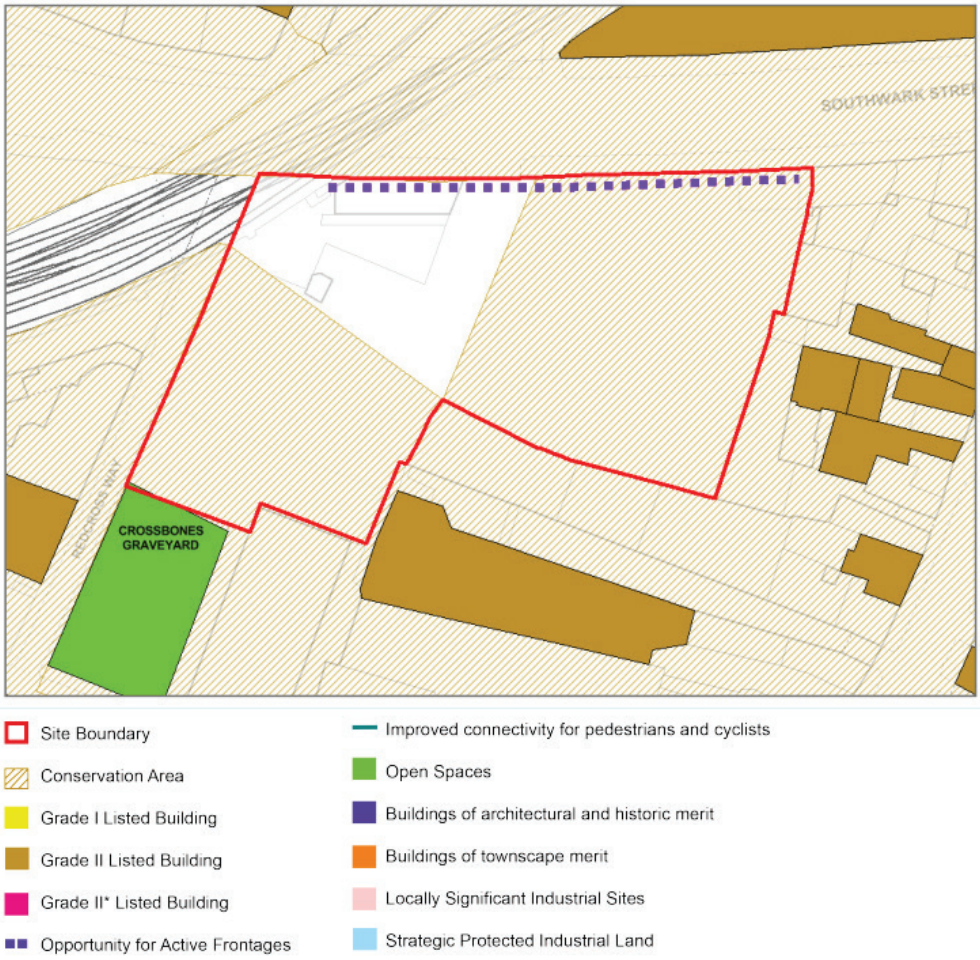



*Fig 20. Site map Landmark Court site conditions, Southwark Plan 2022*

- New pedestrian routes through the site will reinstate some of the medieval yards and lanes of historic Southwark. These lanes will be lined with shops, cafes, restaurants and market stalls to bring activity during daytime and the evening.
- The new associated areas of the public realm will enhance Crossbones Graveyard, hard and soft landscaping, means of access and enclosure and installation of ancillary plant and equipment.

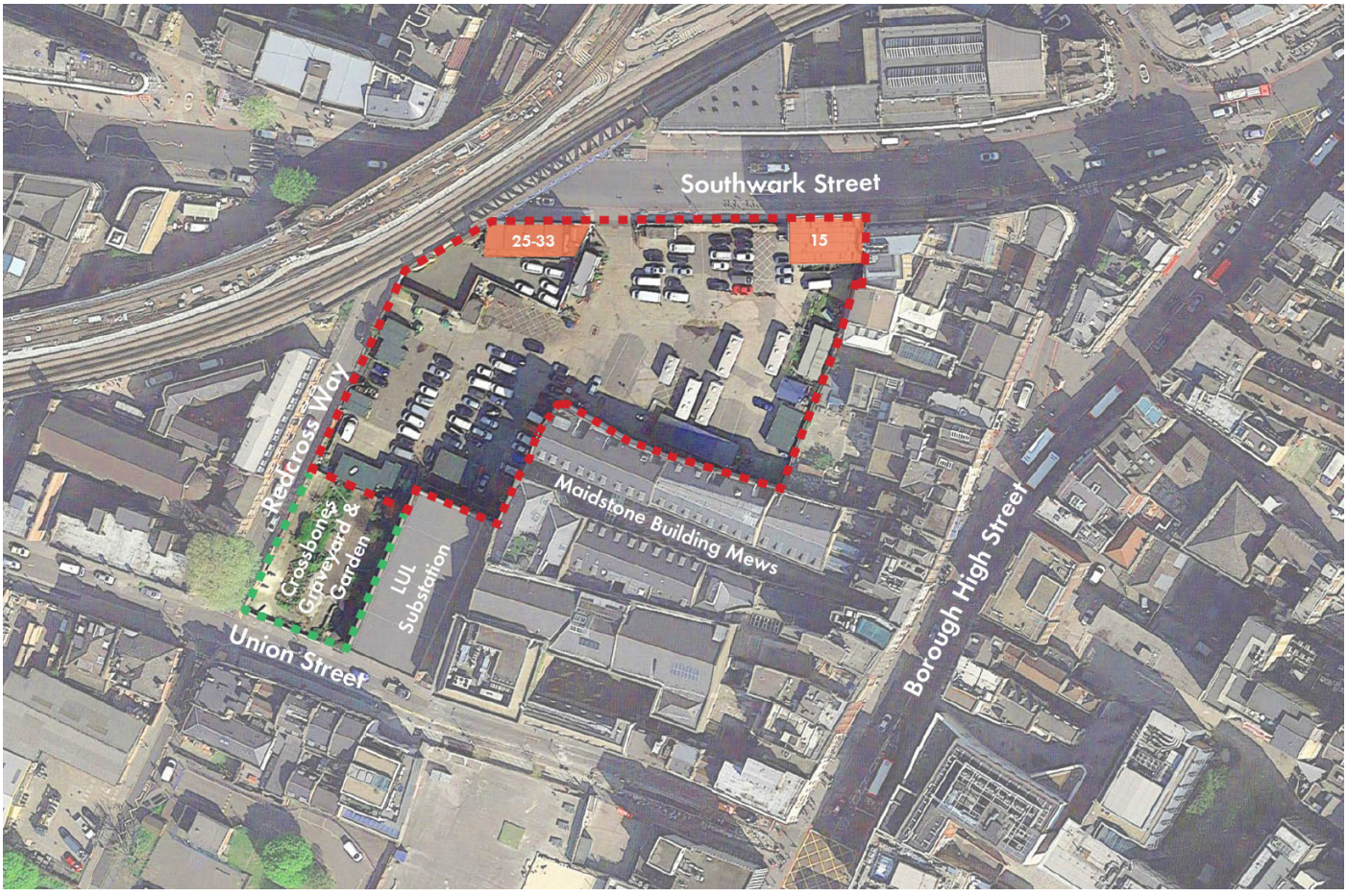



*Fig 21. Site map Landmark Court current use from 1997 onwards as informal storage and car parking enclosed by hoarding, Southwark Plan 2022*

# SITE ANALYSIS

## plot 1 intervention: mixed-use programme

## Adjacent to southwark street and Redcross way and the train track towards London Bridge Station

The plot spans 6223 $m^2$, including 862 $m^2$ existing offices, a car parking and informal storage. The plot carries the name Landmark Court and it is an largely vacant and undeveloped brownfield site by Borough Market, between Southwark Street, Redcross Way and Crossbones Graveyard. The site is part of the Southwark Plan of 2022 wherein it is assigned as site allocation NSP07. The plot provides a suitable ground to direct public and private interests in (mainly) public spaces and programme with recognition of the curating of the balance of city intensities of the surrounding area of Bankside. Currently, as can be seen on the photos aside, the plot does not facilitate any public accessibility, activity, programme or ecology, with exception of the graveyard. The planting on the boundary fence is an attempt to partially conceal the car park frontage, but the expanse of asphalt and the temporary porta cabins  and containers are unsightly. Although No. 15 Southwark Street is a significant survivor, it has been left in disrepair for over 30 years. The visualscape suffers from its current sheeted and scaffolding-covered condition (see fig. 28). In the research essay it was investigated that this area negatively affects the senses, which implies the need for the design of a sensescape. The focus of the design of the sensescape should thus lie on a pedestrian-friendly sequence of vibrant and tranquil exterior and interior spaces in which the vibrancy establishes opportunities for safety and social interaction between the area's new and existing residents, workers and visitors.

*Fig 22. Bird's-eye view plot 1, Google Earth 2022*

*Fig 23. Photo Landmark Court corner Crossbones graveyard, Image by author 2022*

*Fig 24. Photo Landmark Court fences and storage, Southwark Plan 2022*

*Fig 25. Photo Landmark Court memorial gate Crossbones, Image by author 2022*

*Fig 26. Photo Landmark Court fences due to underdevelopment, Image by author 2022*

*Fig 27. Photo Landmark Court offices and car parking, Southwark Plan 2022*

*Fig 28. Photo Landmark Court renovation and underdevelopment, Image by author 2022*

# SITE ANALYSIS

## plot 2 intervention: Canopy with picnic area
## Adjacent to Redcross Way and Park Street and the train track towards Cannon Street Station

*Fig 29. Bird's-eye view plot 2, Google Earth 2022*

*Fig 30. Photo unused plot with fences, Image by author 2022*

*Fig 31. Photo unused plot next to cocktail bar and restaurant, Image by author 2022*

*Fig 32. Photo unused plot with arches without infill or use, Image by author 2022*

*Fig 33. Photo unused plot next to underpasses of railway, Image by author 2022*

*Fig 34. Photo unused plot with fences, green and graffiti, Image by author 2022*

*Fig 35. Photo unused plot entrance to railway passages, Image by author 2022*

# SITE ANALYSIS

plot 3 intervention: meditation chapel

Adjacent to southwark street and the train track towards London Bridge Station

*Fig 36. Bird's-eye view plot 3*

*Fig 37. Photo plot as bicycle storage, Image by author 2022*

*Fig 38. Photo plot adjacent to office building, Image by author 2022*

*Fig 39. Photo plot fence to square with bicycle parking, Image by author 2022*

*Fig 40. Photo plot rounded office building , Image by author 2022*

*Fig 41. Photo plot graffiti office building and fence to square, Image by author 2022*

*Fig 42. Photo plot restaurant square and railway arches, Image by author 2022*

# PRECEDENTS

Programme precedents with tranquil atmosphere
Dependent on a play with the senses and the merge between intimacy and publicity

## Exterior

*Fig 43. Serpentine pavilion as contemplation courtyard with garden London, Peter Zumthor 2011*

*Fig 44. Danish pavilion with tea production that shows the flow of water and growing process, Venice biennale 2021*

*Fig 45. Thuis aan de Amstel restaurant with garden, directeurswoning renovatie 2014*

*Fig 46. St Dunstan in East with public garden around church ruins, London gov 2021*

*Fig 47. Forests London desig space with greenery, Asif Kh*

*Fig 48. De Hallen mixed-use building with indoor street, recreation, offices and retail, Amsterdam 1914*

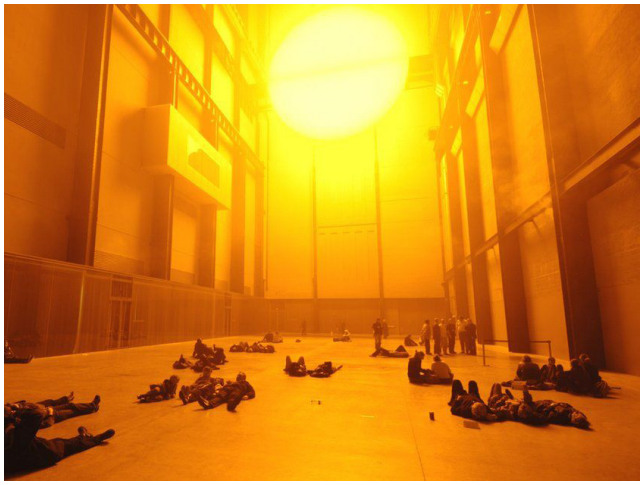


*Fig 49. Tate modern's great heights in public hall with multi-sensory art experience, London Olafur Eliasson 2019*

*n festival as inward oriented soothing an 2016*

*Fig 50. Oudemanhuispoort with pop-up bookstores in Amsterdam, 1601*

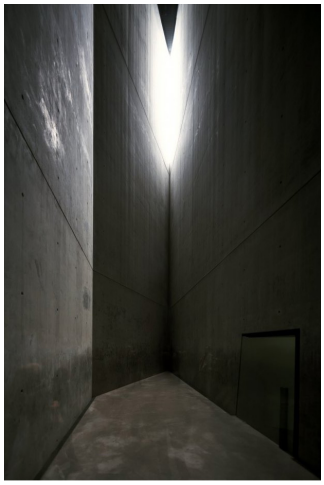


*Fig 51. Jewish Museum Berlin with sensory deprivation, Liebeskind 2001*

# PRECEDENTS

## Spatial precedents of towers and churches in Rotterdam

*Fig 52. The small Cathedral of the howly Nicolas in the park, Image by author 2022*

*Fig 53. The entrance of the small Cathedral of the howly Nicolas in the park, Image by author 2022*

*Fig 54. The church bells and clock tower of the Waalse Kerk, Image by author 2022*

*Fig 55. the museum landmark tower of the Boijmans Museum, Image by author 2022*

*Fig 56. The entrance tower of the Arminius church with clocks, Image by author 2022*

*Fig 57. The bell tower of the Arminius church with clocks, Image by author 2022*

*Fig 58. The entrance of the Eendrachtchapel, Image by author 2022*

*Fig 59. The nearby enclosed garden, Image by author 2022*

# PRECEDENTS

## Spatial precedent

Cabinet of Curiosities, Studio Donna van Milligen Bielke 2014
Orientation on negative space, architecture as a volume and the city as the collection of these volumes
On the cusp of architecture and urbanism to shape, connect and respond to urban fabrics

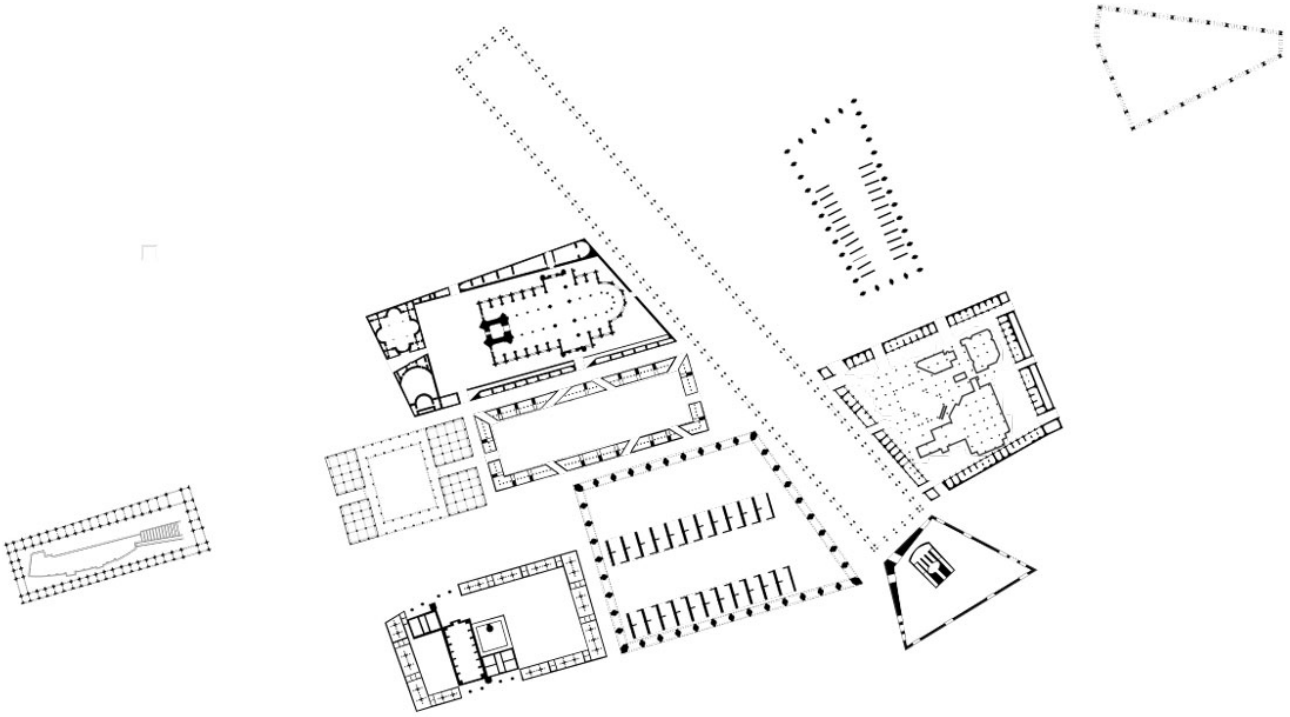


*Fig 60. Working with the existing negative space of the public realm in plan, Donna van Millige Bielke 2014*

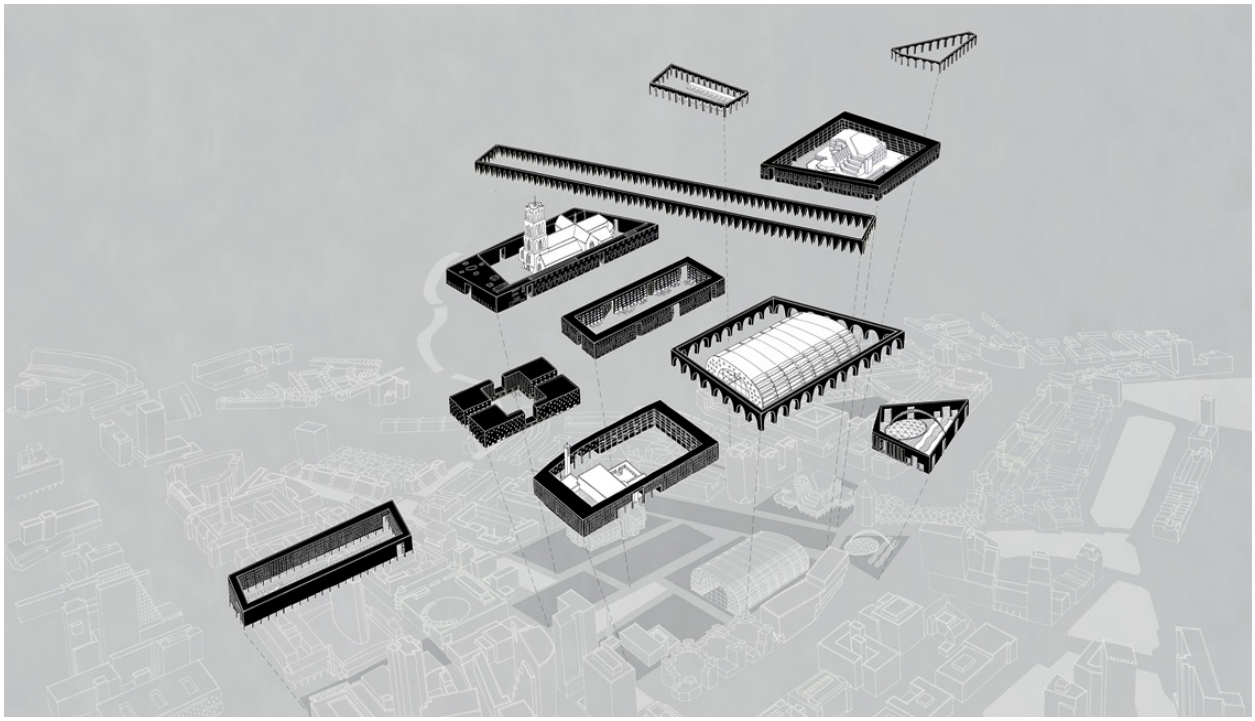


*Fig 61. The reaction on urban public structures, Donna van Millige Bielke 2014*

*Fig 62. The newly created square between building and arcades, Donna van Millige Bielke 2014*

*Fig 63. The newly created square between the existing church and urban wall, Donna van Millige Bielke 2014*

# PRECEDENTS

## Spatial and material precedent

## Abbey Sint Benedictusberg in Vaals, Dom Hans van der Laan 1961

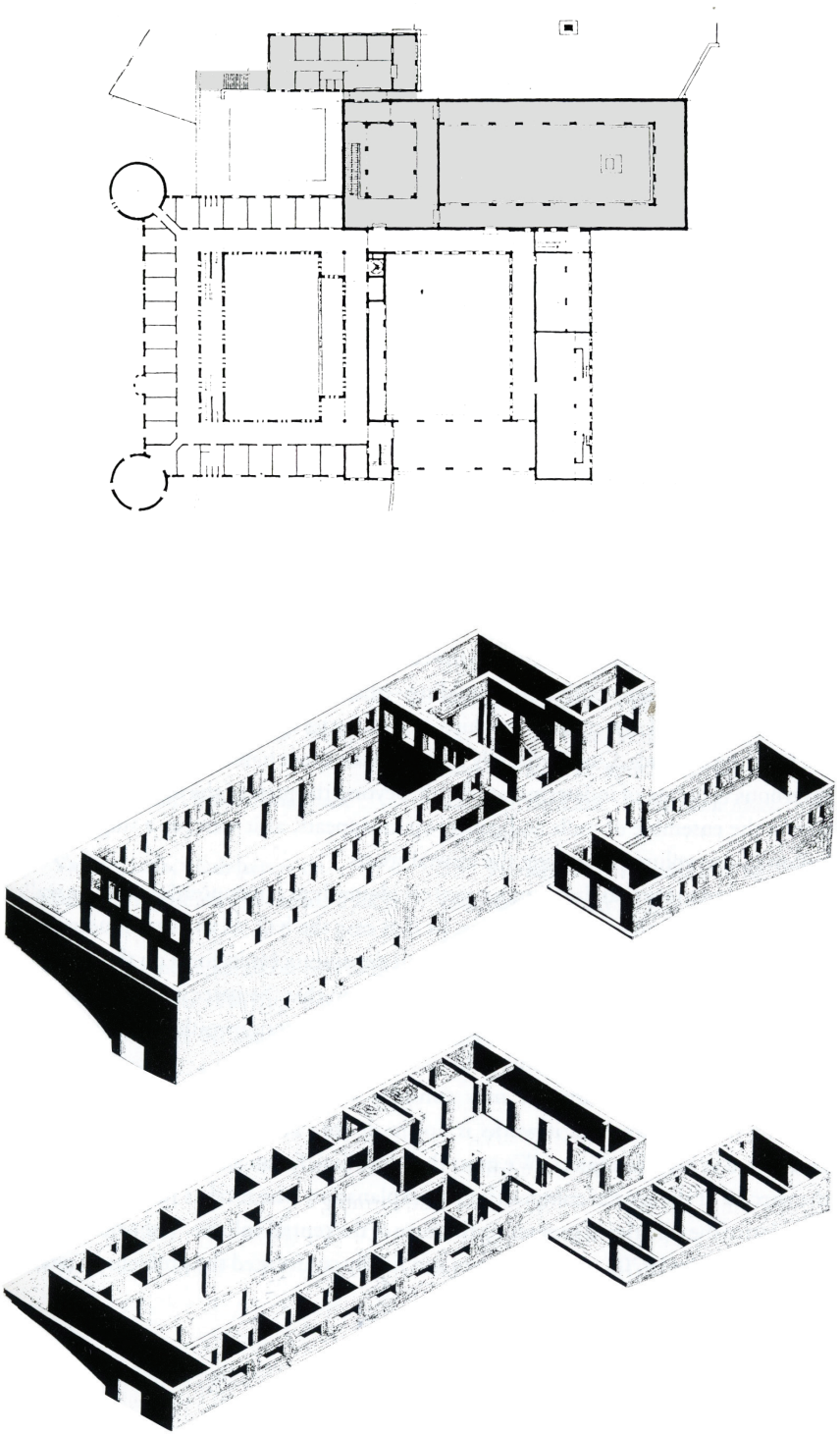


*Fig 64. Plan and axo of the extension of the abbey by creating Church and atrium in the ratio of 3:8, Dom Hans van der Laan 1961*

*Fig 65. Meeting of materials in entrances to atrium, Image by author 2022*

*Fig 66. Sturdy stairs and railing to first floor gallery in atrium, Image by author 2022*

*Fig 67. Lighting, colour coherency and clock tower, Image by author 2022*

*Fig 68. Robust measurements columns and textures surfaces, Image by author 2022*

*Fig 69. High windows with light beams on benches, Image by author 2022*

*Fig 70. Repetition in structural elements, Image by author 2022*

# PRECEDENTS

## Material precedent

## Shakespeare theatre in Gdansk, Renato Rizzi 2014

*Fig 71. New shade and a contrast in the predominantly red brick town but coherency in masonry as main structural material, Renato Rizzi 2014*

*Fig 72. White walls, marble stairs and birch wood panelling brighten up the interior as contrast to the dark exterior, Renato Rizzi 2014*

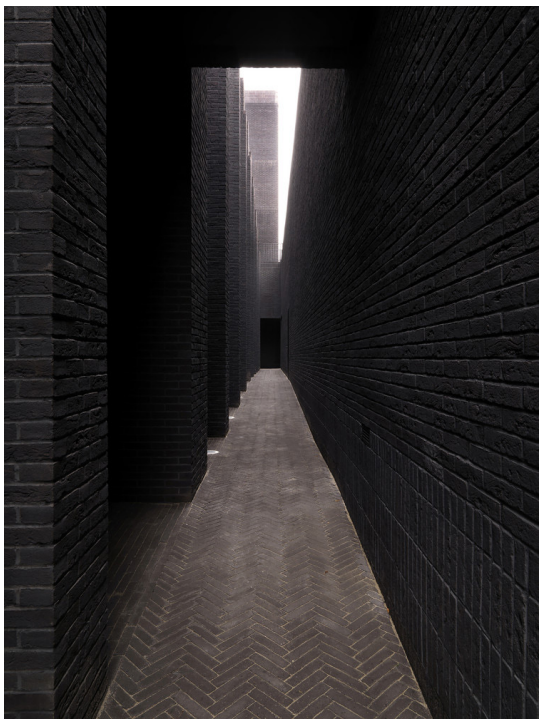


*Fig 73. Narrowing exterior masonry alley with natural lighting from above, Renato Rizzi 2014*

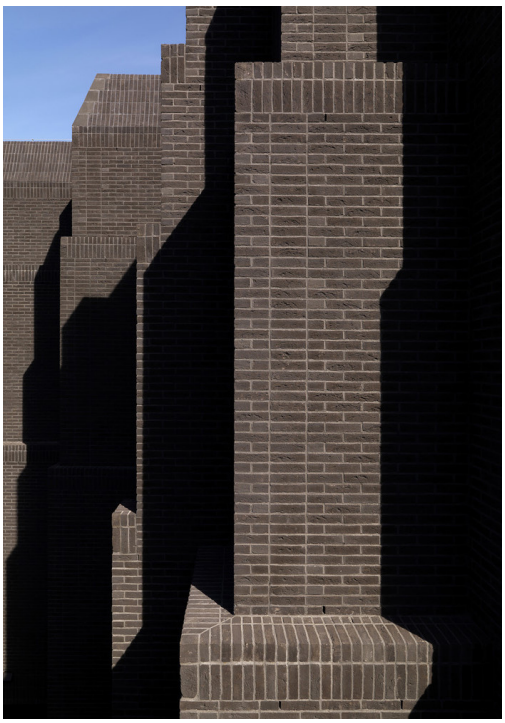


*Fig 74. Relief and shadows in masonry walls, Renato Rizzi 2014*

*Fig 75. Detailing of integrated continuous railing, Renato Rizzi 2014*

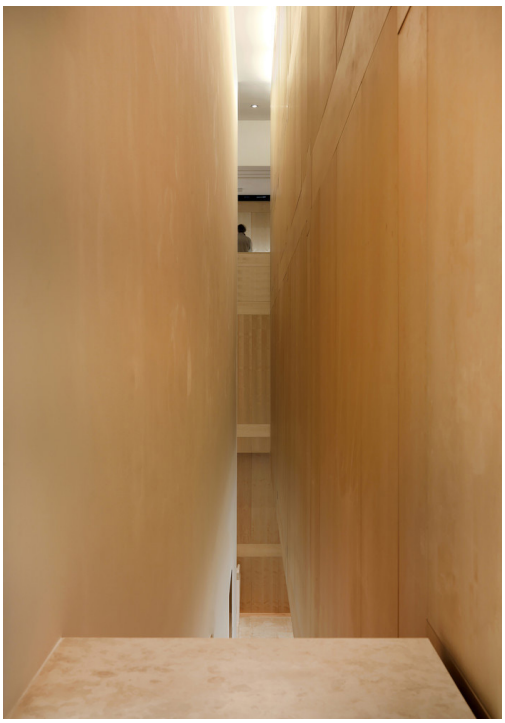


*Fig 76. Narrowing interior wooden staircase with diffuse lighting from above, Renato Rizzi 2014*

# PRECEDENTS

## Material precedent

## The Shimane Arts Centre “Grand Toit” in Masuda in Japan, Hiroshi Naito 2005

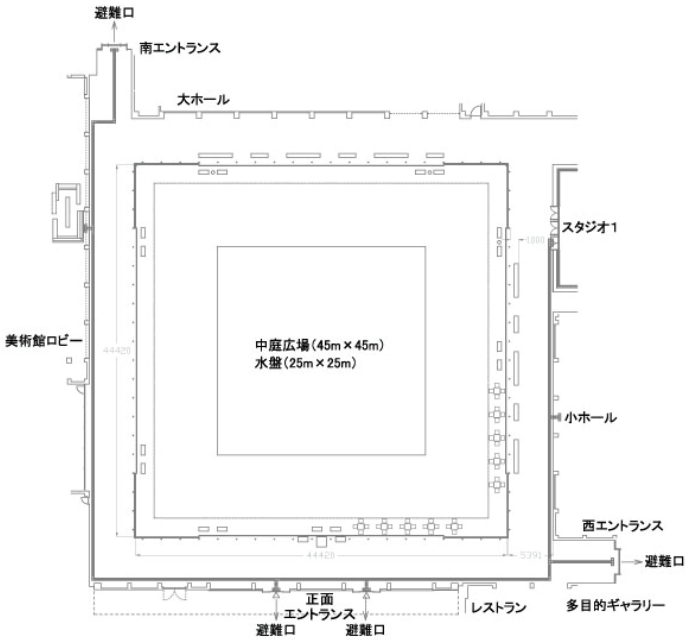



*Fig 77. Perpendicular and squared plan for courtyard in arts centre, Hiroshi Naito 2005*

*Fig 78. Inward oriented tranquil space with pond, Hiroshi Naito 2005*

*Fig 79. Material uniformity in slanted roofscape and overflow in wall cladding,  Hiroshi Naito 2005*

*Fig 80. Intimacy and symmetry in overview of the courtyard,  Hiroshi Naito 2005*

# PRECEDENTS

## Atmospheric precedent

## Une Voyage sans un destination in Paris, Nicolas Dorval Bory 2019

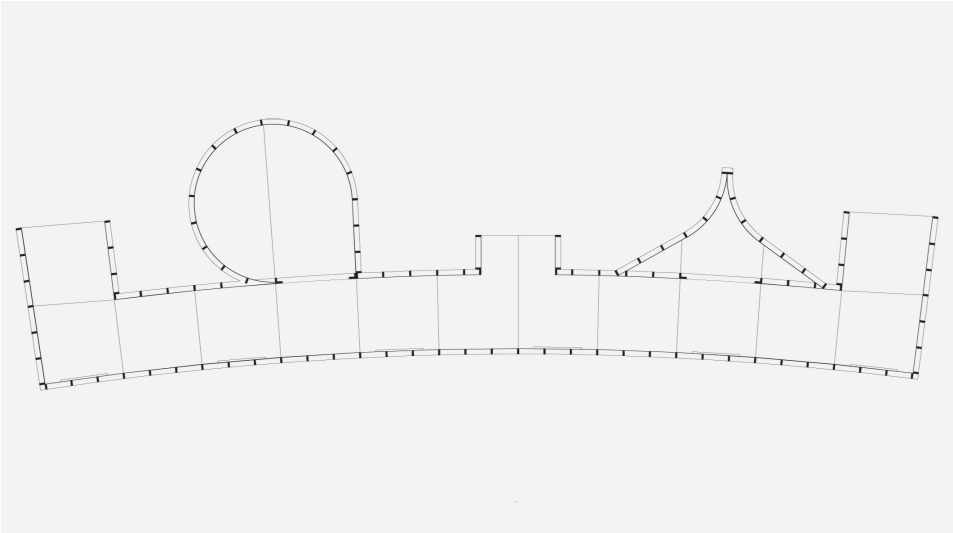


*Fig 81. Simple shaped floor plan for the architectural art installation focusing on light and experience, Dorval Bory 2019*

*Fig 82. The exterior of the installation that shows the inward oriented atmosphere that differs from the environment, Dorval Bory 2019*

*Fig 83. Interior visible installations with lighting for orientation, Dorval Bory 2019*

*Fig 84. Diffuse ceiling panel above seam, Dorval Bory 2019*

*Fig 85. Soft and haptic materiality with uniformity in colour, Dorval Bory 2019*

*Fig 86. Diffuse ceiling panel above bulge, Dorval Bory 2019*

# PRECEDENTS

## Atmospheric precedent
## Villa Alem in Alejento, Valerio Olgiati 2014

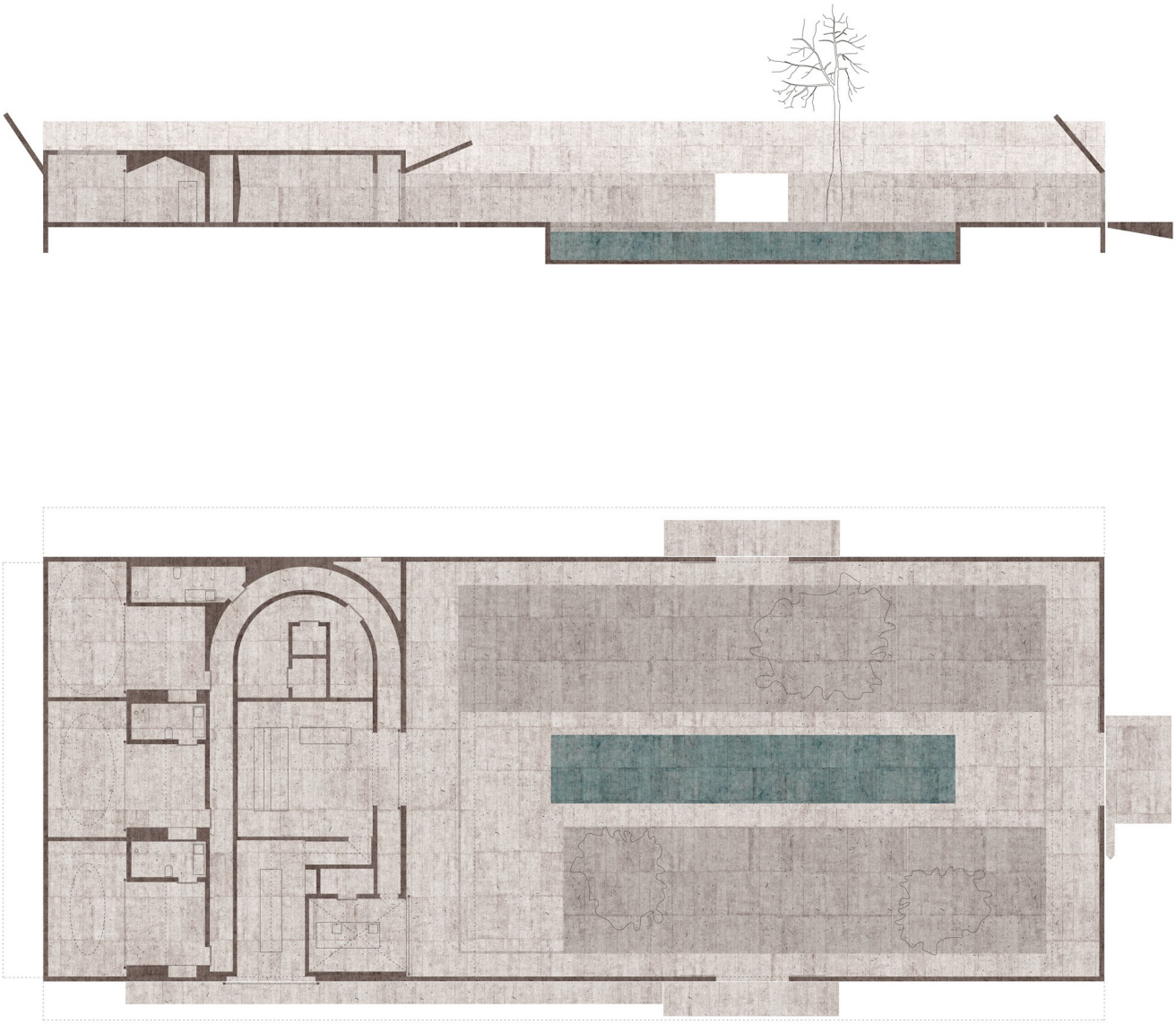


*Fig 87. Section and floor plan of of Villa Alem, Olgiati 2014*

*Fig 88. Curved Hallway - Villa Alem in Alentejo, Olgiati 2014*

*Fig 89. Private bedrooms with atria - Villa Alem in Alentejo, Olgiati 2014*

# MASS STUDIES
## Masses and atmospheric precedent

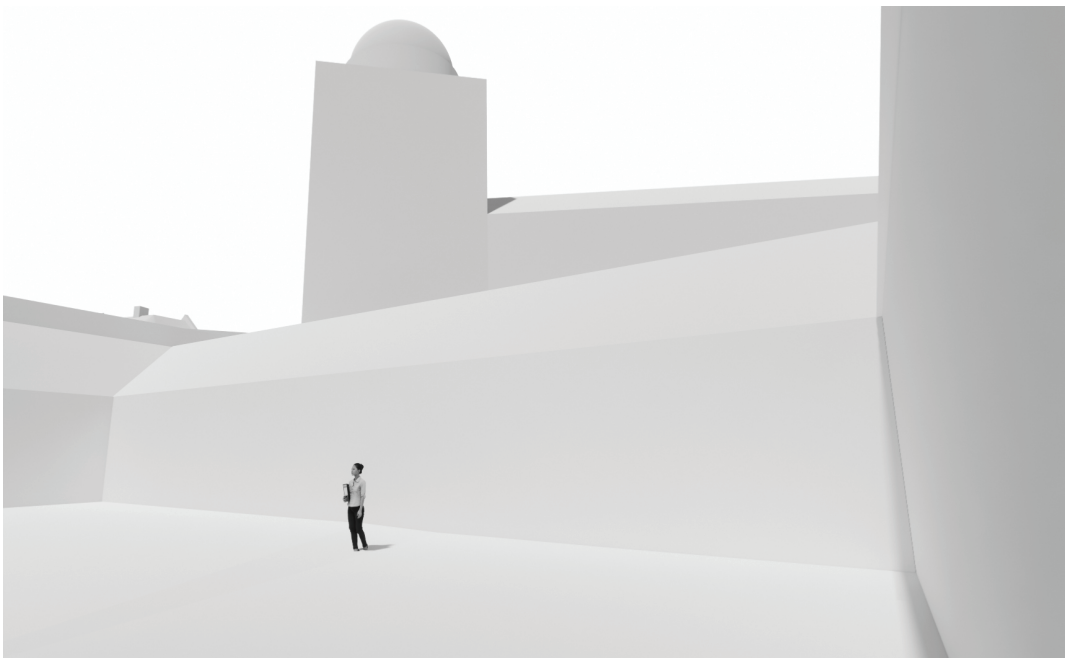


*Fig 90. Eye-level view courtyard to tower, Image by author 2022*

*Fig 91. Villa Alem in Alentejo with London background, Olgiati 2014*

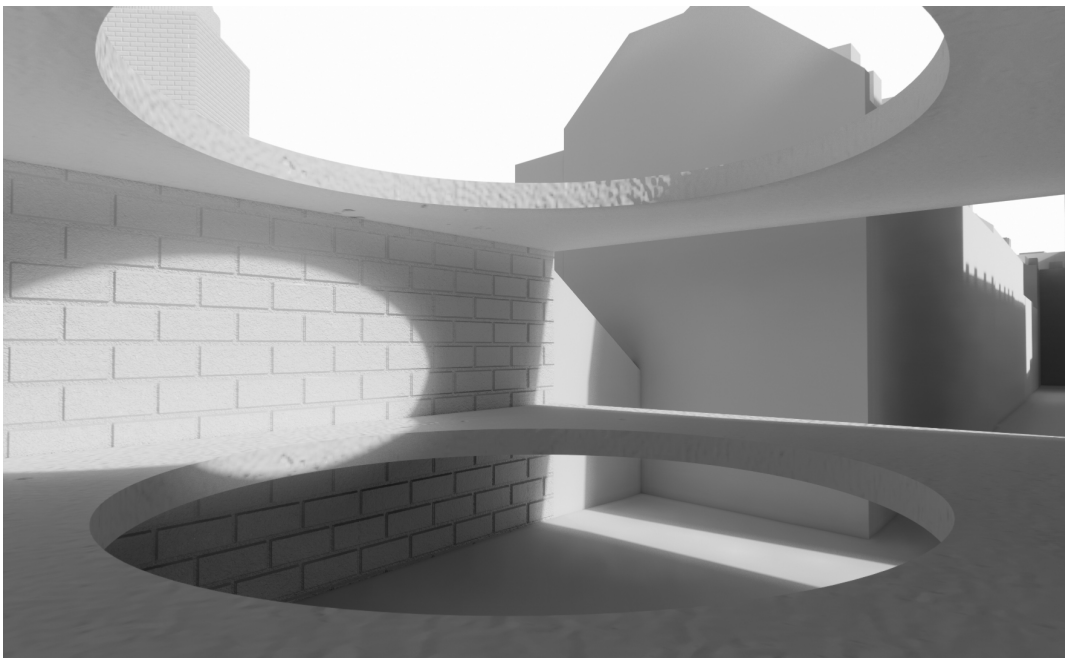


*Fig 92. Eye-level view atrium and connection to existing building, Image by author 2022*

*Fig 93. Residential building in Zug, Olgiati 2014*

# MASS STUDIES

## Initial study on masses, sightlines, underpasses and lighting contrasts

*Fig 94. Mass study 1 bird's-eye view Southwest, Image by author 2022*

*Fig 95. Mass study 1 bird's-eye view East, Image by author 2022*

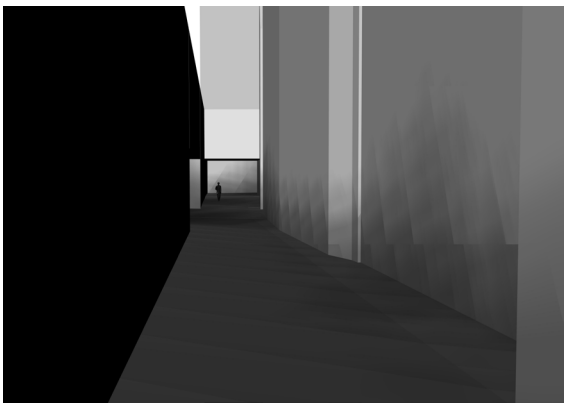


*Fig 96. Mass study 1 eye-level view alley and underpasses, Image by author 2022*

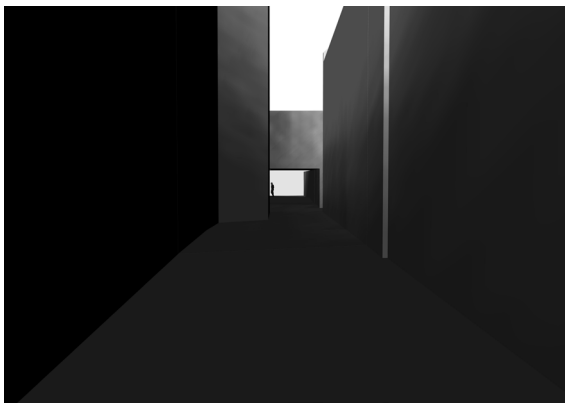


*Fig 97. Mass study 1 eye-level view alley and underpasses, Image by author 2022*

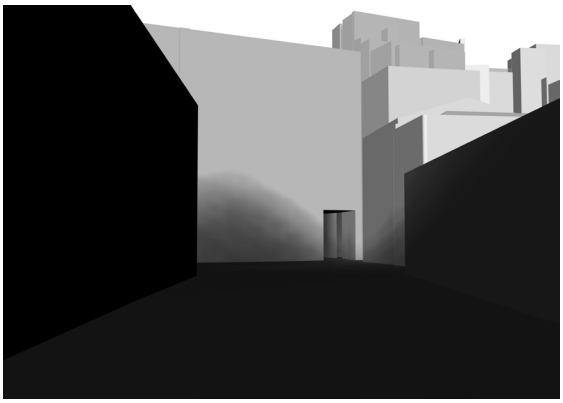


*Fig 98. Mass study 1 eye-level view city square towards underpass to Southwark Street, Image by author 2022*

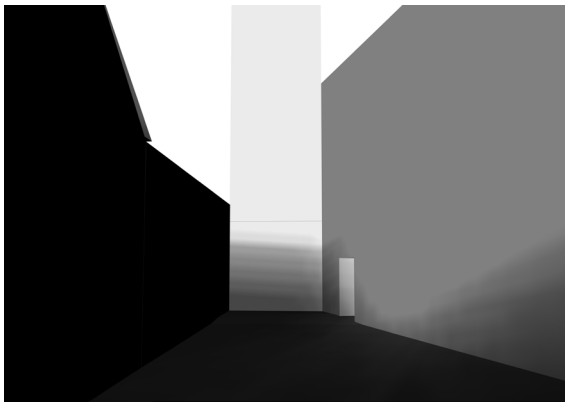


*Fig 99. Mass study 1 eye-level view landmark tower and city square, Image by author 2022*

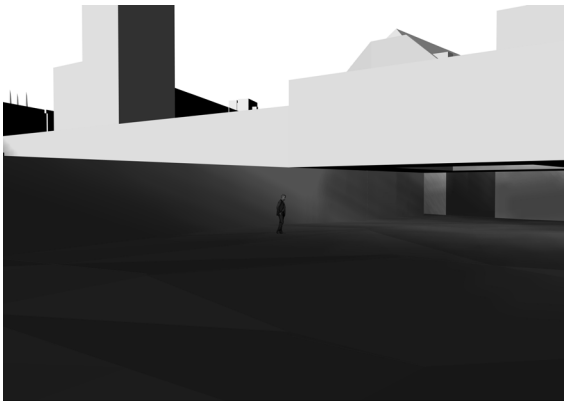


*Fig 100. Mass study 1 eye-level view landmark tower and lifted building for continuous public realm, Image by author 2022*

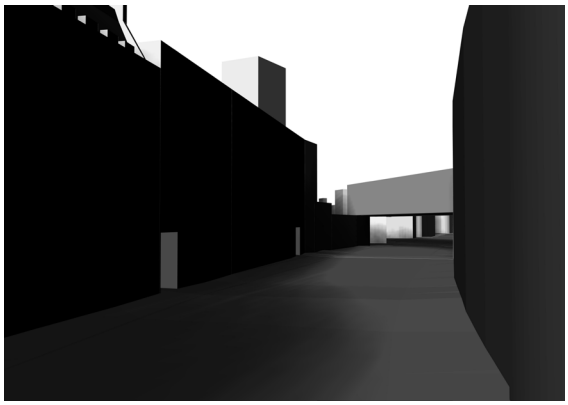


*Fig 101. Mass study 1 eye-level view facades and bridge in Southwark Street, Image by author 2022*

# MASS STUDIES
## Initial variations in mass development

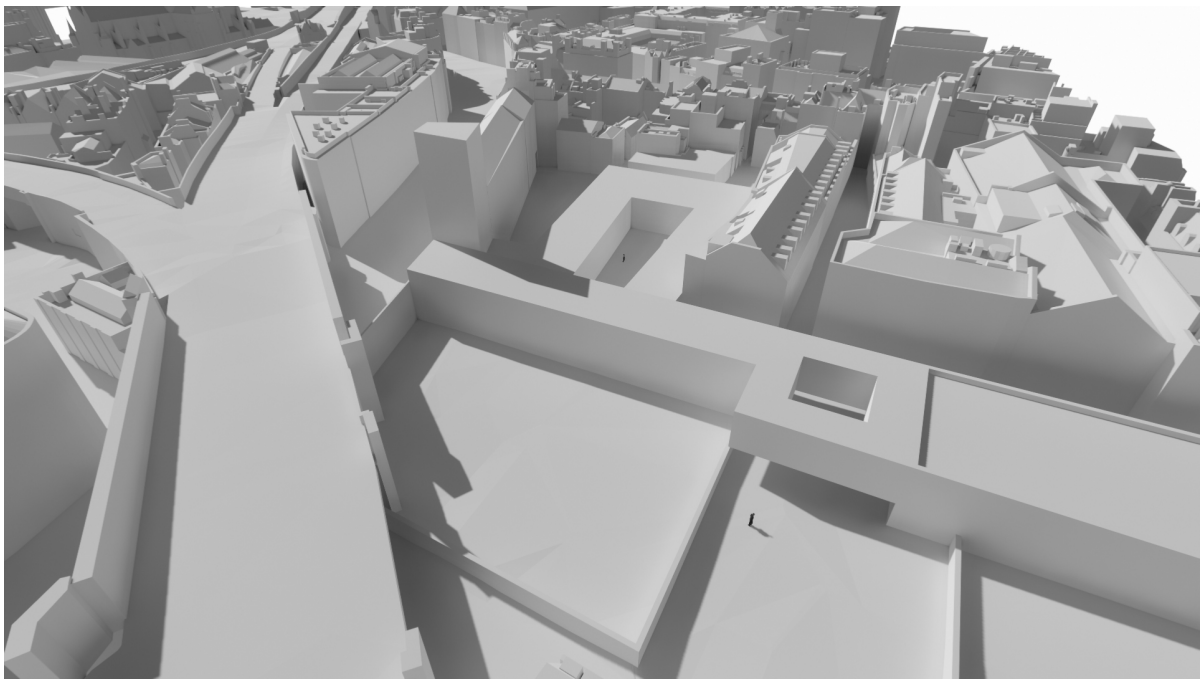


*Fig 102. Mass study 2 bird's-eye view Southwest, Image by author 2022*

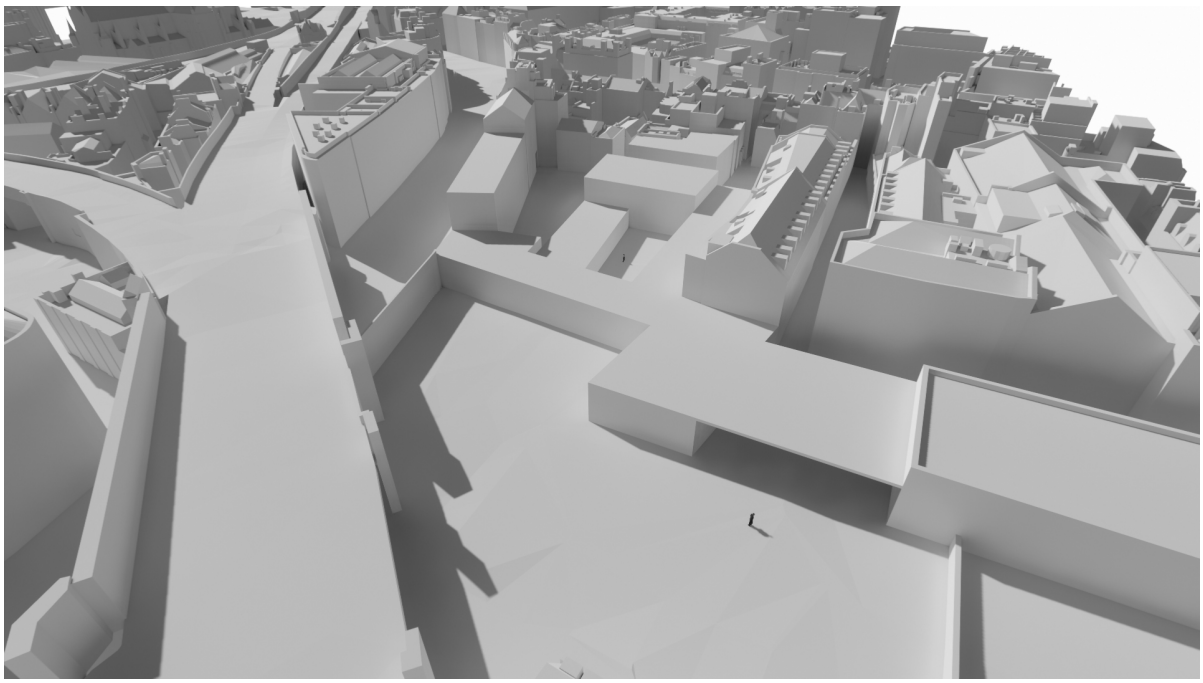


*Fig 103. Mass study 3 bird's-eye view Southwest, Image by author 2022*

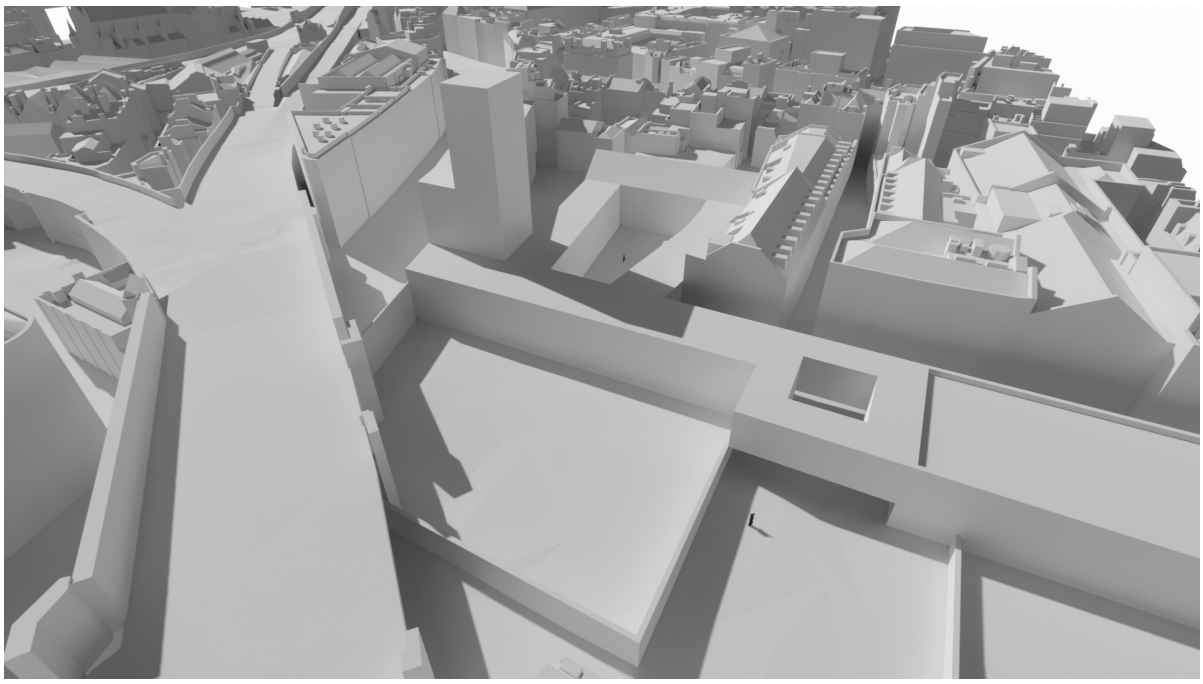


*Fig 104. Mass study 4 bird's-eye view Southwest, Image by author 2022*

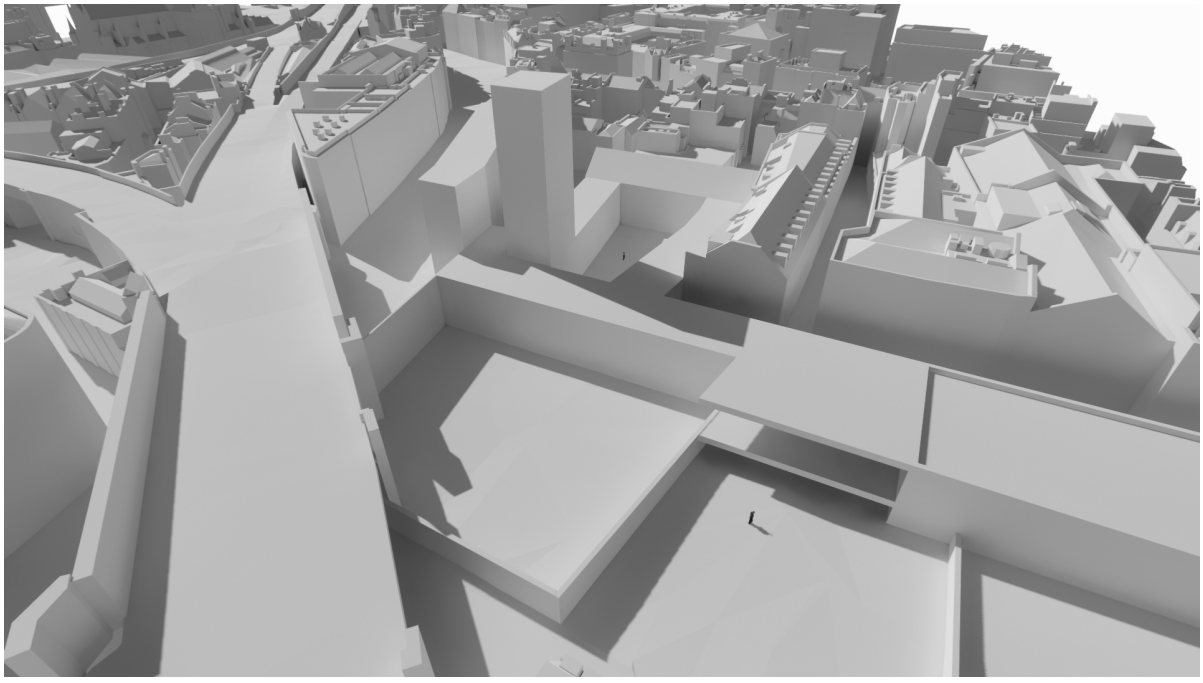


*Fig 105. Mass study 5 bird's-eye view Southwest, Image by author 2022*

# MASS STUDIES

## Initial variations in mass development and formal language

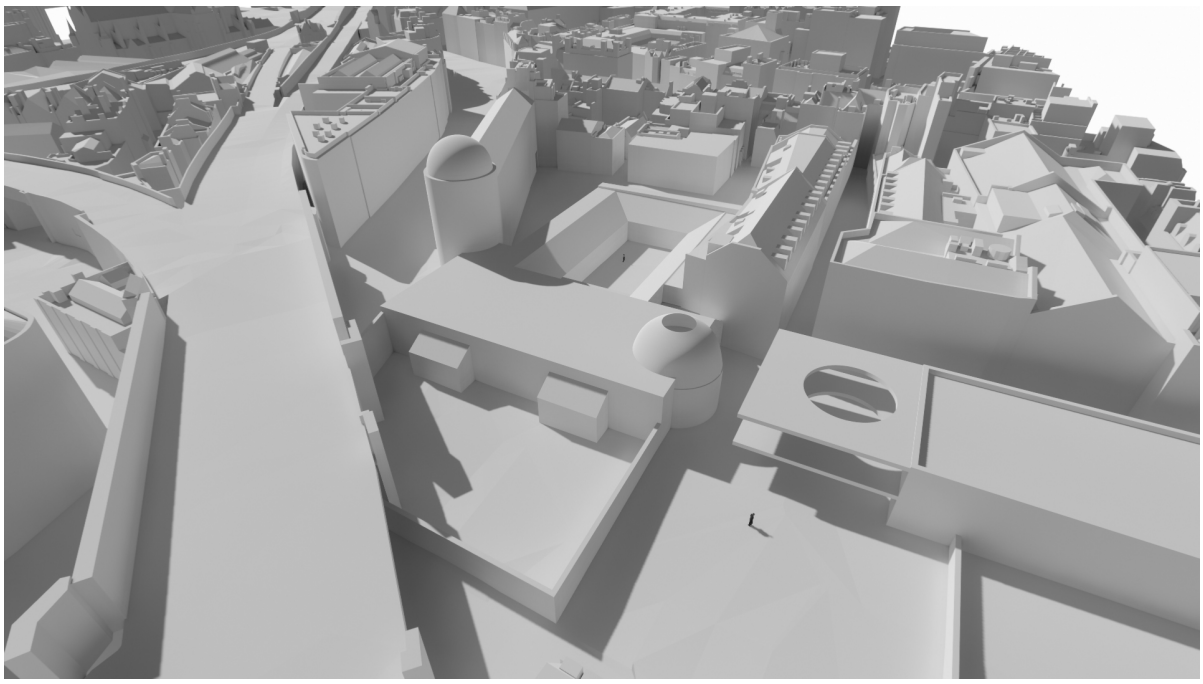


*Fig 106. Mass study 6 bird's-eye view Southwest, Image by author 2022*

*Fig 107. Mass study 7 bird's-eye view Southwest, Image by author 2022*

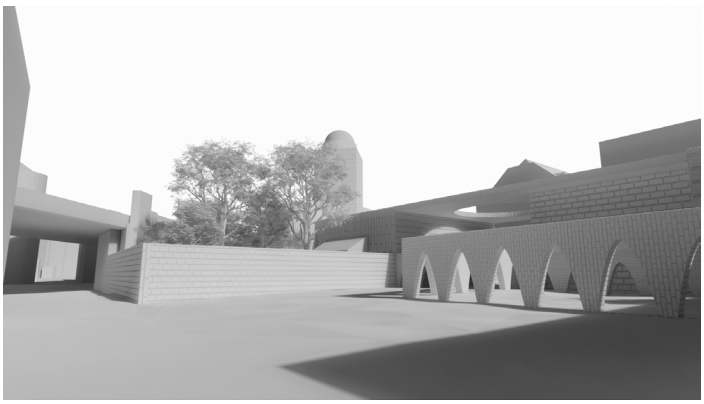


*Fig 108. Mass study 7 eye-level view arches and enclosed garden, Image by author 2022*

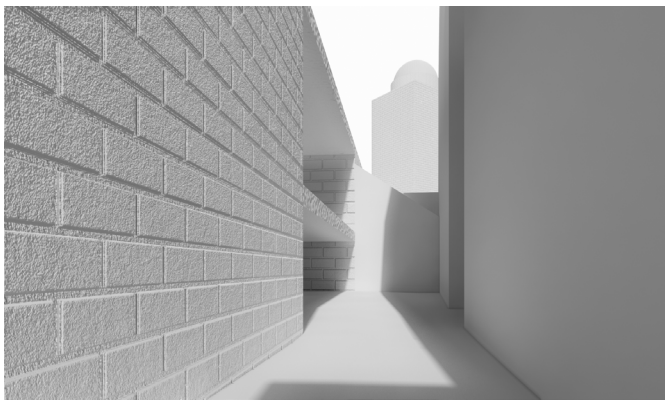


*Fig 109. Mass study 7 eye-level view alley and rounded landmark tower, Image by author 2022*

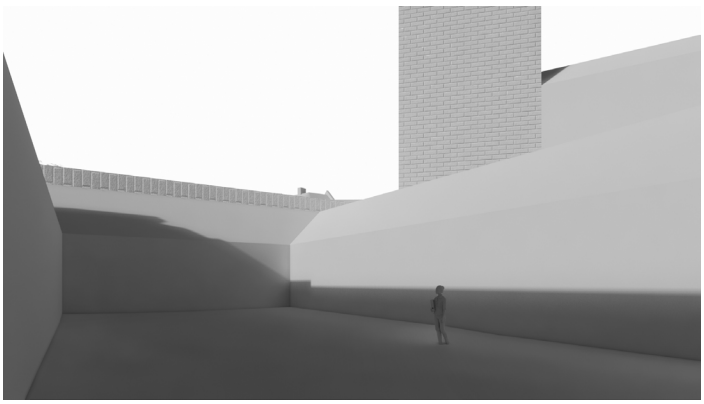


*Fig 110. Mass study 7 eye-level view courtyard and landmark tower, Image by author 2022*

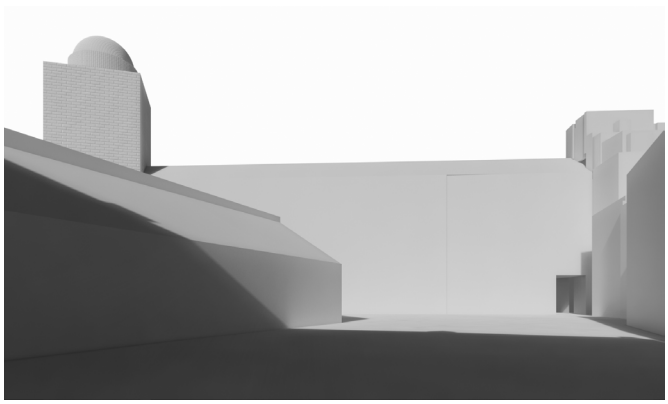


*Fig 111. Mass study 7 eye-level view courtyard and landmark tower, Image by author 2022*

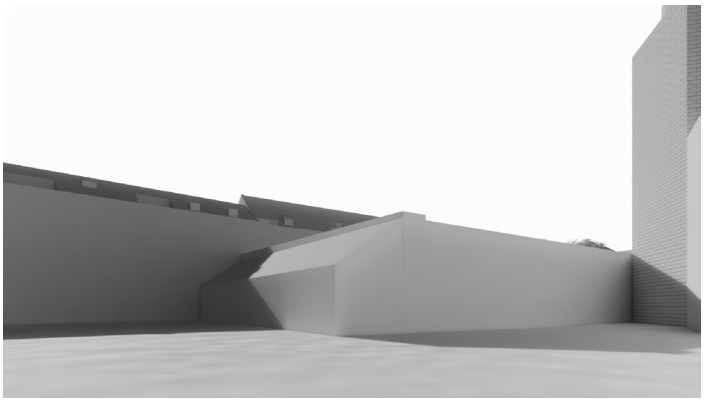


*Fig 112. Mass study 7 eye-level view masses placed against the empty rear of Maidstone Buildings, Image by author 2022*

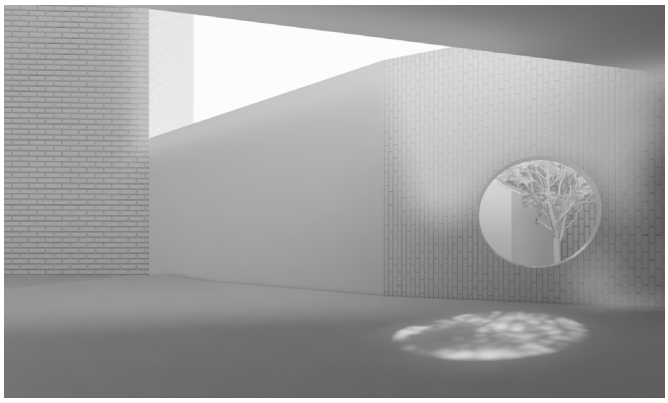


*Fig 113. Mass study 7 eye-level view under bridge with sighlines towards garden, Image by author 2022*

# PROGRAMME

Plot 1 existing and new sound conditions for the programme that merge in the initial soundscapes
Visualization of sound samples from the different interior and exterior levels of intensity

*Fig 114. Sonic study 1 on the experience of the clocktower with the incorporated resting heartbeat of 60 bpm, Image by author 2022*

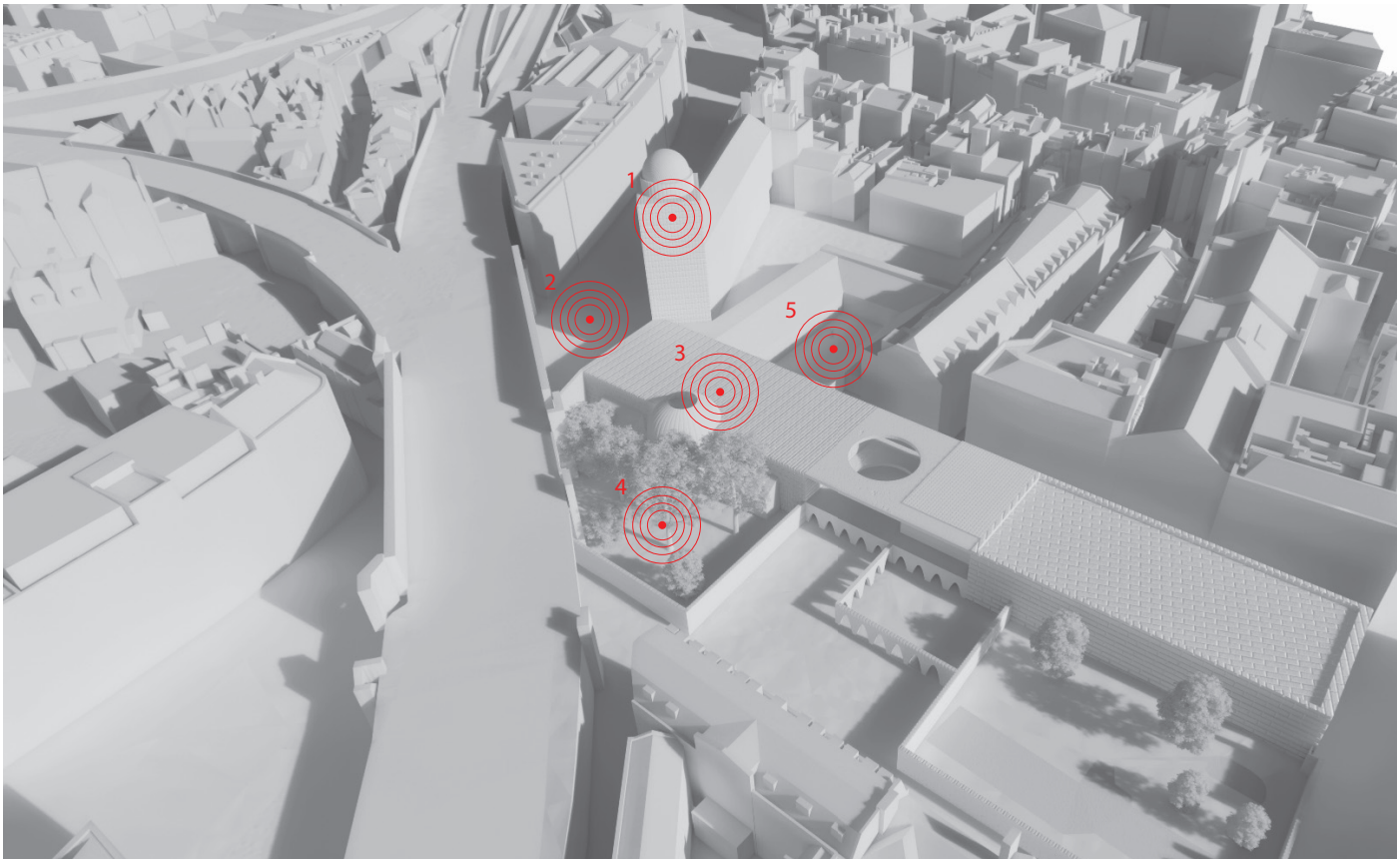



*Fig 115. Overview of placement of the perceived soundscapes studies, Image by author 2022*

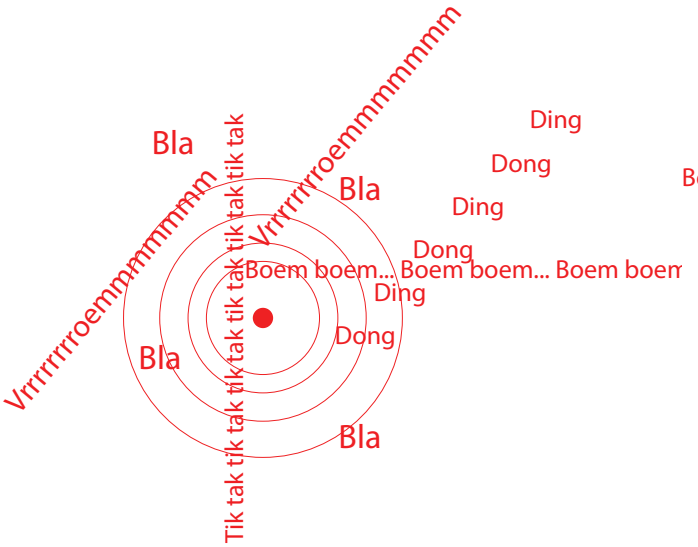



*Fig 116. Sonic study 2 on the experience of the buzzing and vibrant street, Image by author 2022*

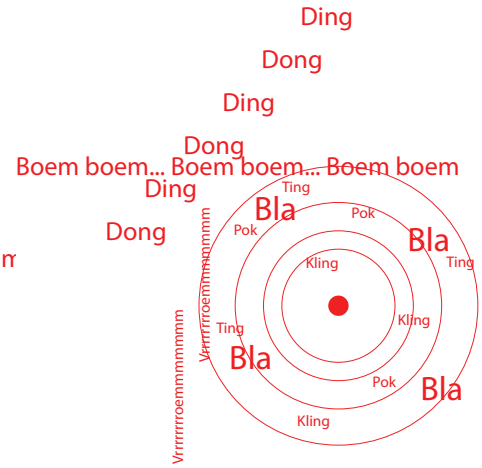



*Fig 117. Sonic study 3 on the experience of the vibrant programme in the "church" space, Image by author 2022*

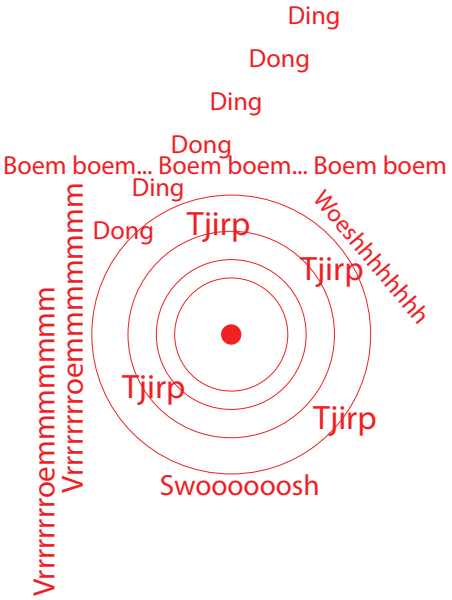


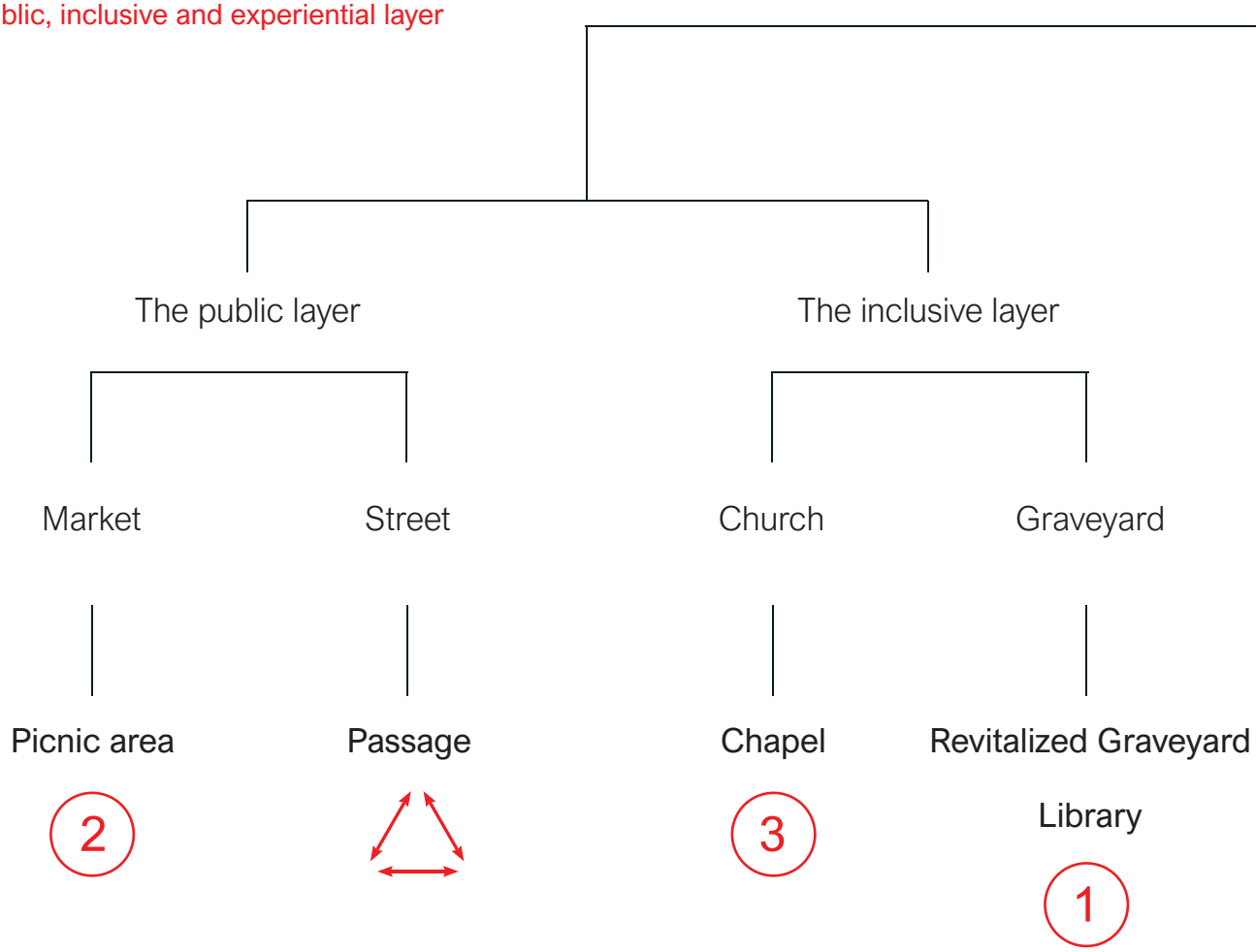

*Fig 118. Sonic study 4 on the experience of the enclosed tea growing garden and terrace, Image by author 2022*

*Fig 119. Sonic study 5 on the experience of the courtyard with water fountain, Image by author 2022*

# PROGRAMME

Existing and new conditions merge in the initial master plan
Public, inclusive and experiential layer

Sense

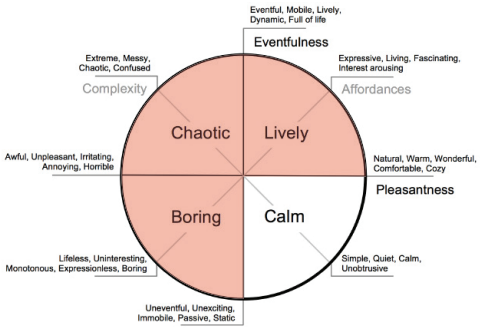


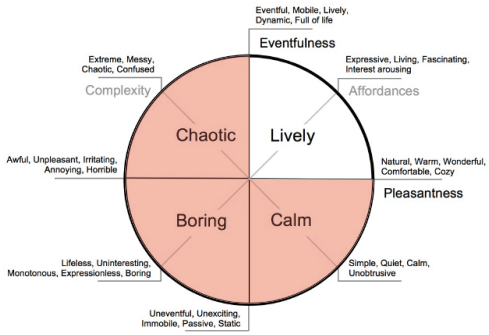
scape

The experiential layer

New conditions

Existing conditions




Create a combination of a recreational and natural setting within the inward oriented programme

Create sensorial buffer to facilitate inward oriented tranquil programme

Tea house

Orangerie/Greenhouse

Enclosed tea garden

Courtyard

Sculpture garden

Gallery/workshop space

1

Mixed-use plinth with retail

Residential units

Offices

City square

1

# PROGRAMME

## Initial relational schemes on the master plan

### 1 Plot 1

Orangerie as circulation space with winter garden and building entrance
Public library with shelving, listening and reading area, study/work spaces, reception
Teahouse with bar, dining space, relax space, tea ritual spaces, tea room, storage, kitchen and shop
Botanical garden with herbs, plants and fruits for the supply of the teahouse and fencing for nighttime
Revitalized graveyard with public open green space
Gallery space for haptic workshops a
Mixed-use plinth with programmatic activation of the street such as retail
Offices and residential units in the storeys above the activated plinth with access space

### 2 Plot 2

Public canopy with picnic area
A variety of seatings and dining tables for different group sizes in the open air

### 3 Plot 3

Meditation chapel or pavilion
A contemplation space with place to rest, sit or lie down

### Passages

Publicly accessible railway underpasses
programmatic infill arches
Circulation space

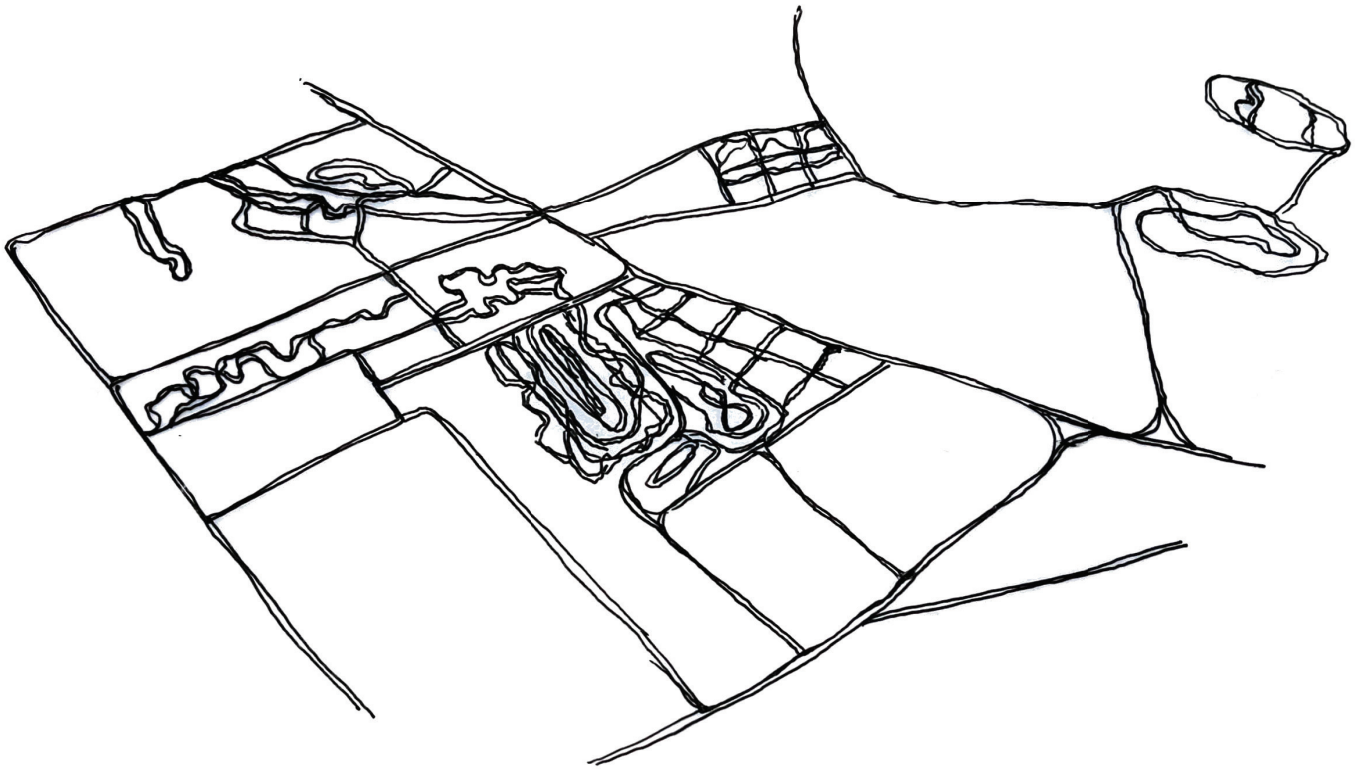


*Fig 121. Initial circulation sketch master plan, Image by author 2022*

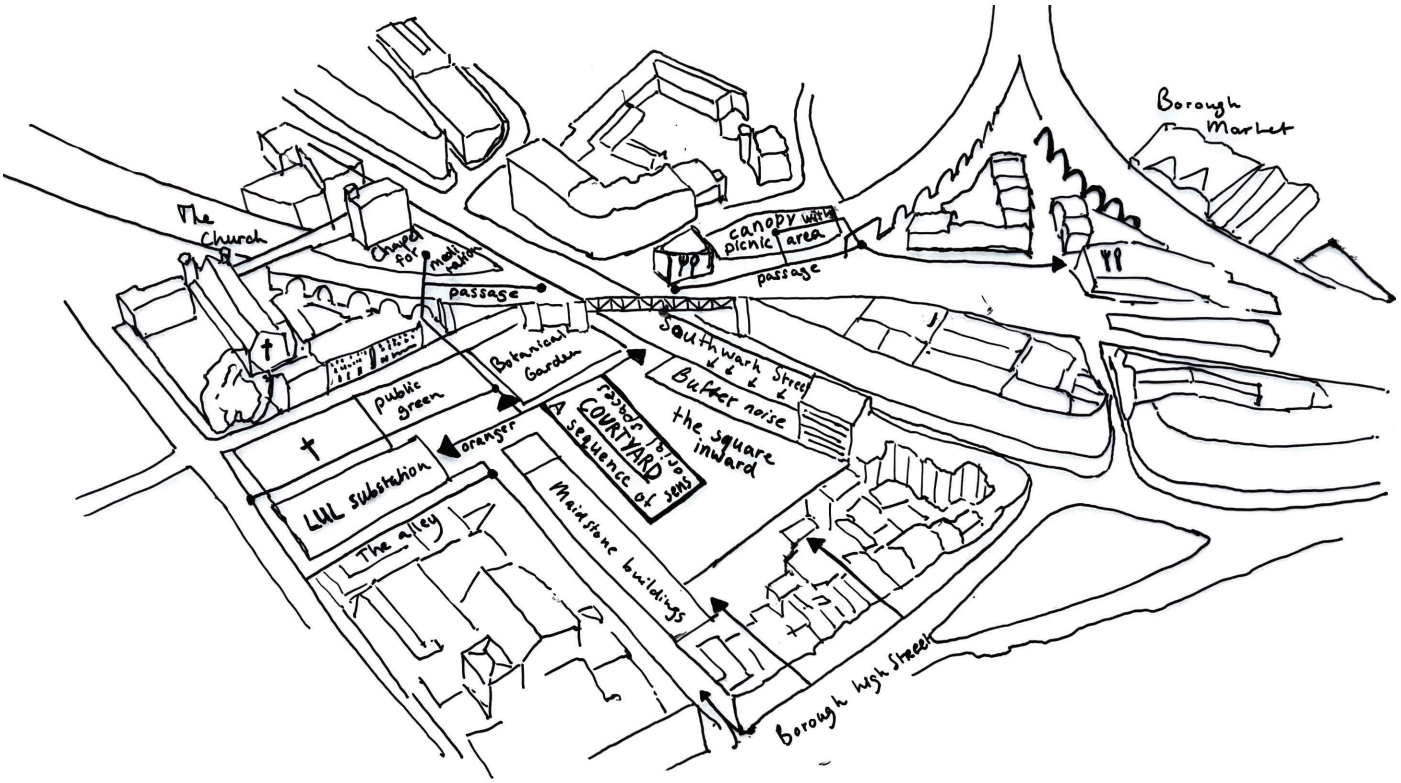



*Fig 120. Initial perspective sketch master plan, Image by author 2022*

# PROGRAMME

## Initial relational schemes on the master plan

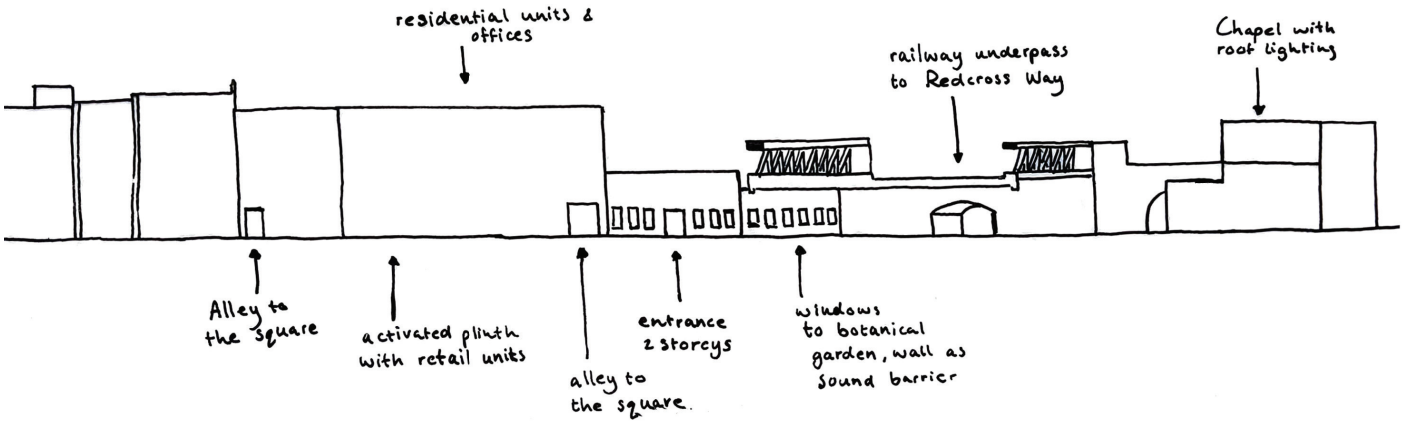



*Fig 122. Initial elevation sketch plot 1, Image by author 2022*

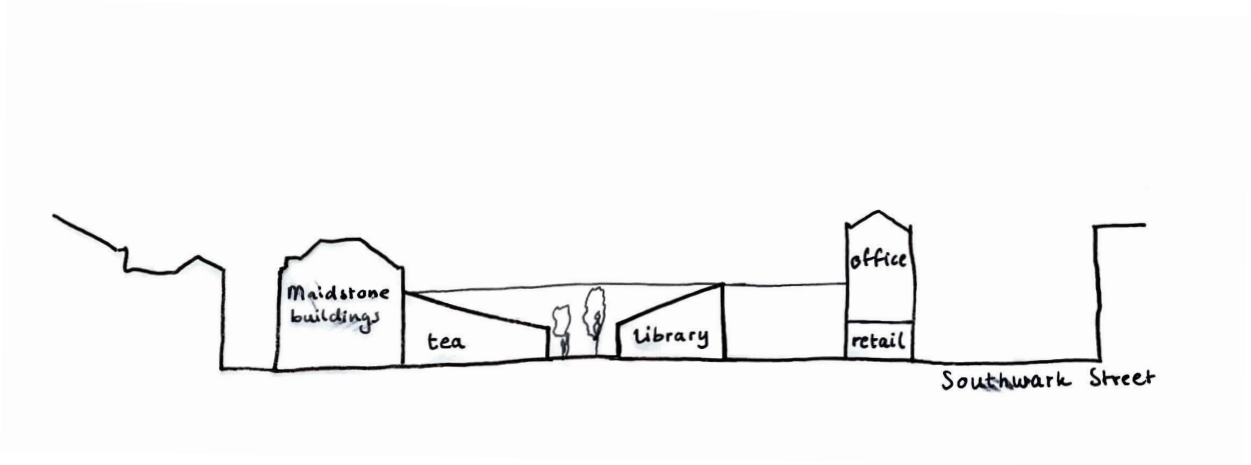



*Fig 123. Initial section sketch plot 1, Image by author 2022*

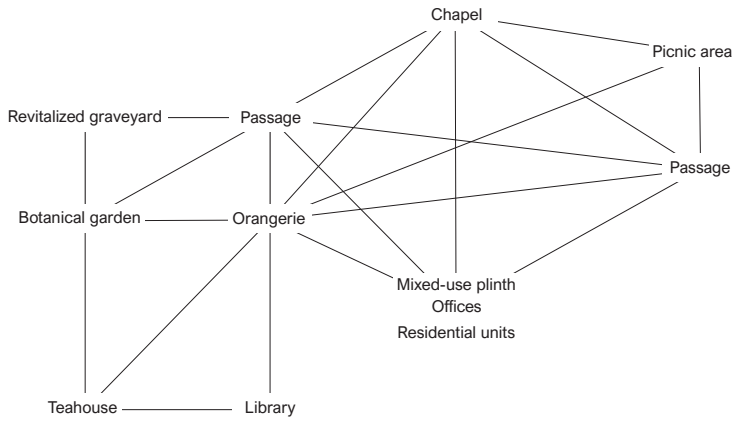



*Fig 124. Relational scheme, Image by author 2022*

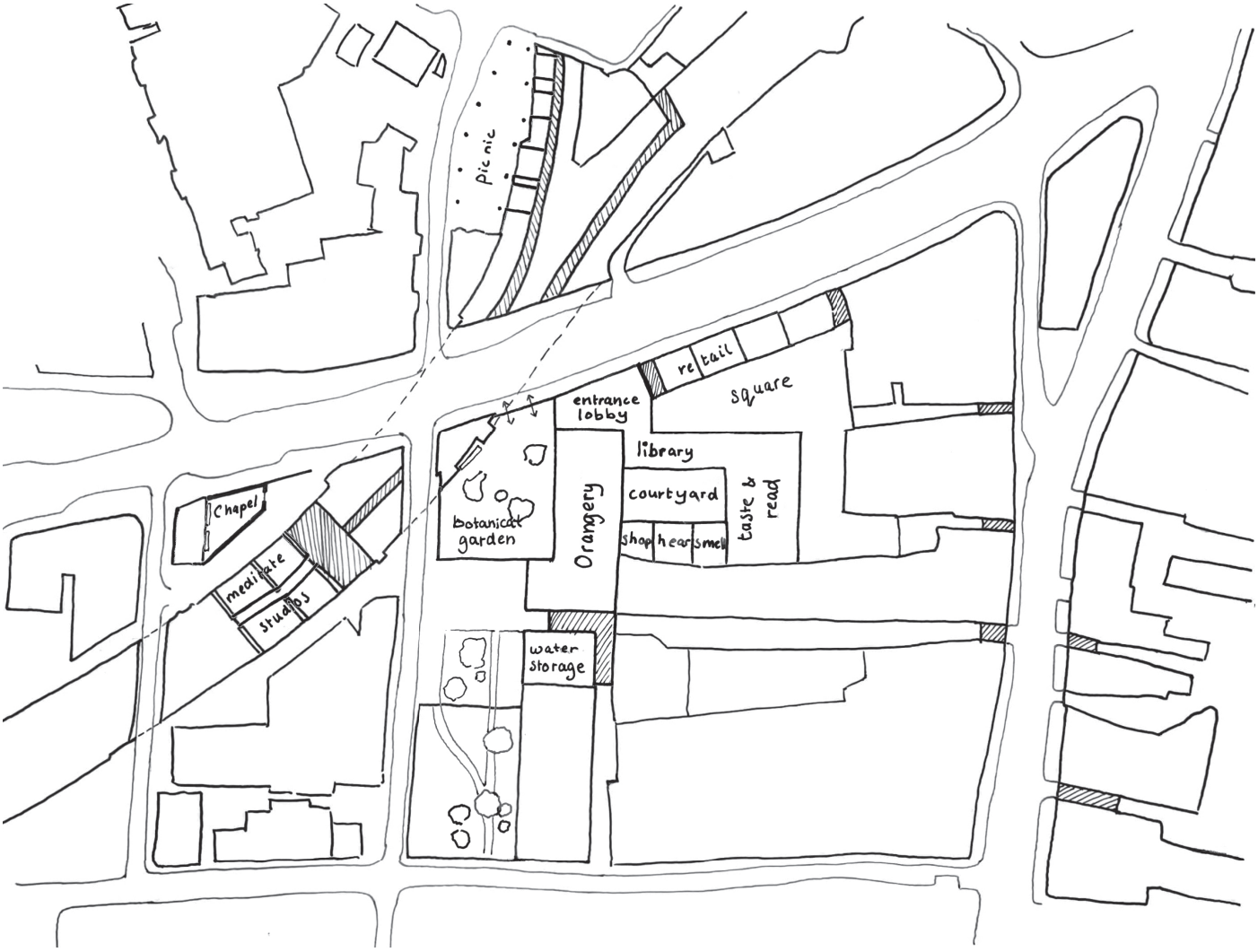



*Fig 125. Initial sketch master plan with sight lines, alleys, nature and public programme, Image by author 2022*

# IMPRESSIONS
## Initial line drawings P3

*Fig 126. Symmetrical opened up square along more tranquil Redcross Way, Image by author 2022*

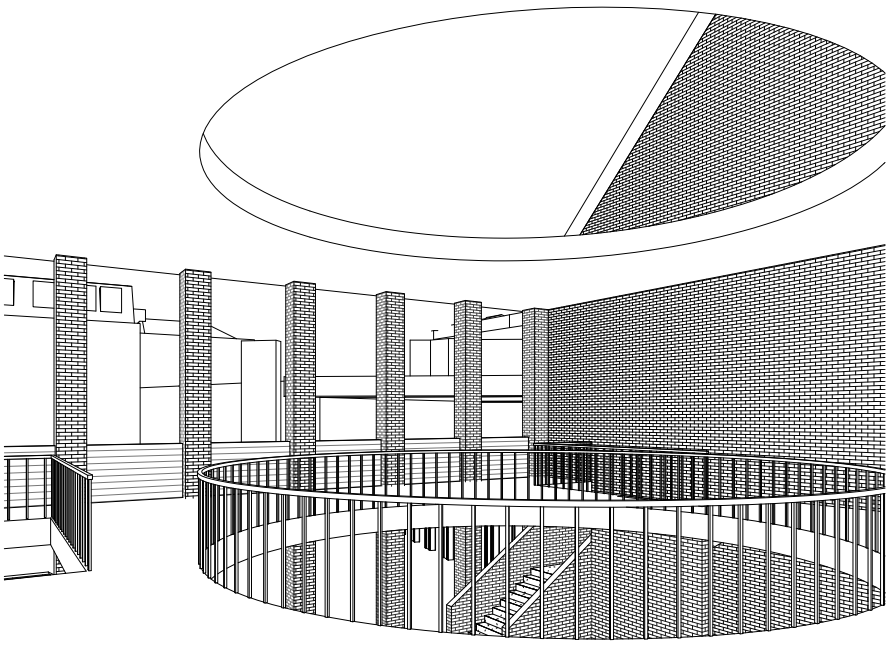


*Fig 127. Public atrium as look-out point and connector of public programmes, Image by author 2022*

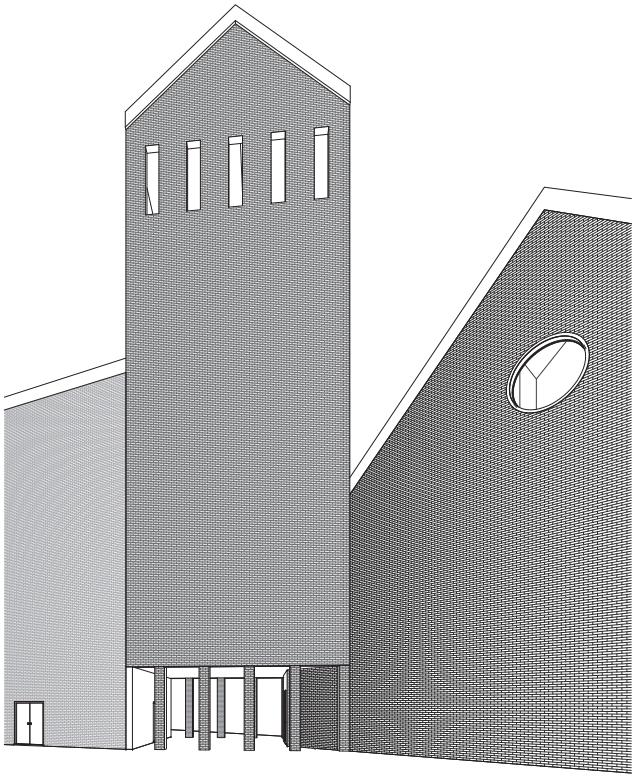


*Fig 128. Clocktower as public entrance to square, retail unit and hallway building, Image by author 2022*

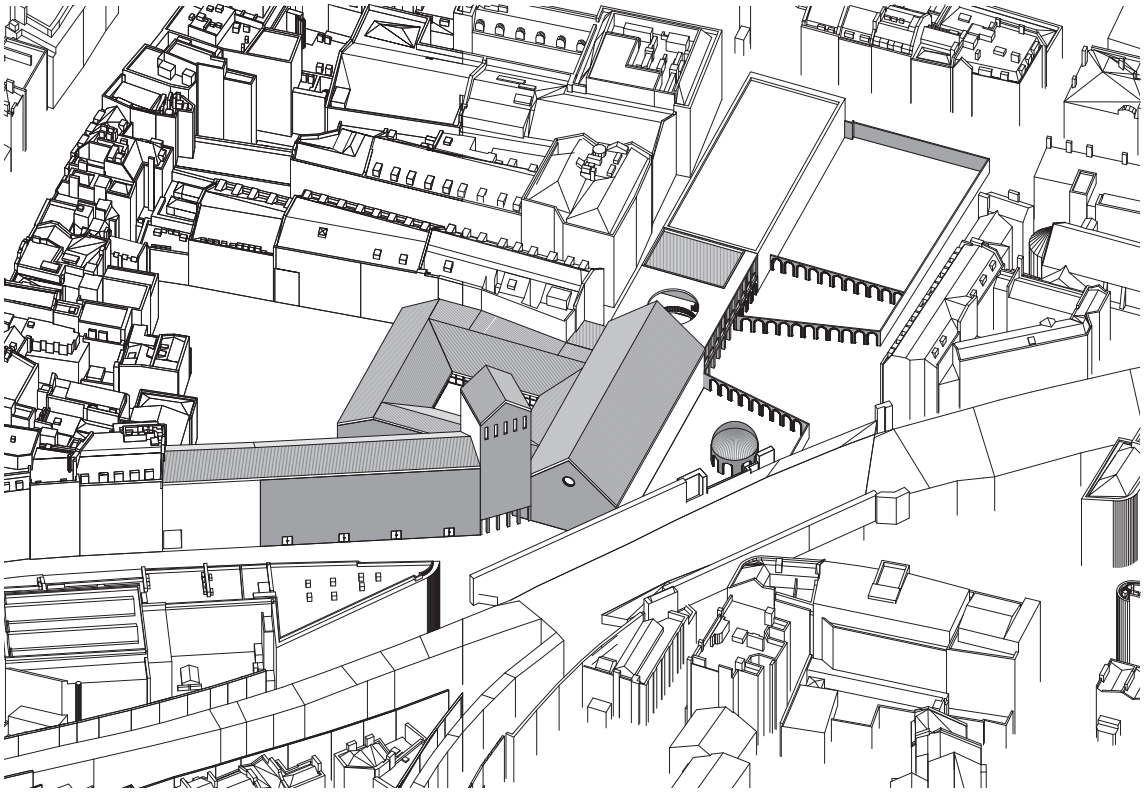


*Fig 129. Bird's-eye view of mixed-use building with volumetric archetypes with various intimacies in exterior spaces, Image by author 2022*

# IMPRESSIONS
## Initial line drawings P3

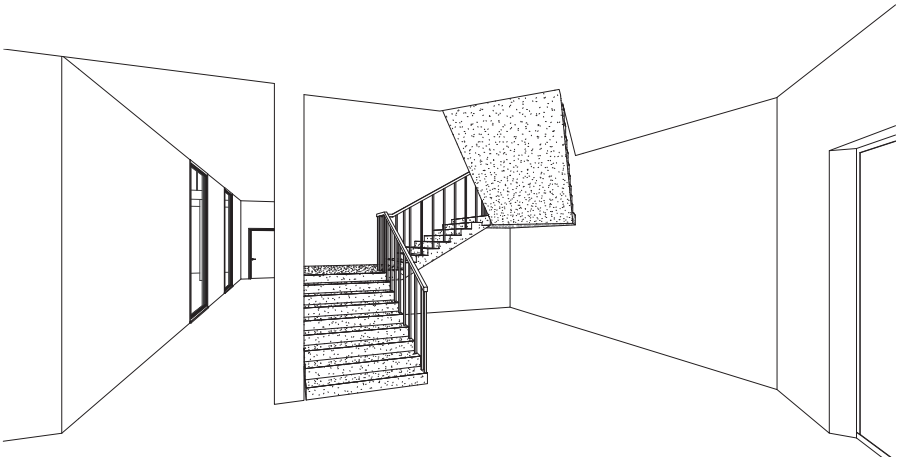


*Fig 130. Node of vertical and horizontal traffic spaces, Image by author 2022*

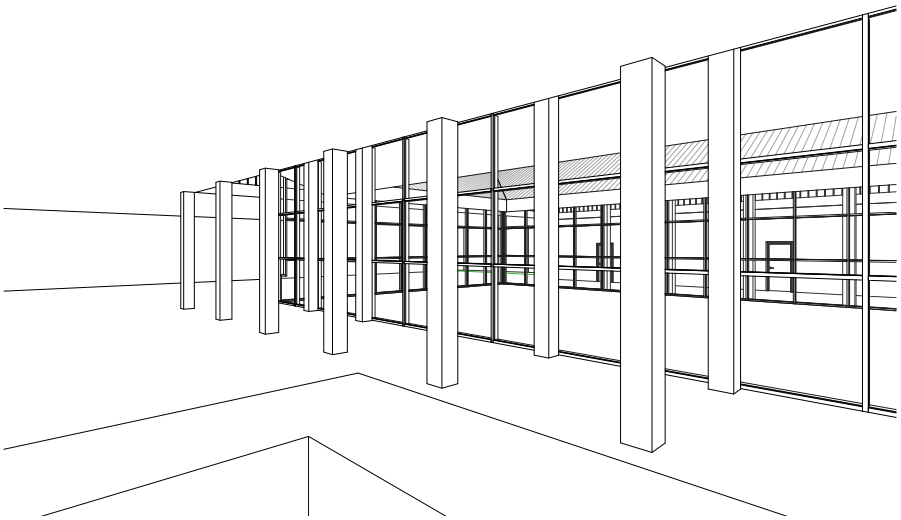


*Fig 131. Repetition of structural columns from behind reception desk, Image by author 2022*

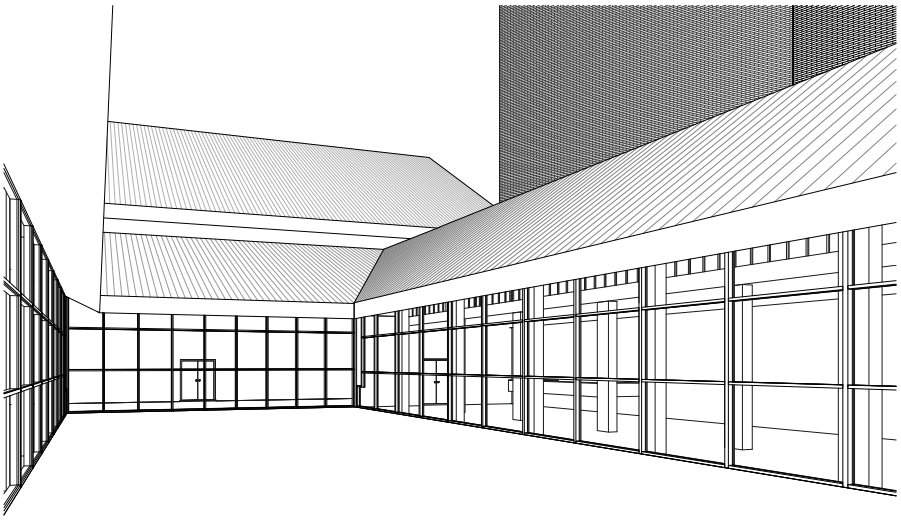


*Fig 132. Glass facades surrounding courtyard with tower and tea room on background, Image by author 2022*

*Fig 133. Symmetry in nave and aisles with upper mezzanine floor in "church" space, Image by author 2022*

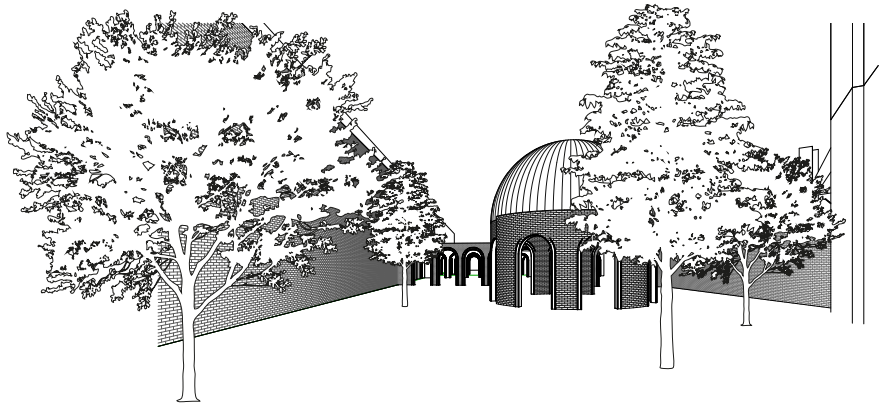


*Fig 134. Natural environment secluded from vibrant Southwark Street, Image by author 2022*

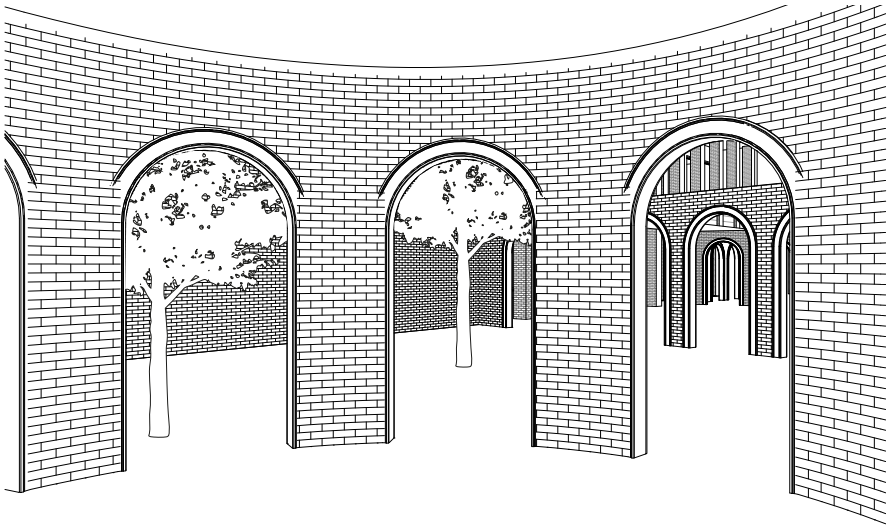


*Fig 135. View from intimate chapel to garden for tea production and towards gallery, Image by author 2022*

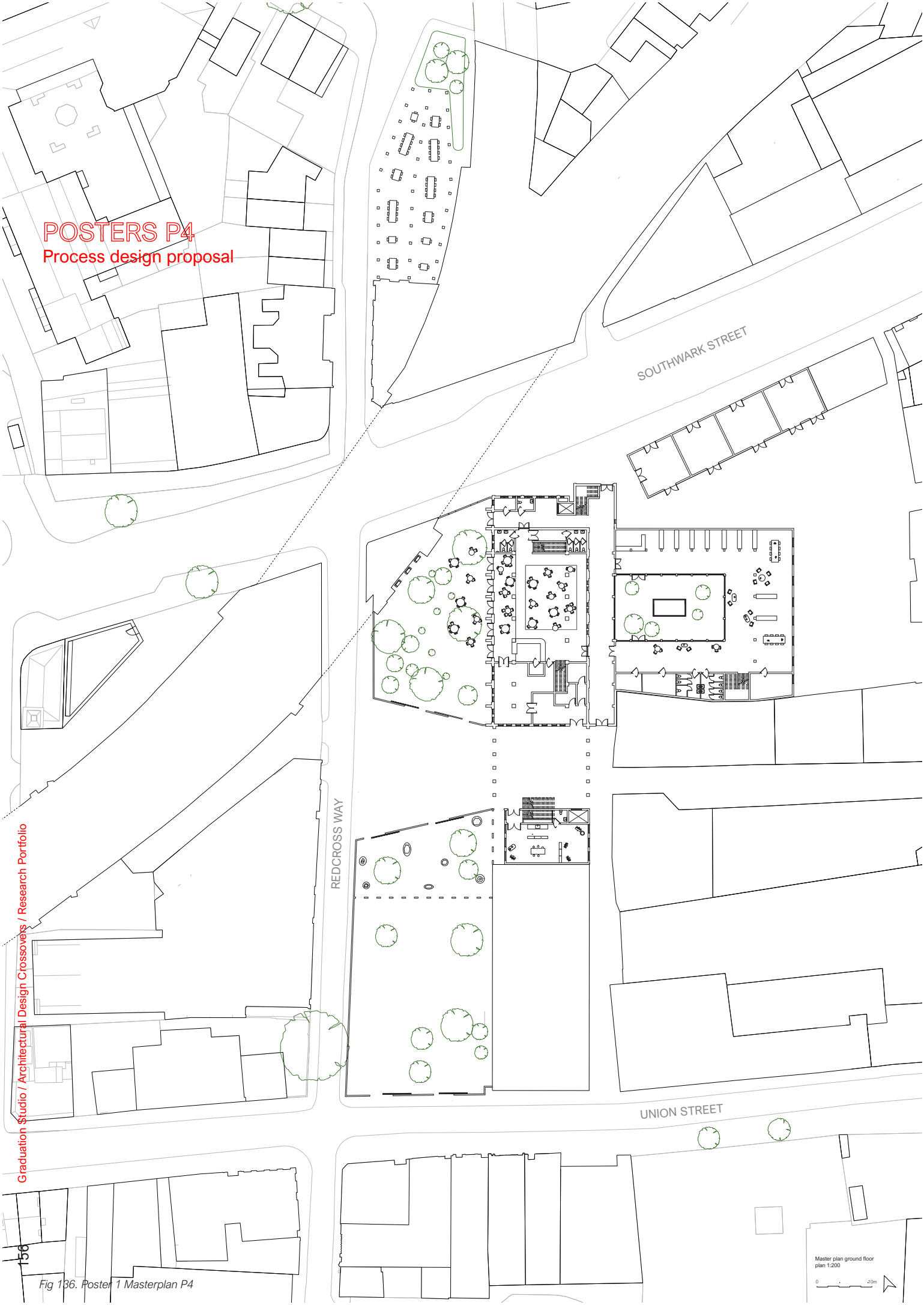
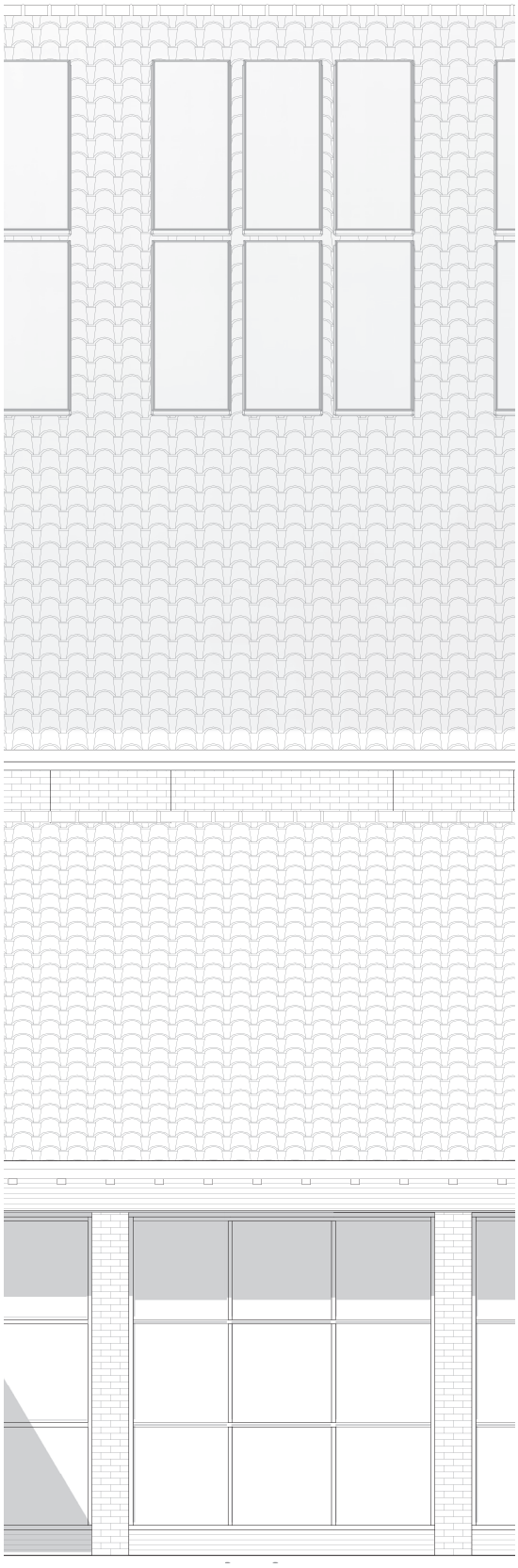
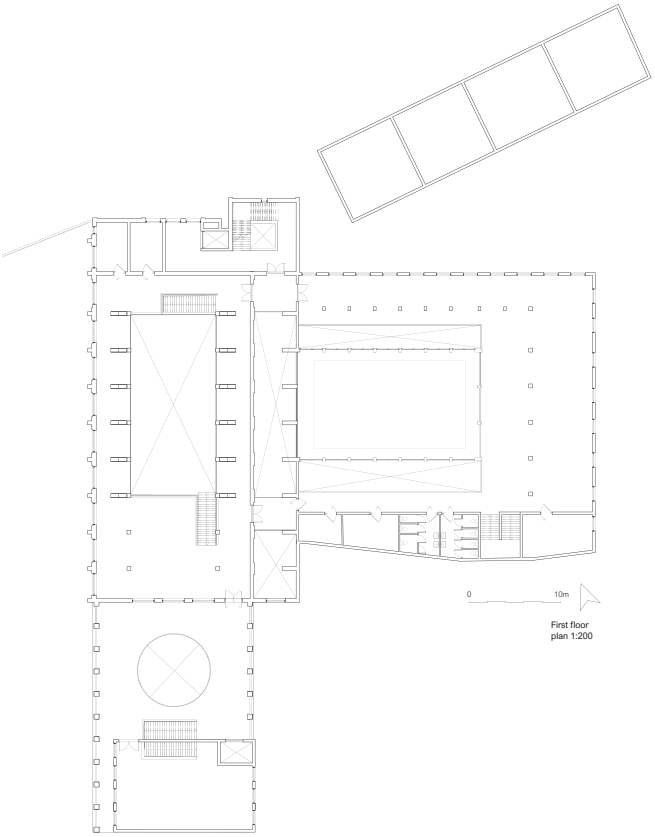




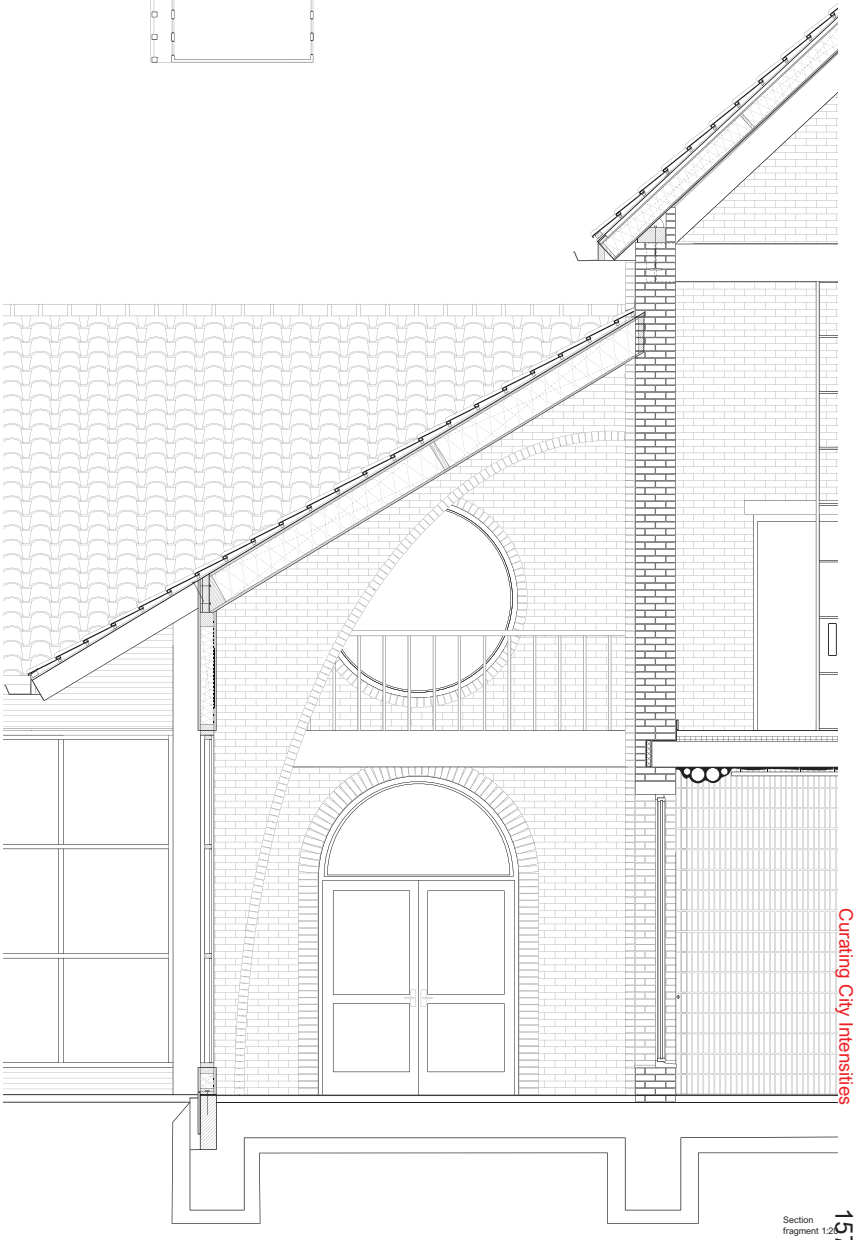



*Fig 136. Poster 1 Masterplan P4*






First floor
plan 1:200



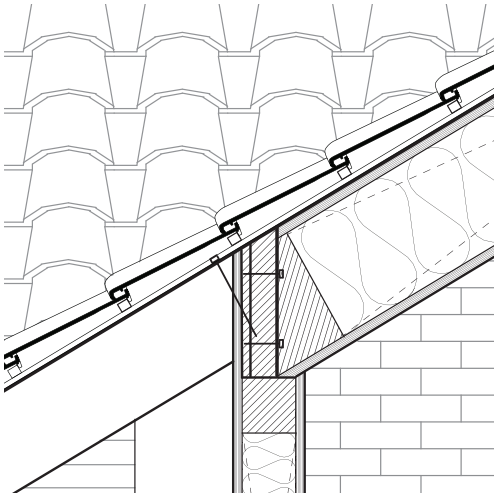
Facade
fragment 1:20

Section
fragment 1:20

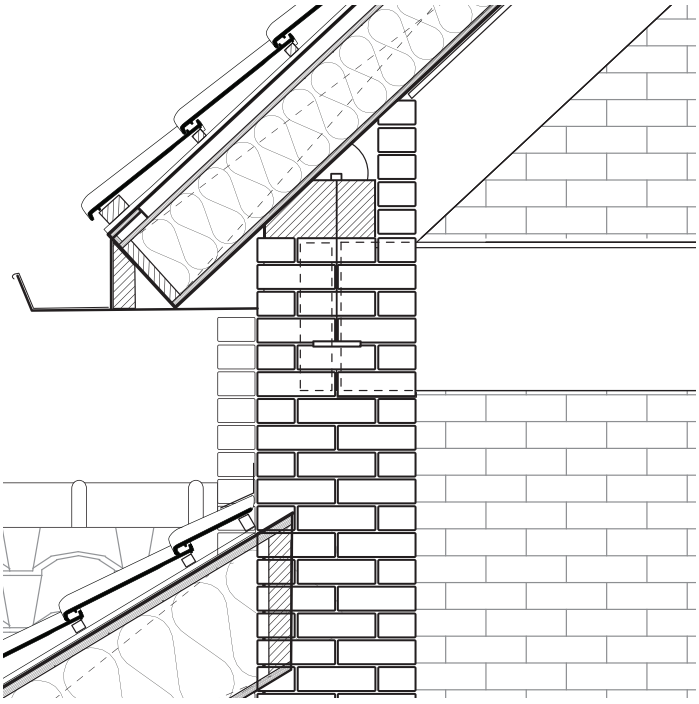




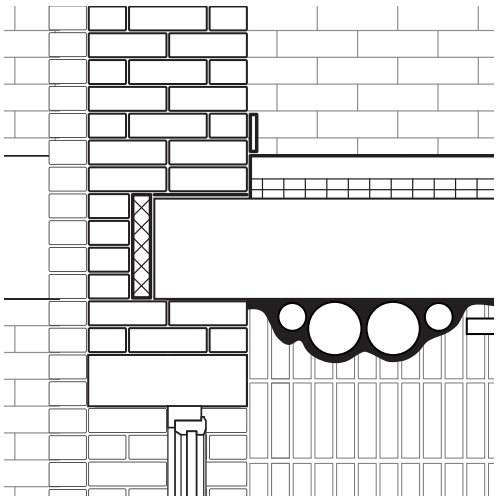
*Fig 137. Poster 2 fragment P4*



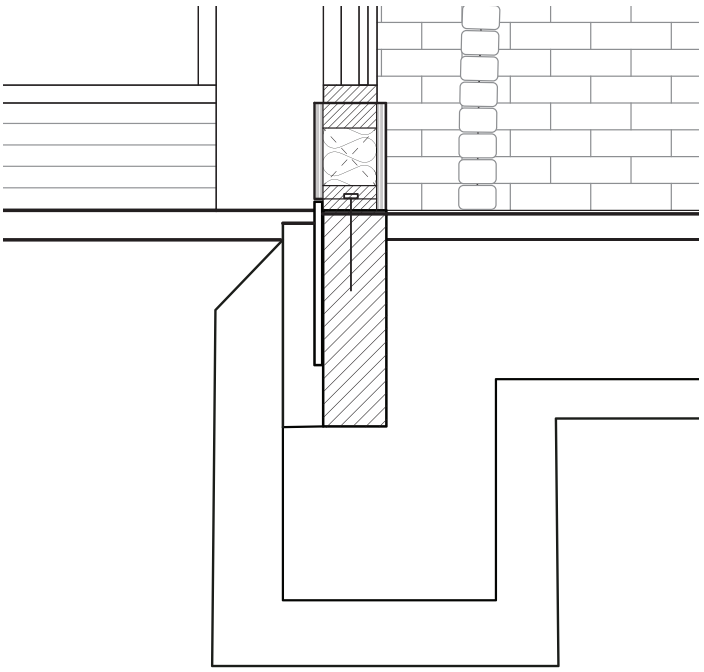
Timber frame roof overhang
Detail 1:5



Trusses, buttress and roof joint
Detail 1:5



Mezzanine floor with masonry wall joint
Detail 1:5



Foundation timber frame wall joint
Detail 1:5

Context
plan 1:2000

0 50m

Library and retail
section 1:200





*Fig 138. Poster 3 Details, context and section P4*

*Fig 139. Poster 4 Sections and facades P4*

# IMPRESSIONS

## Initial rendered images P4 on material, space, atmosphere and programme
## The diversity of the public realm surrounding the mixed-use building

*Fig 140. Robust building facade with relief and references to church plan and sightlines to secluded garden, Image by author 2022*

*Fig 141. Corridor with repetition of the flying buttresses, natural daylight and doors to library and atrium, Image by author 2022*

*Fig 142. Atrium to gallery and tea room and entrance to haptic sculpture garden, Image by author 2022*

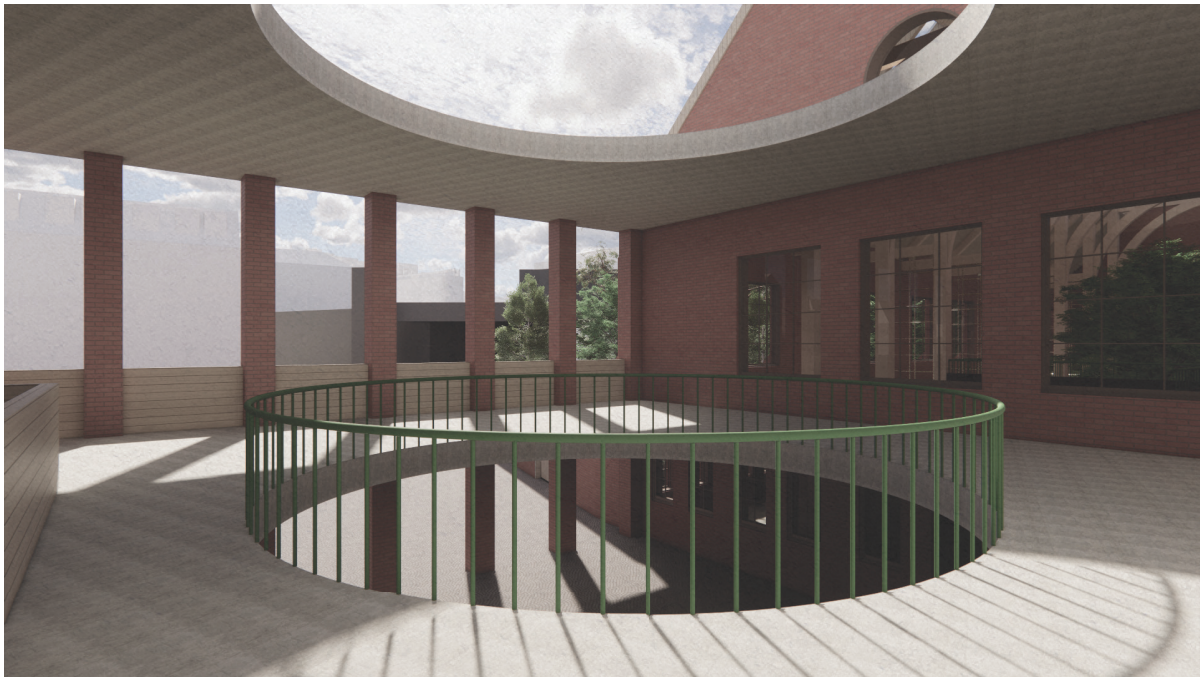


*Fig 143. First floor in atrium to gallery and tea room, Image by author 2022*

# IMPRESSIONS

## Initial rendered images P4 on material, space, atmosphere and programme
## Natural and recreational spaces versus functional masonry traffic spaces

*Fig 144. Sturdy stairwell in tower reaching to the top with bells, creating an intimate entry, Image by author 2022*

*Fig 145. View over busy Southwark Street from a tea production room that reaches the full height of the roof ridge, Image by author 2022*

*Fig 146. Secluded garden with plants, bushes and flowers for the production and consumption of tea, Image by author 2022*

*Fig 147. Secluded garden with sightlines to street and a terrace extending the interior function of the tea room through the terrace doors, Image by author 2022*

# IMPRESSIONS

Initial rendered images P4 on material, space, atmosphere and programme
The tea room and production merge under the high gable roof with different texture layers

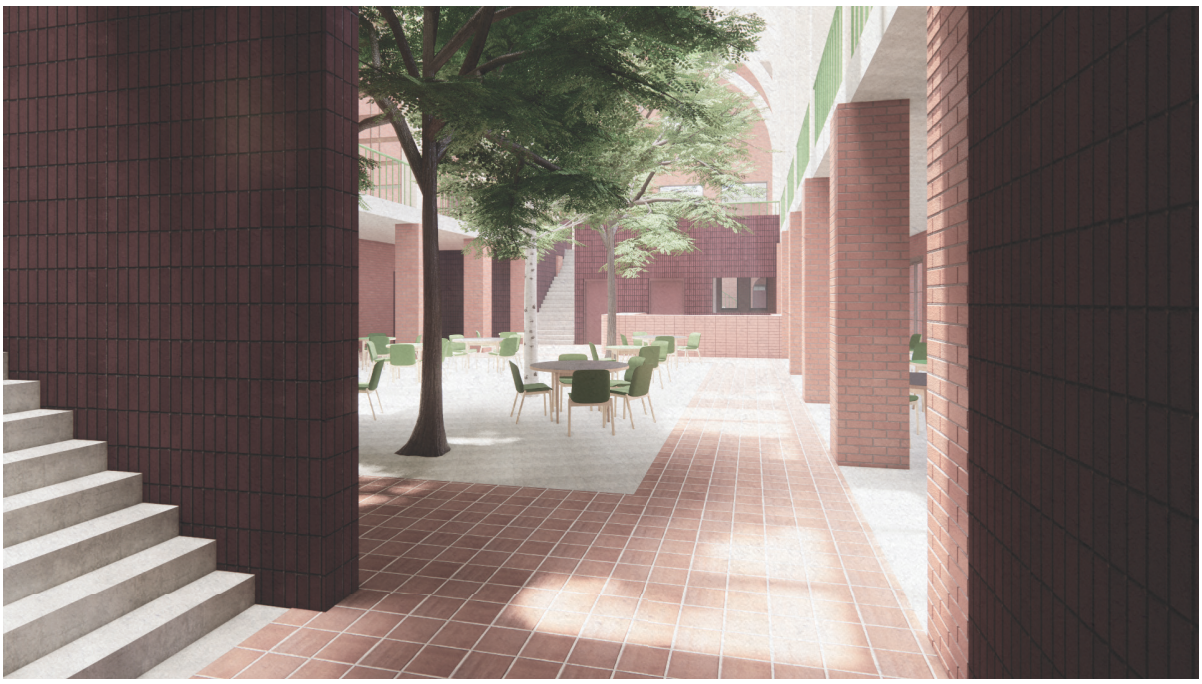


*Fig 148. Natural shading from branches and leaves in tea room, Image by author 2022*

*Fig 149. Various surface materials to define traffic and accomodation areas, haptic elements and end markings to increase guidance, Image by author 2022*

*Fig 150. Colouring is used to evoke a certain mood and atmosphere that fits with the programme of the tea room,  Image by author 2022*

*Fig 151. First floor and mezzanine for vertical tea consumption and production that is open to visitors, Image by author 2022*

# IMPRESSIONS

## Initial rendered images P4 on material, space, atmosphere and programme
## Inward oriented library with soft wooden finish and inner tranquil courtyard

*Fig 152. City square with various materials from the retail units, tower and inclusive library, Image by author 2022*

*Fig 153. Intimate courtyard with inward tilted roofscape, low vegetation, gravel and water element, Image by author 2022*

*Fig 154. First floor inclusive library space finished with soft wooden surfaces, Image by author 2022*

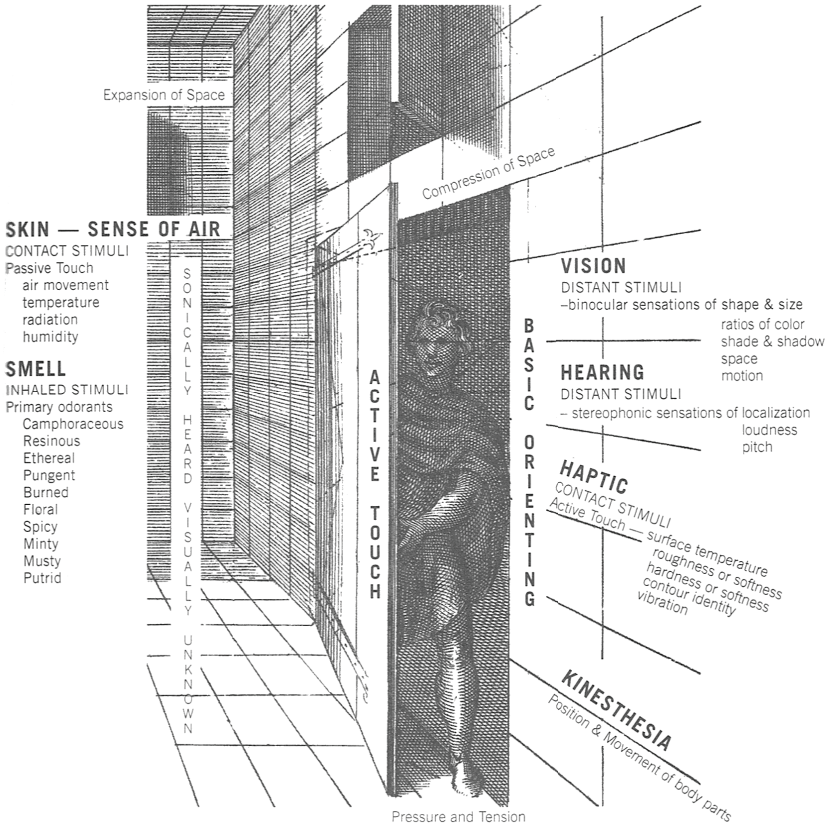
*Fig 155. Colouring of key elements to evoke a certain mood and atmosphere and to increase guidance, Image by author 2022*

# DESIGN PROPOSAL

## THROUGH SCALES XL, L, M & S

# MANIFESTO FOR THE SENSESCAPE

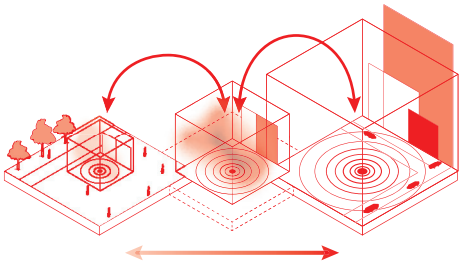
## SCALE XL




DECLARATION OF MOTIVES AND INTENTIONS FOR AN EMBODIED, INCLUSIVE AND MULTI-SENSORY DESIGN APPROACH TO URBAN PUBLIC SPACE

Want to listen to the manifesto? Scan this qr code:

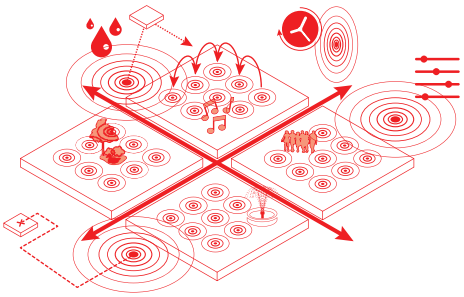
## 1 CONTRAST AND GRADIENCE



A Create a play and contrast in temporarily enabling or disabling specific senses (sensory deprivation or exposure). When a space disables or reduces a certain sense, the other sensory experiences will get stronger.

B To avoid uncomfortable overstimulation, pick one sense to deliberately overstimulate while keeping the others at a manageable level. Avoid an exposure for an extended period of time but working towards a low or high intensity space by slowly building this into the routing, programme and materiality. This could be executed by using a (traffic) buffer zone or by orienting the programme inwards.

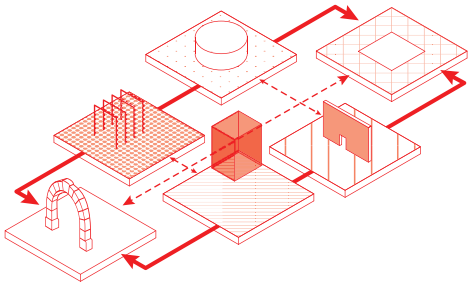
## 2 SOUNDSCAPE



A Human and society sounds, such as people and music, synchronised with a recreational programme and at a consistent volume ensures a positive vibrant experience. Opposing to this, nature sounds, such as flora, fauna and streaming water, ensure a positive tranquil experience. Avoid mechanical sounds, such as unnecessary background noise from air conditioners or technical installations.

B The tolerance of noise is different for everyone, but the right time of day or year, weather condition, distance and the expectation in a certain environment/ space increases the tolerance.

## 3 SENSE OF BASIC-ORIENTING



A The floor plan and routing should not only be based on functionality or pragmatic thinking. It is thus not about taking the fastest path, but rather about the experience of taking a route through a building or exterior space, this gives room for drifters (staff, visitors, volunteers, locals, wanderers, inhabitants, etc.).

B The floor plan's and spatial complexity should be kept to a minimum, and perpendicular angles and shapes should be chosen over diagonals. Round and arched designs are chosen over deviant forms. Avoid stair turning circles that are too tight.



*Fig 156. Page 1 Manifesto, Image by author 2022*

C Vary in heights, shapes, sizes, materials and atmospheres (air, light, warmth, etc.) of outdoor and indoor spaces matching with the desired level of intensity. Activation of the senses is possible through noticeable contrasts in intensities that should not become so big that the human scale will be lost. Make use of archetypal building forms.

D It is beneficial to become acclimated to a wide, busy or tall outdoor or indoor space by entering it concealed. If the transition is gentler and more smooth, the threshold for entering a space is lower. The expansion and compression of space along the paths will also encourage movement.

E Multimodal motorized transport, multi-directional infrastructure and mixed-use (public) programme provide more sensory exposure (networks), whereas pedestrians or cyclists, linear infrastructure and residential (private) programme provide more sensory deprivation (pockets). For curating intensity, make use of archetypal building functions that compel these atmospheres.

F There are public programmes where places of overexposure are unavoidable, such as station buildings, churches and market halls. To avoid or escape the buzz while still enjoying the programme, greater attention must be given to the traffic and opposing tranquil spaces in or around the space.

C A noise-free space is undesirable because the building's own sounds and vibrations cannot be understood. It's important to distinguish between rhythmic, repetitive tones and unexpected, arrhythmic tones. Also, distinguish variation versus continuity, static versus moving and elements that have sound in themself versus elements that make sound by using them.

D Acoustics must not be solved after designing a space but simultaneously or prior to the design. Think of removing, attenuating, amplifying or adding existing or new sounds by using sound behavior such as diffusion, reflection, adsorption, directional and reverberation.

E The soundproofing of a space must be such that the exterior noises from traffic, construction work or other ambient sounds do not distract the desired acoustics and ambience in the space. Distinguish between sound reduction (carried by air) and impact sound absorption (carried by surfaces).

F The level of control over the (un)wanted sounds is bounded to the individual, private, indoor conditions (more control) or the social, public, outdoor conditions (less control). The design should allow social interaction in the spaces, physical interaction with the spaces and appropriation of the spaces, to ensure a more embodied and safer experience.

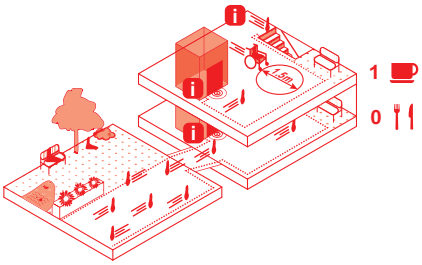
C Play with the spacing, repetition and height of load-bearing elements, such as trusses or walls, to create acoustic or visual exceptions or patterns that facilitate orientation. The counting of these elements is often used for wayfinding.

D A fragment of symmetry in the façades and floor plan makes it easy for drifters to understand the building and its surroundings without making them feel mundane. Multiple symmetry axes can be used. Make use of symmetrical volumetric archetypes.

E Take the formal language and the approaching of the building in strong consideration. From the street or the parking lot, a building's entrance must always be clearly noticeable. The function should be easily identifiable, and drifters should be naturally drawn to it. Make use of archetypal entrances.

F Create spatial, material or atmospheric landmarks throughout different scale levels - per space, area, neighbourhood - for giving orientation to the drifters and character to the design.

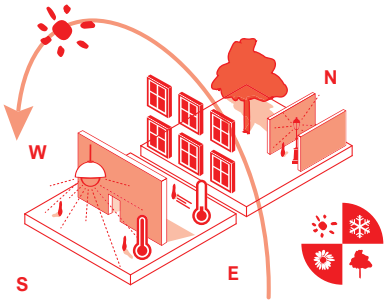
## 4 SPACES OF REST AND MOVEMENT




A So that there are no collisions and a clear routing, clearly distinguish the areas where there is through pedestrian traffic from the places where visitors can have a seat or rest. This can be done by surface material patches or spatial separation.

B These spaces should be usable by everyone, with the dimensions of a wheelchair as minimum requirement, such as counterheight or toilets. However, the use of elements that boost the drifter's speed, such as escalators and elevators, is not desired but they should be clearly visible if they are crucial for bridging height differences. The drifter's perception is sped up, making it less exact and posing a security and orientation concern.

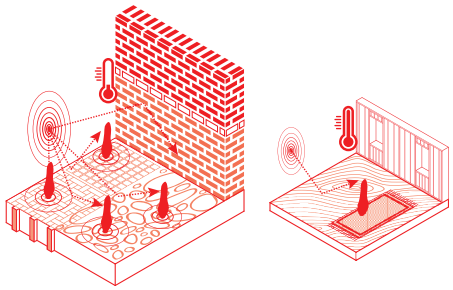
## 5 LIGHT AND WARMTH




A Because daylight has such a significant impact on the safety and pleasantness of a sensory experience, the building and area will primarily be used during the daytime. The programme should serve these hours and should take note of the weather and seasonal changes.

B The placement, rod division and depth of openings in the walls, such as windows, should allow direct sunlight on the visitors while also taking into mind the reflection of the glass at eye level and the programme. The heat of the sun is critical to penetrate the skin. The use of glass fronts is not a consideration. Windows serve as a useful landmark since they identify the inside limit of a building.

## 6 MATERIAL AND COLOUR



A The visitor's body can identify more with the space when its material is natural and defective, such as wood, masonry or stone with irregular space between joints or the grains on the surfaces, than when it is machine-made and perfectly aligned.

B Materials and thickness of the structural elements are vital, and they should be fair and tactile finished without causing harm to the drifters. Work with different heights, reliefs and contrasts of finishing layers, such as panelling or guiding lines. The materiality of the building should not be hidden or to thin/slender so visitors can hear and feel its character.

*Fig 157. Page 2 Manifesto, Image by author 2022*

C Rest areas or points in and around the building are strictly required, to be able to attract all types of drifters, to stand still in the sensory experience, to interpret the atmosphere and to observe the motions and (inter)actions of other drifters. The programme must be adapted accordingly.

D Low and semi-high obstacles such as water features, open planters, hedges, bicycles, mopeds, fences and (lamp) posts on footpaths should be avoided on sidewalks and pedestrian paths. These sidewalks and paths should be wide enough to pass other people or to avoid touching elements on the side, also in their passages.

E The signage and building information should be on eye-level on a clear location in large font with relief and preferably audio support. Functional material guidance in the floor(patterns) is desirable, e.g. a doormat when entering the building or tiles with relief along a certain path (guiding lines).

F Traffic space ought to have tunnels, corridors, stairs, and ramps and the associated helpful elements like railings, thresholds and lighting. Make sure their designs include design uniformity and hierarchy so that these spaces are recognised as spaces for movement. Make use of archetypal elements and forms for traffic spaces.

C When artificial lighting is used, the intensity must not be too high and diffusely oriented in the right position and height. Point lighting that is too strong or light sources or the sun shining into eyes can be a discomfort. Use enough lighting in public areas that are also open at night to increase (the feeling of) safety.

D Play with the height of the room in combination with the entry of daylight and (natural) shading through a roof or wall to increase or decrease the intimacy, comfort and visibility (of certain elements). Make use of archetypal roofs such as gable roof, flat roof or arched roofs to create various atmospheres.

E Shadows are necessary to identify time and contrasts in the exposure to light on surfaces. The materiality and its relief will become more cleary identifiable, creating an improved sense of orientation. Use openings in facades to increase curiosity and movement throughout traffic space.

F The heating of the building should not be evenly distributed in a space. Through local intimate warmth from radiant heat or the sun in the spaces of rest or other functions with climate requirements, the drifters will become more actively stimulated in their senses.

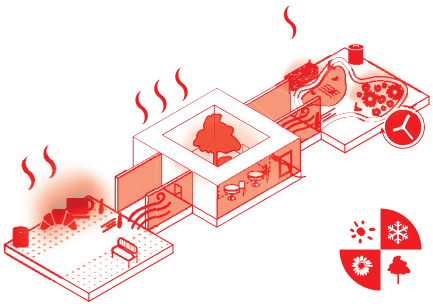
C Heavy materials such as concrete and natural stone create more resonances and reflections of the sound, making it easier to estimate the size of a room. Absorbent and natural materials, such as wood and fabric, ensure a drier sound and a quieter space. Apply this according to the desired vibrancy or tranquillity in the programme.

D Incorporate the temperature of various materials into the design. For example, stone feels warmer than steel. The cold of steel is not desirable as a haptic material because it does not promote the interaction between space and drifters.

E The floor, walls and elements in the room should not be made of reflective or glossy materials, as a result the visitor can become blinded and distracted from the reflection of light and thus affects their safety. Use dull tiles, cast floors, wood or carpeting appropriate to the programme.

F Drifters' emotions can be deliberately evoked by the frequent usage of a specific colour or material tone to create a certain atmosphere, e.g., warmth or cheerfulness is represented by orange, rest is represented by green, and crowds or increased intensity is represented by red.

## 7 SMELLSCAPE



A (Un)wanted smells from the environment can be removed, seperated, masked, weakened, enhanced or added according to the desired intensity, degree of control and atmosphere. Take note that odor and smell refer to an unpleasant olfactory experience and scent, aroma and fragrance refer to a pleasant olfactory experience. The intensity of the smells is closely related to the level of comfort.

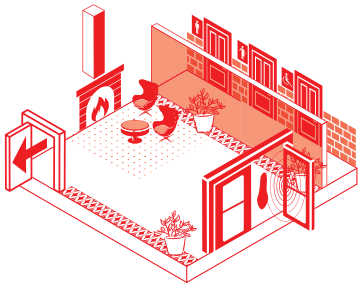
B Make use of real and natural materials and their honest scents because it is hard to mimic scents or eliminate unwanted or artificial scents. Think of grass, flowers, trees and wood or a programme that includes food, tea, coffee, bread and (old) paper.

## 8 HAPTICSCAPE

A Any textures, objects or models that visitors can touch should not be breakable, sharp, overly detailed, dirty and should not be shown behind glass. Think of examples as chairs, tables, front desks, counters, stairs, railings or stucco.

B Pay extra attention to the materiality and the relief of the surfaces, contours and edges of elements that can be touched and the surfaces over which the drifters walk. Contrasts in smooth and rough or warm(er) and cold elements could point to differences in function/programme. Construction elements such as columns should not have rounded corners, as they imply a certain directionality and flow.

## 9 ELEMENTS IN SPACE



A The size, placement, colour, finish and mass of a door should say something about the programme behind it; the larger and more detailed a door is, the more important and public the programme. In addition, the way of opening and the sound that this action makes must be appropriate for this programme, it meets the weight of the body and hand.

B Building ornamentation and decoration is preferred, unless it distracts from the readability of the space with its different surfaces, such as a trompe l'oeil illusion. Think of accentuating a window, door or a part of the floor.



*Fig 158. Page 3 Manifesto, Image by author 2022*

C Use pleasant scents of, for example, plants, flowers or food to guide drifters in a certain direction, to create a landmark or to let drifters stay/rest. Food is a social instrument for shaping interactions between drifters. This can be enhanced by the sense of taste. Prevent odor nuisance from, for example, waste or motorized vehicles by closing this off from the usual routing/spaces.

D Natural ventilation and fresh air removes the unvoluntary smells and will give the drifters a more alert attitude, and are therefore necessary for guidance. The indoor and outdoor traffic areas may contain wind flow for orientation. This is not desired in the resting areas.

E Include flora or other natural elements for lowering the level of intensity of a public space, think of green for a pleasant smell or to attract fauna. The air purifying effect and oxygen that is released will benefit the air quality and humidity of an indoor and outdoor climate and will contribute to restorative space.

F As with sounds, smells are occasionally continuous and persistent on the foreground (episodic) because it is designed that way, elements can have a strong own scent or/and there is not enough ventilation. Temporal smells are mostly linked to be released with a specific programme, weather, season and (hours of) use (episodic).

C A (stair) railing must be continuous and smooth, not too narrow or inconsistent in appearance as they are extremely important for orientation and a sense of safety. The dimensions of the toprail must be shaped to the measurements of a strong grip of the hand. A solid base or wall mounted railing is preferred over balusters.

D Since the ability to feel/touch through muscles and skin is for (almost) everyone available, this should be incorporated in the programme. Haptic activity makes a design more engaging and user friendly. Think of public examples such as a 'visual' museum or 'visual' library wherein the experience is lacking hapticity.

E Through simple intuitive interaction of body, programme and building, objects/processes have to work/open/move, such as pushing against a door (knob). However, there must be an inclusive alternative, such as a striking button for mechanical operation (opening, closing, moving, locking, etc.). Make use of formal, functional and technological archetypes for elements.

F Stairs and mezzanine floors must be sturdy, thick, solid and not vibrate, as this impacts the visitors' sense of security in the building. Additionally, if there are elements such as stair treads hanging openly in the space, its surroundings must be blocked off.

C By experimenting with the positioning and materiality of objects in public space, you can reduce reverberation. There must also be sufficient soft furnishings or green to prevent the building's structure from sounding stark and monotonous, to create a pleasant atmosphere.

D Open fire provides an intimate ambiance and warmth, but it must be covered at all times and not put along footpaths. Hearths/fireplaces with screens or candle jars that let warmth through are a good example.

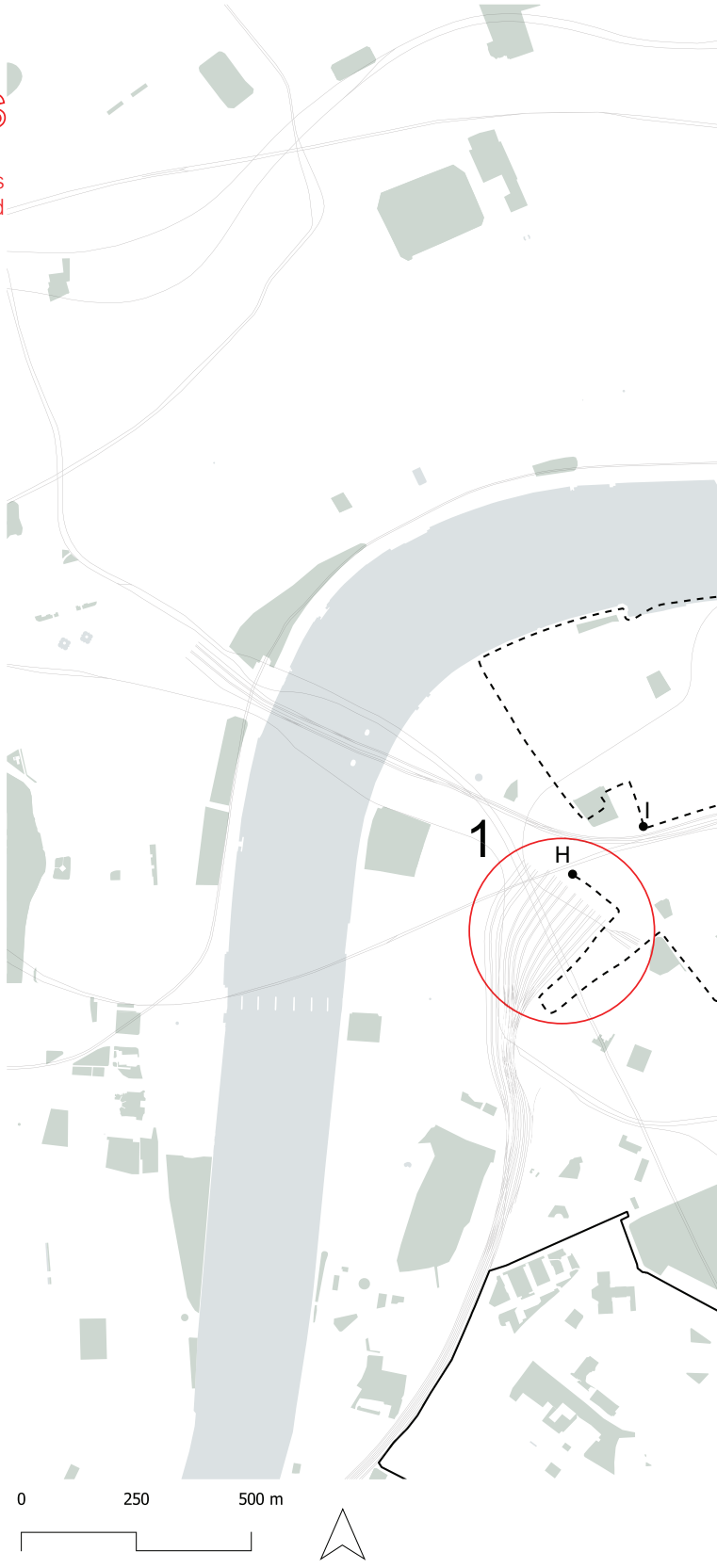
E For the objects that must be distinguished in the space, a suitable but contrasting colour palette is desired. The facade elements, such as a door or opening, must be clearly defined. Large glass fronts and white surfaces incorporated should be avoided.

F Biophilic elements and design will connect the visitors closer to nature, associates with rest and safety and will thus promote tranquil experiences, e.g. the sounds and air circulation of water fountains or ponds or flora and fauna for sight. Watch that roots, branches or other green will not grow in the way.

# A NETWORK OF SENSESCAPES

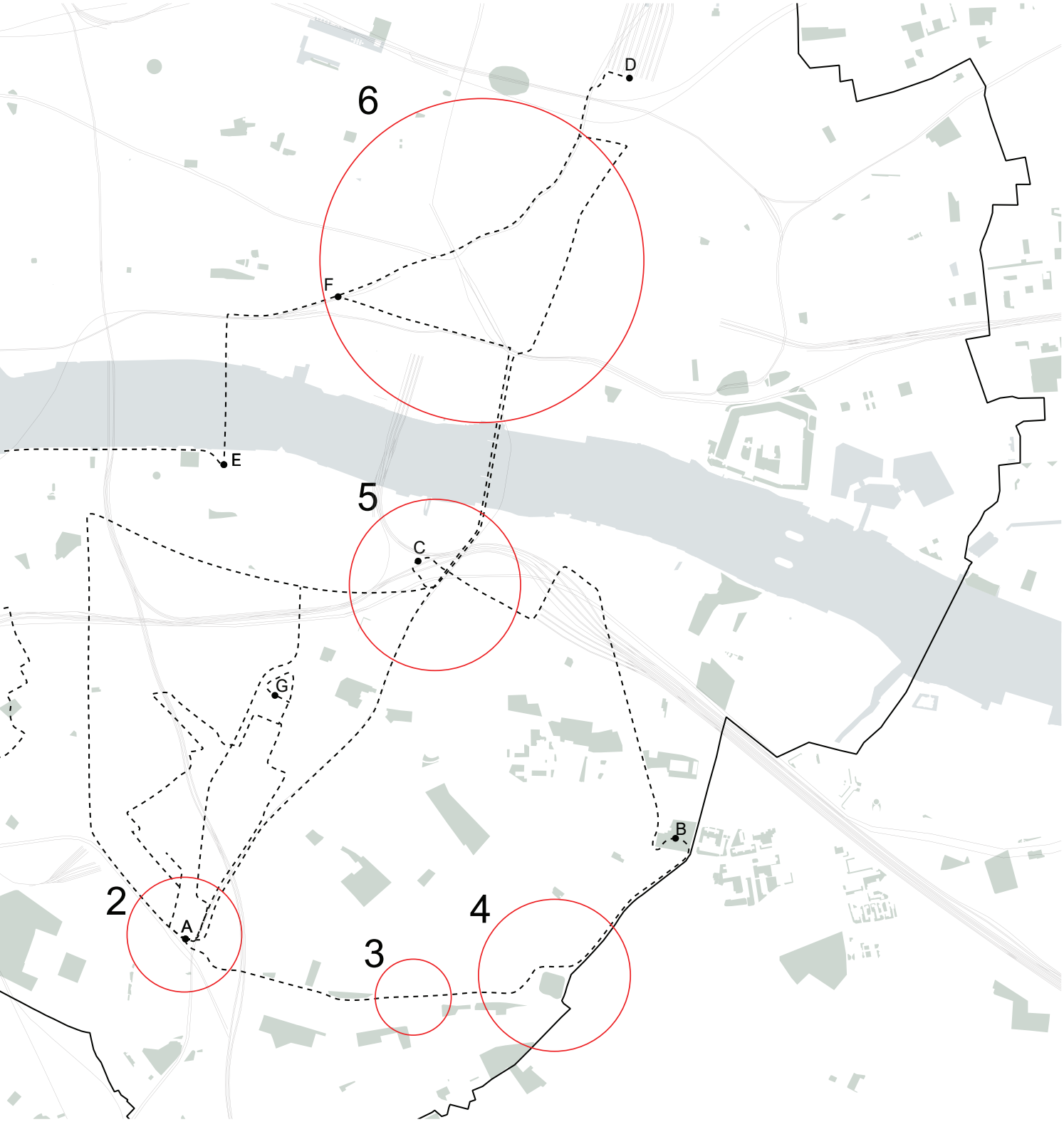
## SCALE L

A network of Sensescapes in London's Central Activities Zone that can restore the balance between vibrant and tranquil spaces and the perceived level of intensity.




*1 Little to no orientation in context, mixed-use programme, multimodal infrastructure, narrowing roof element, noise from railway*
*2 Multi directional infrastructure with focus on vehicle transport, noise from construction work and roads*
*3 Shortage on green public facilities, noise from construction work*
*4 Multi directional infrastructure with focus on vehicle transport, monotone programme, noise from roads*
*5 Shortage on green public facilities, narrowing elements elevated railway, mixed-use programme, multimodal and multidirectional infrastructure noise from railway and roads*
*6 Great difference by day and night, monotone programme, shortage on natural elements*

*Fig 159. Possible locations for sensescapes due to its inconsistent character in intensity, Image by author 2022*


6
D
F
E
5
C
G
B
2
A
3
4

# THE DRIFT IN MASTER PLAN

## SCALE M

A path for drifting along the spectrum of intensities with architectural interventions mapped out in a master plan with relatively vibrant and tranquil spaces, as well as their interaction.

*Fig 160. The master plan developed for Southwark Court, underused brownfield plot in vibrant and highly intense area.*

Curating City Intensities

DESIGN PROPOSAL

179

0 20m

Masterplan ground floor A0 1:200

# THE SENSESCAPE

## SCALE S

A sensescape design, incorporating an inclusive building with a public programme and (inward-oriented) public open space, which demonstrates the aspects of designing with the senses to enhance the participants' embodied experience and, as a result, their well-being and health.

| Programme | Front of house |
|---|---|
| The inclusive library | Entrance area:<br>Reception/information area<br>Cloakroom<br>Restrooms<br>Collection area<br>Read/study area:<br>Seating<br>Lounging<br>Garden area |
| The tea room | Foyer area:<br>Restrooms<br>Cloakroom<br>Waiting/entrance area<br>Bar area<br>Dining area indoor + outdoor:<br>Seating<br>Lounging |
| The greenhouse | Exhibition area:<br>Grow space outdoor<br>Grow space indoor<br>Manual tea production area:<br>Withering room<br>Rolling room<br>Oxidation room<br>Drying room |
| The gallery | Workshop area<br>Exhibition area outdoor<br>Exhibion area indoor<br>Restrooms |
| Retail | Shopping area<br>Fitting area<br>Seating area |
| General | Clock area<br>Traffic areas:<br>Corridor<br>Outdoor atrium<br>Vertical access<br>Walking aisles<br>Seating areas |

*Fig 161. The programme for plot 1 set out in function, back of house, front of house and key elements*

| Back of house | Key elements | |
|---|---|---|
| Staff office area | Front desk | Toilets & sinks |
| Closed storage area | Coat rack | Desks |
| Meeting room | Lockers | Computers |
| Special-use room | Shelving system | Cabinets |
| | Bookcases | Greenery |
| | Tables | Fountain |
| | Chairs | |
| | Couches | |
| Food preparation area | Bar | Dishwasher |
| Food cooking area | Countertops | Lockers |
| Plating area | Sinks | Bench |
| Cleaning/Washing area | Shelving | Hatch |
| Storage area bar + kitchen | Cabinets | Chairs |
| Refrigeration area | Refrigerators | Tables |
| Staff room | Ovens | Couches |
| Service entrance area | Stoves | Toilets & sinks |
| Storage area | Soil | Countertops |
| | Herbs | Heat lamps |
| | Plants | Ovens |
| | Trees | |
| | Cabinets | |
| | Racks | |
| | Shelves | |
| Storage area | Chairs | Desks |
| Kitchen area | Tables | Toilets & sinks |
| | Shelves | Kitchen unit |
| | Cabinets | |
| Storage area | Shelving and rack units | Cabinets |
| Restrooms | Counters | Kitchen units |
| | Chairs | Toilets & sinks |
| | Changing room | |
| Mechanical space area | Signage | Infrared panels |
| Emergency exit area | Guidelines textured | Benches |
| | (emergency) Doors | Artificial lighting |
| | Windows | Bells |
| | Installations | Greenery |
| | Stairs | Drainage |
| | Elevators | |

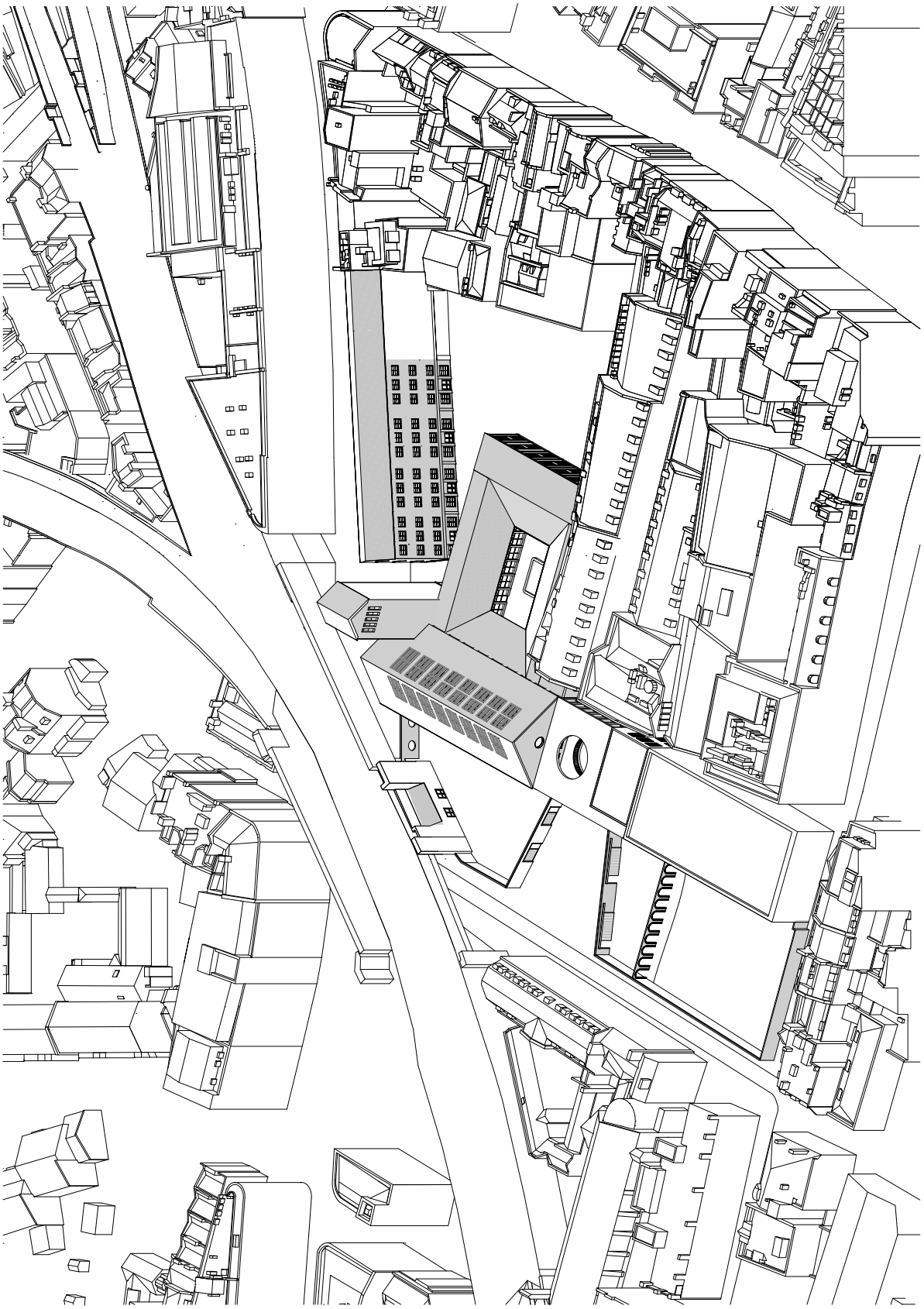


*Fig 162. Axonometry context*

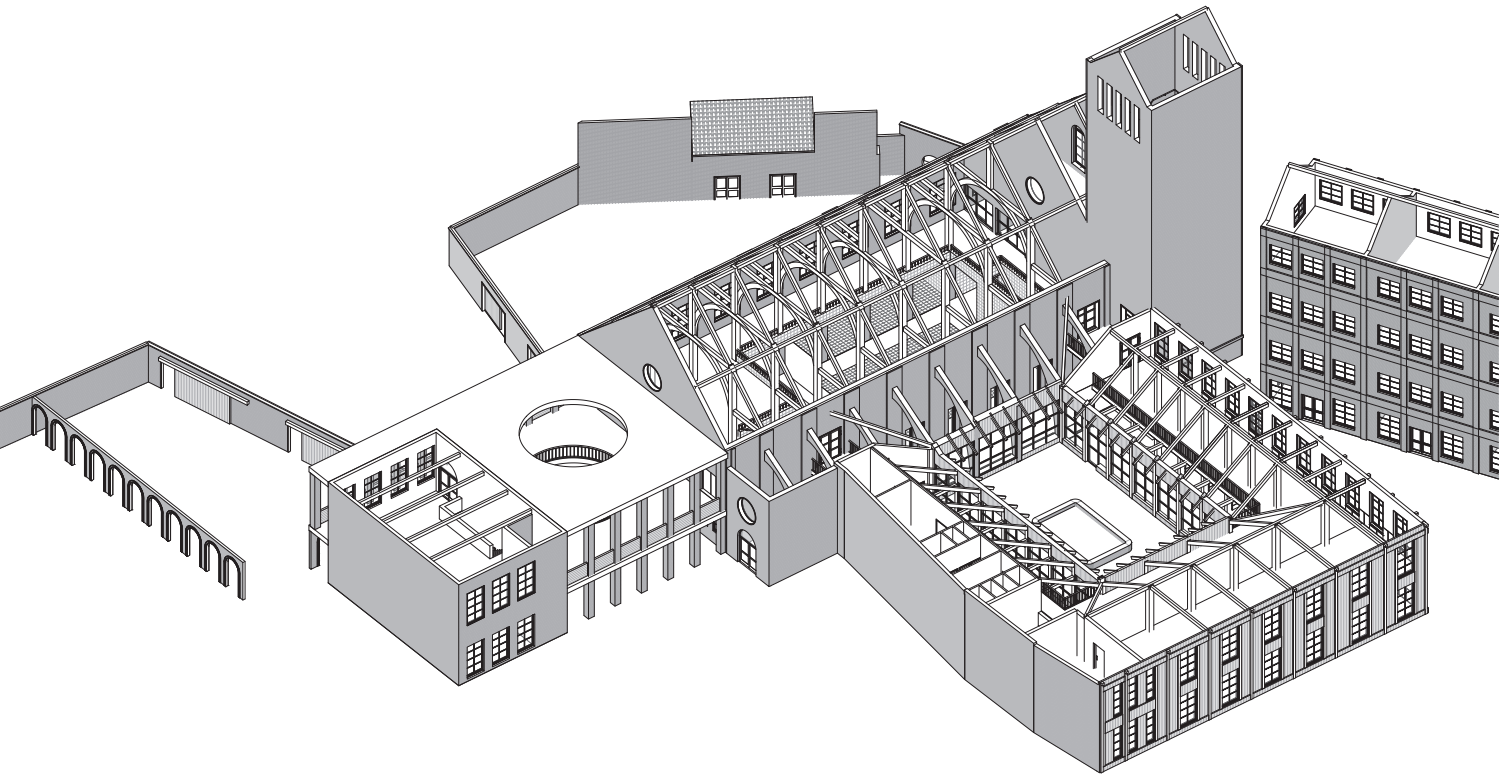


*Fig 163. Structural axonometry trusses, flying butresses, masonry and timber frame construction*

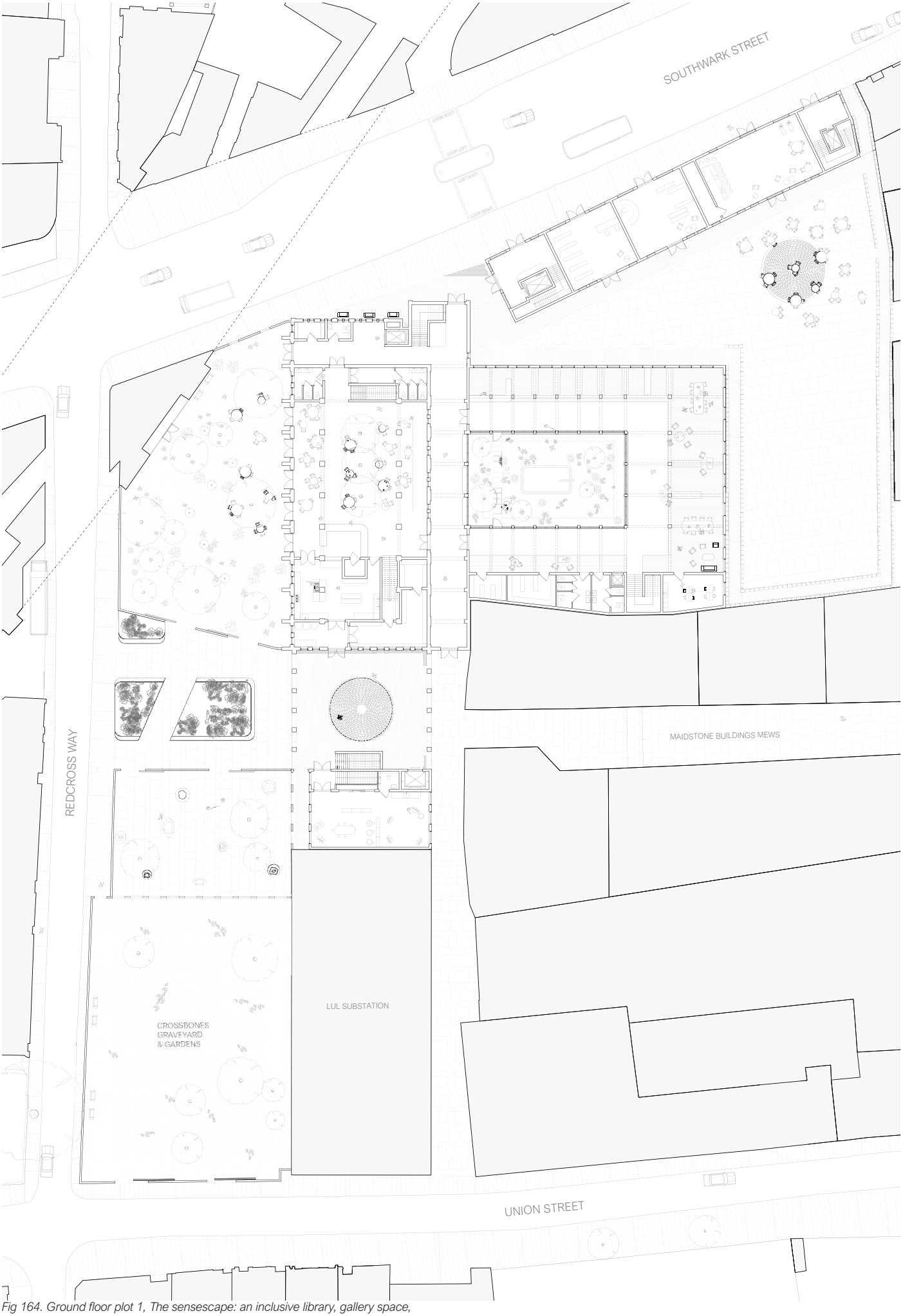



*Fig 164. Ground floor plot 1, The sensescape: an inclusive library, gallery space, tea room, tea production spaces and a sequence of exterior public spaces.*

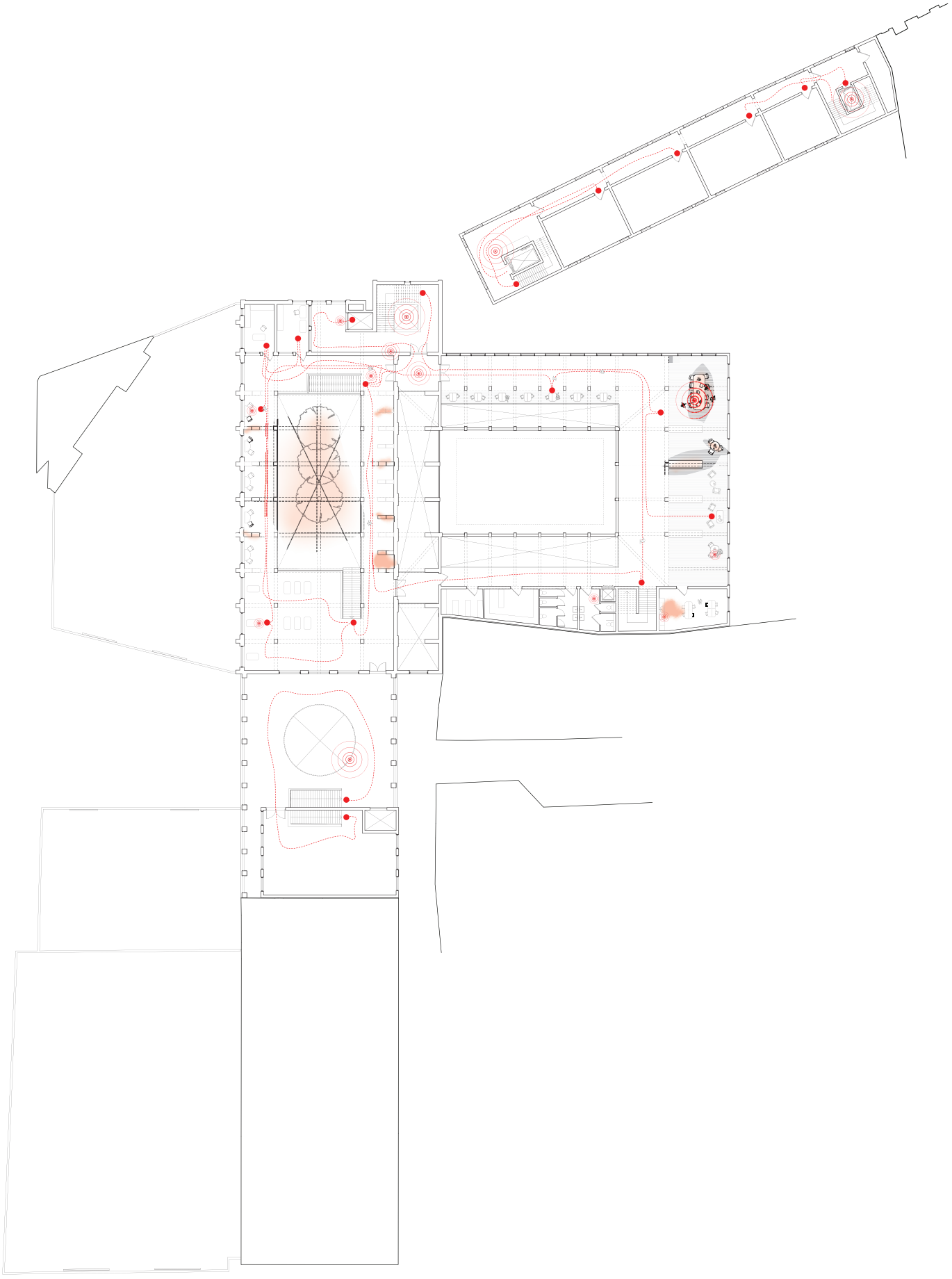



*Fig 165. First floor plot 1, The sensescape: an inclusive library, gallery space, tea room and tea production spaces.*

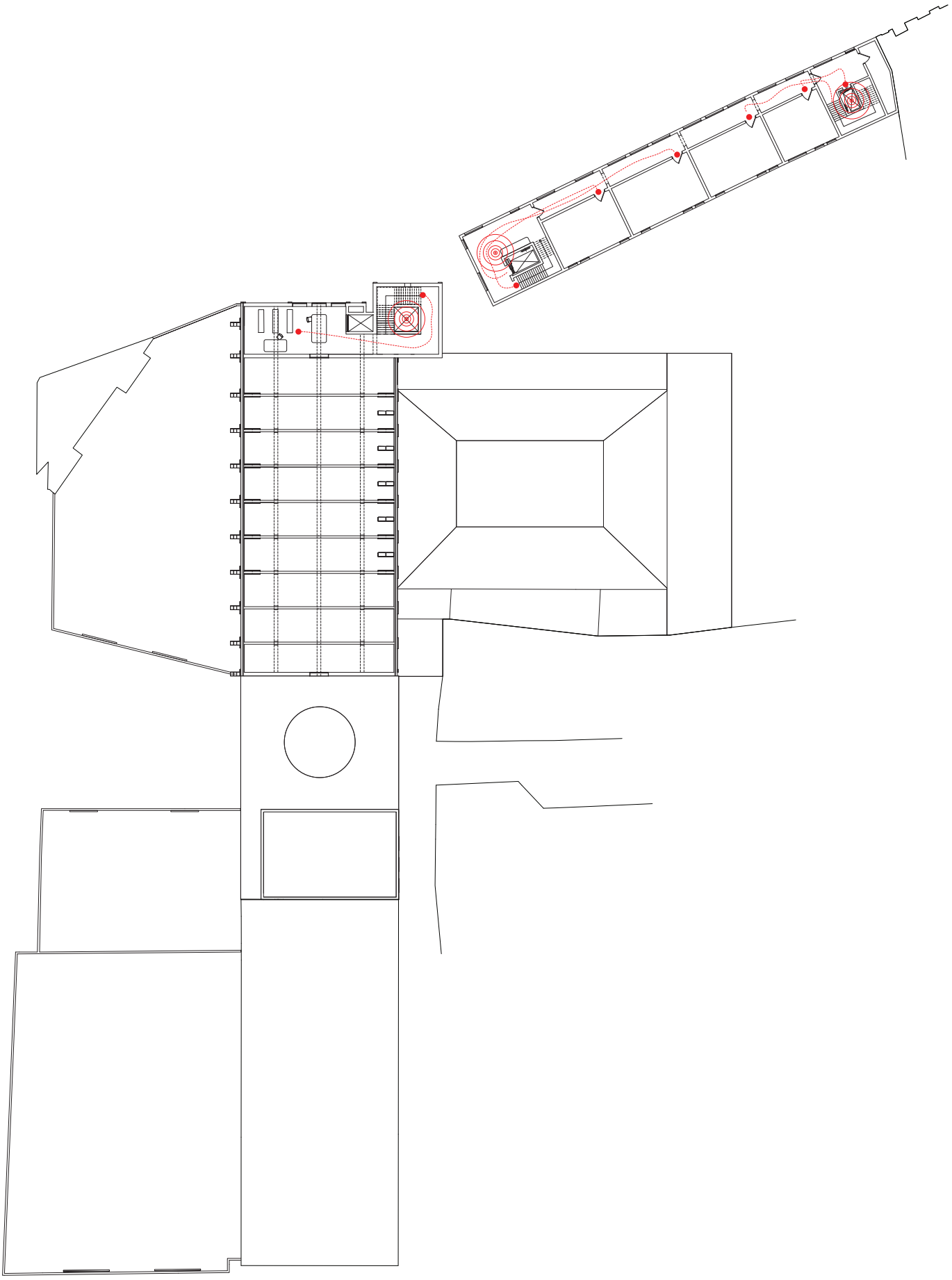



*Fig 166. Second floor plot 1, The sensescape: Tea production space and clocktower*

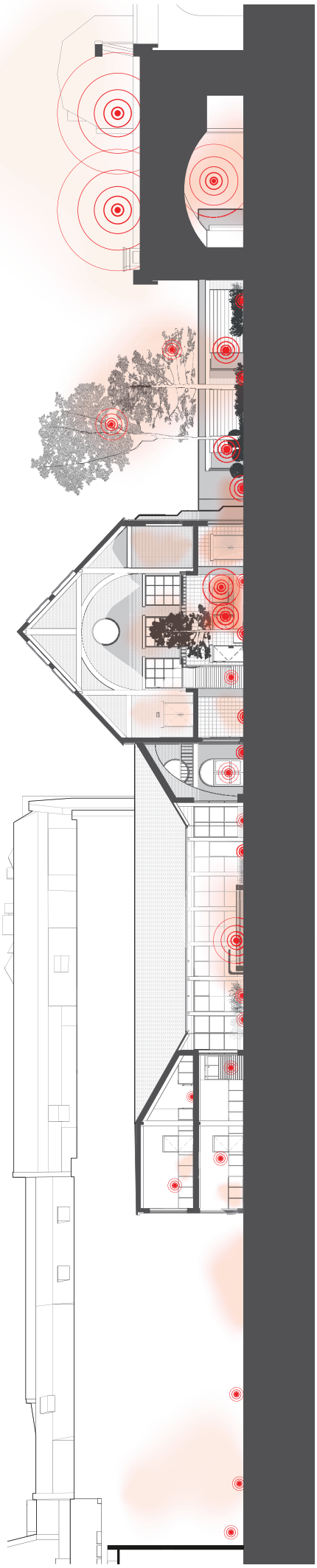
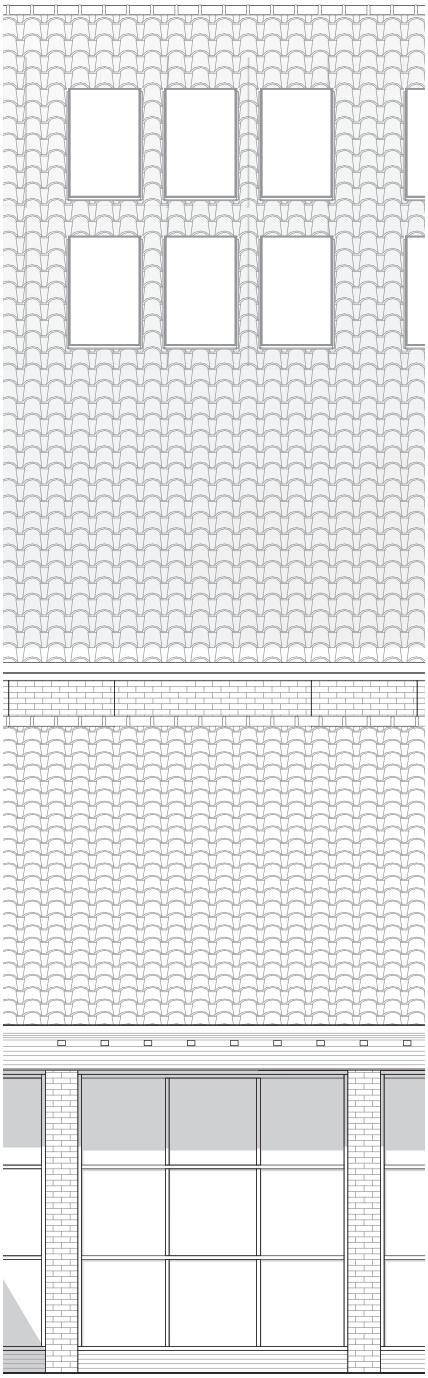


*Fig 167. Cross section library, corridor and tea room in site*



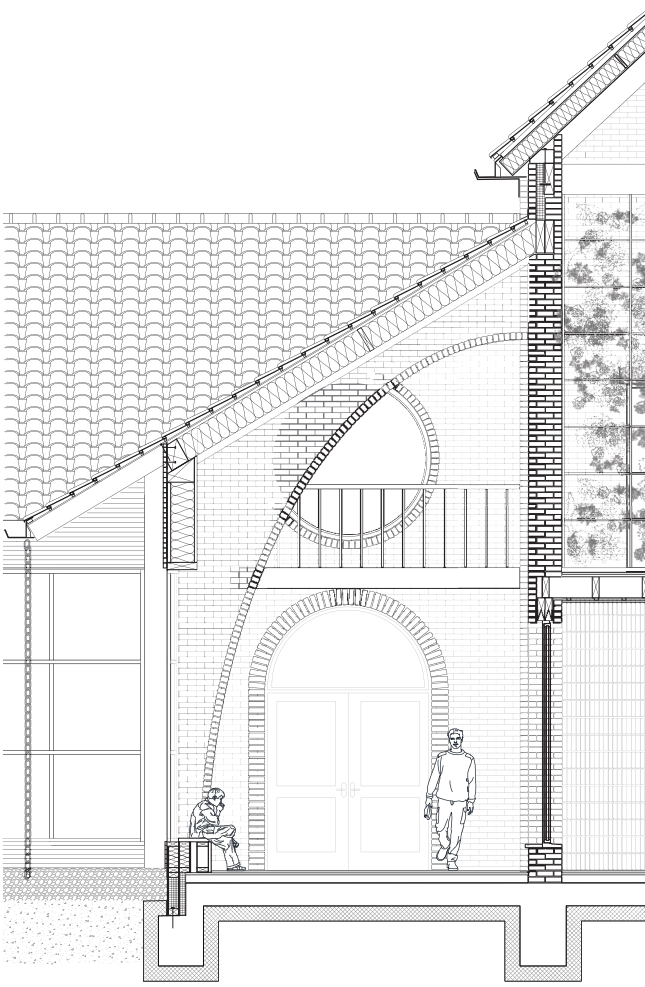


*Fig 168. Fragment corridor, tea room and tea production spaces in cross section*

0 2.5m

Fragment A1 1:50

DESIGN PROPOSAL

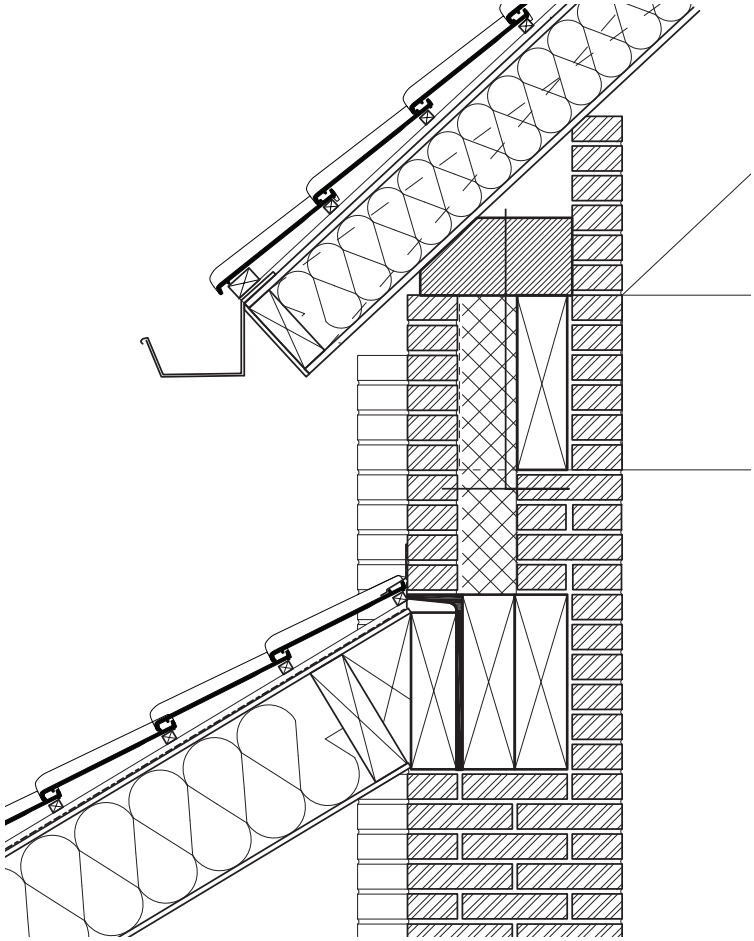


*Fig 170. Detail joint of two roofs and trusses to masonry wall (interior and exterior) 1:10*

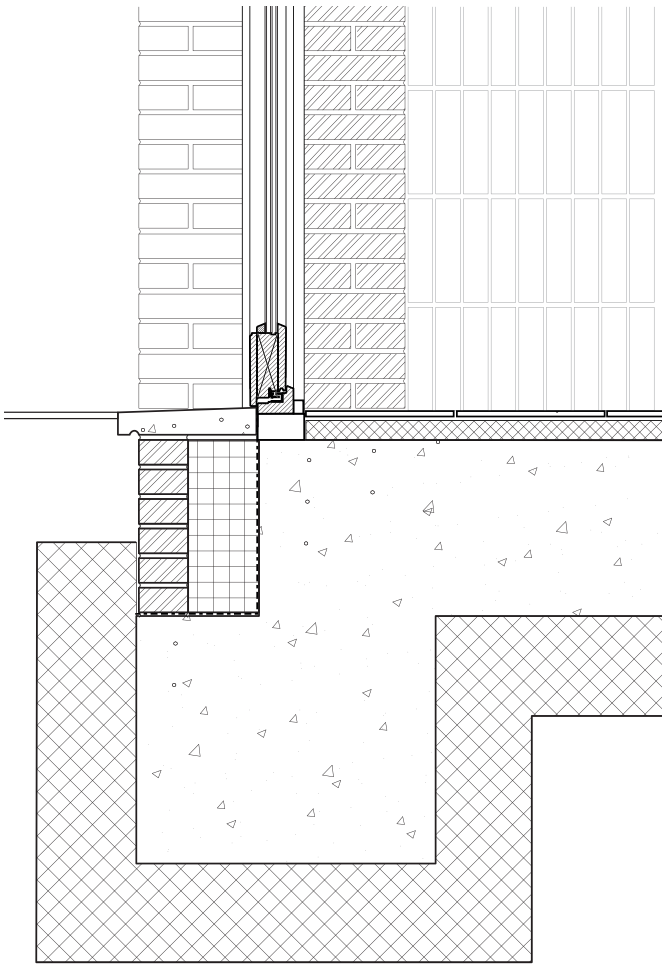


*Fig 169. Detail joint of wall to foundation tea room. Masonry wall and garden doors to the terrace in the enclosed garden 1:10*

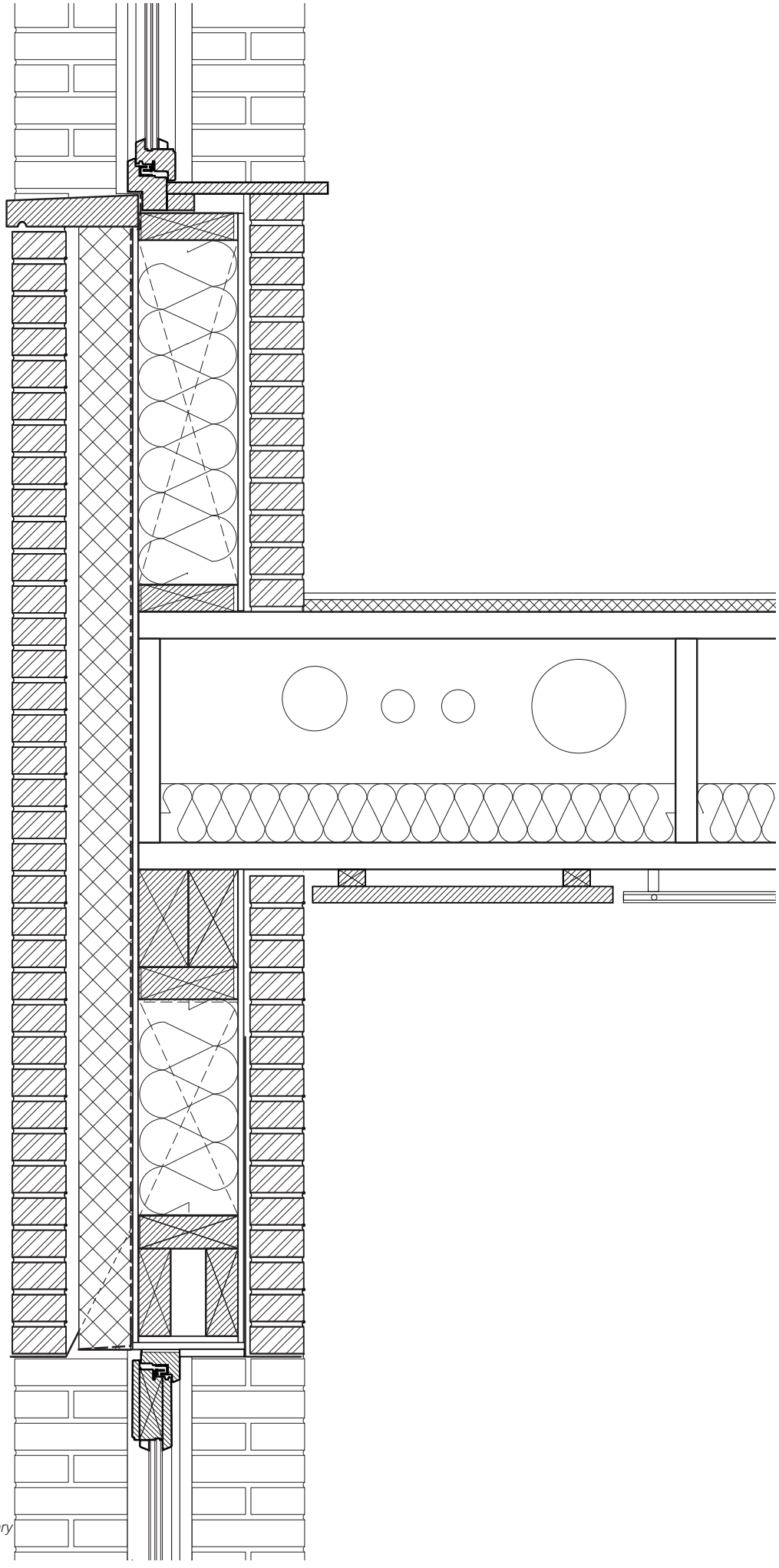


*Fig 171. Detail joint of mezzanine floor on masonry wall in tea room and production spaces 1:10*

*Fig 172. Impression Southwark street towards North facade, standing under the railway bridge*

*Fig 173. Impression Southwark street towards North facade, looking towards the railway bridge*

*Fig 174. Impression corridor to as main traffic space and connector of different programmes*

*Fig 175. Impression courtyard central oriented in inclusive library*

*Fig 176. Impression clocktower and viewpoint*

*Fig 177. Impression entrance inclusive library with guide lines in flooring and reception desk in front.*

*Fig 178. Impression corner of inclusive library with elevator, walls and stairs that are accentuated with green plywood panelling and hidden door for the back of house function as office.*

*Fig 179. Impression Stairs with lining for contrast to the frist floor of the inclusive library with onward tilted roof for intimacy*

*Fig 180. Impression large and vibrant tea room with bar and stairs leading up to the tea production area*

*Fig 181. Impression tea production area and workshop space for interaction with the building and in the programme*

*Fig 182. Impression stairs leading to tea room and foyer space with lining and sturdy railings*

*Fig 183. Impression enclosed garden with terrace from the tea room and restaurant and growing space for the tea*

*Fig 184. Impression haptic sculpture garden, looking towards gallery and workshop space*

*Fig 185. Impression Redcross Way looking towards tower and railway bridge*

# REFLECTION REPORT

## The unravelled sensory experience of the urban public realm

The Master's course is part of the Architecture, Urbanism, and Building Sciences track of the Delft University of Technology. The studio, "Heterogeneous City", examines the urban heterogeneous environment where emerging urban concerns demand an approach that reaches beyond the material conditions of a site to provide future-proof and novel design solutions. Within the constraints of this collective framework of the studio, I had the opportunity to develop my architectural fascination for architecture through multi-sensory experience within a psychological, multi-scalar, and interdisciplinary research frame and eventually formulate a design proposal fitting to the selected site location in London. The design proposal suggests a sensescape in the Central Activities Zone in London that creates an inclusive, embodied, and multi-sensory experience to curate a balance within the vibrant and tranquil public spaces on the spectrum of city intensities.

The aim of this research was to demonstrate how an architectural intervention can re-establish a sustainable and healthy relationship between society and their "fast-paced lives" by shaping the urban public realm around them instead of avoiding the intensities of city life. This would allow them to disconnect or slow down from this acceleration of city life within the boundaries of the city. Besides, the project reveals contemporary society's ocular-centric obsession and breaks with the one-sided sensory pattern in which conventional public architecture and the built environment play a significant role. Instead of minimising sensory stimuli in general, the project promotes a positive approach to a complex but outbalanced urban sensory environment; the sensescape. This balance can be performed on different scale levels. Initially, a common set of guidelines has been developed to identify, protect, enhance, and create potential sensescapes for implementation in the urban public realm of cities in economically developed countries (Intervention size XL).

The Central Activities Zone (CAZ) within London is a typical example of a place where at the moment there is an unbalance of intensities (both high and low intensity). This is a problem seen within many cities in economically developed countries. This has to do with fast economic and social growth within these cities, causing unbridled expansions leading to unwanted tensions between different activities within an area, like residential areas next to railway tracks or busy markets without careful thought of sensorial experiences within these areas, specifically for public spaces. My research aims to restore this balance of sensorial experiences within city centres, where there exists a problem now of intensities causing an overload of sensorial stimuli.

My research tries to restore this balance to work towards a healthier and more pleasant built environment for all. A network of sensescapes can be implemented in London's Central Activities Zone that can restore the balance between vibrant and tranquil zones. Only one of the problematic areas that emerged during data research and drifting has been addressed in this study (Intervention size L).

## Brownfield Landmarkt Court, Southwark

A specific site where many of these problems occur is Brownfield Landmark court. This area houses a railway junction under which a public market is housed; Borough Market. The area is surrounded by busy streets with heavy traffic. The current plans for this borough is to develop mixed-use functions such as retail spaces, restaurants and housing as well as flexible working spaces and offices for smaller businesses. There are three empty plots surrounding the area that are connected by railway passes that are currently unavailable to the public that are to house these mix-used functions. Currently this is a very high intensity place with smells and sounds from the public market, the railroad junction and the busy streets surrounding it. To develop a sustainable plan for the future and the mixed-use function planned by the municipality for these three plots the sensescape has to be taken into consideration. At the moment it is a place where one can easily get overstimulated and there is little to no tranquil space, in other words; the balance between intensities has been lost. To restore this balance and create a sensescape the following scale of intervention is to be implemented. This should be a path for drifting along the spectrum of intensities with architectural interventions mapped out in a master plan with relatively vibrant and tranquil spaces, as well as their interaction (Intervention scale M). The research's finding is that this master plan must include leisure activities and facilities for rest and comfort. The first plot consists of a canopy with a pic-nic area. It is around the corner of the public market and serves as a reaction to its very stimulating environment, with few places to rest. The second plot is designed as a place for contemplation. It is around the corner of a church, but serves as neutral tranquil ground rather than a religious space where one can rest and think. The third plot serves as a mixed-use recreational ground, since it is the largest of all three plots. The programme includes the possibility to wander through the interior and exterior spaces, without getting lost. This intervention will be explained in more detail in the next section

## The sensescape

This architectural design proposal serves as a proof of concept to curate balance in the perceived city intensities in London through the introduction of a sensescape on different scale levels. The sensescape design incorporates an inclusive building with a public programme and public exterior space, which demonstrates the aspects of designing with the senses to enhance the participants' embodied experience and, as a result, their well-being and health (Intervention size S). The spatial, material, and atmospheric representations of sensory stimuli touch upon the hapticscape, the soundscape, smellscape and the visualscape. Through the case studies it is learned that specific representations of sensory stimuli can establish certain moods or feelings. These representations have been divided into four themes.

The first theme is space. To create a sense of clarity in the plan and its sensory experience, the volumetric archetypes of Leon Krier have been used (see fig. 1). Pure circular and angular shapes are arranged along the plot. The plan consists of multiple symmetry axes and fits into their surrounding context. In the north of the plot, the building heights are adjusted to the existing ones, since these will also form the buffer from the vibrant main street. The clocktower is the exception in the whole, since it will form a visible and audible landmark and serves as the main entrance. The rest of the building is only two stories high unlike the north part of the plan. The roofscapes are adjusted to their programme and prefered intimacy and experience in soundscape with each their own typical type. The corridor connects the clock tower with the atrium and acts as the border between the 'abbey' plan and the 'church' plan. The symmetrical church plan has a high gable roof with aisles and a nave that houses trees and plants, it borders the secluded garden. The abbey plan has slanted roofs that tilt inwards towards the courtyard.

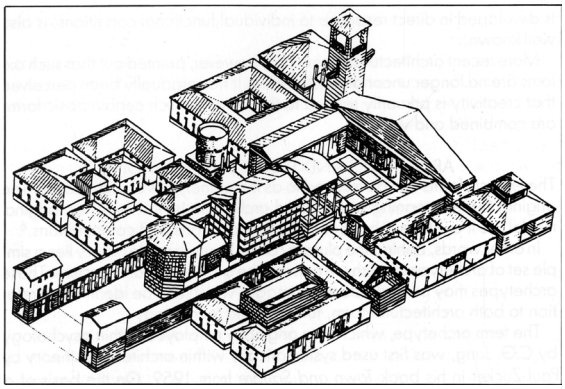


*Fig 1. Volumetric archetypes, Leon Krier 1977*

Material is the second theme of the designed sensescape. Only natural materials are desired for an embodied sensory experience. The church plan is built up of thick masonry walls and which are supported by masonry buttresses to articulate its honest construction. The lower part of the walls have a relief that can be touched while the stones above eye height have a smoother surface. The abbey plan is made up of a typical wooden construction. These softer materials are used for their sound absorbing properties. All roofs have been finished with roof slates to make the plan a more coherent design. Infrared panels are used to create contrasting experiences in heat. Furniture within the design is soft with rounded corners for a more safe and pleasant haptic experience. There is a clear difference in materiality of the floors between the traffic and residing spaces. Glass is the only exception for the use of natural materials, this for its prefered properties of interior climate and lighting.

The third theme is atmosphere, it refers to the intangible representation of sensory stimuli and its experience. According to the sensory experts it is important to work with contrasts in for example, intimacy, colour, materiality, intensity and light. Entrances are marked in contrasting colours just like the furnishing of the spaces to mark important moments within the plan and to add a type of hierarchy, while more common elements are repeated throughout the design in the same way. Colour is used to evoke certain moods that befit the function within the programme. Artificial light is used mostly diffusely.

With the programme the last theme will be discussed. Along the busy and vibrant Southwark Street one can find mostly retail functions with residentials functions placed on top. These are used as a buffer zone for the spaces behind, on the interior of the plan. From Redcross Way, the programme unfolds itself symmetrically to multiple public greenery spaces like the sculpture garden, the graveyard, the atrium and the secluded garden. The exterior spaces of the plan each have their own atmosphere, ranging from very secluded and quiet to more public and somewhat louder. Functions are focussed on recreation, education and nature. A greenhouse and tearoom are situated within the church plan. The harvesting and production of the tea will be made visible for the visitors. Within the abbey plan one can find an inclusive library. A gallery for haptic art and workshop spaces are on the other side of the atrium.

The guidelines of the manifesto are all incorporated into the design of the sensescape. Some of them are more thoroughly studied, as they were given more concern in the experiments and interviews. In following these guidelines, consessions have been made in the use of only natural materials. Glass and insulation material were needed to meet the standard climate requirements.

## Ethical considerations

Having involved myself in the unravelling of city intensities through the senses has shown me the complexity and versatility of the topic.
If the balance of intensities within the city/built environment is off, this can lead to negative effects on social, physical, and mental health within the society of the city. The measured intensity of a city is always relative, as an absolute tranquil space is not feasible within the acceleration of contemporary city life. Besides, the intensity changes over time and varies per location and per person, as it is said to be related to emotions and motion. In many ways, through one's other senses or at another time, this research would have certainly had different outcomes. I tried to emphasise the inclusive and embodied nature of the sensescape, but designing for everyone's needs is impossible. In terms of what is anticipated of an inclusive and embodied sensescape, I believe, however, that I would fulfil the expectations of many people. Analysing empirical data and conducting empirical experiments and interviews has shown me how topical the current issue of sensory stimuli in the public realm is for sensory impaired people and how the government falls short in this regard. These people helped me to activate and employ my entire sensory palette to create a more immersive experience for everyone.

The growth in sensory pollution and the growth of the city itself will rapidly change the existing conditions of the city's sensory stimuli. This will eventually transcend the maximum acceptable level of intensity for its participants. I tried to curate the current balance of city intensities within the scales of the city, the network of sensescapes, the master plan and a detailed architectural intervention. But in such a dynamic context, it is still questionable whether this is really conceivable. However, it would be negligent and ignorant on the part of the designer, considering these developments, to leave the sensory impact and value of the public realm to chance, with potential unsustainable health and well-being effects on its participants as a result. The approach not only opened my eyes to what the role of a designer encompasses but also taught me to think, feel, and design with my body and its senses in a critical and sensitive way. My responsibility as an urban and architectural designer thus shifted by focusing on designing for impact and affect rather than architectural discourse itself. However, the visual and textual material from this portfolio is unavoidable and inherent to the overarching method of our academic field in Delft, and therefore also to the requirements of this graduation project. With this project, I therefore aim to encourage all designers to let go of their tendency to prioritise sight as the most essential sense and design tool for architecture and instead strive to create architecture for a multi-sensory, embodied, and inclusive society. Although I am not sure if my proposal will achieve and maintain a balance between vibrant and tranquil public spaces, the ambition is there.

Noor Boreel
4372808
Research Portfolio
November 2022

Design mentor Johan van Lierop
Research mentor Joran Kuijper
Building Technology mentor Florian Eckardt

‘Heterogeneous City’
Architectural Design Crossovers
Graduation Studio 2021 - 2022

Faculty of Architecture and the Built Environment
Delft University of Technology
MSc of Science

# CURATING CITY INTENSITIES

Noor Boreel
Research Portfolio 2022
Architectural Design Crossovers