

Symbiotic Thames



Koen Stam

Graduation portfolio
Architectural Design Crossovers

Delft University of Technology

Architectural Design Crossovers | graduation studio
July 2023

Koen Stam

4564634

Cover image: *Sil on the mudflats I*. David van Dartel, 2020

All the visual and photographic material has been produced
by the author if not stated otherwise.

Architectural Mentor: Johan van Lierop

Building Technology mentor: Jelke Fokkinga

Research Mentor: Agnes van der Meij

Symbiotic Thames

Rethinking the urban riparian condition and meaning through architecture towards a more symbiotic relationship between the urban river and the city.

"The sea, everywhere the sea, and no one looking at it."

Dany Laferrière

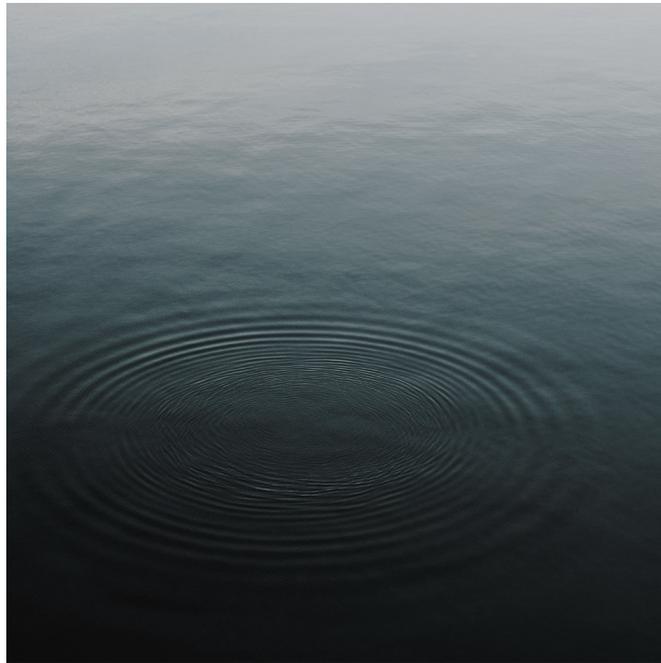


Figure 1 | *Water body*. Ian Keefe on Unsplash, 2017

The dynamic interplay between landscape, natural forces, and human interaction has always captivated my interest. I am fascinated by both the dynamics of movement and the illusion of stillness, as well as the exploration of their interconnectedness. The connection between form and flow, permanence and impermanence, and fluidity. The power of water, defined by its constant movement, emerges from the collective strength of countless seemingly powerless drops when they come together as a flowing stream. This force not only shapes the physical landscape and shoreline but also influences society. As I delved deeper into the study of water, I discovered an abundance of narratives concealed within its depths, unveiling its stories. It fascinates me to uncover the river's ability to attract people and bring them together. The urban river operates as much-needed room to breathe in today's complex city. It has a potential as a public space that opens up new opportunities for the city.

Perhaps architecture has a catalyzing power in this. Could it enhance a more symbiotic relationship between water and the public, while situated in the mids of a complex and fluid system called the Thames riparian? I am interested in the mediating power of architecture to change the current situation for the better of London.

Prologue	7
Part I - Research Essay	
1. Introduction	12
2. The role of water	14
3. The ambiguous waterfront	26
4. Architecture as riparian mediator	40
5. Conclusion	44
6. Bibliography	46
Part II - Design Research	
1. Introduction	52
2. Exploratory Research	54
3. Rituals & initiatives along the Thames	58
4. State of the Thames	60
5. Monitoring the river	62
6. Precedence	64
7. Site visits	66
8. Architecture as riparian mediator	74
9. Masterplan	80
Part III - Design Process	
1. The concept	94
2. The masterplan	96
3. The interventions	99
4. The main intervention - See	117
Part IV - Final Project	
1. The masterplan	132
2. The interventions	135
3. The main intervention - See	157
Attachments	
A. Reflection	229

Part I | **Research Essay**

Introduction

Almost all cities thank their existence and growth on nearby water. Water is the elixir of life for London, the river Thames is the heart powering its growth. It has been the foundation of the city's development and influenced socioeconomic structure, policies, urban form and cultures. Although it has created the existence of London, it has mainly been the city that influenced the river in route, form and function aligning with their needs. London holds a complex and intimate relationship with the Thames, which was considered to be an extension of the urban fabric rather than a limit. Until industrialization, the infrastructure was influenced by the waterways. They functioned as means of water and food supply, bathing, transport, sewage and trade. Economic activity and expansion of the city were guided by the river axes functioning as transport and communication of London. As globalization and industrialization drove the waterfront growth and construction of London, a dominating patchwork of factories, furnaces, power stations and shipyards was created¹. All of them were polluting and neglecting the river. Due to the continuous expansion of the city the Thames has been restricted more and more evolving into a border of the urban fabric. The natural dynamics of rivers and their interaction with the spatial layout of the cities they traverse have experienced a breakdown in synergy.

There always has been a changing tension between city and river, a battle between the forces of nature and the power of the anthropogenic. This relationship is shown in various habits, but also aversions of Londoners to the Thames. The combined impact of rapid urbanization and climate change has resulted in numerous shortcomings in the control-focused approach to urban river engineering and planning. Repeated flooding, environmental deterioration, biodiversity loss, declining livability, and increased environmental stress are all indicators of the diminished harmony between rivers and cities^{2,3}. These unintended side effects are a product of neglect, denial, and arrogance of not recognizing the river and its ecology. The river has been intentionally engineered to fulfil specific services and functions for the city, but as a consequence, it has also removed the river from the Londoner's daily lives and perceptions. As the functionality of the Thames diminished, the waterfront gradually became obsolete, losing its basis for existence. The Thames is 'broken'. The land and the water, thus the waterfront, are detached. This significant impact on the overall functionality of London, elevating previously underrepresented issues into pressing concerns, demands immediate recognition⁴.

The loss of river-city synergy needs to be addressed urgently, therewith aiming to find effective solutions in the near future. Despite the efforts in London the discussions and urban developments still have a control- and human-focused approach. This creates mono-functional urban fabrics focused on taming the water and being protected from it. This essay questions this approach and argues that London should proceed in a more ecocentric and integral direction with a focus on both humans and non-humans for a more resilient social-ecology future. Herewith we explore the potential of connecting and engaging with the river instead of turning our backs on it.

Therefore there is an urgent need to rethink the Thames waterfront towards a justification for its existence and help regenerate both the river and the urban collective towards the future. London is urged to redefine the meaning, condition, use and actors of the Thames. Observing cities in which water plays already an integral role in their cultures such as Amsterdam, Hamburg and Paris makes it clear that the Thames has an undiscovered potential for London too³. This essay will therefore aim to rediscover the urban waterfront as a meaningful space mediating between city and nature, between open and built, and between estrangement and belonging. Therewith exploring its potential as a symbiotic public space and

¹Briggs, Jeanette. "Thames History." 2011. <https://www.riverthames.co.uk/thameshistory/>.

²Postel, Sandra, and Brian Richter. "Rivers for life: managing water for people and nature". Island press, 2012.

³Forgaci, Claudio. "Integrated Urban River Corridors: Spatial design for social-ecological resilience in Bucharest and beyond". A+BE | Architecture and the Built Environment, 2018. <https://doi.org/10.7480/abe.2018.31>

⁴McCormick, Hannan Cox, Thea Pecorelli, Joe and Debney, Alison. "The State of the Thames 2021: Environmental trends of the Tidal Thames". ZSL, 2021.

securing its future benefiting both the ecology and the Londoners.

This results in the main research question; *"How could an architectural intervention along the waterfront emerge as a potential resource for a hybridized cultural and ecological space in London enhancing a more symbiotic relationship between the city and the river?"* To answer this we should first ask ourselves; *"What is the meaning and role of water in the perception and interaction with the urban collective of London throughout its development, and what should it become?"* After that, the following will be questioned; *"What are the waterfront conditions and functionalities along the Thames, and where and why do they occur?"* Lastly, the search for a new type of architecture will be analyzed guided through; *"How could an architectural intervention be designed towards a city-river symbiosis and therewith justify its meaning and existence?"*

This essay has been divided into three parts; *Context, Analysis and Design*. It encompasses three sequential steps to address the research question; understanding, evaluation and creation. Therefore it will start with an exploration of the changing role of water in London based on (historic) literature supported by relevant photographic material. After that, an academic understanding of a waterfront will be established and followed by analyzing the various changing waterfront conditions through qualitative mapping. The combined understanding of the complexity, meaning and conditions of the Thames will lead towards new approaches. This knowledge will then serve as a base for setting up the conceptual framework of architecture as a riparian mediator. Literature, theories, and found results will be combined with precedence to come up with an effective approach and strategies. Therewith the ambition is set to create a synergy between the urban collective and the Thames through the use of architecture.



Figure 2 | *The Thames riverbanks as polluted site. Thames21*

The role of water

This essay starts with a well-known quote by Walter Raleigh, as seen on the stone embankment close to Southwark Cathedral; *'There are two things scarce matched in the universe – the sun in heaven and the Thames on earth.'* The majority of Londoners would find it surprising. Did the once murky grey water transform into a vivid blue hue, teeming with diverse fish? Or are we overlooking a crucial rationale for cherishing the river to such an extent? The true nature of functionality and meaning of the Thames and the way the urban collective interacted with it helps explain its role and significance.

Water is a vital and elusive element of life. The human body and all organisms need water for survival. Besides, the element of water one should also understand the necessity of the river as a system. We need rivers for various reasons, some are related to spiritual, aesthetic and practical aspects. Yet, only the scientific understanding of rivers lets us realize how crucial it is to keep rivers intact for a well functioning of the natural world around us. Rivers are far more than mere channels surrounding us; they represent intricate systems that perform complex tasks. The Thames does not only allow water to flow in its channel but hosts food webs and nutrient cycles that function on the beds and banks forming wetlands and pools on the floodplain, the rich estuary it formed, the sediment loads it moves and the North Sea into which it empties. Beyond the physical structures, the system of a river includes many animal and plant species allowing them to function and thrive⁴. Keeping the river healthy is therefore essential, also to us humans.

The history of the Thames from the city's perspective can be divided into several key moments, as seen in Figure 3. It was practical for humans to live close to the water, ranging from fishing and farming to drinking and bathing. River banks functioned as a preferred location for various buildings, from monasteries to palaces. Slowly the river developed into a trade potential. It was the infrastructural works, heavy industries, electricity generation, international trade and urbanization that now dominated the waterfronts⁵. The Thames then primarily served as a transportation and communication axis allowing economic and industrial activities to emerge. These aspects remind us of the allure and economic utility of the Thames and their continuing importance for Londoners, but perhaps also as the start of the one-sided relationship they had with it. These dependencies surprisingly seem to dissolve during the Victorian age as urbanism unfolds as a scientific discipline. This is what London refers to as 'the Great Stink'. The engineered interventions combined with the rapid urban growth, congestion and pollution resulting in sewage systems overflowing in the river and waste being thrown in too. The fishing industry stopped, thousands of people died from cholera, and fumes were unbearable for people in the city. Water lost its natural appeal and as a space of leisure, therewith swimming, sailing, bathing or rowing being hardly seen on the Thames. Sanitizing the water became a priority now. They tried to distribute the water out of the city, but also to cover and fill it up as a strategy of 'clean urbanism'. The visual absence of water caused it to disappear from the Londoner's minds too. Purified, cleaned, covered, and altered direction of flow, urban water was lost. The Thames had become a product of neglect, denial, and arrogance of not recognizing the function, meaning and ecology of the river^{6,7}. The river has been intentionally engineered to fulfil specific services and functions for the city, but as a consequence, it has also removed the river from the Londoner's daily lives and perceptions. Simultaneously, the river lost its function for transportation due to the rise of the road and railway networks and the questioned capacity of the waterway itself. New centres started to shape around train stations, and the waterfronts evolved as the neglected ruins of the industrial period. The Thames was perceived as a physical border dividing London into North and South. This is even felt by some to this day. The 21st century shifted the weakened relationship

⁴Postel, Sandra, and Brian Richter. "Rivers for life: managing water for people and nature". Island press, 2012.

⁵Briggs, Jeanette. "Thames History." 2011. <https://www.riverthames.co.uk/thameshistory/>.

⁶De Meulder, Bruno, Viviana d'Auria, and Janina Gosseye. "Water urbanisms". Edited by Kelly Shannon. Amsterdam, Netherlands: SUN architecture, 2008.

⁷Shannon, Kelly, and De Meulder, Bruno. "Water Urbanisms East, Volume 2". Park Books, 2013.

Smith, Harry, and Maria Soledad Garcia Ferrari, eds. "Waterfront regeneration: Experiences in city-building". Routledge, 2012.

into a more mono-functional one. The emerging buildings did not support city life as they were isolating themselves from public space resulting in introverted and mono-functional development⁸. It is only been recently that the Thames has once again been seen as a space for the public and culture. Despite the murky and grey look, the river is slowly getting better with more than 115 fish species supporting an increasing bird population to arise too. That doesn't mean it is thriving, as many factors including sewage and plastic pollution are still threatening the health of the Thames nowadays.

There always has been a changing tension between city and river, a battle between the forces of nature and the power of the anthropogenic. As the functionality of the Thames diminished, the waterfront gradually became obsolete, losing its basis for existence. The Thames is 'broken'. The land and the water, thus the waterfront, are detached. This significant impact on the overall functionality of London, elevating previously underrepresented issues into pressing concerns, demands immediate recognition.

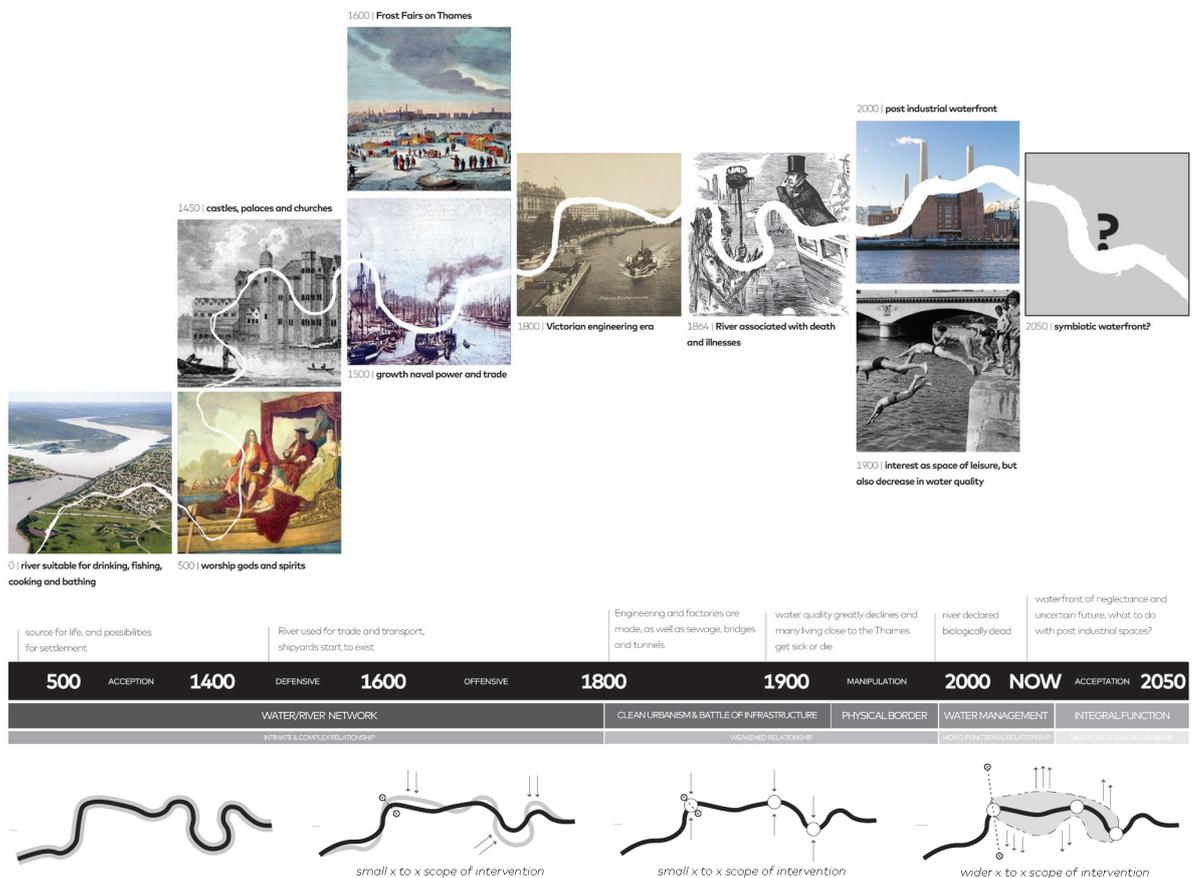


Figure 3 | Role of water in London. Author

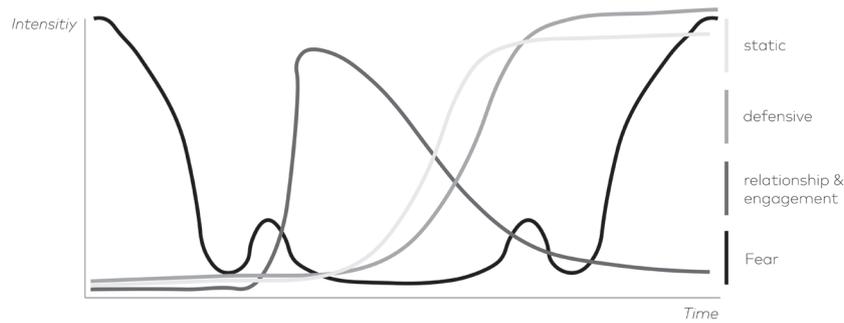


Figure 4 | Intensities in role of water in London. Author

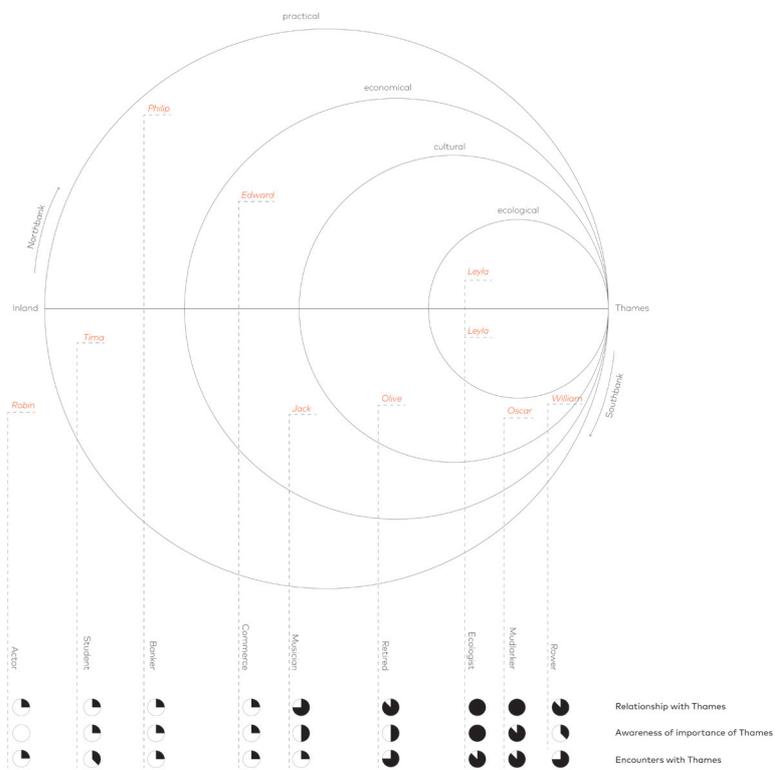


Figure 5 | interview results of role of water in one's personal life - London. Author

The individual role of water

The Thames River holds a unique connection to the people of London, but this connection is not always recognized or appreciated. The role of water in individual lives is versatile and can be best perceived through our senses, engagement, relationship, and awareness (see Figure 4).

Water ties all forms of life together, and encountering it can elicit a sense of connectedness and make us feel part of a bigger system. The Thames triggers emotional responses that are separated from rational thinking and creates lasting memories along the waterfront. Marine biologist Wallace J Nicholas mentions that our brains have an innate inclination to respond favorably to water, and that proximity to it can bring about a sense of serenity and connection, enhance creativity and perception, and even facilitate healing and restoration. In other words, an encounter with the river triggers emotional responses which are separated from rational thinking. It directs our desires and choices. It amazes and fears us. Each individual has a unique relationship with water, as seen in Figure 5, and specific memorable moments creating their meaning of it. Photographer Mathews uncovered exactly this by capturing the way people are utilizing and connecting with the Thames (see Figure 6-16). Even with the waterfront being visited by the few and not by the mass her photos prove the strength of engagement to the river despite its conditions and currently weak identity. The Thames is a place of many things, and cannot be captured or merged into one. It manifests its capability to hold meaning for the public. Although various people are drawn to the Thames for fascinating reasons, the majority of Londoners do not seem to recognize the river as part of their daily lives. In conducted street interviews (Figure 5), the general feeling that emerged was one of absence. Interviewed people during the site visit were placed on a gradient between river and inland. Their relationship, awareness of the importance and the number of encounters have been taken into consideration. It becomes obvious that the individual public connection and engagement are weak and somewhat lost. Similar results have also been found by Publica, who noticed in a 2019 study that the Thames is far from reaching its cultural potential⁹. Despite the river's international profile, the Thames hasn't been embraced as an integral part of cultural life in London. The more the river has been studied the more we start uncovering the potential and hidden meaning the Thames holds for London and its inhabitants, especially when opened up to the larger public. Herewith the direction towards a more social-ecological symbiosis seems logical.

⁹Publica & BOP. "The case for a river Thames cultural vision". Greater London Authority, 2019. https://www.london.gov.uk/sites/default/files/the_case_for_a_river_thames_cultural_vision_2019.pdf



Figure 6 | *Lord Major's show on Thames.*
Thames Log by Chloe Dew Mathews. 2016.



Figure 7 | *Upstream rower.* Thames Log by Chloe Dew Mathews. 2016.



Figure 8 | *Mudlarking at Southbank*. Thames Log by Chloe Dew Mathews. 2016.

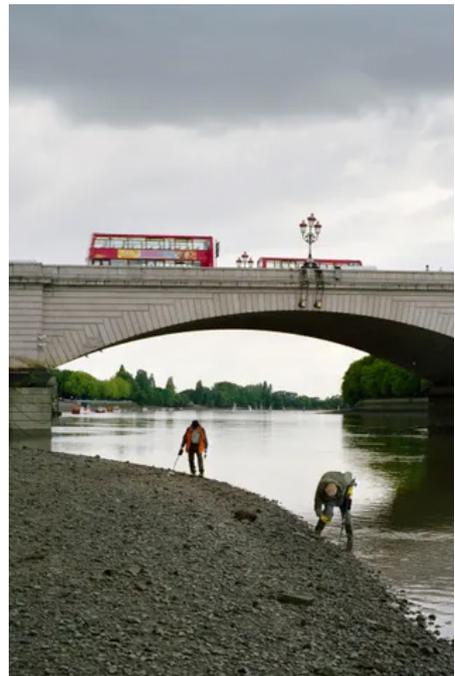


Figure 9 | *Mudlarking at Putney*. Thames Log by Chloe Dew Mathews. 2016.



Figure 10 | *Upstream riverside ritual*. Thames Log by Chloe Dew Mathews. 2016.



Figure 11 | *Downstream riverside ritual*. Thames Log by Chloe Dew Mathews. 2016.



Figure 12 | *Downstream riverside praying*. Thames Log by Chloe Dew Mathews. 2016.



Figure 13 | *Waterfront tanning*. Thames Log by Chloe Dew Mathews. 2016.



Figure 14 | *Downstream waterfront reading*. Thames Log by Chloe Dew Mathews. 2016.



Figure 15 | *Downstream water leisure.*
Thames Log by Chloe Dew Mathews. 2016.



Figure 16 | *Capture of river.* Thames Log by Chloe Dew Mathews. 2016.

What should the role of water become?

London gained control over the river after the Thames had decided for ages what the river environment looked like. We have rationalized the river causing it to be no longer controlled by nature but by us. Our influence constrained and polluted the Thames and emerging issues such as rising sea levels are answered in a monochromatic and controlling sense, as we have seen with higher river walls and the Thames barrier. The Thames has become a static entity. The river has been given no space and current interventions limit themselves to be only built directly along the waterfront. The urban collective has constrained the river. As current issues become worse the existing taming paradigm of controlling the water and its mono-functional adjacent riverbanks are being questioned. It urges us to think differently¹⁰. The current role and interaction of water in the urban realm are limited due to our control and human-focused approach. A new paradigm aiming to find new meaning and functionality is difficult as it is in juxtaposition with this attitude. Therefore it becomes crucial to adjust the paradigm towards a resilient social-ecological future with the Thames.

The city should respect the beauty and mystery of a natural ecosystem we did not make and do not completely understand, but which we have forced our control over. Our new role should be about including some humbleness and humility as a remedy to our predominant ignorance stand. A focus should be given to the non-human aspect of it as a means to move towards true integration. We shouldn't further manipulate nature but rather adapt ourselves in a better way to time-proven, life-sustaining cycles as argued by Postel¹¹. Bringing the city and the water together is crucial to make the river tangible. It is through spending time together that one can foster a new and resilient relationship. It allows us to find a way to listen to the unheard river. A way to reconnect us again. It is about giving space to each other, not only in a physical sense but also by carefully intervening and connecting. Through a strategy of coexistence and symbiosis within the urban context, citizens are encouraged to reengage with the river on a more regular basis. This approach catalyzes rediscovering the river's purpose and significance, reigniting the justification for its meaning and existence. Perhaps that will allow a lot more Londoners to also uncover the river as a new space and living entity, just like photographer Mathews has captured in her pictures.

¹⁰Gandy, Matthew. "The fabric of space: Water, modernity, and the urban imagination". MIT Press, 2014.

¹¹Postel, Sandra, and Brian Richter. "Rivers for life: managing water for people and nature". Island press, 2012.

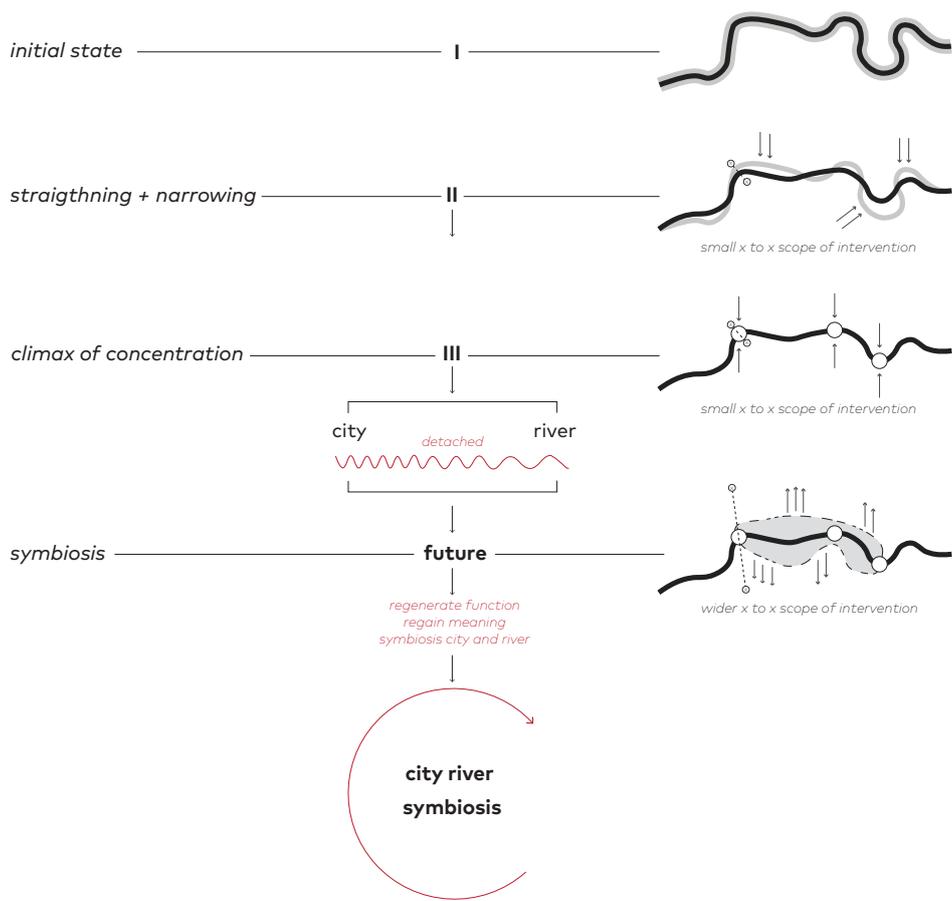


Figure 17 | Role of water towards the new paradigm. Author, 2023

The ambiguous waterfront

The waterfront in London is a complex and ambiguous area that exists at the boundaries between the river and the urban environment. It can be described as a "terrain vague," a concept that encapsulates the clash between the natural and the man-made and exposes the authentic narrative of the city through its imperfections¹². Stalker (1996) portrays it as a space where organic and inorganic elements collide and intermingle, where nature and artificiality, water and urban collective coexist in a state of confrontation and contamination. It serves as a negative image of the city, revealing its inner psyche while also offering glimpses of alternative possibilities.

The waterfront is also a psycho-geographical condition which physically expresses itself along the Thames to be encountered between the water and the urban collective. Debord's mention of the impact of the environment on individuals' emotions and behaviour is reflected in this approach¹³. The focus should be on the memories and emotions evoked by the waterfront zone rather than just the architecture. That understanding eliminates the idea of the waterfront as an edge or single border, but rather sees it as a 'waterfront zone'. Due to its spatial extent and gradual change, it is a spatiotemporal condition that is different to its context¹⁴. Naiman continues on this with his idea of the waterfront acting as a mediator as it operates transitional between two elements¹⁵. The zone is not static and is changing through the notion of time and perception, both in an ecological and urban sense. It is the area in-between open and built, between estrangement and belonging¹⁶. Characterized by its vulnerable and contrasting nature.

The concepts of fluidity and form will guide the riparian understanding of the intangible context and flows of the waterfront zone as a condition. Focusing on the internal relations on a more abstract level, rather than specific elements, will uncover the behaviour, as described by Allen^{17 18}. This essay sees the intersection between flux and form, or ecology and man-made, as a tool for uncovering perspectives of, and connection between, water and urban collective.

Cinematographer Raban has captured this perspective in Thames Film, in which he exceeds the aesthetic surface of the fluctuating aspects of the river and lets the footages operate as an element to gain an understanding of the city by looking at the emotions and behaviour of people and usage of waterfront space. Another representation is given by Chloe Dewe Mathews in her book Thames Log. This photographer delves into the connection with the river by capturing the rituals and everyday activities unfolding along its banks, providing documentation of these moments as shown in the previous chapter. Exploration of the waterfront condition starts with a journey from east to west, transecting interesting moments, as inspired by the two examples written above. The Thames waterfront, far from maintaining a rigid identity, functions as an active protagonist within a continuous flow of conditions and practices, seamlessly progressing downstream. The conditions show up in different intensities and unique compositions. They indicate the end or beginning of the various waterfronts. A more generic condition can be uncovered as the various architectural counterparts along the riverbanks are combined.

¹²Barron, Patrick, and Manuela Mariani, eds. "Terrain vague: interstices at the edge of the pale". Routledge, 2013.

¹³Debord, Guy. "Introduction to a critique of urban geography." *Les lèbres nues* 6, no. 2 (1955).

¹⁴Martin, Prominski, Stokman Antje, Stimberg Daniel, Voermanek Hinnerk, and Zeller Susanne. *River.space. design: "Planning Strategies, Methods and Projects for Urban Rivers"*. Basel: Birkhäuser, 2012.

¹⁵Naiman, Robert J., and Henri Decamps. "The Ecology of Interfaces: Riparian Zones." *Annual Review of Ecology and Systematics* 28 (1997): 621–58. <http://www.jstor.org/stable/2952507>.

¹⁶Manning, Adrian D., Joern Fischer, Adam Felton, Barry Newell, Will Steffen, and David B. Lindenmayer. "Landscape fluidity—a unifying perspective for understanding and adapting to global change." *Journal of Biogeography* 36, no. 2 (2009): 193-199.

¹⁷Allen, Stan. *Points and lines: "Diagrams and projects for the city"*. Princeton Architectural Press, 1999.

¹⁸Allen, Stan, and Diana Agrest. "Mapping the unmappable: On notation." *Practice: Architecture, Technique and Representation* (2000): 31-46.

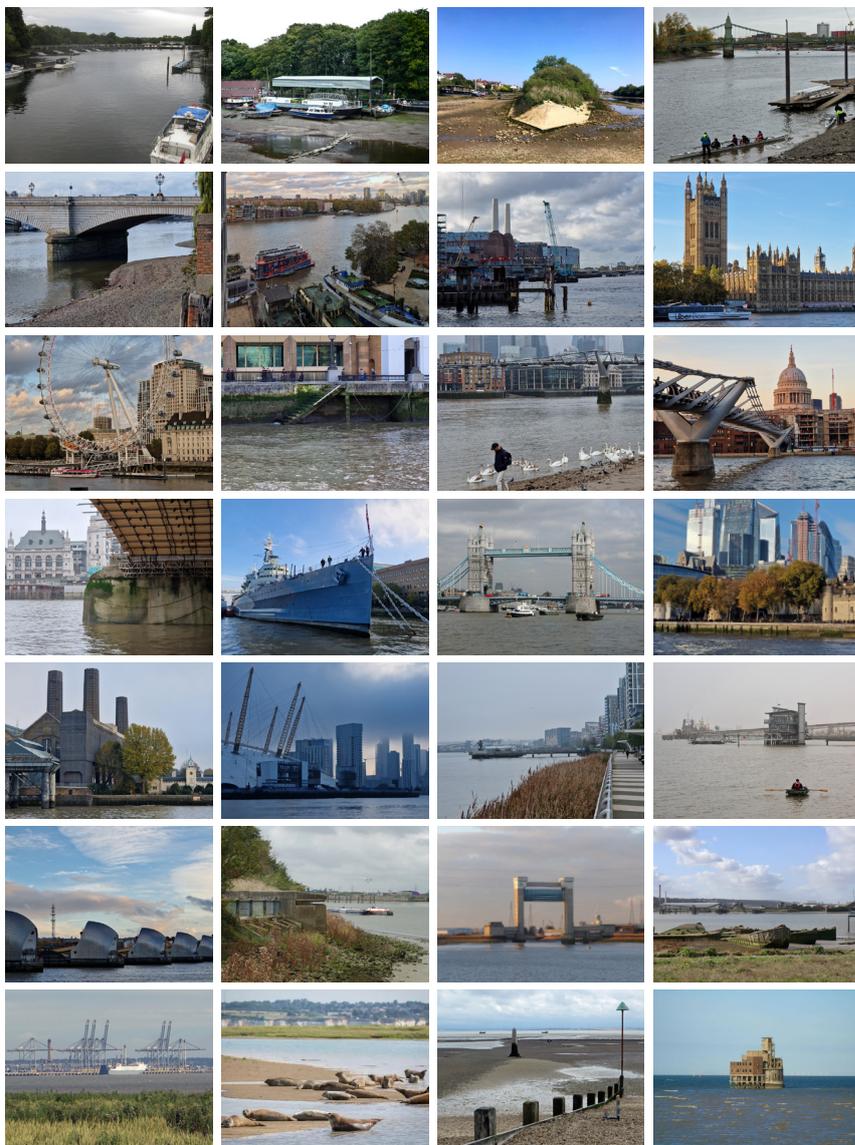


Figure 18 | *Waterfront conditions and appreciations collage*. Author, 2023

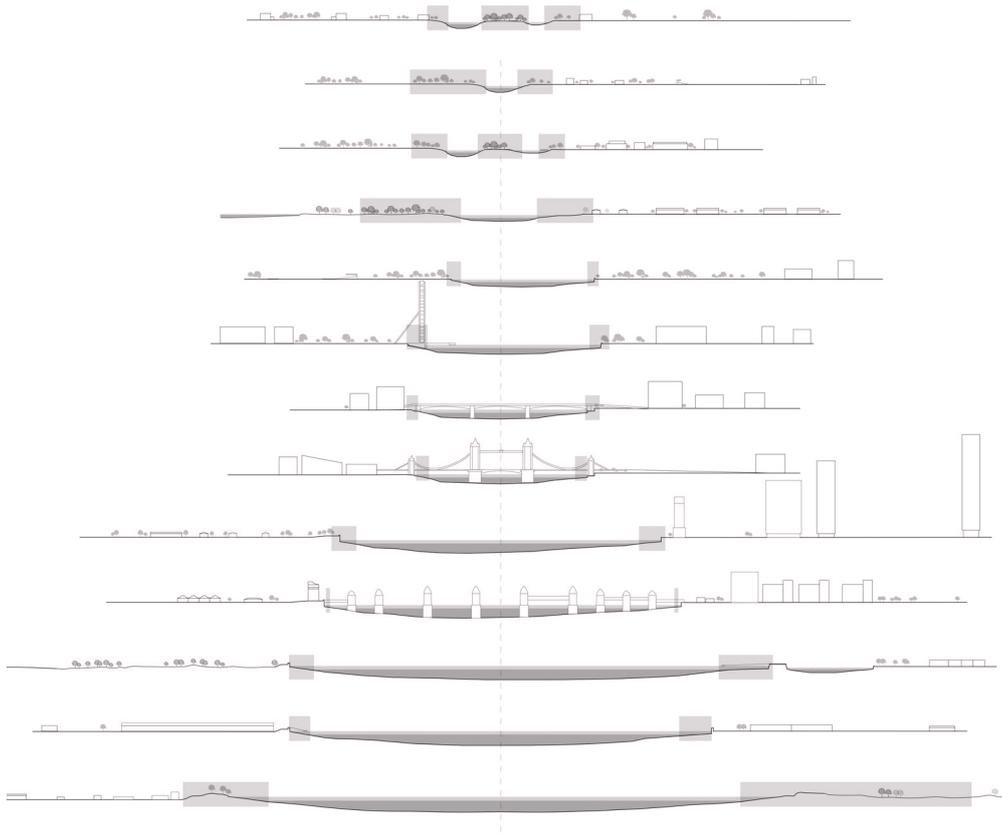


Figure 19 | Sectional moments along Thames. Author, 2023

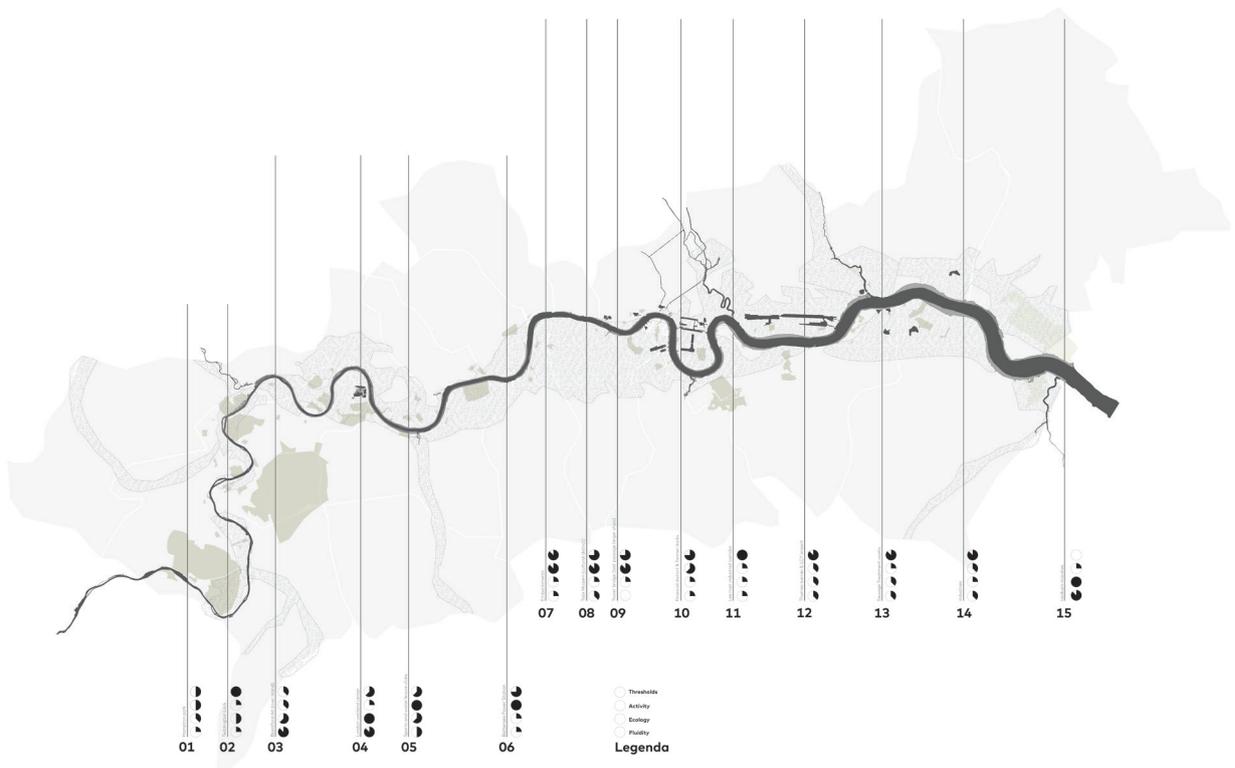


Figure 20 | Various sectional conditions. Author, 2023

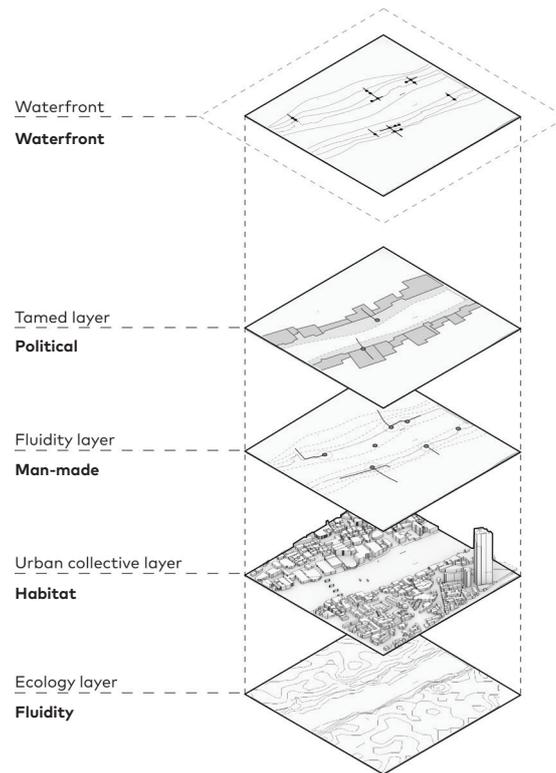


Figure 21 | *The waterfront layers*. Author, 2023

The waterfront conditions

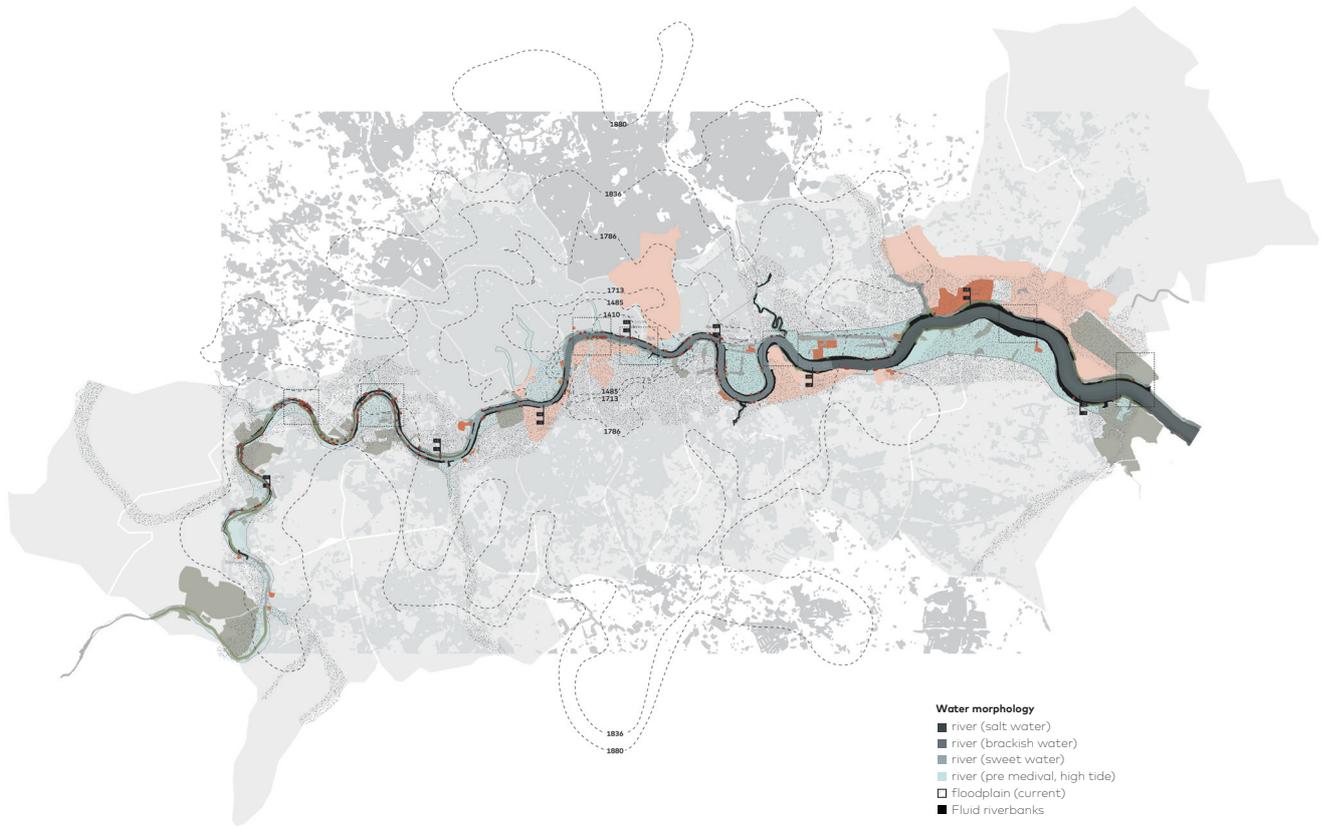
The Thames waterfront is a complex adaptive system that doesn't hold a fixed identity. This complexity can only be captured once exceeding the boundaries of traditional cartography and should be revealed by tracing the flow of water and the hydro-social fluctuations of the urban space. To understand the various conditions of the context and all the systems related to it various thematic layers have been shaped - fluidity, habitat, political and Man-made. *Fluidity* focuses on the conditions of temporaries such as tide, floods, humidity, and urban flux; *Habitat* is the domain of the human and non-human object, the urban collective and *Ecology*; *Man-made* will focus on the man-made interventions and influences that impacted the waterfronts; *Politics* is where we can observe ownership and power of the river. The four layers are analyzed through lenses of *Current* and *Confluence*. *Current* will show the found data in two dimensions, whereas the *Confluence* focuses on a conclusion or dimension that won't be captured in the *Current* map.

The aim is to uncover the different elements and conditions influencing and making up the waterfront. Understanding where the urban collective overtakes the water and where water dominates the city.

Fluidity | conditions of temporalities

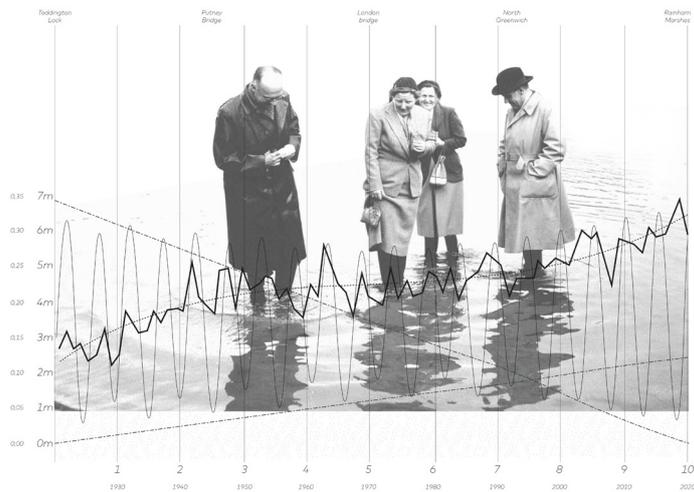
Within this domain, we focus on the temporal condition, in which water plays an essential role, particularly the complex and hydrological fluxes of the Thames and its waterfront in Greater London. We see a distinction between the flux character of the riverside and the predominantly fixed identity of the urban. The fluid waterfront is often reduced to only a protective waterwall in between urban and water. A zone of mediation limits itself here to exposed riverbanks and water imprints on the bounding walls. The *Current* allows us to obtain an idea of the changed course of the river through the past centuries. From a bigger marshland towards a climaxed and embanked river. Furthermore, it shows freshwater between Teddington and Chelsea. Further downstream the river becomes brackish until we find a marine environment east of Greenwich. Most riparian fluidity is found in both the West and East, in which the East is uncontrolled and thus operates more fluidly. Simultaneously, the urban collective is also in flux, although in different rhythms. The dotted lines give insight into the growth of the city, showing the importance of staying close to the river as seen best in the West. Nowadays, however, there is urban fluidity seen in the centre and East, mainly because of the transformation of the post-industrial sites along the Thames.

Despite the waterfront often being a thin line of fluidity the fluctuation sketches a different potential future. Through rising flooding risks the floodplain will perhaps become the new waterfront zone, therewith also acting spatio-temporal. The fixed character of the urban realm is being contested by the amplifying fluid mechanisms of the Thames. We get the idea that London is not controlling it anymore. It is controlling London. It is London.



Current

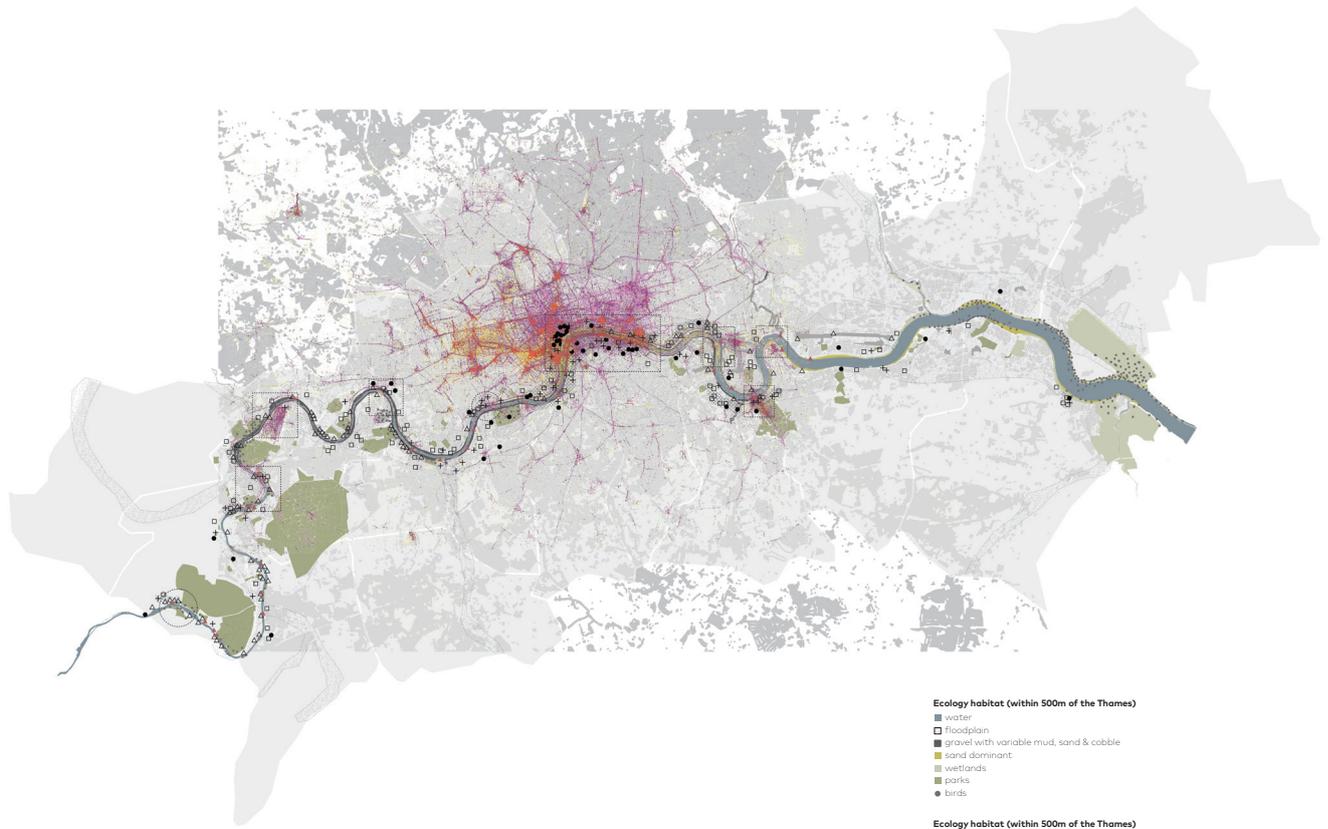
- Water morphology**
- river (salt water)
 - river (brackish water)
 - river (sweet water)
 - river (pre medieval, high tide)
 - floodplain (current)
 - Fluid riverbanks
- Urban morphology**
- riverfront development (urban fluidity)
 - planned riverfront development (urban fluidity)
- low & high tide (left)
 ■ water velocity and active time (right)
 - - historic city edge



Confluence

Habitat | Ecology and urban collective

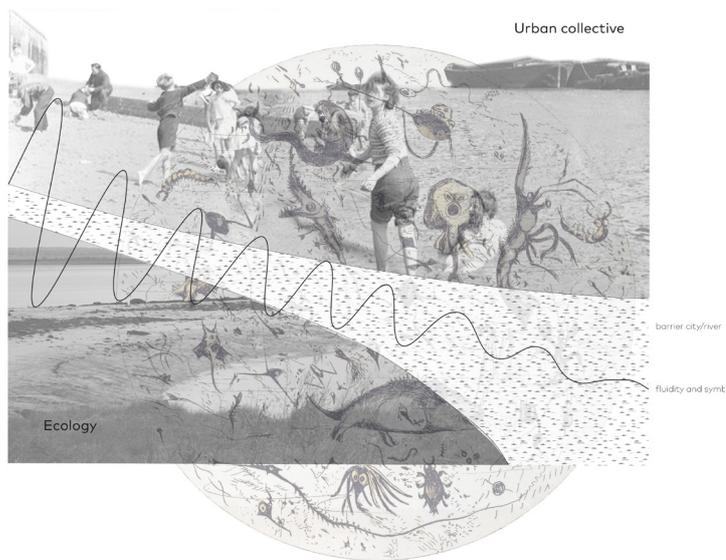
This lens examines the habitat of the urban collective and ecology in Greater London. Social media activity and public institution locations were analyzed to create a composition of the public habitat. The map found that the river, London's largest open space, has limited public access and engagement. The West is declining in connection, and the east has little public presence. The ecology is present in both the West and the East, due to softer edges between water and the city that exist there. Access points or stairs are mainly found in the West and centre but do not lead to significant public engagement. London's defensive attitude has limited the interaction between ecology and the public, resulting in a static waterfront losing its fluidity. West of Battersea, water leisure is found due to its narrow, quiet, and cleaner character. The urban collective dominates the habitat, especially in the centre, while only in the West, the habitat is somewhat shared between the two.



- Ecology habitat (within 500m of the Thames)**
- water
 - floodplain
 - gravel with variable mud, sand & cobble
 - sand dominant
 - wetlands
 - parks
 - birds

- Ecology habitat (within 500m of the Thames)**
- ▲ ferry terminals
 - community centre
 - performance space
 - + museum and arts
 - ▲ water leisure
 - ▭ boroughs
 - public intensity 1 - 4mil
 - public intensity 200k - 1mil

Current



Confluence

Man-made | man-made and anthropocentric influences

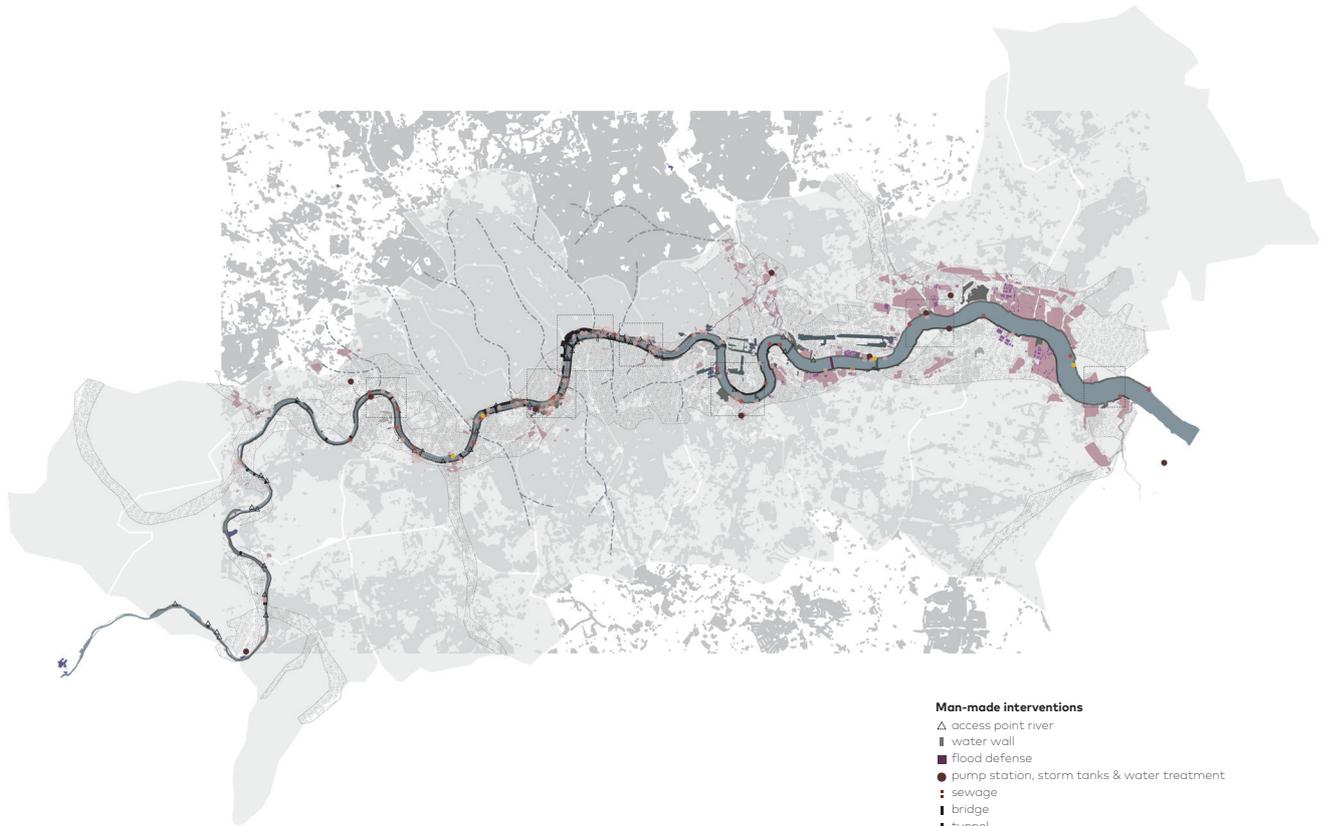
This control- and human focused topic delves into the various man-made interventions that have impacted the Thames riverscape. These interventions have had a significant impact on the quality and life of the species in the water and along the waterfront. The majority of the waterfront is now 'tamed' due to various 'taming' interventions. The embankments, hard-edged water walls, enclosed side rivers, Thames Barrier, and numerous bridges are all man-made structures that restrict the flow of water and have caused a huge rise in tidal difference from one meter in Roman times to seven meters now¹⁹. Walls along the Thames have been used not only to protect from water but also to operate engineering works. The subway, sewage, and dividing infrastructure have all been integrated into the walls along the Thames, which explains the observed pollution on the map. Sewage discharge, especially in the centre of London, impacts the quality of the water due to heavy rainfall as stormwater and sewage are currently combined. Plastic waste is also a major threat, with a large volume of waste flowing into the marine environment, particularly eastward from Putney²⁰.

Despite many species' adaptability, the changes in water quality due to human-made influences can make the river an unlivable place. Therefore, the predominant strategy of controlling the Thames has been called into question, as river ecosystems are irreplaceable and essential to life²¹. The *Confluence* delves deeper into the technocratic paradigm the city has developed, highlighting the river's neglected identity and meaning in the public life of Londoners. The river is now more controlled by humans than by nature, almost as if it can be turned on and off, losing its essential natural rhythm of the hydrological cycle. Although the river is in a much better state than it was 50 years ago, the essential aspects of the river are in decline or growing towards more threatening levels.

¹⁹Gandy, Matthew. "The fabric of space: Water, modernity, and the urban imagination". MIT Press, 2014.

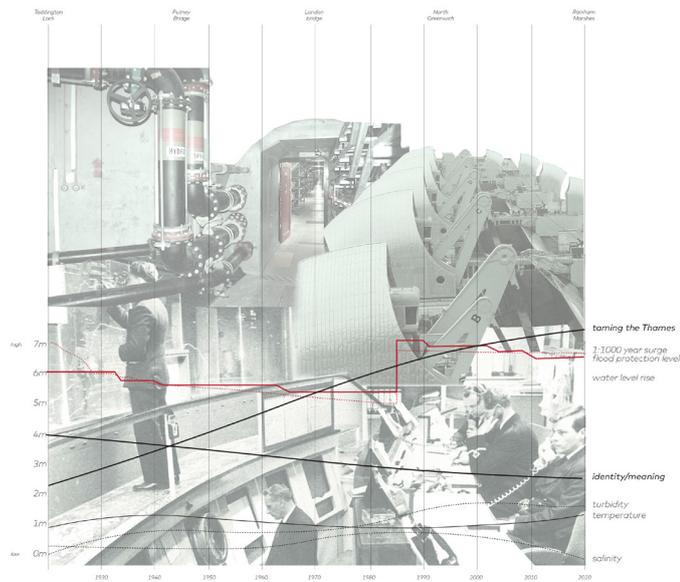
²⁰Environment Agency. "Thames Estuary 2100: Managing flood risk through London and the Thames estuary" (2012). <https://www.gov.uk/government/publications/thames-estuary-2100-te2100/thames-estuary-2100-te2100>

²¹Postel, Sandra, and Brian Richter. "Rivers for life: managing water for people and nature". Island press, 2012.



Current

- Man-made interventions**
- △ access point river
 - ▬ water wall
 - flood defense
 - pump station, storm tanks & water treatment
 - ⋮ sewage
 - ⋮ bridge
 - ⋮ tunnel
 - embankment
 - industry along water
 - industry buildings
 - ⋮ covered rivers
- Man-made influences**
- sewage pollution
 - waste pollution (plastic, wet wipes etc)
 - Hg pollution
 - moderate dissolved oxygen



Confluence

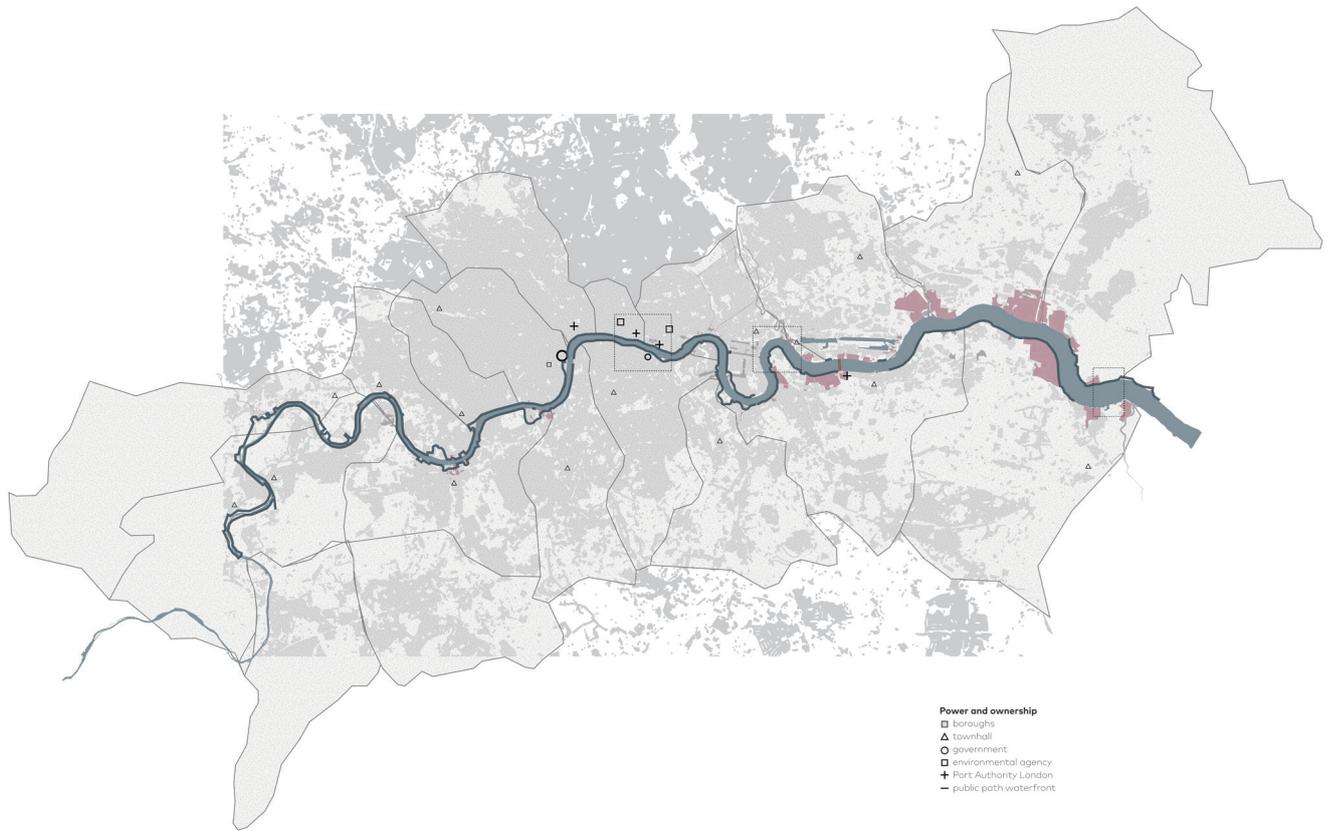
Politics | conditions of power and ownership

The Thames and its waterfront are highly controlled by human hands, resulting in a landscape of hydrological uncertainty with challenges in understanding responsibility and alignment of visions²². The economy has seen great rewards from the controlled Thames, but it has also caused great ecological losses.

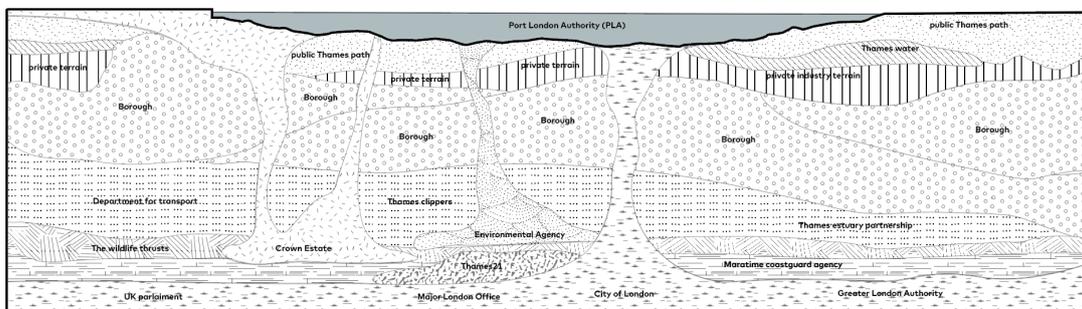
The power has been grouped into national, city authority, boroughs and port authority. Ownership has been divided into Crown estate, port authority, industries, private and public. Although PLA owns the river, it is the local borough that has the responsibility for development along its banks based on advice from statutory bodies and the mayor's London Plan. Many different authorities and institutions are acting on the Thames and its waterfront creating a complex web of responsibilities. To make matters worse the authorities are often secretive, creating a paradigm that distances the public from the water¹⁹.

The 'voice' of the river is unheard in most political decisions as there is no protective legal body active in the landscape. In *Confluence*, a representation of the powers and ownership has been drawn to reflect their hierarchy. Real change can only happen through the collaboration of all sectors and individuals working together, including the currently missing perspective of non humans.

²²Gandy, Matthew. *The fabric of space: Water, modernity, and the urban imagination*. MIT Press, 2014.



Current



Confluence

The waterfront condition

The Thames waterfront is a vital zone that mediates between urban and ecological elements, acting as a meeting place for people and water. However, the waterfront is in a continuous state of fluctuation, shaped and formed by ecological and anthropocentric influences. As a result, the Thames is a living and fluid organism with unique zones that act differently depending on their contextual influences.

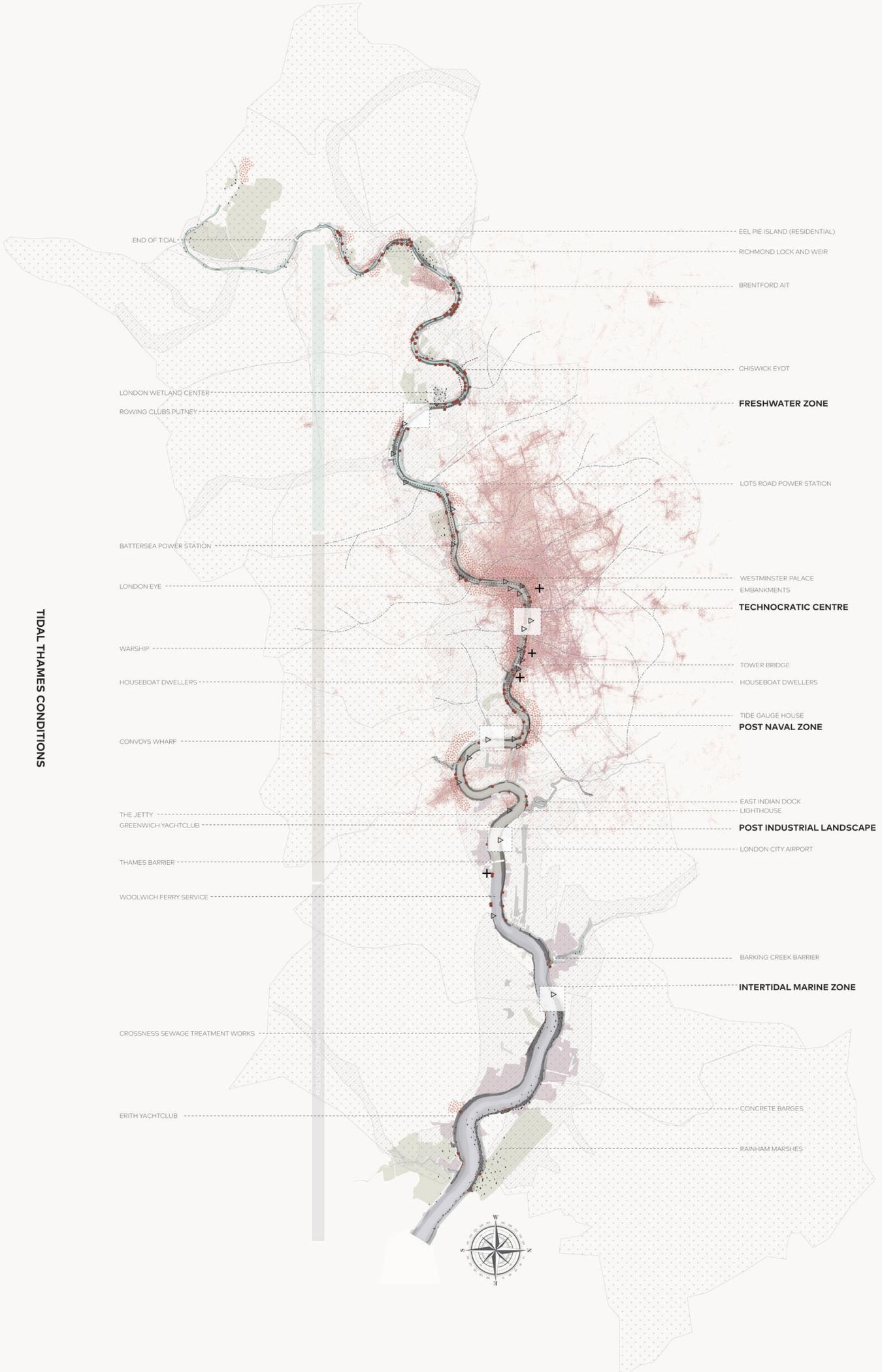
By tracing the flow of water and hydro social dynamics of the city, we can observe a rhythmic structure of the accumulated waterfront conditions. The accumulated map (see next page) of the Thames shows different intensities, relations, and situations. Looking at the functionality and meaning, we observed that the river is mainly focused on small transport in the West, moving people in the centre, and transporting goods in the East. The public mainly inhabits the central part of the Thames, and ecology can be found closer to the North Sea. The western part of the river allows for various public water activities such as rowing, swimming, or sailing.

Despite the Thames' importance to the city, man-made interventions have caused widespread pollution that affects the ecology of the river, leading to a human-water detachment along the banks. The city has distanced itself from the water, reducing the waterfront to a protective water wall that limits itself to exposed riverbanks and water imprints on the bounding walls. Linear, mono-functional waterfront design conditions emerged, resulting in river edges of permanence, fixity, and immutability, contrasting with the dynamic and fluctuating natural character of the Thames.

The fixed character of the urban realm is now being contested by the amplifying fluid mechanisms of the Thames. It almost seems to become a living organism with its laws of growth and change. London is not fully controlling the Thames anymore; the river starts dictating and influencing London. As a result, the realization of the Thames being an integral part of London shifts our focus to places where we can meet and learn from each other again towards a much-needed social-ecological symbiosis. The fluid waterfront.

Architecture has the potential to intervene in various conditions by merging in its context and symbiotically mediating between the city and river. The Thames waterfront design requires a symbiotic approach, one that merges the urban and ecological elements in a way that extends the fluid waterfront. This principle allows people to meet and learn from each other while respecting the river's natural and dynamic character. The waterfront can be a place for recuperation and contemplation, where tensions between collective memory, ecology, and riparian environments can be addressed.

TIDAL THAMES CONDITIONS



Architecture as riparian mediator

It has become clear that the current controlling and neglecting paradigm dissolved the meaning and functionality of the river therewith making it obsolete. The Thames has become static and the conditions become critical. The river and its ecology are unheard of and therefore rejected by public life. River and humans are detached. To reduce pressing issues and threatening conditions we must alter our strategy and connect ourselves again with the Thames. We shouldn't further manipulate nature but rather adapt ourselves in a better way to time-proven, life-sustaining cycles as argued by Postel²³. The Thames is London, and we need to start seeing that by listening to it. But how do we engage and emerge ourselves with the river again?

A relationship between the river and urban collective can only develop once both parties understand, and connect with, each other. A dialogue between humans and non-humans should occur once we approach the river. Therefore we should start perceiving the Thames as a living and essential entity in London. This relates to the ideas of Bennett and Latour, both exploring the value and importance of the object and matter^{24 25}. Latour highlights the interdependence between our survival and the distinct logic of other organisms and things. The river contains 'things' that would normally go unnoticed, not only fish, plankton or sand but also the water or the historic artefacts under the water. Better engagement between humans and river could contribute to changing the neglecting anthropological paradigm and improve the general urban-ecology resilience²⁶. To build such an improved relationship one should repeatedly come towards the river and spend time with it. The inexplicable river already possesses a voice of its own, but we must now discover a means to truly listen to and comprehend its message. A voice can be given by repeatedly being close to the river. We should relate to it in a physical sense to make it tangible. Therefore, one should consider the importance of the senses. It embodies the literal connection of body and water, but thereby also allows us to have a tangible interaction with the river, promoting a sense of stewardship and care for the natural environment. Architecture, predominantly visually orientated, can herewith liberate itself from the visual aspect solely²⁷. Architecture possesses the ability to involve all our senses, enabling us to establish a fresh and immersive connection with the Thames. By surpassing conventional architectural strategies for waterfronts, it opens up new possibilities for exchanging narratives, reestablishing our bond with the river once again.

As this essay focuses on the tidal range of the Thames multiple zones of potential interventions rise. It operates as a complex system on various scales with adjacent issues and challenges. It is impossible to tackle all problems or to intervene along the total length of the river. Instead, initial input should be given to defining the critique on a territorial level which in turn will guide the architecture on the meso and micro levels. The theory of Third Generation City by Casagrande provides a start in that. This will be combined with the concept of an Oligopticon by Bruno Latour, informing the whole by closely observing something very specific. In such a framework the city will be learning from its environment, followed by restoring it. Restoring also brings the potential of connecting humans and the natural environment, seen as the culmination of Casagrande's theory²⁸. He argues that surgical and selective interventions should be made right at the nodes that have the most potential to regenerate the bigger system, as found in the previous chapter. The nodes themselves should operate as oligoptica, as proposed by Latour. It has its roots in the actor-network theory (ANT) and is built on a metaphysics of relationism (Law, 1999)²⁹. An Oligopticon recognizes the multiplicity of actors, layers and perspectives in the urban and river system. It encourages a collaborative approach and acts as a site for the manufacturing of knowledge and consensus, but also the creation of structural effects such as 'culture'. The oligoptica have

²³Postel, Sandra, and Brian Richter. "Rivers for life: managing water for people and nature". Island press, 2012.

²⁴Bennett, Julia. "Gifted places: The inalienable nature of belonging in place." *Environment and Planning D: Society and Space* 32, no. 4 (2014): 658-671.

²⁵Latour, Bruno and Hermant, Emilie. "Paris: Invisible City", 2006. http://www.bruno-latour.fr/livres/viii_paris-city-gb.pdf

²⁶Forgaci, Claudio. "Integrated Urban River Corridors: Spatial design for social-ecological resilience in Bucharest and beyond". *A+BE | Architecture and the Built Environment*, 2018. <https://doi.org/10.7480/abe.2018.31>

²⁷Pallasmaa, Juhani. "The eyes of the skin: Architecture and the senses". John Wiley & Sons, 2012.

²⁸Casagrande, Marco. "From urban acupuncture to the third generation city." *In Nature driven urbanism*, pp. 131-153. Springer, Cham, 2020

²⁹Latour, Bruno. "Reassembling the Social. An Introduction to Actor-Network-Theory". OUP Oxford, 2005. p. 181

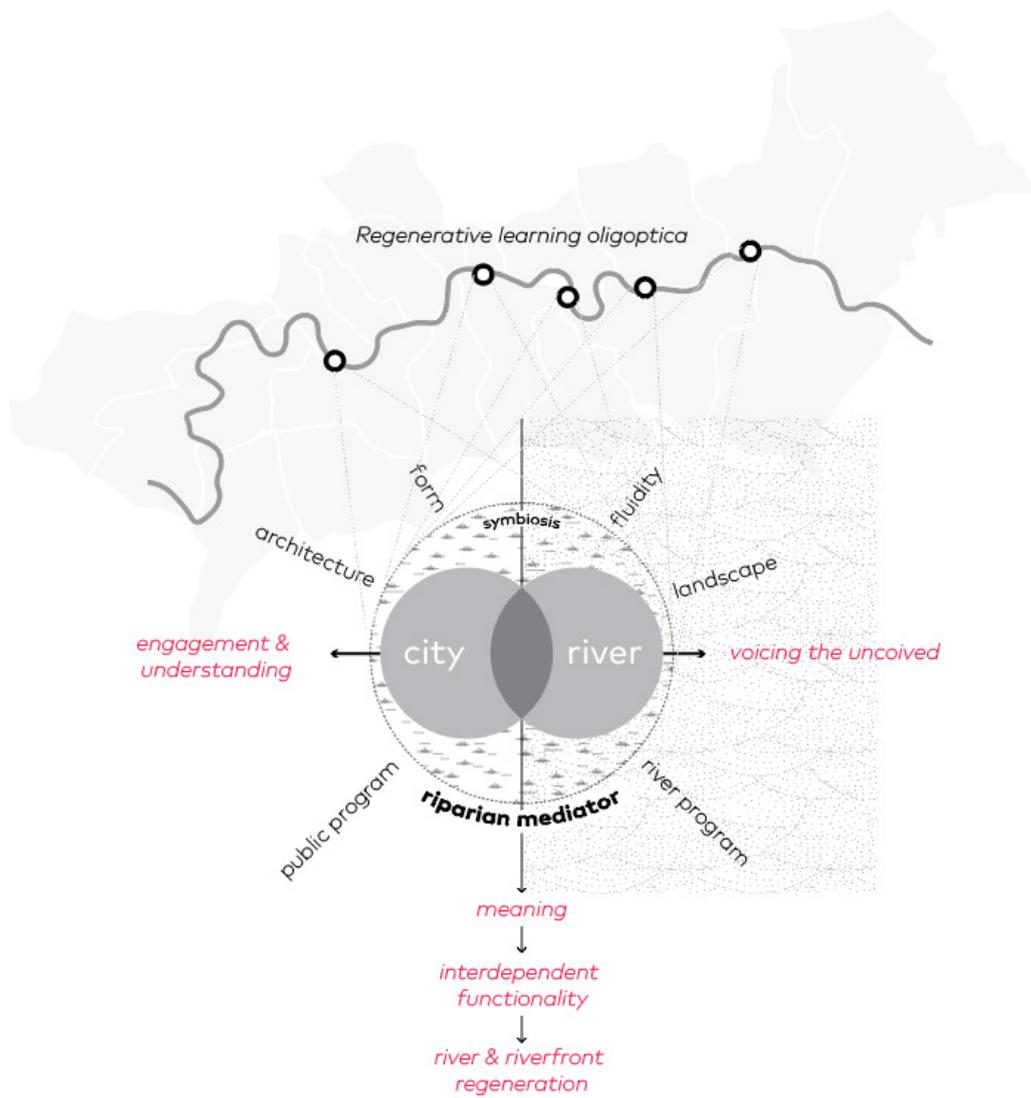


Figure 31 | Architecture as riparian mediator diagram. Author, 2023

many connections, all of them being fragile on their own but becoming powerful as a whole. He describes it as the spaces where microstructures of macro phenomena are created. However, one should realize that the strong yet narrow views of the whole are only functioning if the connection between the nodes is existing. The locations, but most certainly the architectural connection of the various interventions therewith becomes essential. Combining the theories of ANT and oligopticon we can develop a way of interacting and observing, through the use of all senses, of the urban and ecological system allowing us to understand the complexity of the conflicting and coexisting conditions that make up the waterfront. This new engagement also is a rational act of self-preservation. The services and goods the river aquatic provides are too essential to Londoner's well-being to proceed without them. The symbiosis becomes therefore interdependent. The future of Londoners, but also the city, depends on our ability to coexist with other species and things³⁰.

The challenge however is to translate this conceptual framework into an effective architectural strategy and design language. A strong connecting concept should therefore be applied by the architect and must be followed by all interventions. As the architecture has to become a mediator between the city and the river, while having an ecocentric and allowing character it becomes clear that the strategy should focus on the negotiation of fluid boundaries and territories. Not only between humans and non-humans, as already established, but also between form and fluidity, between architecture and landscape, and between program and regeneration for humans and non-humans. It advocates for a more holistic and symbiotic approach to design, where architecture is not merely built for human use but actively interacts with and responds to the natural environment. This not only strengthens the concept of architecture as a mediator but also takes on the role of being an interdependent system. Therewith it becomes a much-needed and long-lasting protagonist in the re-establishment of the relationship between the water and the city.

Now we can set up the initial understanding of architecture as a riparian mediator. In a time the Thames, and most rivers worldwide, are threatened by pollution, climate change, erosion and extinction of species as a result of neglect and denial observing and monitoring the river becomes more essential than ever before. A lasting difference, however, is not only made through observing social-ecological interaction but also by acting as a tool for monitoring and in turn regenerating it. The sensory focus will foster a deeper connection between Londoners and the river, promoting a sense of stewardship and care for the natural environment. Intertwining the scientific and public aspect opens up new opportunities and allows the architecture to exceed its symbolic meaning and function as a regenerative and interdependent social and ecological system. The synergy between humans and non-humans shapes a new type of public realm in which culture or habits become recreation and regeneration. It will be a space in which Londoners are no longer seen as passive users but as observers, scientists, cartographers, explorers, sailors and ambassadors. An important notion to the architect however is the fact that the symbiotic urban riparian here is not argued to duplicate the imaginary past landscape. One should shift the attention towards a new riparian architectural landscape that acknowledges the blended nature of social and ecological environments. This approach aims to synthesize cultural and ecological influences, creating a novel setting where the pursuit of landscape authenticity is superseded by a deliberate recognition of these factors that reshape the urban space^{31 32}.

While developing the strategy we should also develop more ecocentric thinking. That starts with questioning whether or not humans or architecture, representing

³⁰Postel, Sandra, and Brian Richter. "Rivers for life: managing water for people and nature". Island press, 2012.

³¹Balmori, Diana, and Joel Sanders. "Groundwork: Between Landscape and Architecture". 1st ed. New York: Monacelli, 2011

³²Gandy, Matthew. "The fabric of space: Water, modernity, and the urban imagination". MIT Press, 2014.

a predominantly destructive impact on rivers, actually be allowed to intervene along the sensitive river ecosystem. Rivers are complex and layered systems with many actors in them. Just like beavers and fish, we are part of that ecosystem as well, and we all make our own impact on it. Thus, we can make a certain impact, but simultaneously we should also allow the river to do so in our urban environment. In other words, we should rather on how we can coexist together in a better way, which might mean impacting it slightly sometimes. This thinking moves far away from the current neglecting and exploiting impact of humans on rivers. The predominant controlling and anthropological paradigm won't change that easily, and therefore the importance of spaces allowing for careful engagement and connection between humans and non-humans is argued to be essential. It should be explored playfully by proposing an integral space that negotiates boundaries, territories, resources and affordances with the Thames. Once the relationship evolves, the architectural intervention and program might evolve too as boundaries are negotiated and shaped allowing new spaces to appear and dissolve. A good example of this is given by Studio Ossidiana. They imagined a harbour in Amsterdam Noord filled with 21 exploratory islands. Each of these islands reflected upon the city's identity while being true to nature and history. Their objective was to create a public space where new urban rituals would emerge. The interventions focus on the potential that is being offered for human and non-human actors, and by new possibilities of discovery, action and leisure.

Therefore we could perceive the riparian mediator as a learning space. Fourth Nature as introduced by Kowarik, but further elaborated upon by Bakshi and Gallagher continues this idea by arguing that static design frames shouldn't be implemented upon the dynamics of species movement and adaption to adjusting conditions like rivers³³. Designers should be open to the unpredictability of emerging forms and processes, allowing and untamed, for the better of fluidity, something that is unseen along most parts of the riverfront today. It is focused on investigating the potential of human and non-human urban systems and their flexibility to future spatial consequences, be they caused naturally or anthropologically. Similar to the fluid character of the Thames the mediating architecture allows for changes in time and leaves the final form of the intervention unpredictable. It creates an attitude of acceptance towards the water. Flooding or change of space due to this dynamic process is not an emergency anymore but could offer a new functional space instead.

³³Bakshi, Anita, and Frank Gallagher. "Design with fourth nature." *Journal of Landscape Architecture* 15, no. 2 (2020): 24-35.



Figure 32 | *Amsterdam allegories*. Studio Ossidiana, 2018

Conclusion

This research aims to understand the role of water, the waterfront as such and its fluid condition all influencing the functional totality of London with its emerging issues and challenges. It shines a new light on the role of the architect and how architecture could become a mediating actor between water and city and therewith creating an urgent need for a waterfront symbiosis.

The waterfront however is ambiguous, especially in the urban context of London. Looking at the functionality and meaning we observed the Thames to be a living and fluid organism with various conditions which cannot be captured as one definition. Existing at the vague edges of what is built and what is 'nature', somewhat neglected and left to its own we start perceiving them as a terrain vague and psycho-geographical condition which physically expresses itself along the Thames to be encountered between the water and the urban collective. Expressed through the behaviour and emotions of individuals surpassing our common understanding. Herewith the waterfront is not an edge anymore but becomes a zone acting spatiotemporally. It is the area in-between open and built, between estrangement and belonging.

The Thames waterfront has various conditions but finds similarity in its marginalized fluid character as it is often reduced to a protective concrete water wall showing only some vertical and hidden mediation with the tidal imprint of water. It is here that it captures an image of the city's advancements which have resulted in unintended consequences for the river. The river has been intentionally engineered to fulfil specific services and functions for the city, but as a consequence, it has also removed the river from the Londoner's daily lives and perceptions. The man-made interventions caused widespread pollution that affects the ecology of the river. Linear, mono-functional waterfront design conditions emerged which resulted in river edges of permanence, fixity and immutability. This is contrasting with the dynamic and fluctuating natural character of the Thames. There always has been a changing tension between city and river, a battle between the forces of nature and the power of the anthropogenic. As the Thames lost its functionality and meaning the waterfront has become obsolete and therewith losing ground for its existence. The Thames is 'broken'. The land and the water, thus the waterfront, are detached. Instead of further manipulating nature, we should strive to adapt ourselves more effectively to the well-established, life-sustaining cycles. The Thames is London, and we need to start seeing that by listening to it and therewith rethink its meaning and functionality.

The idea of the Thames being a living and essential entity shifts our focus to places where we can meet and learn from each other again, a fluid waterfront. This is where architecture has the potential to intervene in various conditions by merging in its context and symbiotically mediating between the city and river through engagement with it on a physical and sensory level. Architecture possesses the ability to involve all our senses, enabling us to establish an immersive connection with the Thames. By surpassing conventional architectural strategies for waterfronts, it opens up new possibilities for exchanging narratives, reestablishing our bond with the river once again. By doing so, we can listen to the river's voice and discover its unique logic, which is crucial for a coexisting social-ecological future. The conceptual framework of the riparian mediator is based on the theories of Third Generation City and Oligopticon, which allow for surgical and selective interventions to be made right at the nodes that have the most potential to regenerate the bigger system. Architecture functions as a connected public sensory observatory aiming to monitor and engage with the river in a new way. It should explore and rethink the way we engage with the non-human and how we find

back the identity, meaning and functionality of the river through 'micro-narratives'. This requires a new relationship with the river and its actors in opposition to the current controlling and neglecting one. It is to be explored playfully by proposing an integral space that negotiates boundaries, territories, resources and affordances with the Thames. It is crucial however to design with a new attitude in the mind of the river as a dynamic process, therewith focusing on change, fluidity, flexibility, connection and acceptance. It should be capable to respond to the dynamics of the Thames. Ultimately, the riparian architecture will shape a new type of public realm, in which Londoners are no longer passive users, but rather observers, scientists, cartographers, explorers, sailors, and ambassadors. The public space and river will not only be (re-) connected again, leading towards a new meaning and functionality but even exceed its boundaries towards a regenerated resilient urban-river future.

The architectural framework of the riparian mediator expands with ideas of synergy and interdependency in space, program, material and symbiosis of architecture and landscape. In a way, the architecture is renegotiating its ground and liberating itself from a sole symbolic meaning. We could now consider the interdependent riparian mediator as a new potential waterfront paradigm in the urban context of London.



figure 33 | Sede Puerto Montt. Facultad de arquitectura USS, 2018

Annotated bibliography

- Allen, Stan. "Points and lines: Diagrams and projects for the city". Princeton Architectural Press, 1999. *Mapping*
Architectural theorist Stan Allen writes in this article about mapping complex relations by focusing on the in-between space and the rhythm instead of the elements. Helps grasping and mapping the somewhat intangible waterfront conditions.
- Allen, Stan, and Diana Agrest. "Mapping the unmappable: On notation." *Practice: Architecture, Technique and Representation* (2000): 31-46. *Mapping*
In this second article Stan Allen discusses the specific meaning and ideas behind different drawing techniques being used as a set of instructions for an object. Has contributed in representing the intangible conditions of the waterfront.
- Bakshi, Anita, and Frank Gallagher. "Design with fourth nature." *Journal of Landscape Architecture* 15, no. 2 (2020): 24-35. *Fourth nature*
Gives insight in how the post-anthropocentric characteristics of the landscape can be transformed into a restored ecology of the landscape. Current static design frames shouldn't be implemented upon the dynamics of species movement and adaption to adjusting conditions like rivers. Designers should be open to the unpredictability of emerging forms and processes. Operating on micro scale.
- Balmori, Diana, and Joel Sanders. "Groundwork: Between Landscape and Architecture". 1st ed. New York: Monacelli, 2011. *Architecture and landscape*
The book proposes an integration of landscape and architecture to heal the environment through analysis of 25 projects on international scale. Symbiosis of natural and synthetic, exterior and interior, is argued to enhance a more inclusive and alive conceptualization of the physical world. This research continues on this as base for design tools and strategies.
- Barron, Patrick, and Manuela Mariani, eds. "Terrain vague: interstices at the edge of the pale". Routledge, 2013. *Terrain Vague*
The writers seek to explore the vague spaces of the city - areas that extend the cultural, social, and economic circuits of urban life. They present a collection of essays and cases outlining innovative ways of how to perceive marginal urban space
- Casagrande, Marco. "From urban acupuncture to the third generation city." In *Nature driven urbanism*, pp. 131-153. Springer, Cham, 2020. *Third Generation City*
Marco Casagrande is a Finnish architect, bio-urbanist and social theorist. He researched the Third Generation City through the Ruin academy. Restoring brings the potential of connecting human and natural environment, seen as the culmination of his theory. He argues that an surgical and selective intervention should be made right at the nodes that have the most potential to regenerate the bigger system.
- Debord, Guy. "Introduction to a critique of urban geography." *Les lèvres nues* 6, no. 2 (1955). *Psycho-geographical*
Elaborating upon a psycho-geographical condition which physically expresses itself in a city to be encountered. It is being seen as the study of the precise laws and specific effects of the geographical environment, whether intentionally organized or not, on the behaviour and emotions of the individuals
- Gandy, Matthew. "The fabric of space: Water, modernity, and the urban imagination". MIT Press, 2014. *Water-culture*
His book discovers the cultural and material worlds of water in cities.

Gandy's perspective is focused on the urban political ecology to reveal the origin, fabric, and course of urban nature–culture relations. Helpful for understanding water-public relations and for design strategies in research.

- ANT Latour, Bruno. "Reassembling the Social. An Introduction to Actor-Network-Theory". OUP Oxford, 2005. p. 181
In his book he elaborates upon the theoretical and methodological approach of social theory in which all things in the social and natural world exist in continuously adjusting networks of relationships. He argues that outside these connections nothing exists. Within a social situation all factors related to these relationships are similar resulting in no external social forces influencing beyond what and how the network operates and interacts. In short it says that all things are equally important in creating social situations, both human and non-human.
- Oligopticon Latour, Bruno and Hermant, Emilie. "Paris: Invisible City", 2006. http://www.bruno-latour.fr/livres/viii_paris-city-gb.pdf
The oligopticon has its theoretical roots in actor-network theory (ANT) and is based on a metaphysics of relationism, meaning that to exist is to be related. The oligopticon are observing spaces within a narrow and detailed frame. Together they establish and remove to create a connected vision.
- Riparian fluidity Manning, Adrian D., Joern Fischer, Adam Felton, Barry Newell, Will Steffen, and David B. Lindenmayer. "Landscape fluidity—a unifying perspective for understanding and adapting to global change." *Journal of Biogeography* 36, no. 2 (2009): 193-199.
Using concept of fluidity as perspective to understand changing landscapes through notion of time and space. They argue that this thinking can bring a new focus on flux in landscapes and herewith help unify separate research themes. Therefore very applicable for researching The Thames and its riparian, as these can be considered zones of fluidity.
- Riparian Naiman, Robert J., and Henri Decamps. "The Ecology of Interfaces: Riparian Zones." *Annual Review of Ecology and Systematics* 28 (1997): 621–58. <http://www.jstor.org/stable/2952507>.
Extensive elaboration on definition, ecology and function of the riparian zone. Although written from a more ecological standpoint, essential to include in research for added ecological perspectives. Later on even tool for future riparian development are explored, which might be useful for design tools too.
- Riparian health Postel, Sandra, and Brian Richter. "Rivers for life: managing water for people and nature". Island press, 2012.
They explain the importance of restoring and preserving more natural river flows which are key to sustaining freshwater biodiversity and healthy river systems. Also elaborate upon innovative policies, scientific approaches, and management reforms for achieving those goals.

Sources

Allan, Stan, and Marc McQuade, eds. *Landform building: architecture's new terrain*. Lars Muller, 2011.

Arhitekturni muzej v Ljubljani, and International Architectural Exhibition (16th : 2018 : Venice, Italy). "*Living with Water: Slovenian Pavilion at the 16th International Architecture Exhibition*", La Biennale Di Venezia. Edited by Nina Granda and Granda Matevž. Translated by Škoberne Tina and Benja Pavlin. Ljubljana: Museum of Architecture and Design (MAO), 2018.

Bennett, Julia. "Gifted places: The inalienable nature of belonging in place." *Environment and Planning D: Society and Space* 32, no. 4 (2014): 658-671.

Briggs, Jeanette. "*Thames History*." 2011. <https://www.riverthames.co.uk/thameshistory/>.

Brown, E. Reade. "*Management of wildlife and fish habitats in forests of western Oregon and Washington*". US Department of Agriculture, Forest Service, Pacific Northwest Region, 1985.

Curtis, Simon. "The River Thames: London's Riparian Highway." In *Destination London: The Expansion of the Visitor Economy*, edited by Andrew Smith and Anne Graham, 165-82. University of Westminster Press, 2019. <http://www.jstor.org/stable/j.ctvhrd0t9.11>.

De Meulder, Bruno, Viviana d'Auria, and Janina Gosseye. "*Water urbanisms*". Edited by Kelly Shannon. Amsterdam, Netherlands: SUN architecture, 2008.

Environment Agency. "*Thames Estuary 2100: Managing flood risk through London and the Thames estuary*". 2012. <https://www.gov.uk/government/publications/thames-estuary-2100-te2100/thames-estuary-2100-te2100>

Girot, Christophe. "*Rising waters, shifting lands*". 2012.

Greater London Authority. "*Expanding London's public Realm*". PDF file. Accessed October 13, 2022. https://www.london.gov.uk/sites/default/files/exploring_londons_public_realm.pdf

Fahmy, Ahmed, Amal Abdou, and Mahmoud Ghoneem. "Regenerative Architecture as a Paradigm for Enhancing the Urban Environment." *Port-Said Engineering Research Journal* 23, no. 2 (2019): 11-19.

Forgaci, Claudio. "*Integrated Urban River Corridors: Spatial design for social-ecological resilience in Bucharest and beyond*". A+BE | Architecture and the Built Environment, 2018. <https://doi.org/10.7480/abe.2018.31>

Gandy, Matthew. "Rethinking Urban Metabolism: Water, Space and the Modern City." *City* 8, no. 3 (2004): 363-79. doi:10.1080/1360481042000313509.

Hein, Carola. "*Adaptive strategies for water heritage: Past, present and future*". Springer Nature, 2020.

Kowarik, Ingo. "Wild urban woodlands: Towards a conceptual framework." *Wild urban woodlands: New perspectives for urban forestry* (2005): 1-32.

Latour, Bruno. "*Reassembling the Social. An Introduction to Actor-Network-Theory*". OUP Oxford, 2005. p. 181

Lima, Manuel. "Visual Complexity: Mapping Patterns of Information" (version 1st ed.). 1st ed. New York: Princeton Architectural Press, 2011. <https://ebookcentral-proquest-com.tudelft.idm.oclc.org/lib/delft/reader.action?docID=3387539&ppg=18>

Martin, Prominski, Stokman Antje, Stimberg Daniel, Voermanek Hinnerk, and Zeller Susanne. "River.space.design: Planning Strategies, Methods and Projects for Urban Rivers". Basel: Birkhäuser, 2012.

McCormick, Hannan Cox, Thea Pecorelli, Joe and Debney, Alison. "The State of the Thames 2021: Environmental trends of the Tidal Thames". ZSL, 2021.

Pallasmaa, Juhani. "The eyes of the skin: Architecture and the senses". John Wiley & Sons, 2012.

Publica & BOP. "The case for a river Thames cultural vision". Greater London Authority, 2019. https://www.london.gov.uk/sites/default/files/the_case_for_a_river_thames_cultural_vision_2019.pdf

Shannon, Kelly, and De Meulder, Bruno. "Water Urbanisms East, Volume 2". Park Books, 2013.

Smith, Harry, and Maria Soledad Garcia Ferrari, eds. "Waterfront regeneration: Experiences in city-building". Routledge, 2012.

Speranza, Philip. "Time as a medium: Early work of Miralles." *Architectural Design* 86, no. 1 (2016): 60-65.

Stevens, Quentin. "Artificial waterfronts." *Urban Design International* 14 (2009): 3-21.

Stuart Oliver, "The Thames Embankment and the Disciplining of Nature in Modernity." *The Geographical Journal*, Vol 166, No. 3, 2000, pp. 227-238

Thomas, Jack Ward, Chris Maser, and Jon E. Rodiek. "Riparian zones." *Wildlife habitats in managed forests: the Blue Mountains of Oregon and Washington*. Agriculture Handbook 553 (1979): 40-47.

Tinsley, Derek. "The Thames estuary: a history of the impact of humans on the environment and a description of the current approach to environmental management." *A rehabilitated estuarine ecosystem*, pp. 5-26. Springer, Boston, MA, 1998.

Vanessa Taylor, "London's River? The Thames as Contested Environmental Space", *The London Journal, A review of Metropolitan Society Past and Present*, Volume 40, 2015, pp. 183-195

Part II | **Design Research**

Introduction

The studio and the Thames

The MSc 3 graduation studio is dedicated to exploring the urban environment of Greater London from a multidisciplinary perspective. It aims to go beyond traditional architectural approaches by focusing on urban heterogeneity and addressing emerging urban issues. By embracing a holistic approach, the studio seeks to develop future-proof and innovative design solutions. Greater London, with its rich history and diverse cultural fabric, provides an ideal context for this exploration. Students in the studio immerse themselves in the city, conducting research and site investigations to gain a comprehensive understanding of the urban context. Collaboration with professionals from various fields enriches their architectural practice, equipping them with a broader skill set to tackle complex urban challenges. Ultimately, the studio aims to cultivate architects who can contribute to the creation of transformative architectural solutions and effectively address the complexities of contemporary cities.

The River Thames is an integral part of London's history, culture, and urban landscape. It has served as a vital artery, connecting neighborhoods and inspiring architectural landmarks throughout the city. From its humble origins to its significance as a trade route, the Thames has played a profound role in shaping London's identity. The river continues to be a bustling waterway, accommodating various activities and serving as a symbol of urban renewal. Its banks have been transformed into vibrant public spaces, while its bridges serve as iconic architectural feats. The dynamic relationship between the Thames and the city's architecture reflects London's evolving aspirations and cultural shifts. Through an exploration of key landmarks and the ongoing dialogue between the river and the built environment, the thesis seeks to uncover the intricate relationship between the Thames and the city's architecture and urban collective, providing insights into London's past, present, and future.



Exploratory research

The in-between

At first it will be essential to understand the waterfront in definition. Especially in the urban context of London it is ambiguous. I perceive it a psycho-geographical condition which physically expresses itself along the Thames to be encountered between the water and the urban collective as mentioned by Debord. Due to its spatial extent and gradual change, it also acts as a spatiotemporal condition. Naiman continues on this with his idea of the waterfront acting as a mediator as it operates transitional between two elements. The zone is not static and is changing through the notion of time and perception, both in an ecological and urban sense. It is the area in-between open and built, between estrangement and belonging.

The Thames waterfront is a complex adaptive system that doesn't hold a fixed identity. The waterfront is often reduced to only a protective waterwall in between urban and water. A zone of mediation limits itself here to exposed riverbanks and water imprints on the bounding walls.



River ecology

riparian
zone



Urban collective

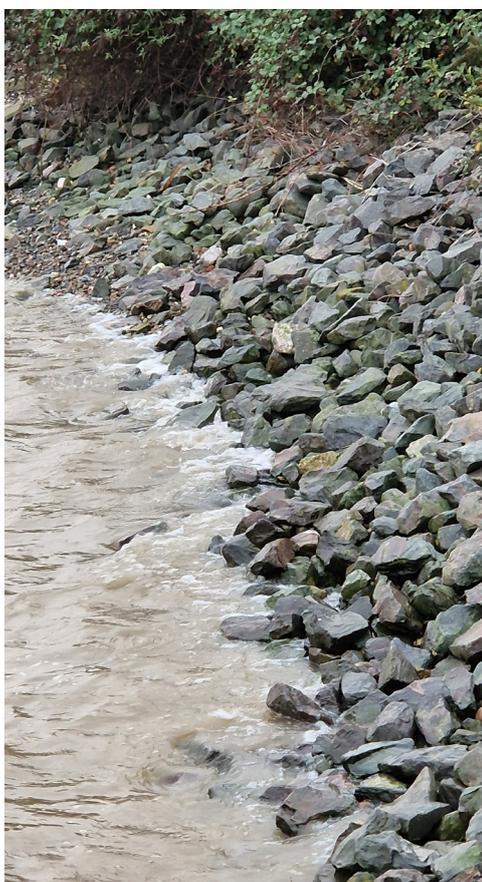


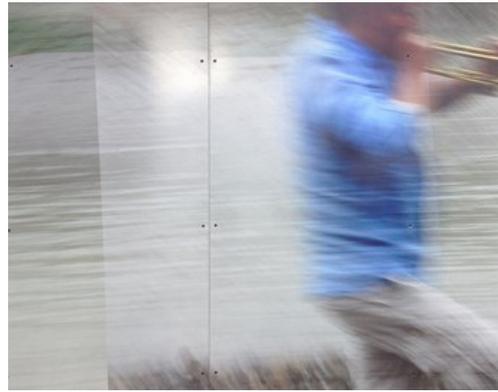
figure 34 | *The foreshore at low tide on the river Thames near Gabriel's wharf on Southbank with people and dogs on the beach.* Pilbeam, Ian. (2020). Image: <https://www.picfair.com/pics/09958900-the-foreshore-at-low-tide-on-the-river-thames>

Exploratory research

River & urban flux

This collage explores and celebrates the proximity of the river; memories, playfulness and a place to dream, a place to relax. Through observation and talks with various river users, a compiled series of gestures, actions capturing a suggestion of movement, the urban flux. Movement is shown as series of images, whereas the Thames now becomes the fixed and central narrative in all of them. It reminds us of the continuous relationship London actually has with the river.





Initiatives and Rituals along Thames

Totally Thames festival

An annual season of unique, diverse and accessible arts and culture throughout the month of September with activity taking place on, beneath, and along the River Thames.

Thames River Watch program

a way to come together as Londoners and communities to protect and monitor the health of the river Thames. It does this by training Londoners to capture vital information on Thames water quality and the types of waste that is collecting on the foreshore.

Together we are creating a far larger data set than would be possible otherwise and are contributing vital data to the existing understanding of the Thames' health.

The line and the tide

The first section of 'the tide', an elevated linear park that runs alongside London's river Thames, has opened to the public. Conceived as a 'destination for art, design, and well-being', the project has been designed by Diller Scofidio + Renfro in collaboration with Neiheiser Argyros and features artistic contributions from Damien Hirst and Morag Myerscough, among others. Intended for running, walking, and meditation, the park is located on the Greenwich peninsula and has been designed to be freely accessible to all.



figure 35 | *River Clean-up West London*. Thames21. (2023). Image: <https://www.thames21.org.uk/river-foreshore-clean-ups/>

State of the Thames

The River Thames, an iconic symbol of London's history and cultural heritage, has experienced a remarkable transformation over the years. Once considered a polluted and lifeless waterway, efforts to restore and revitalize the Thames have led to significant improvements in its health and ecosystem. However, challenges persist, and a comprehensive understanding of the current state of the river is vital for its continued protection and sustainable management.

The health of the River Thames has witnessed a remarkable resurgence in recent decades. Thanks to rigorous environmental regulations, wastewater treatment advancements, and dedicated conservation efforts, the Thames has rebounded from its polluted past. Today, it supports a diverse array of wildlife, including fish, birds, and invertebrates, and serves as a vital habitat for various species. The return of seals and dolphins to the river is a testament to its improved ecological condition.

Water quality in the Thames has also seen significant improvements. Efforts to reduce pollution sources, such as sewage discharges and industrial waste, have resulted in cleaner waters and enhanced biodiversity. The Thames Tideway Tunnel project, currently underway, aims to further improve water quality by preventing sewage overflow during heavy rainfall, ensuring the river remains clean and healthy.

However, the Thames still faces challenges that threaten its well-being. Plastic pollution poses a significant threat to the river's ecosystem, with millions of tons of plastic waste entering its waters each year. The accumulation of micro plastics not only harms aquatic life but also poses potential risks to human health. Additionally, pollution from urban runoff, agricultural practices, and invasive species continue to pose challenges to the river's ecosystem and water quality.

Climate change presents another major concern for the Thames. Rising sea levels and increased frequency of extreme weather events, including storms and heavy rainfall, can result in flooding and impact the river's delicate balance. These climate-related challenges require adaptive strategies to protect the river and its surrounding communities.

Public awareness and engagement are crucial in addressing these threats and ensuring the long-term health of the Thames. Education campaigns, community-led initiatives, and partnerships between government agencies, environmental organizations, and local communities play a vital role in raising awareness about the importance of preserving the river's ecosystem and mitigating pollution.

This thesis addresses the current state of the Thames in London, assessing its health and identifying the ongoing threats it faces. Through an analysis of scientific research, environmental reports, and stakeholder perspectives, I aim to provide a comprehensive overview of the challenges and opportunities for preserving the river's ecological integrity. By understanding the complex dynamics at play, I can develop effective strategies towards architecture as riparian mediator to safeguard the Thames for future generations and ensure its continued vitality as a cherished natural asset of the city.



Figure 36 | *Barking plastics*. Author. 2022.



Figure 37 | *The Thames riverbanks as polluted site*. Thames21

Monitoring the river

Thames21 River Watch Program

The River Thames, with its majestic flow and historical significance, has always captured the imagination of those who call London home. Recognizing the immense value of this iconic waterway, Thames21, a leading environmental organization, has initiated the Thames Watchers program. This visionary program invites individuals and communities to become active guardians of the river, promoting its conservation, enhancing its biodiversity, and fostering a deeper connection between people and their natural environment.

Thames Watchers is a groundbreaking initiative that empowers local residents, volunteers, and nature enthusiasts to actively participate in the preservation and restoration of the River Thames. By engaging in hands-on activities and citizen science projects, participants play a crucial role in monitoring the health of the river, contributing to valuable research, and working towards its sustainable management.

The program offers a diverse range of opportunities for individuals to get involved. Participants can join organized river clean-ups, removing litter and debris from the riverbanks and water, ensuring the protection of aquatic habitats and the overall cleanliness of the Thames. They can also take part in monitoring activities, collecting data on water quality, biodiversity, and the presence of invasive species. Through these efforts, Thames Watchers not only contribute to scientific knowledge but also raise awareness about the importance of the river's ecological balance.

Thames21 provides extensive training and support to Thames Watchers, equipping them with the necessary skills and knowledge to carry out their roles effectively. This includes workshops on river ecology, data collection techniques, and environmental stewardship. By nurturing a community of informed and passionate individuals, the program fosters a sense of ownership and responsibility towards the river, encouraging long-term engagement and positive environmental action.

One of the key benefits of the Thames Watchers program is its ability to unite people from diverse backgrounds and forge meaningful connections between communities and the river. Participants not only gain a deeper understanding of the Thames but also develop a sense of pride and connection to their local environment. This shared experience cultivates a collective commitment to the preservation of the river, fostering a sense of environmental stewardship that extends beyond the program itself.

This thesis will continue with this idea and explore it even in more depth. The fact that there is an actual need combined with the initial promising results are convincing for creating a project with great societal relevance. By analyzing the experiences of Thames Watchers and their contributions to the river's well-being, I seek to highlight the significance of community-driven initiatives in safeguarding our natural resources and nurturing sustainable relationships between people and their local ecosystems.

The Thames Watchers program stands as a beacon of hope, showcasing the power of collective action and community engagement in protecting and revitalizing one of London's most treasured assets. Therefore the project's interventions will have a great focus on local involvement. This will advance both the river's health as that it will improve the symbiosis between the Londoner and the Thames.



figure 38 | *River Clean-up West London*. Thames21. (2023). Image: <https://www.thames21.org.uk/river-foreshore-clean-ups/>

Precedence

The Marker Wadden

The Marker Wadden is an intriguing and innovative project located in the Netherlands, specifically in the Markermeer, a large lake that was created as a result of the country's land reclamation efforts. This ambitious undertaking aims to restore and enhance the ecological and environmental conditions of the area by creating a chain of artificial islands. These islands, known as the Marker Wadden, are being developed to provide habitat for a diverse range of plant and animal species, boost biodiversity, and improve the overall water quality of the lake.

Reasons why this project could be interesting for my project:

- 1. Ecological Restoration:** The Marker Wadden exemplifies a holistic approach to ecological restoration, as it seeks to revitalize an area that has been significantly impacted by human intervention. Could give valuable insights into how to restore and enhance the ecological balance and natural habitat of my waterfront sites in London. Understanding the strategies and techniques employed at the Marker Wadden can inform the project's efforts in creating a sustainable and resilient environment for local flora and fauna.
- 2. Artificial Island Development:** The creation of artificial islands is a key aspect of the Marker Wadden project. This approach offers an intriguing solution for addressing the challenges posed by urban waterfronts, such as limited space and deteriorating ecosystems. By studying the design, construction, and functionality of these artificial islands, my project can explore the potential for similar interventions in along the Thames. Implementing artificial islands can provide additional space for recreational activities, wildlife habitat, and unique landscapes, thus enhancing the overall quality of the waterfront area.
- 3. Water Quality Improvement:** One of the primary objectives of the Marker Wadden project is to improve the water quality of the Markermeer lake. This focus on water restoration aligns with the broader global concern for improving urban water bodies. By examining the water management strategies employed at the Marker Wadden, such as sediment capture and natural filtration systems, my project can draw inspiration for developing innovative approaches to water quality improvement in the riparian waterfront interventions in London. Understanding how to integrate sustainable water management techniques can contribute to the ecological and aesthetic enhancement of the area.
- 4. Public Engagement and Education:** The Marker Wadden project actively involves the public through citizen science initiatives, educational programs, and visitor facilities. This emphasis on public engagement and education is an essential aspect of creating awareness and fostering a sense of stewardship towards the environment. By incorporating similar elements in my project, such as interpretive centers, walking trails, and interactive installations, I can encourage community participation and raise environmental consciousness among the local population.

In summary, the Marker Wadden project offers an excellent precedent for my architectural and landscape project focused on improving the riparian waterfront in London. By examining the ecological restoration efforts, artificial island development, water quality improvement strategies, and public engagement initiatives undertaken at the Marker Wadden, I can draw valuable inspiration and apply relevant concepts to create a sustainable, resilient, and engaging waterfront environment in London.



figure 39 | *Marker Wadden*. Straystone Pictures, Peter Leenen fotografie. (2020). Image: <https://www.natuurmonumenten.nl/projecten/marker-wadden>

Site visits

A journey along the Thames



Figure 40 | *Battersea*. 2022.

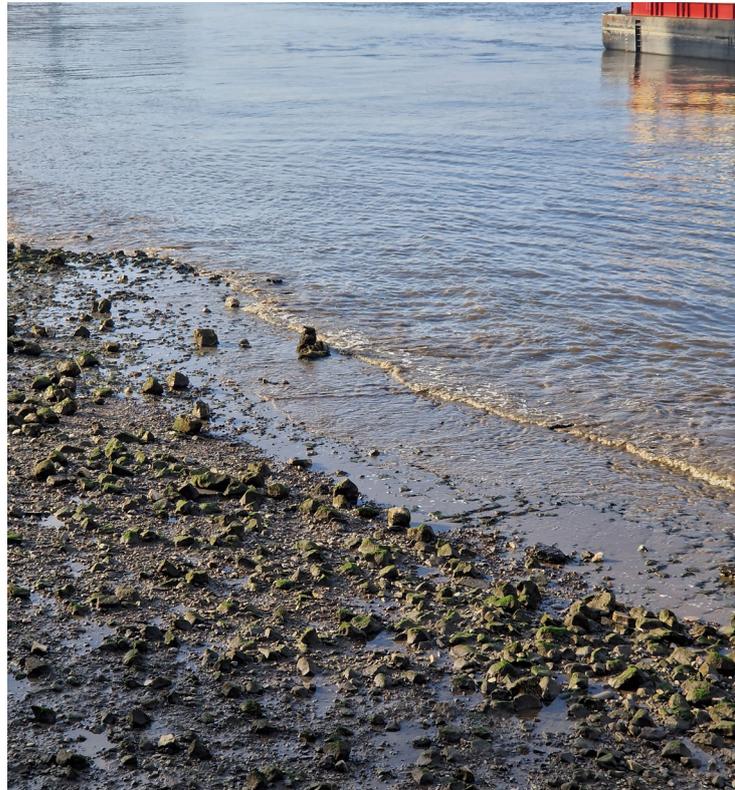


Figure 41 | *The exposed riverbanks*. 2022.



Figure 42 | *A weekend stroll along the Thames. 2022.*

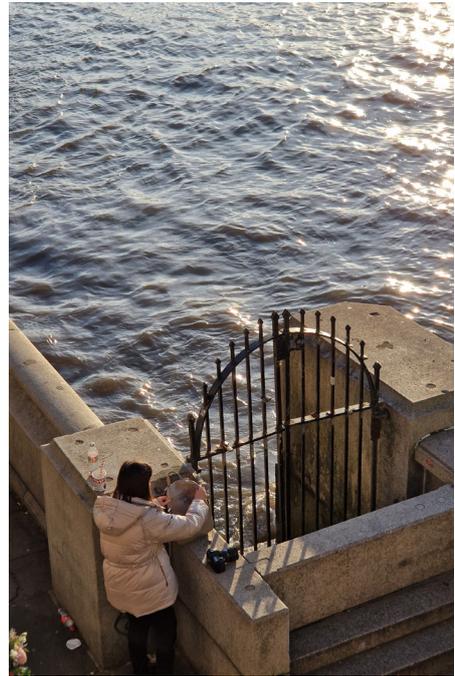


Figure 43 | *Access forbidden 2022.*



Figure 44 | *A man and his boat*. 2022.



Figure 45 | Access to the waterfront. 2022.



Figure 46 | Walking the dogs at low tide. 2022.



Figure 47 | *Making music along the Thames.* 2022.

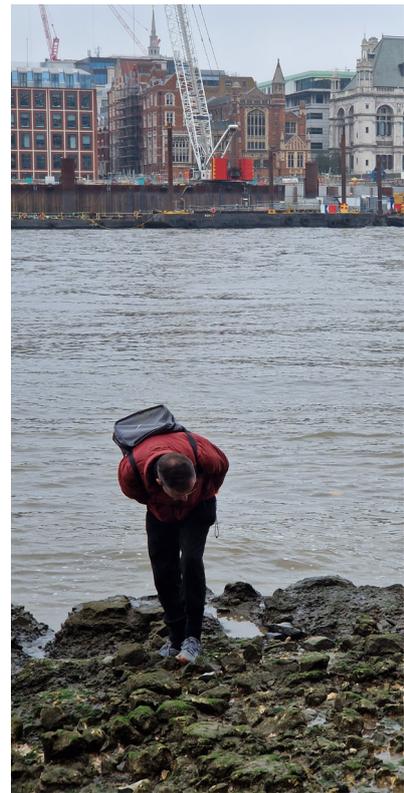


Figure 48 | *The mudlarker.* 2022.



Figure 49 | *Central fishing*, 2022.

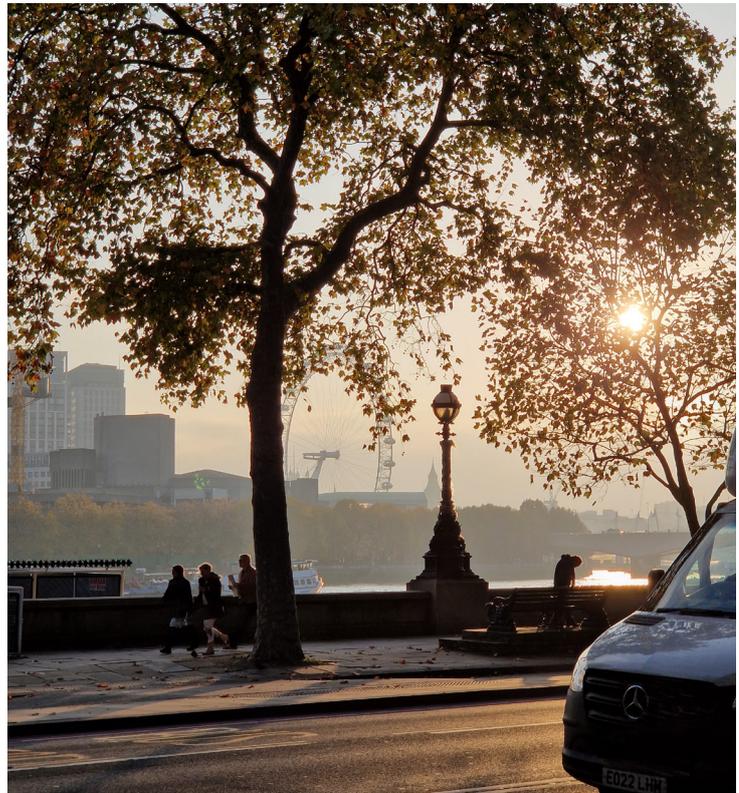


Figure 50 | *Thames in distance*, 2022.



Figure 51 | Mudlarking at low tide. 2022.



Figure 52 | *Low tide Putney Bridge. 2022*



Figure 53 | *Putney rowing clubs. 2022.*

The Thames

Voicing the Thames

The Thames is London, and we need to start seeing that by listening to it and therewith rethink its meaning and functionality. But how can we voice the unvoiced river?

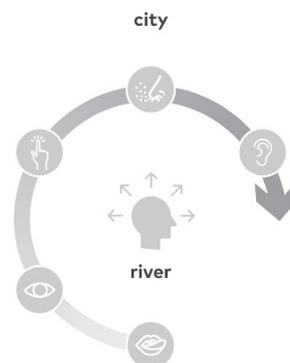
The combination of the "third generation city" theory by Marco Casagrande and the "oligopticon" theory by Bruno Latour provided a powerful framework for developing an architectural typology that focuses on connecting humans and the non-human, while simultaneously regenerating the ecosystem. The first theory emphasizes the integration of human activities with natural systems. It advocates for a more holistic and symbiotic approach to urban design, where architecture is not merely built for human use but actively interacts with and responds to the natural environment. The oligopticon, on the other hand, recognizes the multiplicity of actors, layers and perspectives in the urban and river system. It encourages a collaborative approach that involves diverse stakeholders, including local communities, environmental experts, and policymakers. This inclusive and collaborative process ensures a better understanding of the river leading to more effective solutions in time. Within this framework architecture functions as a space to explore and rethink the way we engage with the non-human and how we find back the identity, meaning and functionality of the river through 'micro-narratives'.

As the architecture had to be further defined the strategy continued upon the idea of negotiating boundaries. Not only between humans and non-humans, as already established, but also between form and fluidity, between architecture and landscape, and between program and regeneration for humans and non-humans. This not only strengthens the concept of architecture as a mediator but also takes on the role of being an interdependent system. As the relationship is shaped over time, the building should also be designed to withstand this. The program and exact boundaries between the city and river are subject to change due to urban and river dynamics. Therewith it becomes a much-needed and long-lasting protagonist in the re-establishment of the relationship between the water and the city. The concept can now be combined in this collage.

Architecture has to function as a connected public observatory aiming to tie together the scientific monitoring and public engagement. The five senses help to foster a deeper connection between Londoners and the river, therewith promoting a sense of stewardship and care for the natural environment. This allows to go beyond the visual aspect only and helps creating a more prominent space for the Thames in the daily life and perception of Londoners.



Connected public observatory (for monitoring and engagement)



Engagement & monitoring through senses

Riparian Mediator

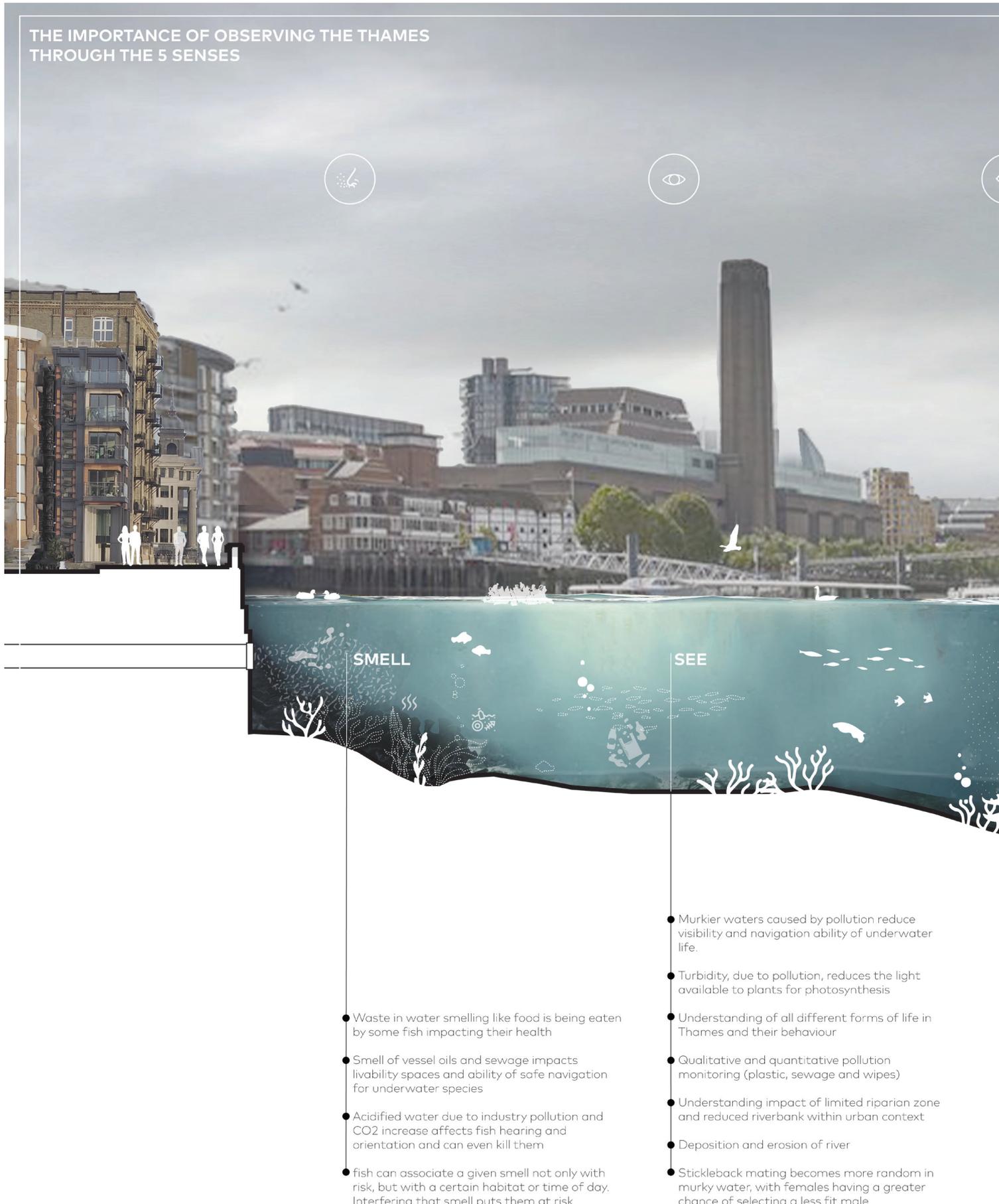
Public river observatory and regenerator



Monitoring the river

Importance of monitoring through senses

THE IMPORTANCE OF OBSERVING THE THAMES THROUGH THE 5 SENSES

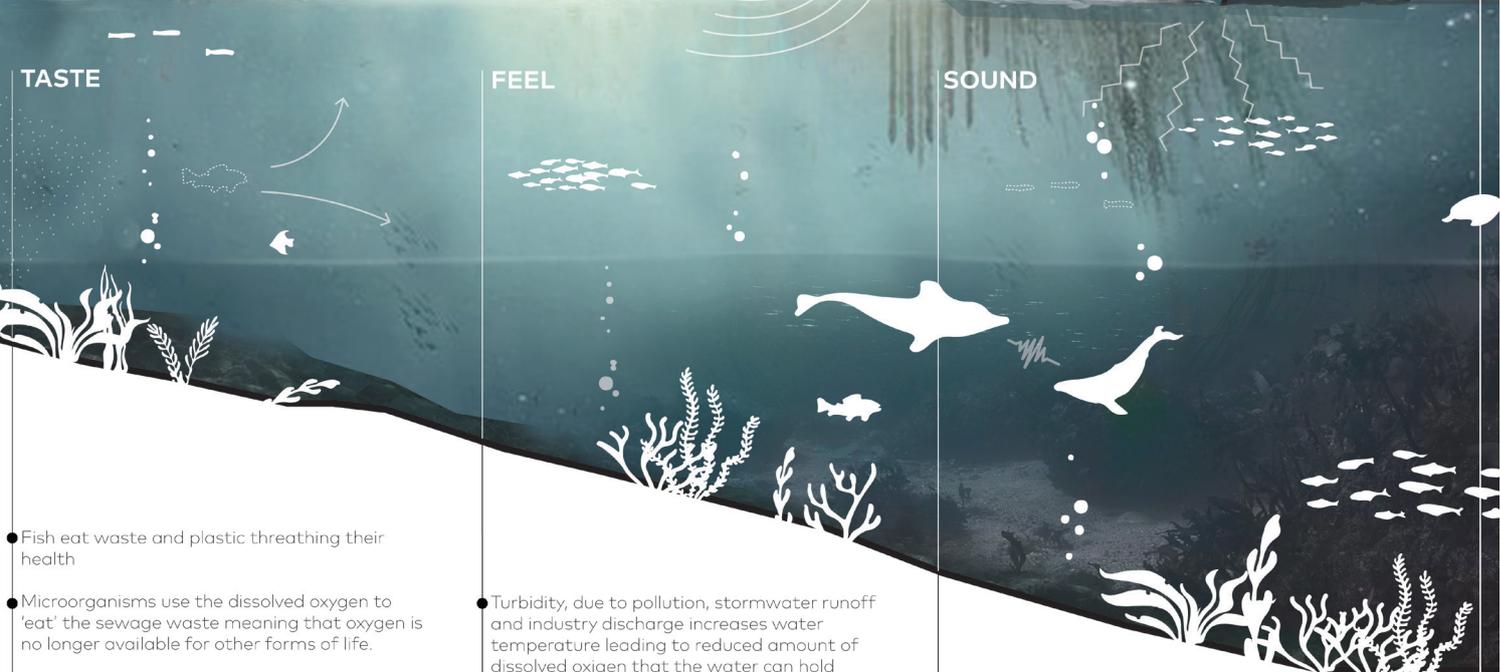


SMELL

SEE

- Waste in water smelling like food is being eaten by some fish impacting their health
- Smell of vessel oils and sewage impacts livability spaces and ability of safe navigation for underwater species
- Acidified water due to industry pollution and CO2 increase affects fish hearing and orientation and can even kill them
- fish can associate a given smell not only with risk, but with a certain habitat or time of day. Interfering that smell puts them at risk

- Murkier waters caused by pollution reduce visibility and navigation ability of underwater life.
- Turbidity, due to pollution, reduces the light available to plants for photosynthesis
- Understanding of all different forms of life in Thames and their behaviour
- Qualitative and quantitative pollution monitoring (plastic, sewage and wipes)
- Understanding impact of limited riparian zone and reduced riverbank within urban context
- Deposition and erosion of river
- Stickleback mating becomes more random in murky water, with females having a greater chance of selecting a less fit male



TASTE

FEEL

SOUND

- Fish eat waste and plastic threatening their health
- Microorganisms use the dissolved oxygen to 'eat' the sewage waste meaning that oxygen is no longer available for other forms of life.
- Starvation leads to loss of aversion to many deterrent substances, which explains the consumption by starving fishes of new objects, previously refused or just occasionally consumed
- Heavy metals, detergents, and other contaminants have negative effects on structure and function of taste system in fish and depress taste perception and ability of fishes to respond adequately to taste stimuli after short exposures.

- Turbidity, due to pollution, stormwater runoff and industry discharge increases water temperature leading to reduced amount of dissolved oxygen that the water can hold
- The particles of soil, algae and tiny substances can affect fish directly by clogging their gills.
- Wet wipes change riverbeds and inhabitable underwater spaces
- Microorganisms use the dissolved oxygen to break down the sewage meaning that oxygen is no longer available for other forms of life. This can lead to large scale fish kills

- Sound pollution by city and motors of vessels interfere and impact underwater communication of certain fishes and mammals.
- Increased acid levels due to industry pollution and CO2 increase impact hearing ability of underwater species

Architecture as riparian mediator

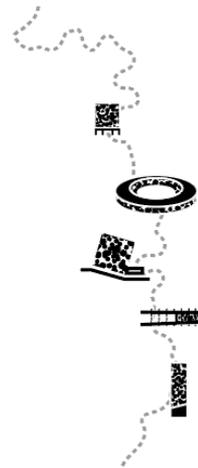
Locations of interventions

The sites were chosen as strategic spaces of regeneration and social-ecological integration potential. That offered a way to locate river-city systems in a relationship that would benefit from a resilient coexisting future. Despite the difference, they share the narrative and conceptual idea. And together they will be the connective network of riparian mediators.

Based upon the mapping conducted during the research regenerative and potential sites have been filtered. Further filtering of sites happened by selecting only those site close to a ferry terminal. Lastly only the sites were chosen that hold an unique character of the Thames river and waterfront. That left the project with five sites along the Thames. Despite the interventions being located relatively far apart it is essential for them to hold a shared connection in between them. The narrative and interventions must be interlinked through concept, materialization and architectural expression.



Penetrate in waterfront landscape and create river rooms/observatories for symbiotic waterfront



Interlinked narrative and observations but physically connected with its formal language and attitude



Unique waterfront condition



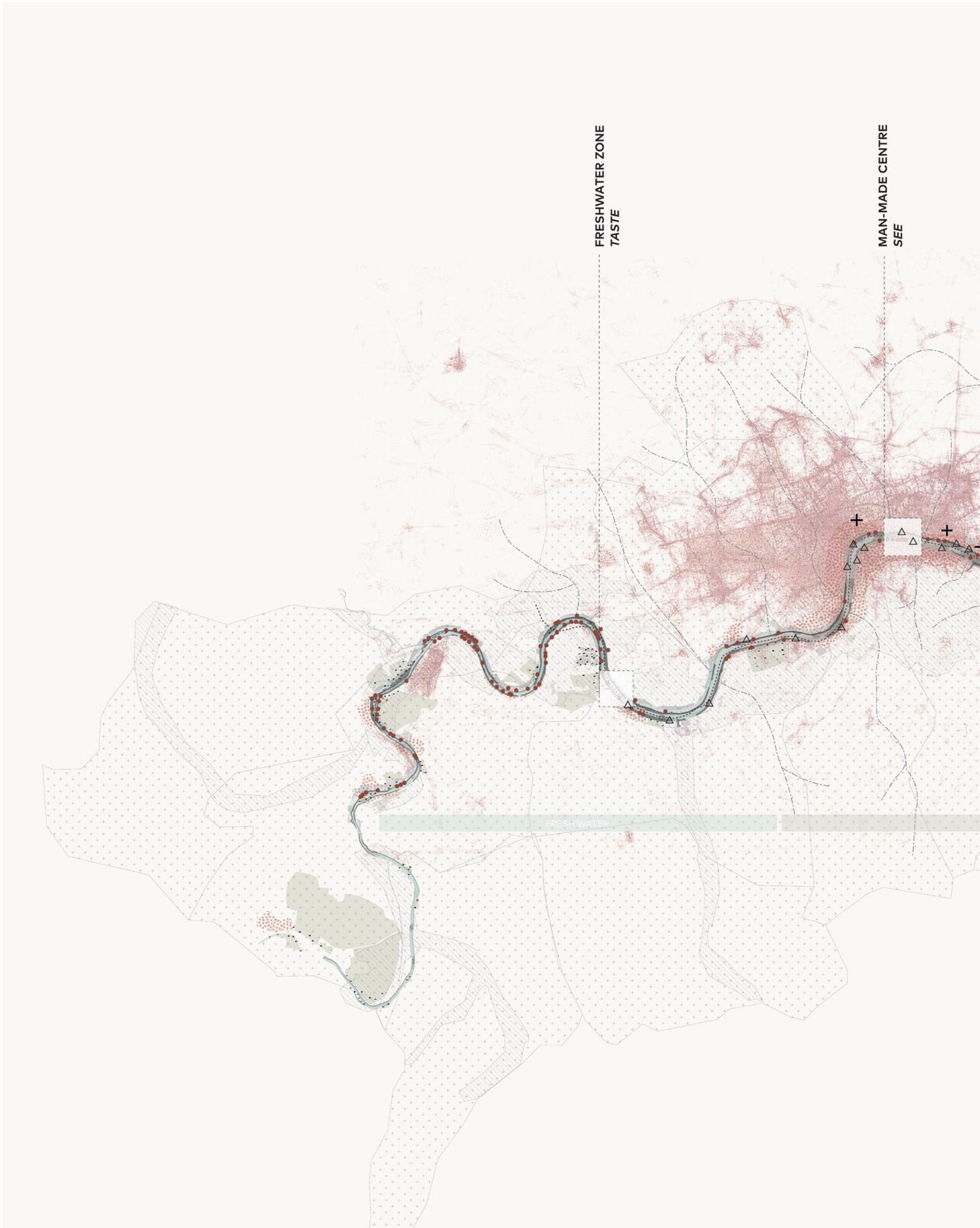
Close to Thames Clipper ferry terminal



Regenerative need and potential

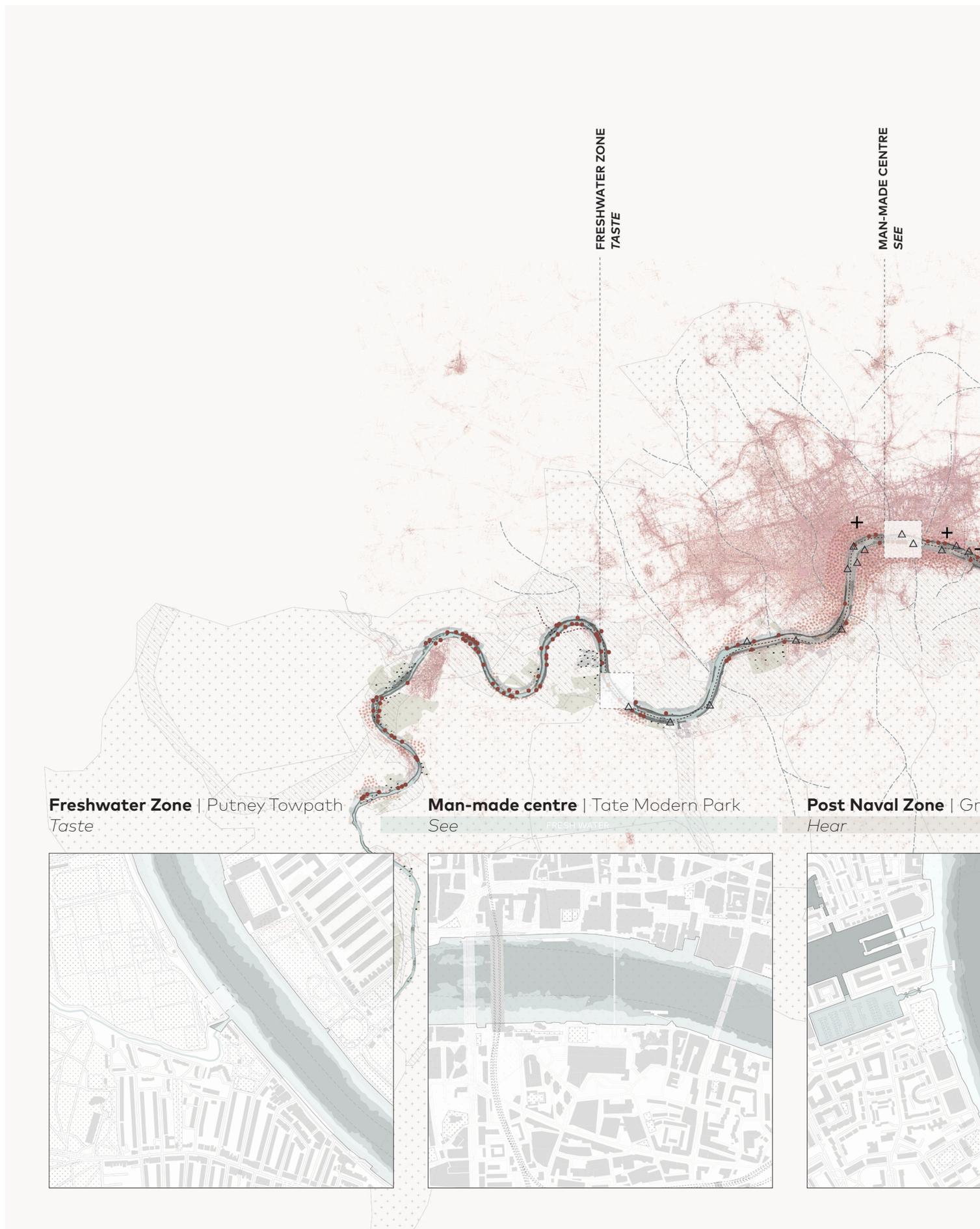
Masterplan

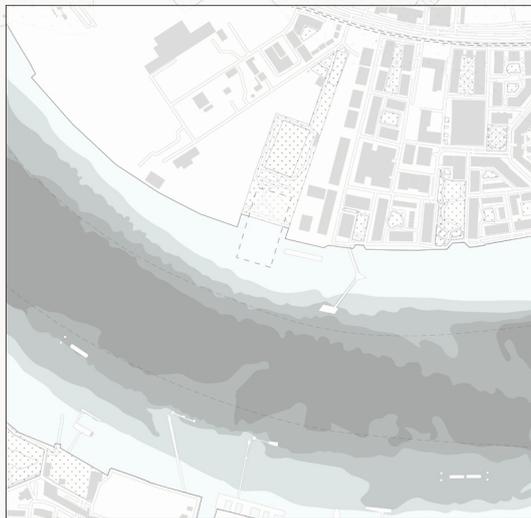
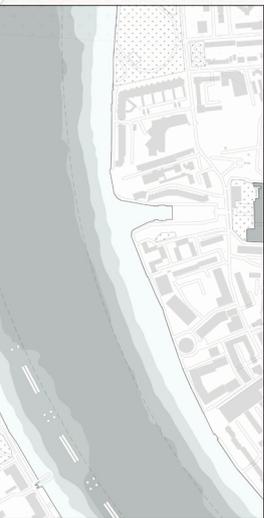
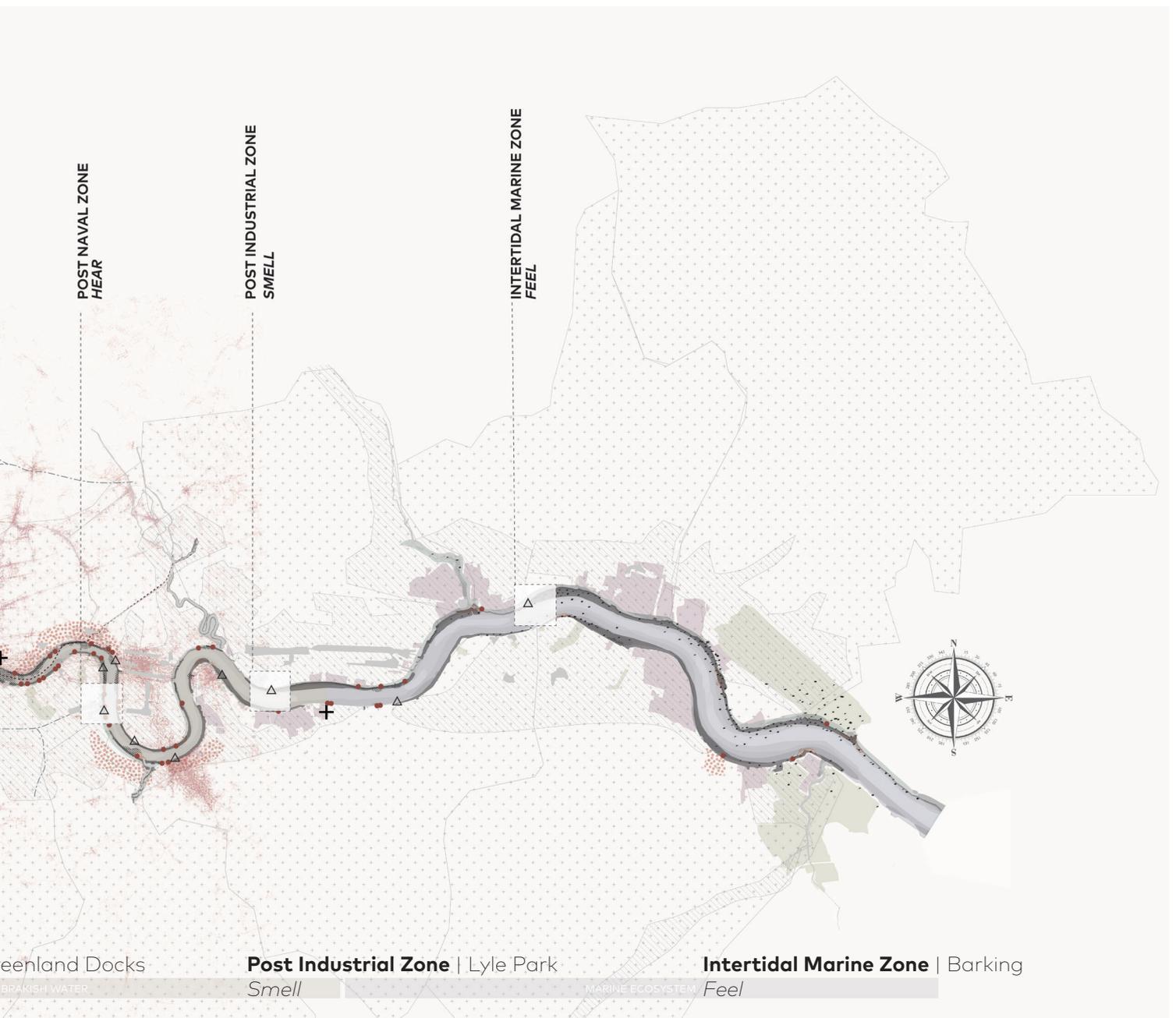
Pollution, conditions, functionality and accessibility by water





Placement and site





Program

The river rooms

THE TEA ROOM TASTE

I | FRESHWATER ZONE

Context

Putney Towpath
Southbank
soft edge, fluid riverbank
Putney Pier
part of Thames path

Character

Semi-remote
Water leisure
Shielded
Residential
Garden like

Relation river

Approachable

STRATEGY

Character

Exposed riverbank
river/inland focus

Movement

horizontal - descending

Program River

Water quality monitoring

Act of Intervention

purifying local water & prepare
tea water

Program Public

Tea taste room

Method

natural filter proces translated
into spatial experience

DESIGN

Element

asea/inland focus

Technicalities

purifying water system

Local materials

quiet, calm

Building Method

longitudinal structure
tea room on riverbank

THE THAMES OPERA SEE

II | TECHNOCRATIC CENTRE

Context

Tate Modern garden
Southbank
hard edge, semi-fluid riverbank
Bankside pier
part of Thames path

Character

Central
Public
Motion
Man-made
Polluted

Relation river

Approachable

Character

Exposed riverbank
riparian symbiosis

Movement

horizontal & vertical -
ascending & descending

Program River

Underwater specie & intertidal monitoring

Act of Intervention

purifying local water & fluid generator of
riparian river/public realm

Program Public

Public realm, above, on and under,
inland and river

Method

riparian landscape translated into
spatial experience

Element

asea/inland focus

Technicalities

generate tidal energy

Local materials

sand, mud for bricks

Building Method

circular structure connecting land
with water

THE BATH FEEL

III | POST NAVAL ZONE

Context

Greenland dock St. George's Square
Southbank
hard edge, semi-fluid riverbank
Greenland surrey Pier
Thames path

Character

Semi-central
Residential
Historic artifacts
Naval/docks
Unprogrammed square

Relation river

Approachable

Character

Empty & non operative dock
river/inland focus

Movement

horizontal - ascending

Program River

Temperature monitoring

Act of Intervention

thermal pollution adsorption & prepare
pool water

Program Public

bathroom/outdoor pool

Method

riparian landscape translated into
spatial experience

Element

asea/inland focus

Technicalities

aquathermal energy system

Local materials

Leftover ship building materials

Building Method

excavation

THE ONOMATOPOEIA
HEAR

IV | POST INDUSTRIAL LANDSCAPE

Context

*Lyle Park
Northbank
soft edge, semi-fluid riverbank
Barking terminal (recently built)
No Thames path (to be realized)*

Character

*post-industrial
Residential
Fixed
Man-made
Linearity*

Relation river

Approachable

THE SCENT
SMELL

V | INTERTIDAL MARINE ZONE

Context

*Barking riverside
Northbank
soft edge, semi-fluid riverbank
Barking terminal (recently built)
No Thames path (to be realized)*

Character

*Remote
Industrial
Exposed & overview
motion
Marine eco zone
Out-of-controlled zone*

Relation river

Approachable

Character

*Empty & non-operative dock
inland focus*

Movement

vertical - ascending

Program River

Sound monitoring

Act of Intervention

Underwater sound absorption

Program Public

Sound contemplation room

Method

*riparian landscape translated into
spatial experience*

Character

*Exposed riverbank
riparian symbiosis*

Movement

horizontal - descending

Program River

Underwater scent monitoring

Act of Intervention

intertidal plants for smell reduction

Program Public

Scent room

Method

*riparian landscape translated into
spatial experience*

Element

asea/inland focus

Technicalities

generate tidal energy

Local materials

Industrial leftover / plastic waste materials

Building Method

manipulation

Element

asea/inland focus

Technicalities

?

Local materials

plastic waste materials?

Building Method

*flexible and rebuildable structure, as
new piers be Erith, a more eco area*

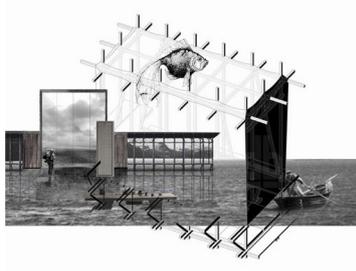
Program

The river rooms



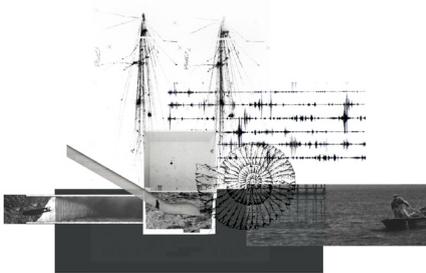
PUTNEY TOWPATH - TASTE

Freshwater garden like environment with residential character. Water is more purified here, and thereby gets input from tributary.



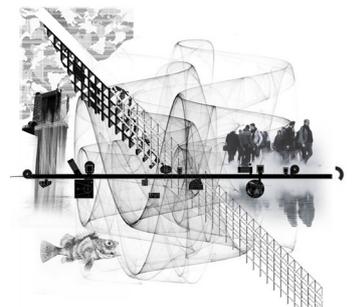
TATE MODERN PARK - SEE

Central London, always in motion, biggest potential to show the unseen of the Thames. In the mids of cultural institutions like museums and theaters, a new typology is placed



GREENLAND DOCKS ST GEORGE SQUARE - HEAR

Former harbor now filled with residential and commercial, is a place with sound pollution of naval and city influences



LYLE PARK - SMELL

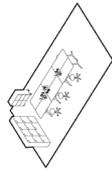
Post industrial and industrial space next to residential area that are polluting the waters with sewage, industrial and plastic smells



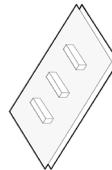
BARKING RIVERSIDE - FEEL

Furthest location with a large riparian and soft edges, a space in which one could truly feel the fluidity of the Thames, close to new built residential area

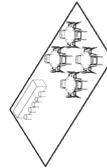
Freshwater Zone | Taste
Putney Towpath



Monitoring Lab
Water purification & waste

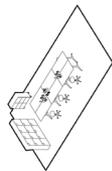


Symbiotic act
Purifying oysters & filtration



Tea Room
Tea with Thames water

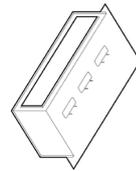
Man-made centre | See
Tate Modern Park



Monitoring Lab
Underwater species & urban riparian behaviour

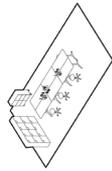


Symbiotic act
Urban riparian zone, room for river and urban collective



Observatory
Riparian and underwater observatory

Post Naval Zone | Hear
Greenland Docks



Monitoring Lab
Underwater sound

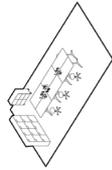


Symbiotic act
oxidation bubblers for noise reduction

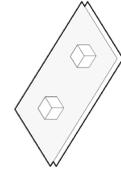


Echo chamber
Contemplation space

Post Industrial Zone | Smell
Lyle Park



Monitoring Lab
Underwater scents

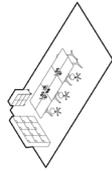


Symbiotic act
Scent purification filtration

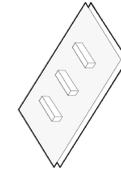


Olfaction
Steamy Thames scens

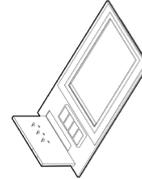
Intertidal Marine Zone | Feel
Barking



Monitoring Lab
Terminal pollution & waste



Symbiotic act
Purifying oysters & filtration



Bathroom
Sauna and baths

River

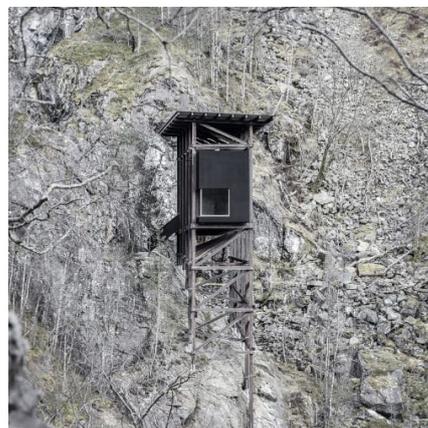
Symbiotic

Public

Architecture as narrative

precedence

The riparian mediator intervenes at several locations along the Thames, all of them sharing not only the river as narrative but also connect in a physical sense through its formal language and attitude. The interventions will help justifying a meaning and functionality by embodying its identity, just like art is being shown in a museum. The Zinc Mine Museum by Zumthor gives perhaps a better idea of such a connection of different nodes located apart from each other.



Zinc Mine Museum designed by Peter Zumthor. Image by Aldo Amoretti , 2016

The Thames Narrative

Purney Bridge



Tate Modern Park



Greenland docks



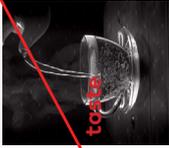
London Docklands



Barking riverside



Tea room



Tate Modern Park



Greenland docks



London Docklands



Barking riverside

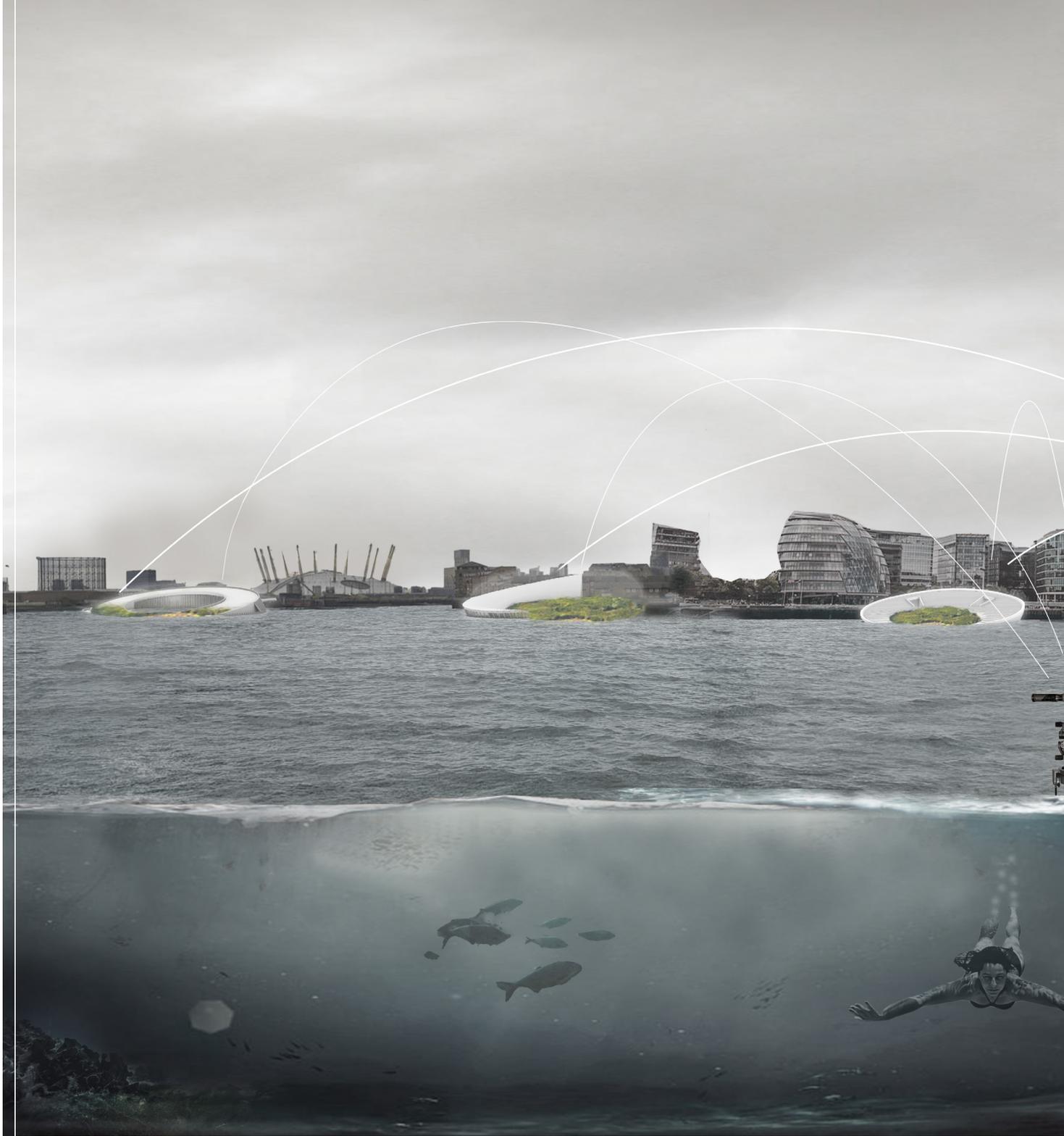


Architecture as narrative

River Rooms

Thames River Rooms

Regenerative and observing oligoptica through the five senses





Part III | **Design process**

The concept

The ripple

The proposed framework sounded promising, but its translation into architecture proved to be rather challenging. There was a need for a coherent design language for the five different interventions while they also had to be connected to their local context.

The ripple, the effect being caused by the interaction between a falling stone and the water, proved to be the physical representation of the relationship between form and fluidity, or Londoners and river. Therewith I approached the project as a string of connected ripples, acting as the physical shape representing the relationship between the city and water. Just like ripples, sizes and exact forms differ, but connectivity between them is found nonetheless. Acting as ripple the architecture creates and facilitates the shaping of a new symbiotic relationship, and allow the spaces to be subject to future change and possibilities. And together, the interventions will form the connective network of riparian mediators.





Figure 54 | *Body of water*. 2017. Ian Keefe on Unsplash

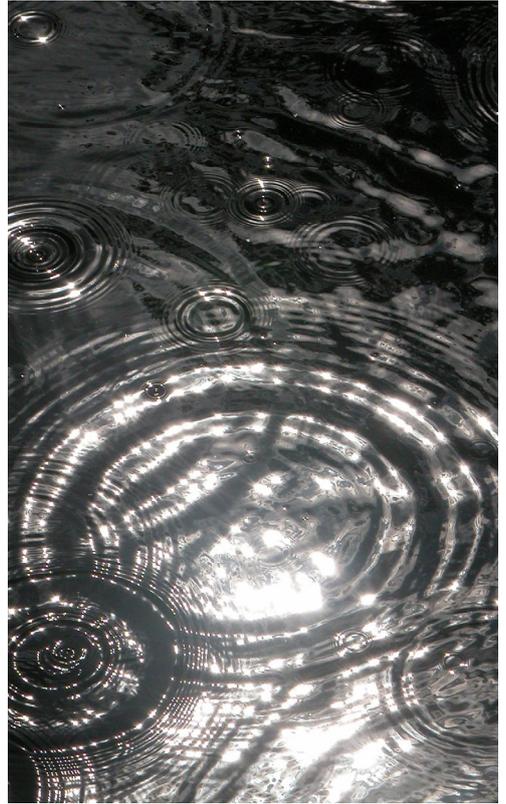


Figure 55 | *Water ripples*. Jooinn

Masterplan

The river rooms

According to the research, architecture has to function as a connected public sensory observatory aiming to monitor and engage with the river in a new way. The combination of the "third generation city" theory by Marco Casagrande and the "oligopticon" theory by Bruno Latour provided a powerful framework for developing an architectural typology that focuses on connecting humans and the non-human, while simultaneously regenerating the ecosystem. The first theory emphasizes the integration of human activities with natural systems. It advocates for a more holistic and symbiotic approach to urban design, where architecture is not merely built for human use but actively interacts with and responds to the natural environment. The oligopticon, on the other hand, recognizes the multiplicity of actors, layers and perspectives in the urban and river system. It encourages a collaborative approach that involves diverse stakeholders, including local communities, environmental experts, and policymakers. This inclusive and collaborative process ensures a better understanding of the river leading to more effective solutions in time. Within this framework architecture functions as a space to explore and rethink the way we engage with the non-human and how we find back the identity, meaning and functionality of the river through 'micro-narratives'.

I approached the project as a string of connected ripples, acting as the physical shape representing the relationship between the city and water. Just like ripples, sizes and exact forms differ, but connectivity between them is found nonetheless. The architecture itself, despite being considered static by some, is operating in flux and therewith complies with the idea of the ripple too. They create and facilitate the shaping of a new symbiotic relationship, and allow the spaces to be subject to future change and possibilities. Herewith the definition of my project became clear.

The quantitative limit of interventions was based on the idea of the five senses. This is a logical outcome from the framework as senses foster a deeper connection between Londoners and the river, promoting a sense of stewardship and care for the natural environment. This allowed for new ways of observation going beyond the visual aspect solely. The forgotten idea of the Thames as an essential entity now starts to make its way back into the daily lives of Londoners. The sites were chosen as strategic spaces of regeneration and social-ecological integration potential. That offered a way to locate river city systems in a relationship that would benefit a resilient coexisting future of both the ecology and social. Although



Figure 56 | *Five connected ripples*. Photo by miguelalcantara on unsplash, 2022

Design process | **River Rooms**

Putney Towpath | Taste

Site and conditions

Scale 1:1000

Legend

-  *building*
-  *roads*
-  *ferry station*
-  *ferry route*
-  *nautical route*
-  *train*

-  *hard waterfront edge*
-  *soft waterfront edge*
-  *waterfront zone*
-  *river access stairs*

-  *rectangular building shapes*
-  *special building shapes*

-  *waterlevel >6m*
-  *waterlevel +5m*
-  *waterlevel +4m*
-  *waterlevel +3m*
-  *waterlevel <2m*

-  *Sewage pollution*
-  *Plastic pollution*

-  *smellscape*
-  *sightlines*

Putney Towpath is located in West London on the south side of the river. The surrounding is consisting out of mainly green areas, wetlands, parks and many residential homes. Because of that we observe a typical stretched and directional architectural language. More special shapes are only found on the sides of these patterns.

On the west side of the location there is a soft edge of vegetation, therewith creating a natural transitional zone. At all other edges there will be a hard border. Only around the rowing club there is a concrete ramp, therewith reducing the idea of a hard water wall.

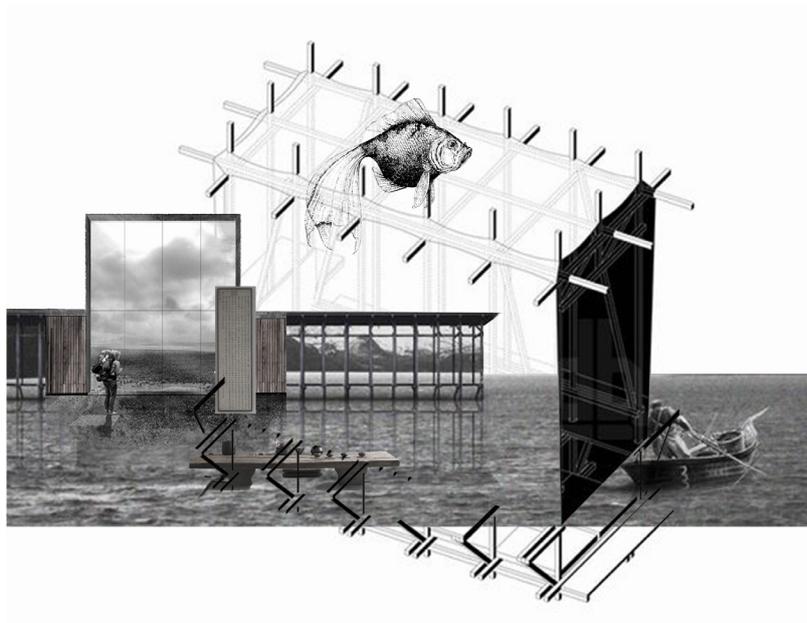
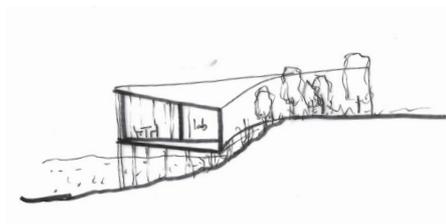
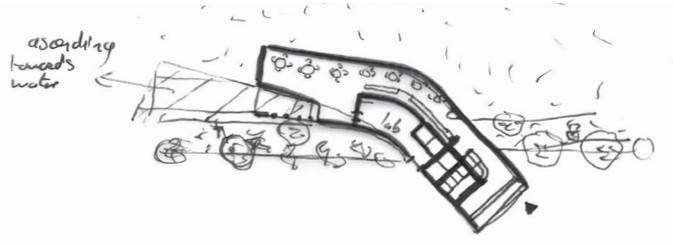
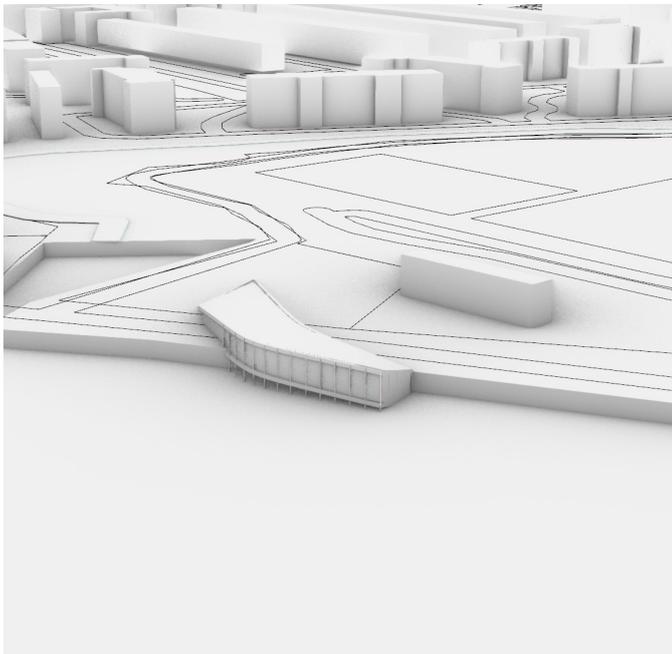
Another interesting fact about the location is the fact that one of the tributaries connects here with the river Thames. This also causes the pollution to surface mainly here. More specifically the sewage pollution is found here. Around the side also plastic and wet wipes can be found.

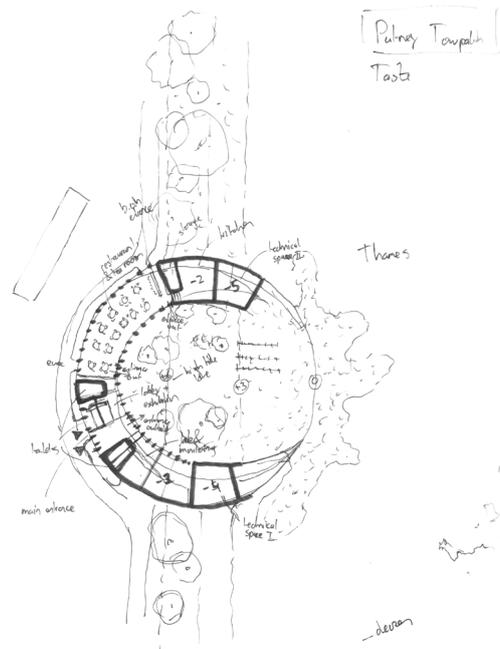
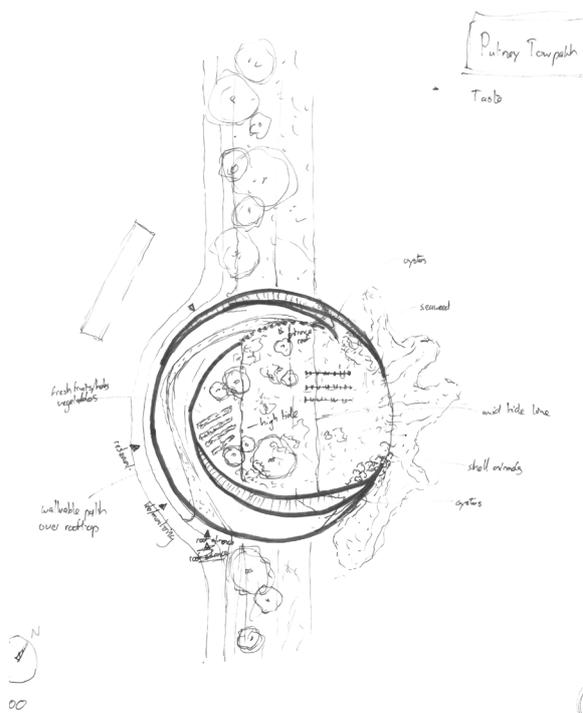
Due to its green, open and fresh environment, combined with the fact that the water has become fresh at this point in the tidal river it makes sense to allocate the sense of 'taste' to this spot. A great way to engage with this sense would be a tea room with purified Thames water or tea made from herbs grown in the riparian zone. Or taste can also be expressed by food or vegetables grown in this same zone.



Putney Towpath | Taste

Design process





Greenland Dock | Hear

Site and conditions

Scale 1:1000

Legend

-  *building*
-  *roads*
-  *ferry station*
-  *ferry route*
-  *nautical route*
-  *train*

-  *hard waterfront edge*
-  *soft waterfront edge*
-  *waterfront zone*
-  *river access stairs*

-  *rectangular building shapes*
-  *special building shapes*

-  *waterlevel >6m*
-  *waterlevel +5m*
-  *waterlevel +4m*
-  *waterlevel +3m*
-  *waterlevel <2m*

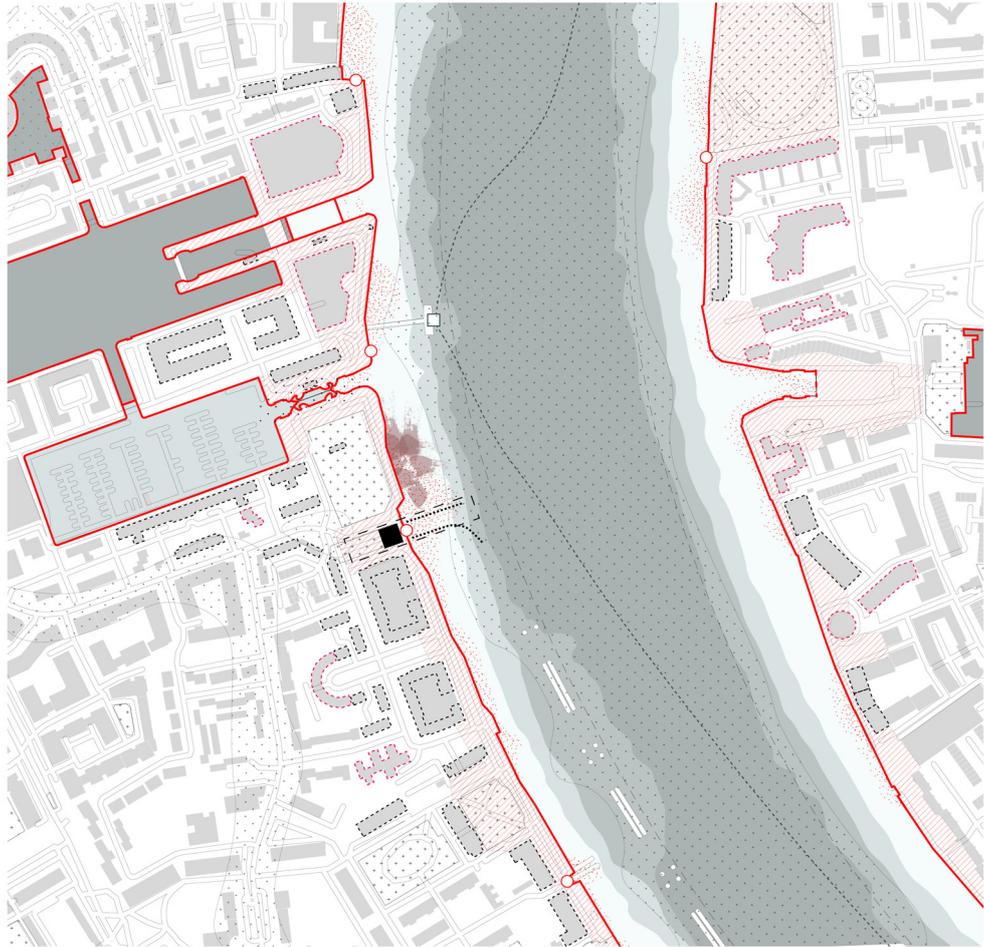
-  *Sewage polution*
-  *Plastic polution*

-  *smellscape*
-  *sightlines*

Greenland docks is located in the mids of the former docks. The location of the intervention is placed on the south bank side of the river in between existing operating docks and a residential low rise area. The architectural language has variety in which more special spaces are found near prominent spots along the river.

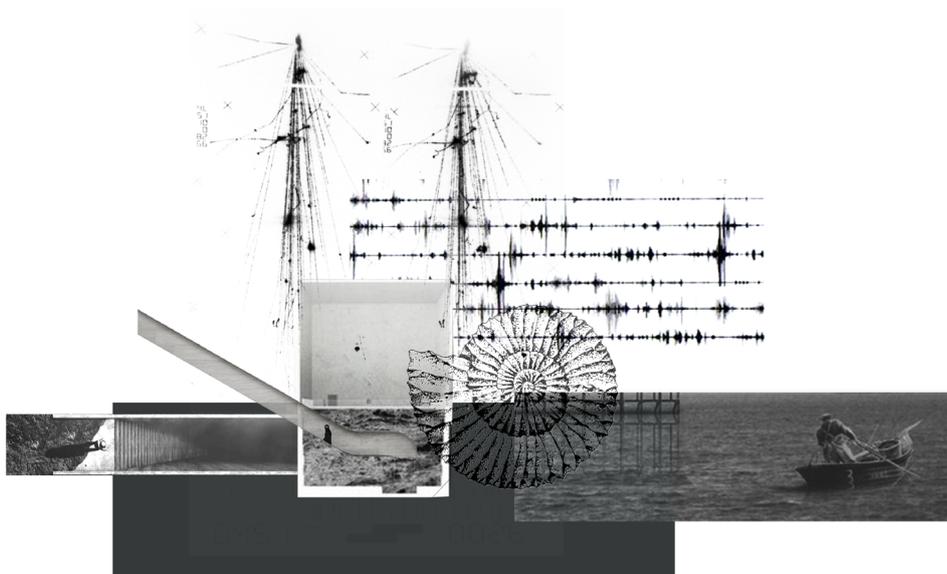
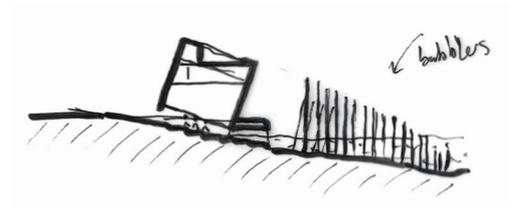
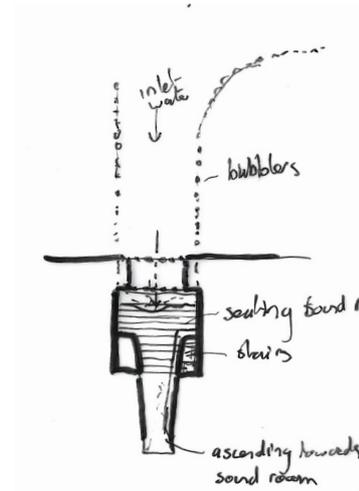
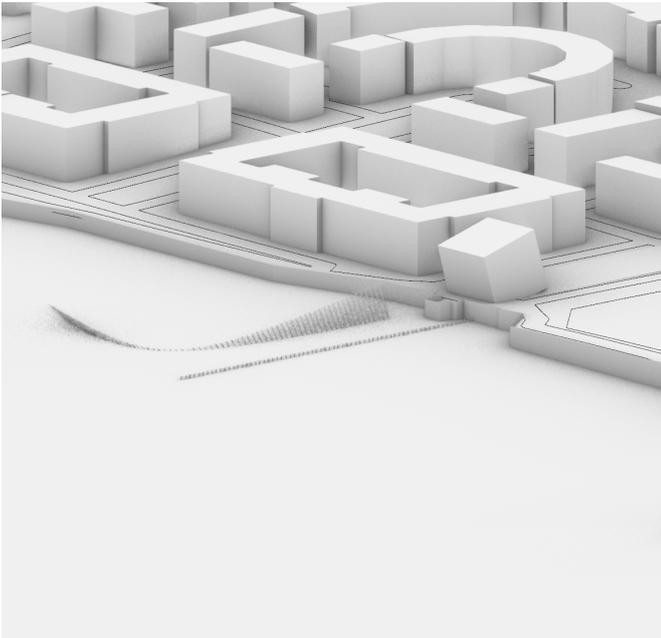
The water itself is brackish in this part of the Thames, therewith being both fresh and salt. The sides of the river are only observed as hard man-made water walls with almost no possibility to access the water. Only a view stairs will provide that opportunity. Pollution wise we see a sewage pollution spot very nearby as well as plastic that is being collected on the exposed riverbanks close by. Combined with the fact that this stretch of the Thames has lots of traffic on the water it makes sense to focus here on hearing.

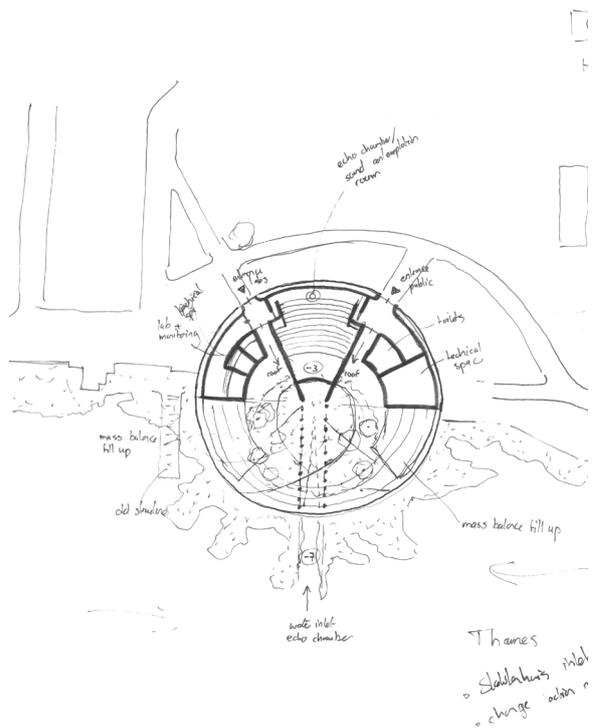
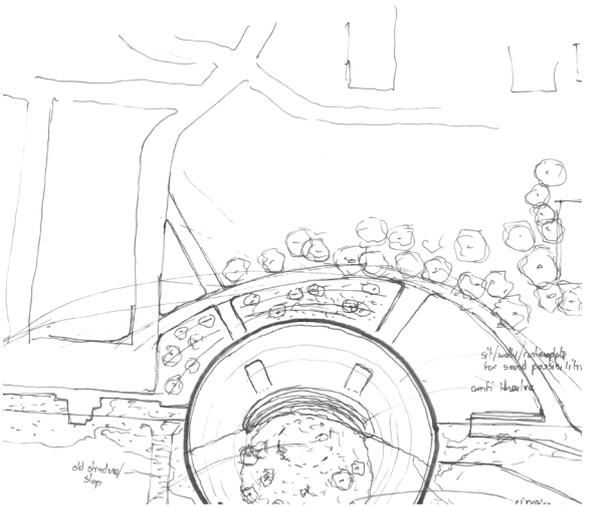
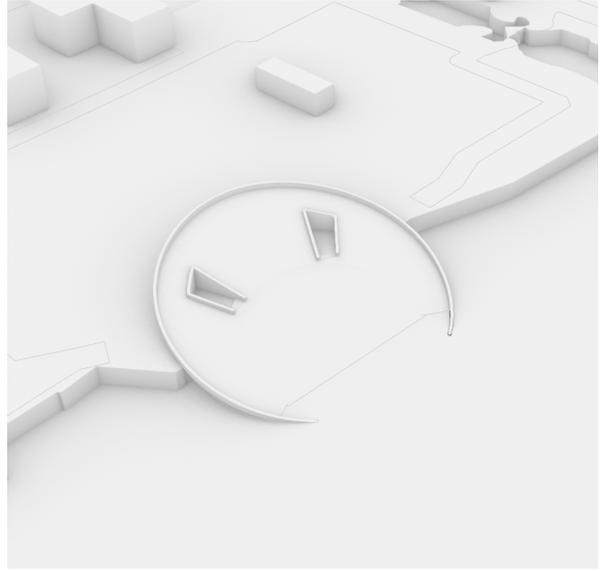
Hearing can be expressed as physical program through an echo chamber which amplifies the sounds of incoming water, or the creation of an amphitheater on the rooftop.



Greenland Dock | Hear

Design process





Thames
 • Sidelobes inlet
 • change action n

Lyle Park | Smell

Site and conditions

Scale 1:1000

Legend

-  *building*
-  *roads*
-  *ferry station*
-  *ferry route*
-  *nautical route*
-  *train*

-  *hard waterfront edge*
-  *soft waterfront edge*
-  *waterfront zone*
-  *river access stairs*

-  *rectangular building shapes*
-  *special building shapes*

-  *waterlevel >6m*
-  *waterlevel +5m*
-  *waterlevel +4m*
-  *waterlevel +3m*
-  *waterlevel <2m*

-  *Sewage polution*
-  *Plastic polution*

-  *smellscape*
-  *sightlines*

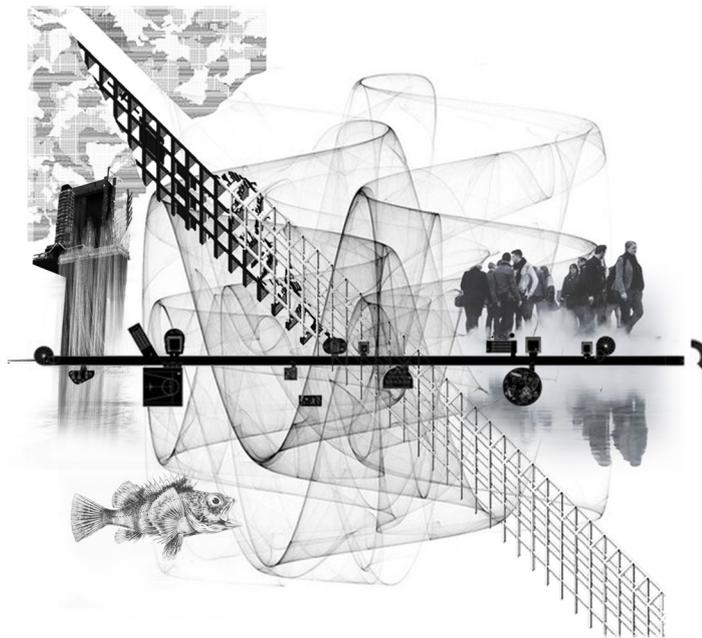
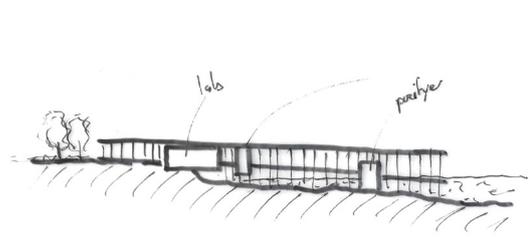
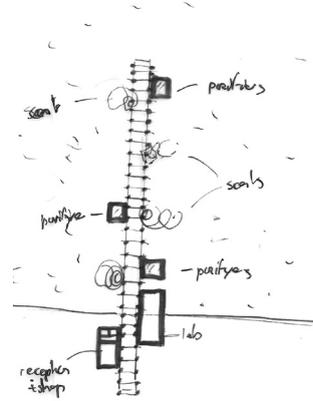
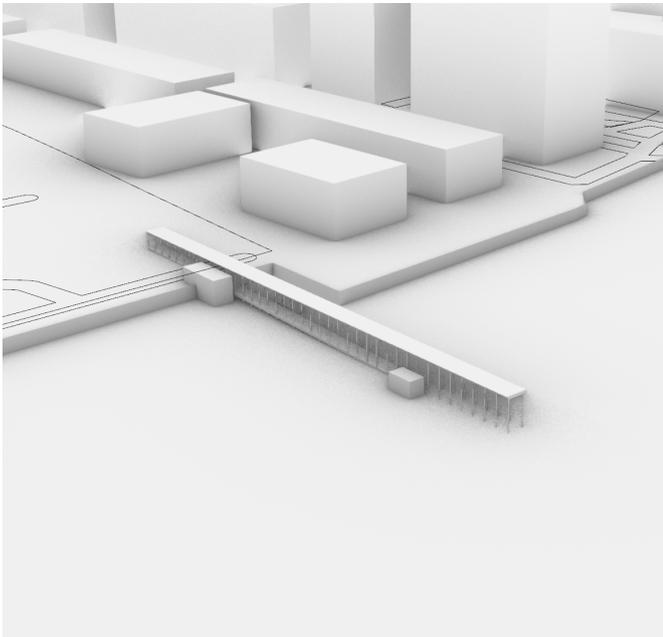
Lyle park is a park located in between the industrial area on the west and the newly built high-rise residential area on the east. The intervention is situated on the north side of the river in front of the park as it overlooks the industrial landscape on the other side. The edges of the river are mainly hard and only little vegetation can be found. Architecturally we observe a quite rigid pattern and mainly rectangular shapes. The location of the intervention should aim to mediate between the big open industrial zone with different properties and appearances and the rectangular high rise residential zone on its right. The water is a marine environment meaning it contains salt water. Mainly plastic pollution is found around the site also affecting the smell of the river.

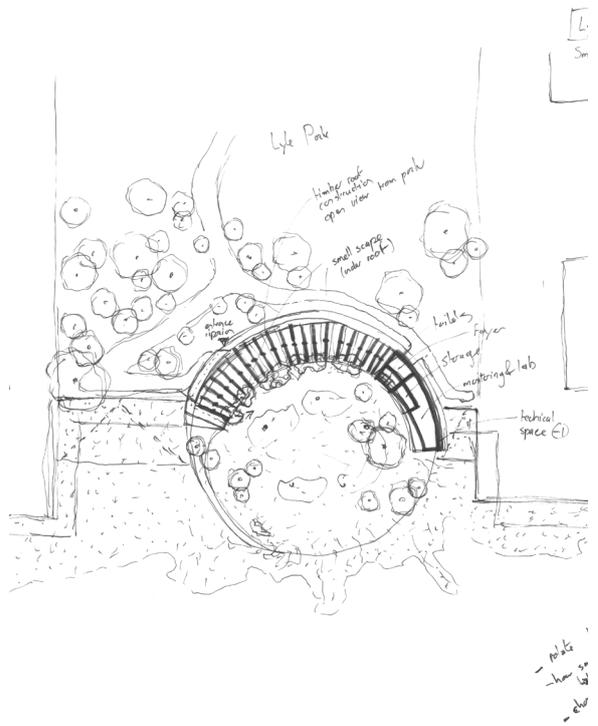
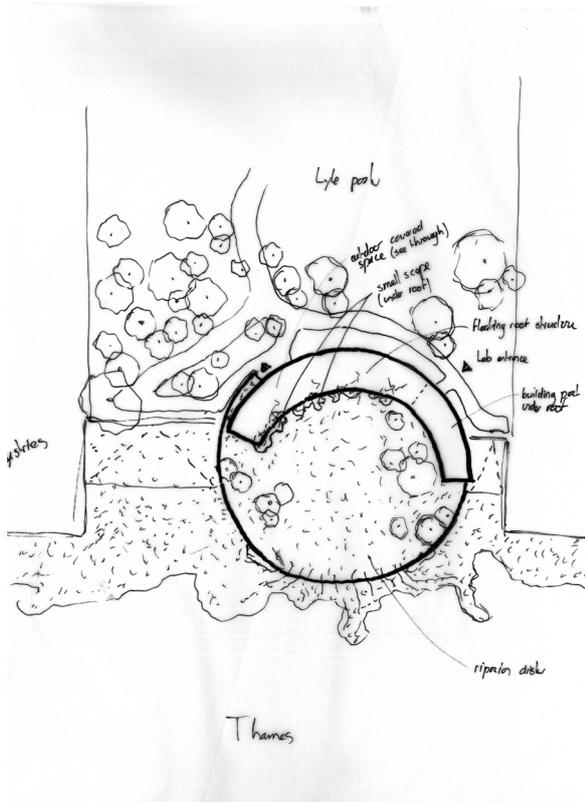
Because of its industrial location and the smell pollution the intervention aims to reduce this pollution. Thereby the park and wide transitional riparian zone offer a nice way to obtain smells that can be found along the Thames comparable with how this was done in for example the outdoor exhibition at the Victoria museum in Melbourne.



Lyle Park | Smell

Design process





Barking Riverside | Feel

Site and conditions

Scale 1:1000

Legend

-  *building*
-  *roads*
-  *ferry station*
-  *ferry route*
-  *nautical route*
-  *train*

-  *hard waterfront edge*
-  *soft waterfront edge*
-  *waterfront zone*
-  *river access stairs*

-  *rectangular building shapes*
-  *special building shapes*

-  *waterlevel >6m*
-  *waterlevel +5m*
-  *waterlevel +4m*
-  *waterlevel +3m*
-  *waterlevel <2m*

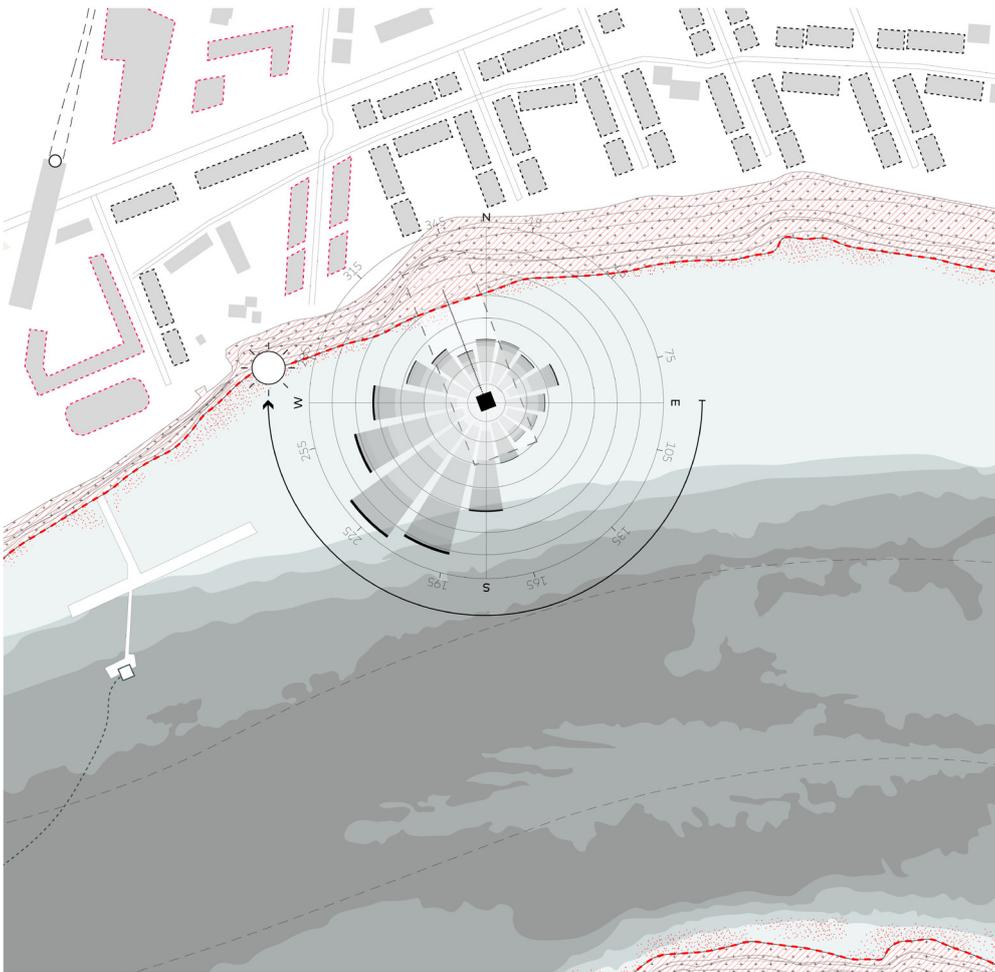
-  *Sewage polution*
-  *Plastic polution*

-  *smellscape*
-  *sightlines*

This most eastern location has the widest section along the Thames and is located in a very transitional and wide riparian zone. The edges are bound by greenery and appear to be rather soft, on both sides. The building itself will be placed in the water and will be fully surrounded by it on the north side of the Thames. The river has a marine environment. Also the last pier of the Thames Clippers is located nearby making it possible to reach all other interventions too.

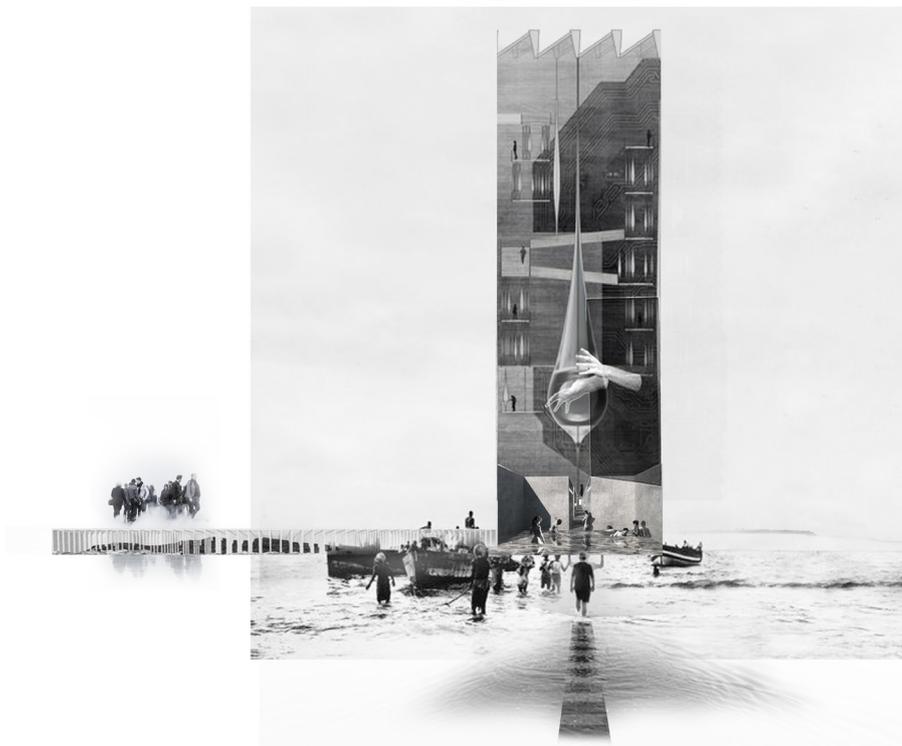
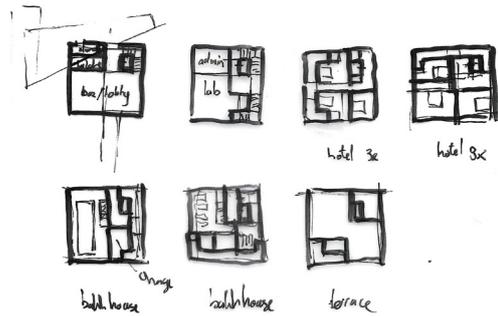
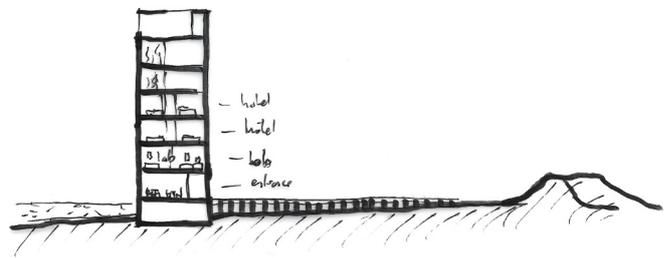
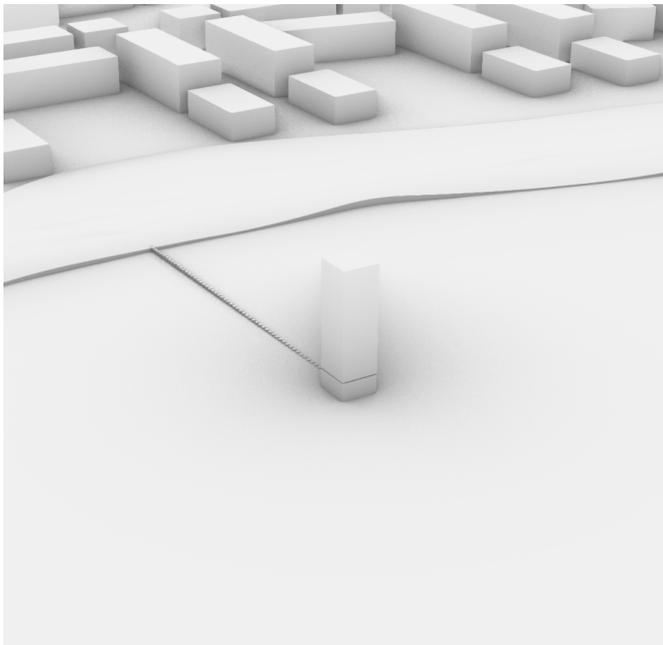
Architecturally the area is in quite a development and will become a new residential space of mainly rectangular and directional shapes towards the river. Only a few abnormal diagonal shapes are found closer to the river's edge. Wind is mainly coming from the south west as one can see in the wind rose diagram. The same wind is being expected on the other location as well. Pollution wise we don't really observe sewage threats, but a lot of plastic can be found in and around the water. Especially the soft edges tend to catch a lot of these and will be exposed during low tide.

As this is the most natural and pure environment along the Thames it is therefore being chosen to let this intervention focus on the sense of feeling. Because of the wide transitional zone it offers a place to safely swim in its water. This could be the public program of the intervention allowing to fully connect and emerge with the Thames.



Barking Riverside | Feel

Design process



Design process | **Tate Modern - See**

Tate Modern garden | See

Site and conditions

Scale 1:1000

Legend

-  *building*
-  *roads*
-  *ferry station*
-  *ferry route*
-  *nautical route*
-  *train*

-  *hard waterfront edge*
-  *soft waterfront edge*
-  *waterfront zone*
-  *river access stairs*

-  *rectangular building shapes*
-  *special building shapes*

-  *waterlevel >6m*
-  *waterlevel +5m*
-  *waterlevel +4m*
-  *waterlevel +3m*
-  *waterlevel <2m*

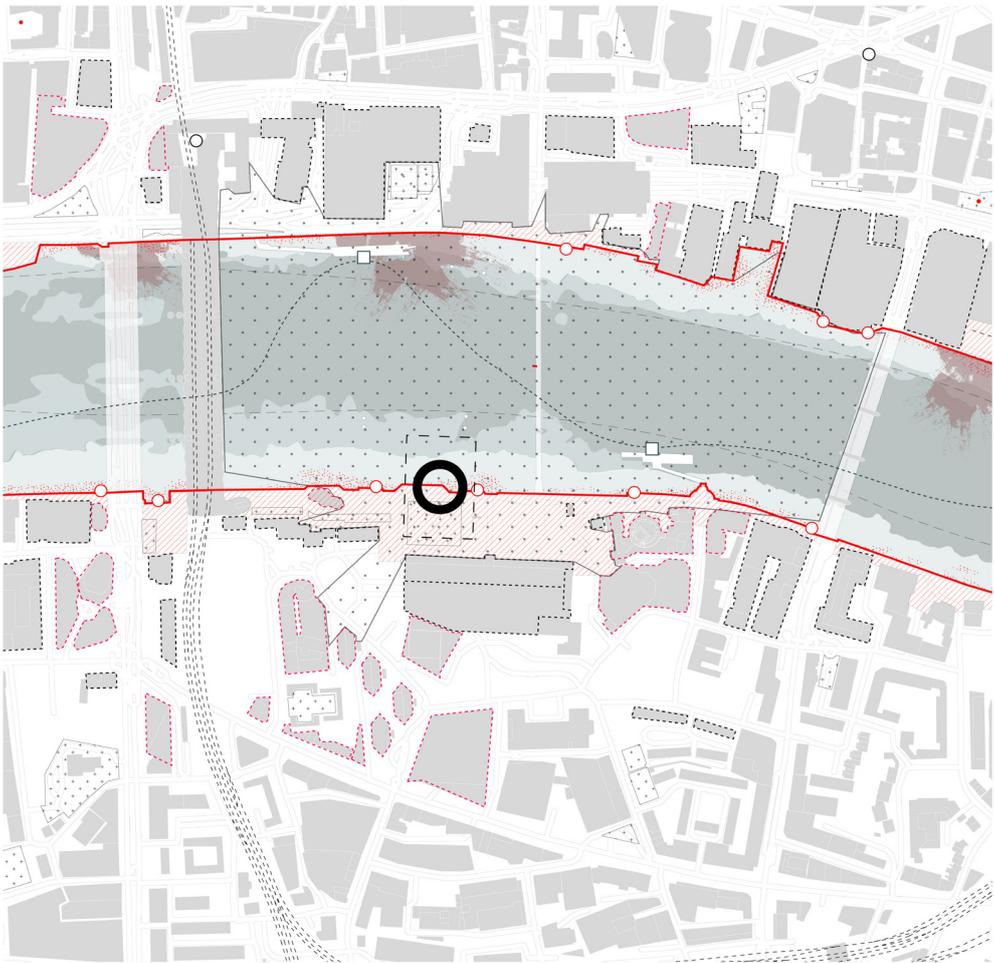
-  *Sewage polution*
-  *Plastic polution*

-  *smellscape*
-  *sightlines*

The intervention in front of the Tate Modern will be seen as the main intervention as it is located most central and well embedded in public life. Because of the high urban density only a few spaces along the Thames were suitable to place the intervention. Tate modern park, located on South bank offered such a space. The river contains brackish water and is bounded by only hard man-made walls. Only access to the water can be granted by one of the few stairs around the area. Furthermore the high urban density causes the waterfront zone to be rather compacted and small. Almost no to little interactions can be made with the water. River traffic is high too and pollution is widespread as well as one can see on the map. The north side has a lot of sewage pollution whereas the southside contain plastic pollution.

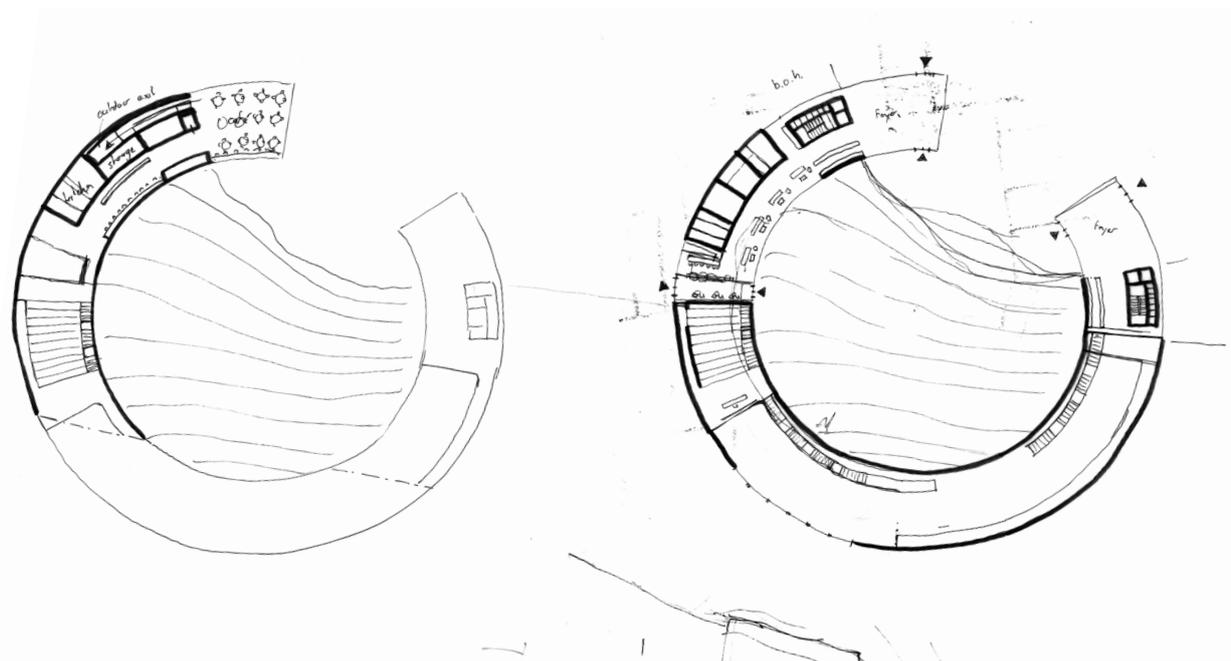
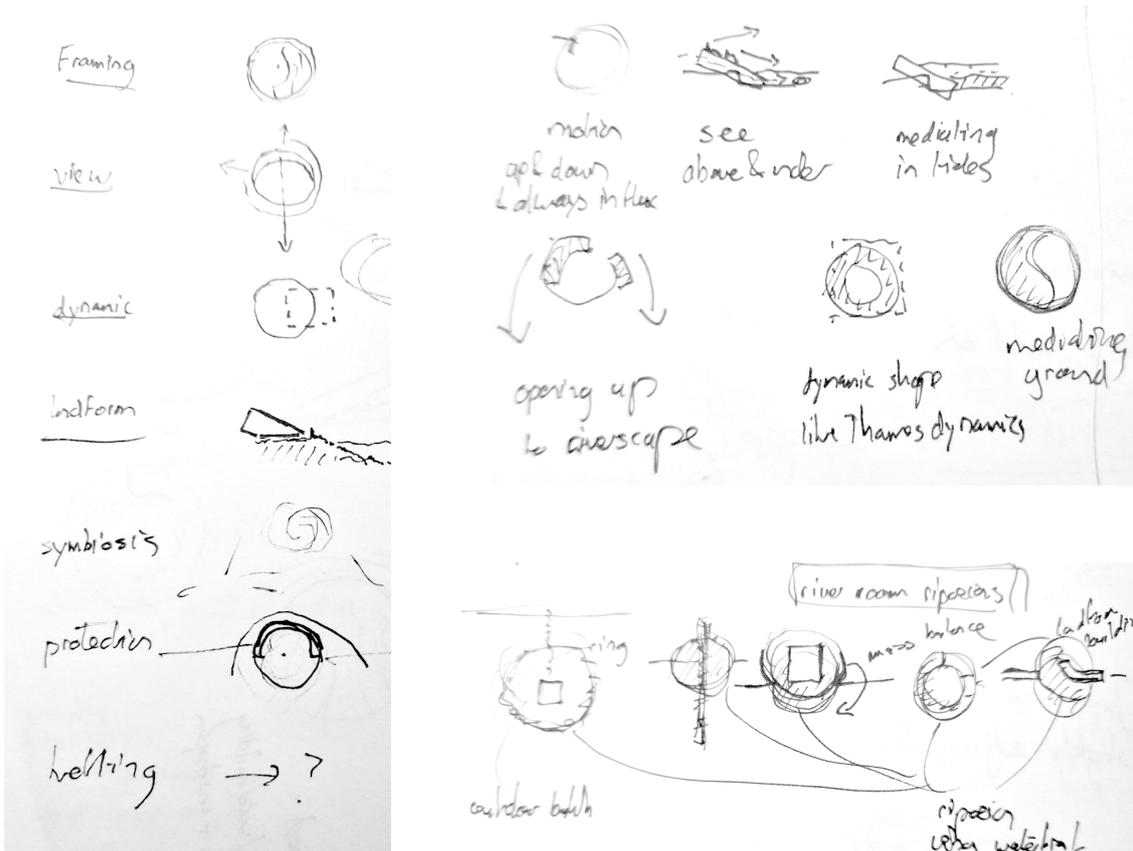
Architecturally the buildings are more special in shape compared to the other locations. Combined with the fact that the waterfront is very thin as well as most public can be found here, the idea of giving a focus on 'see' was determined here. The location offers not only strong views over the river but also deep into the urban fabric.

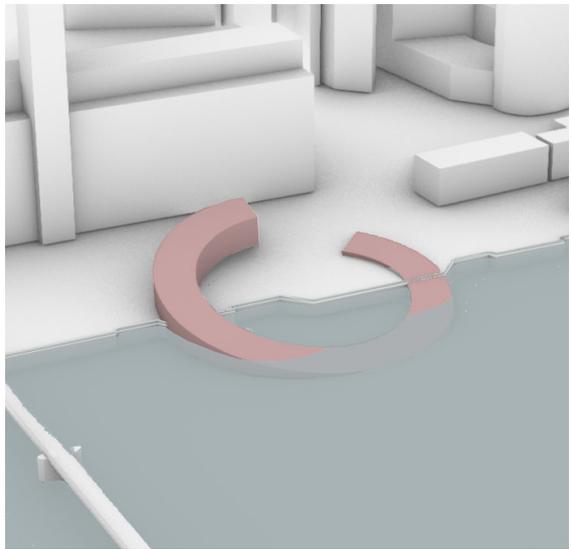
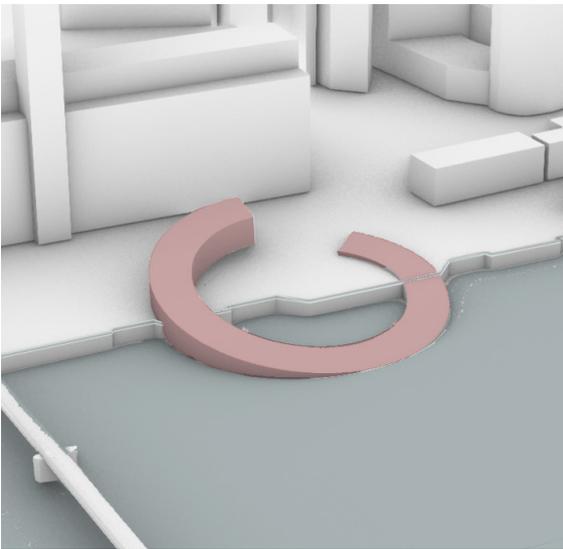
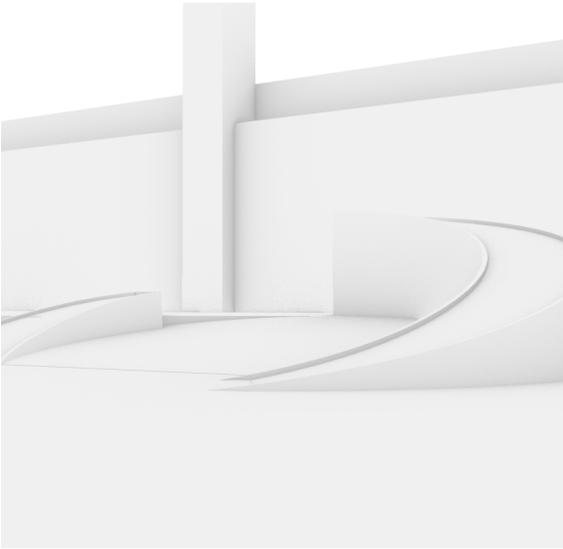
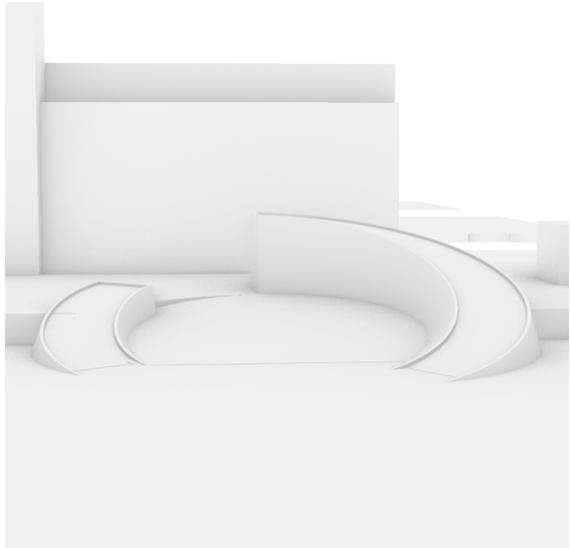
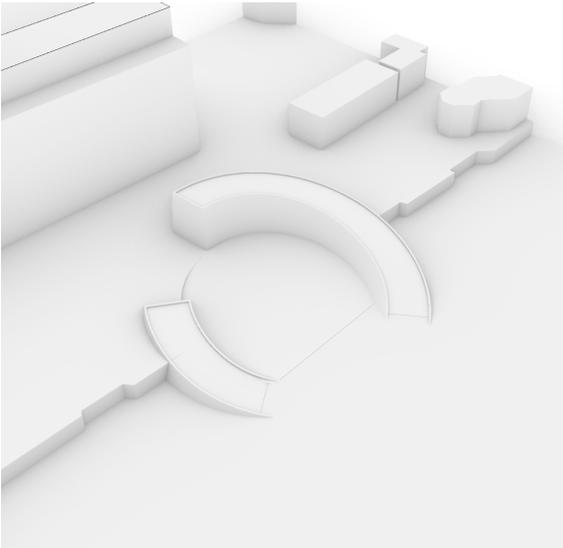
Program wise the sense of seeing could be achieved by an underwater observatory therewith seeing the 'unseen' of the river Thames. Once people observe the rich lives and species living there we can maybe shape a different relationship with it. But also seeing the transitional riparian zone is of great essence to gain a new sustainable relationship between city and river towards the future.



Tate Modern garden | See

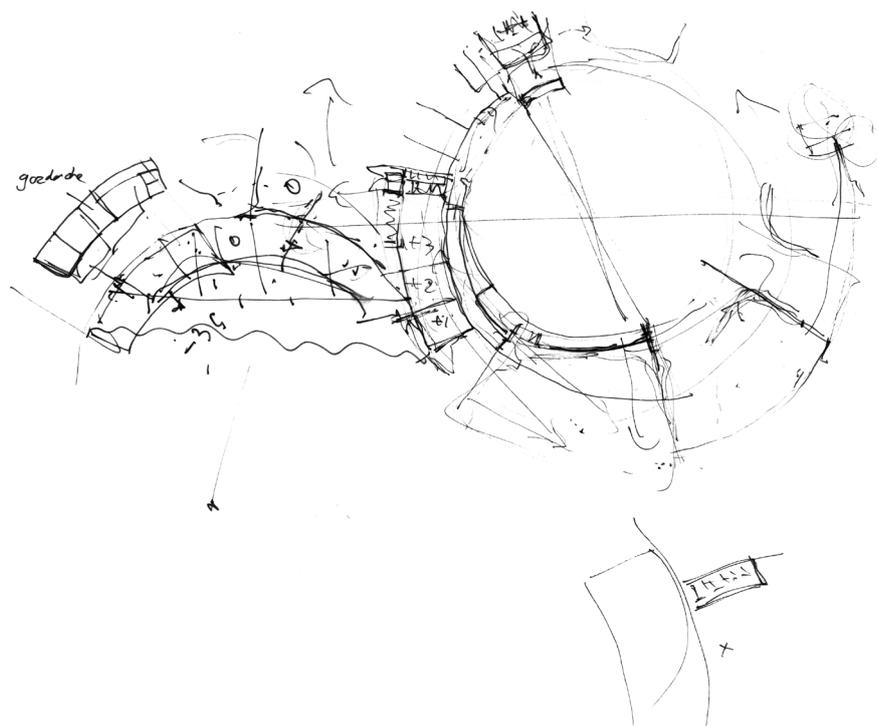
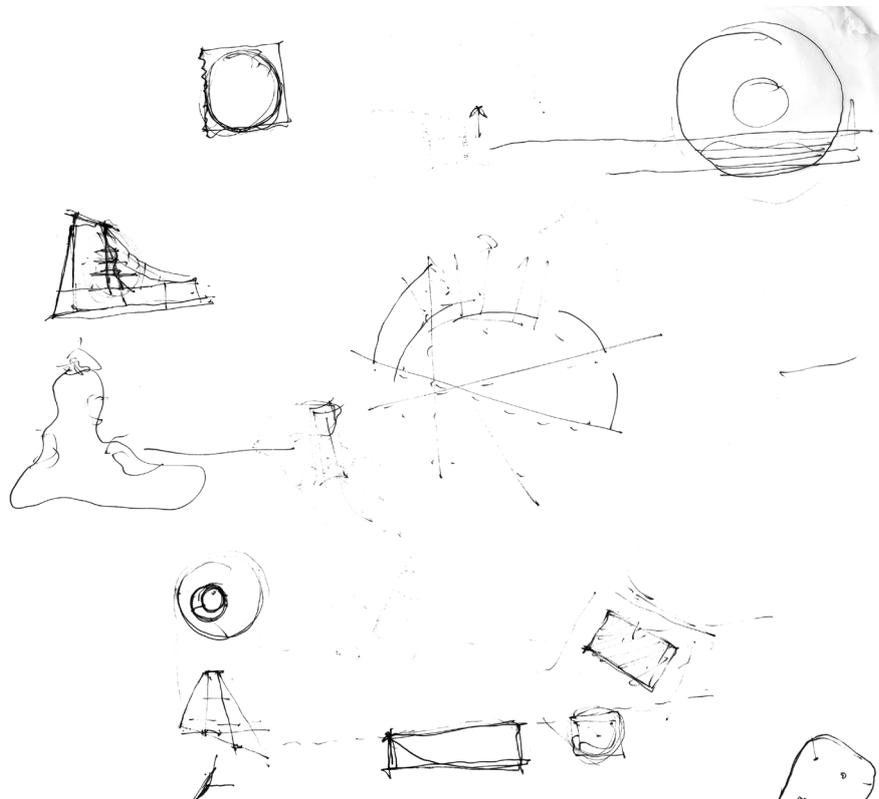
Volume studies & concept

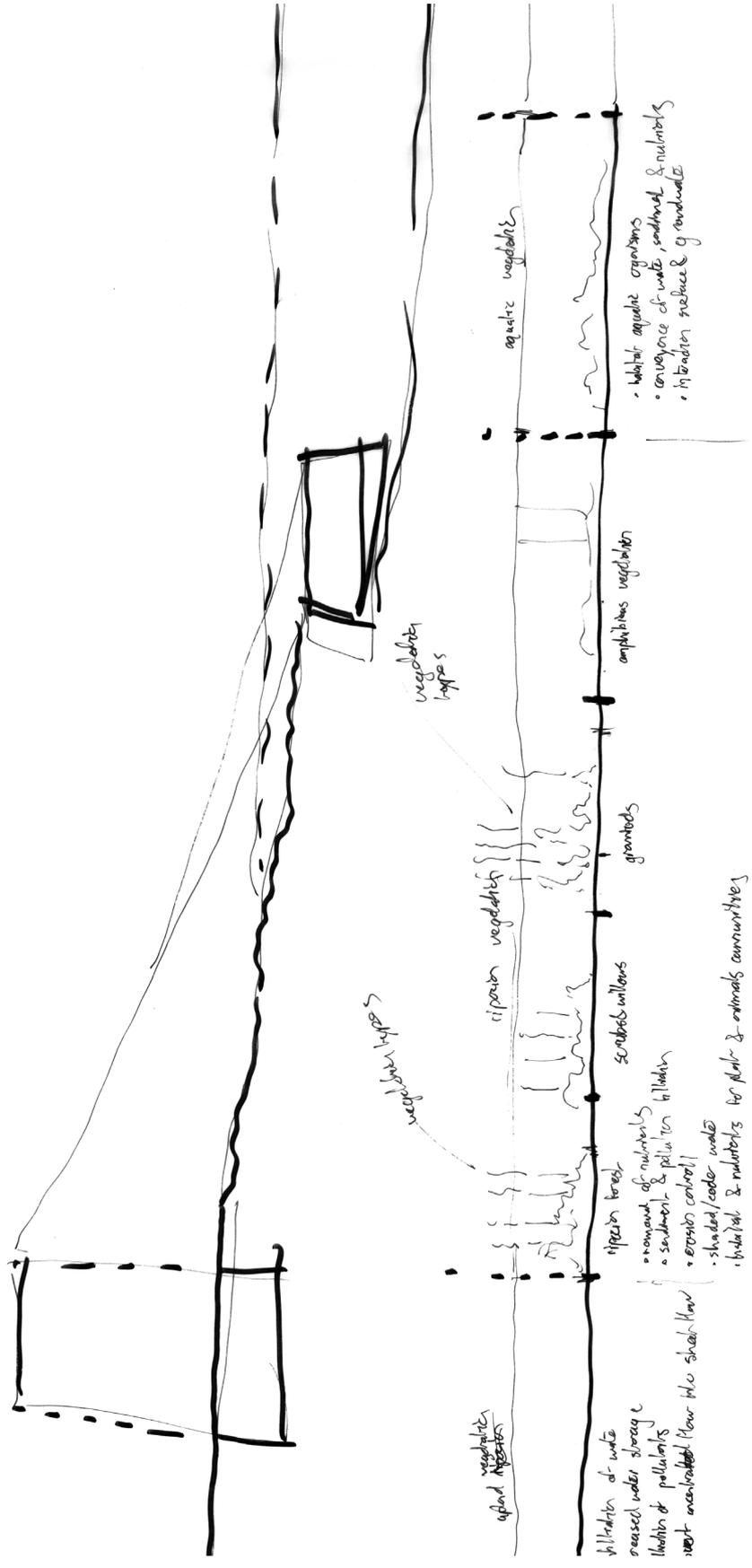




Tate Modern garden | See

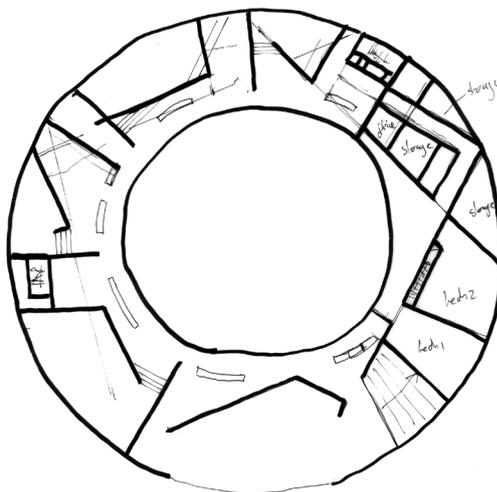
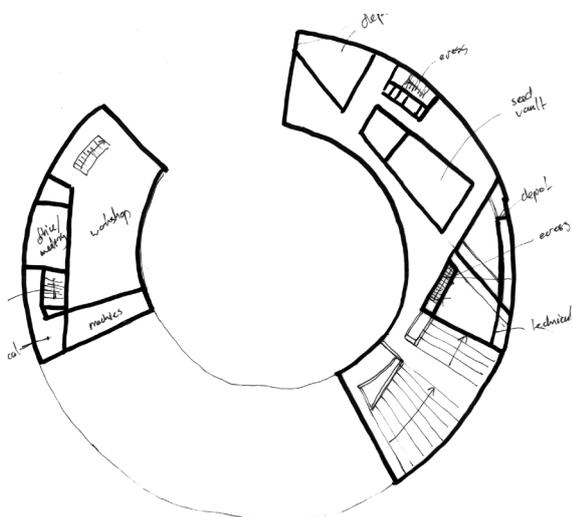
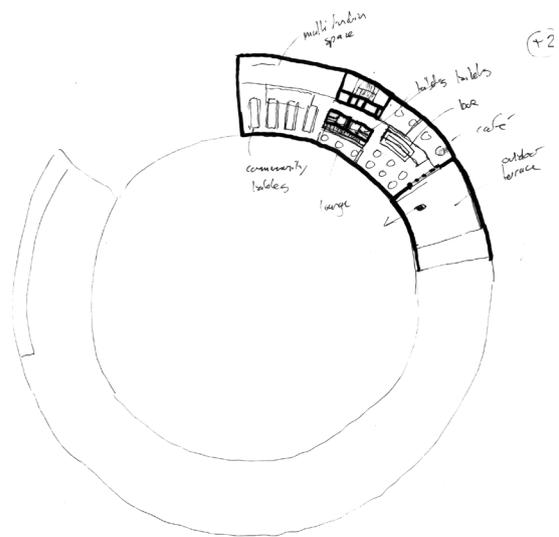
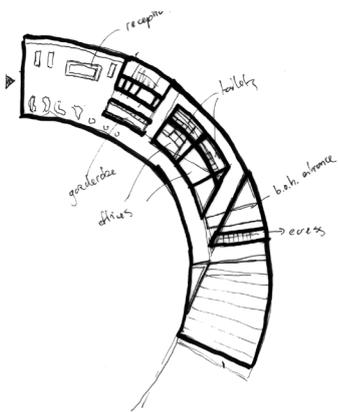
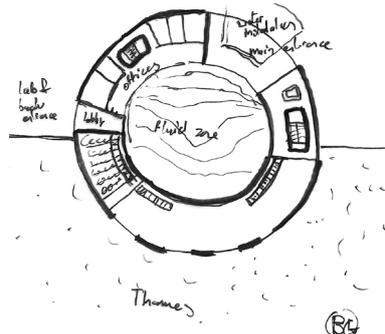
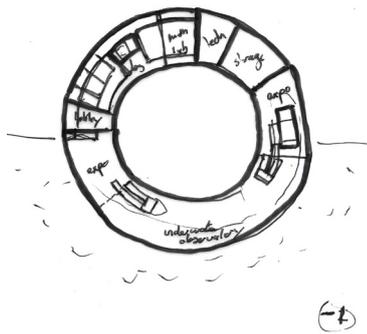
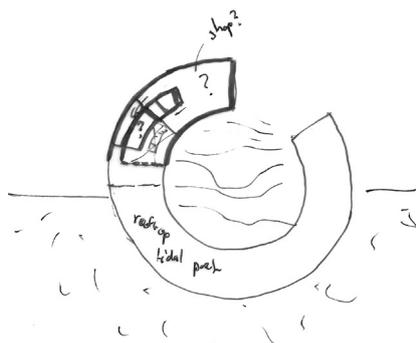
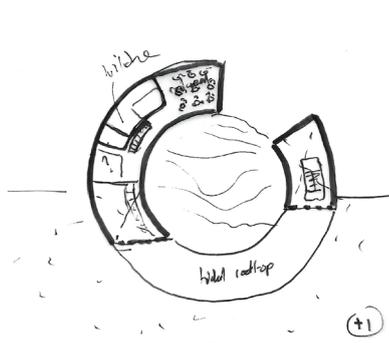
Program and circulation





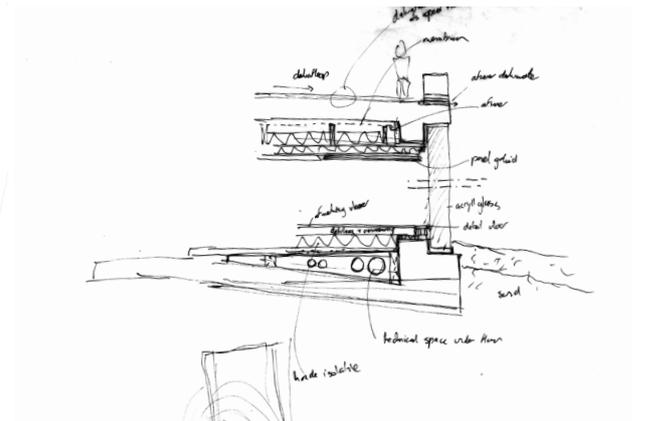
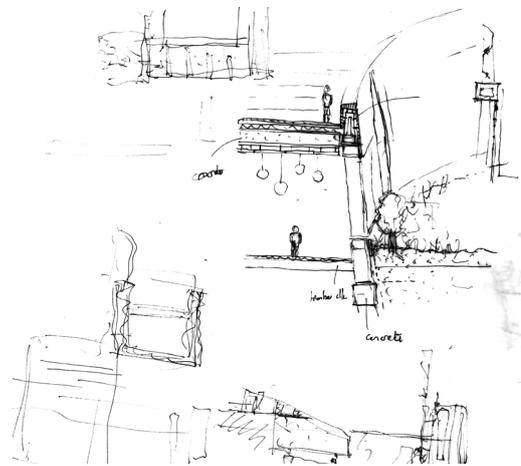
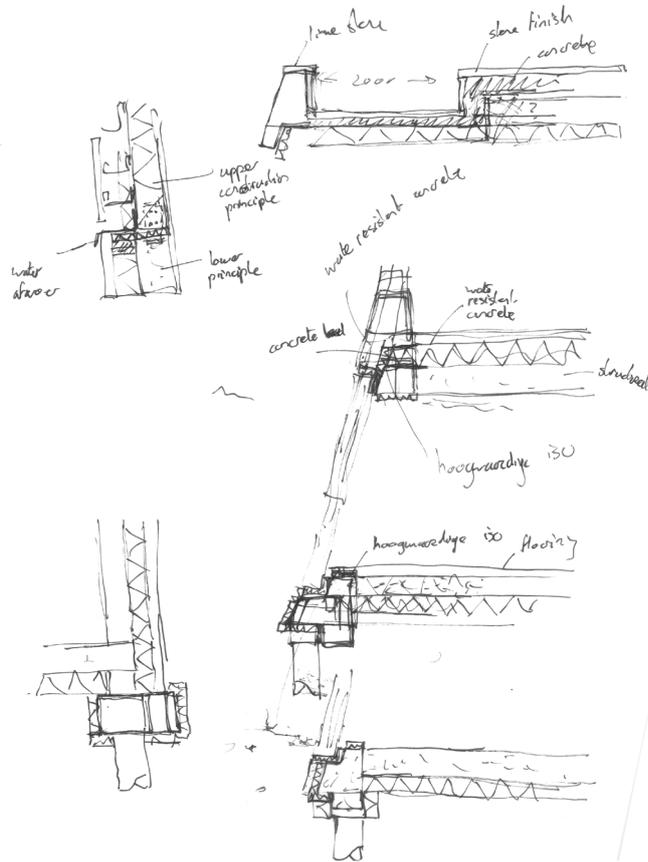
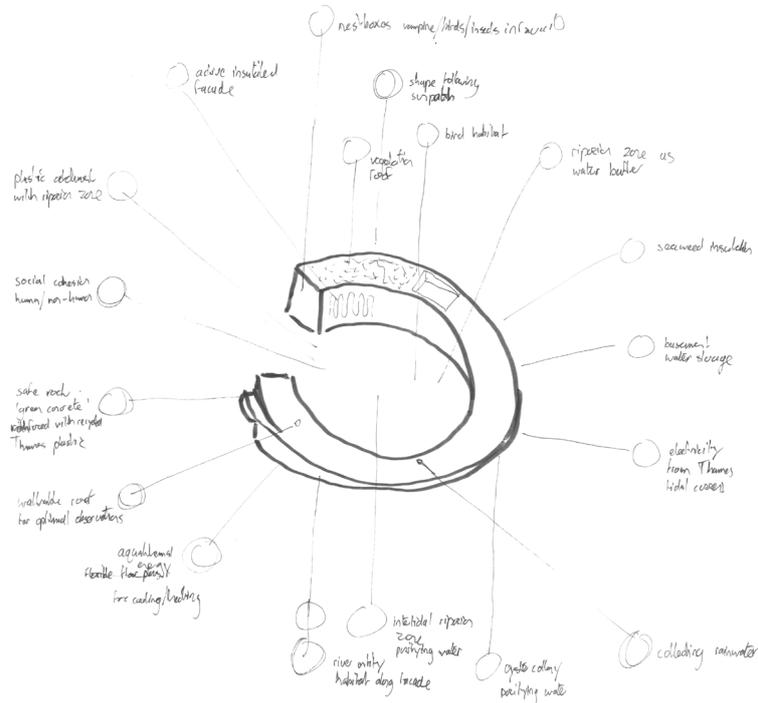
Tate Modern garden | See

Floorplan process

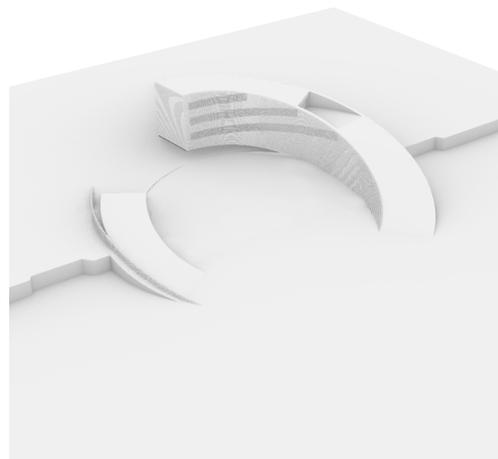
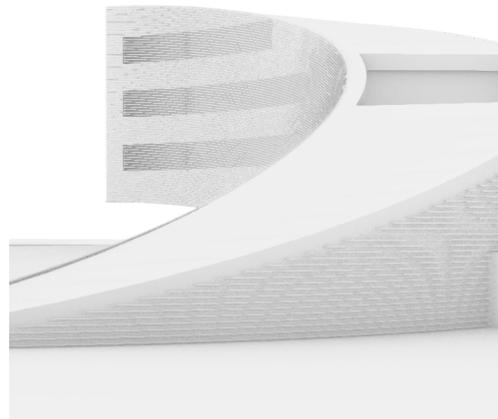
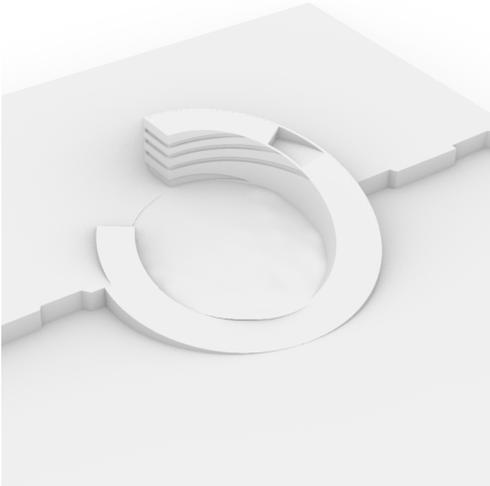


Tate Modern garden | See

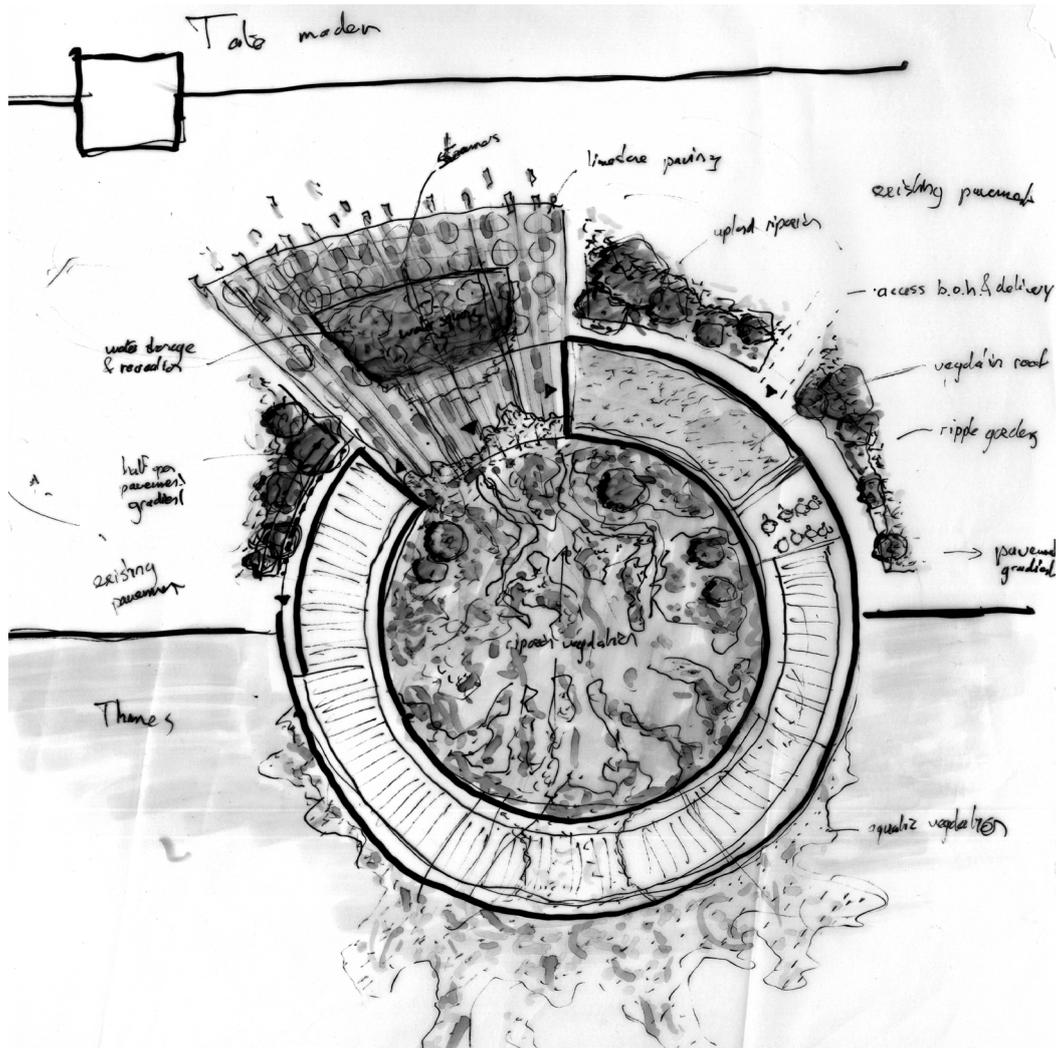
Building Technology process



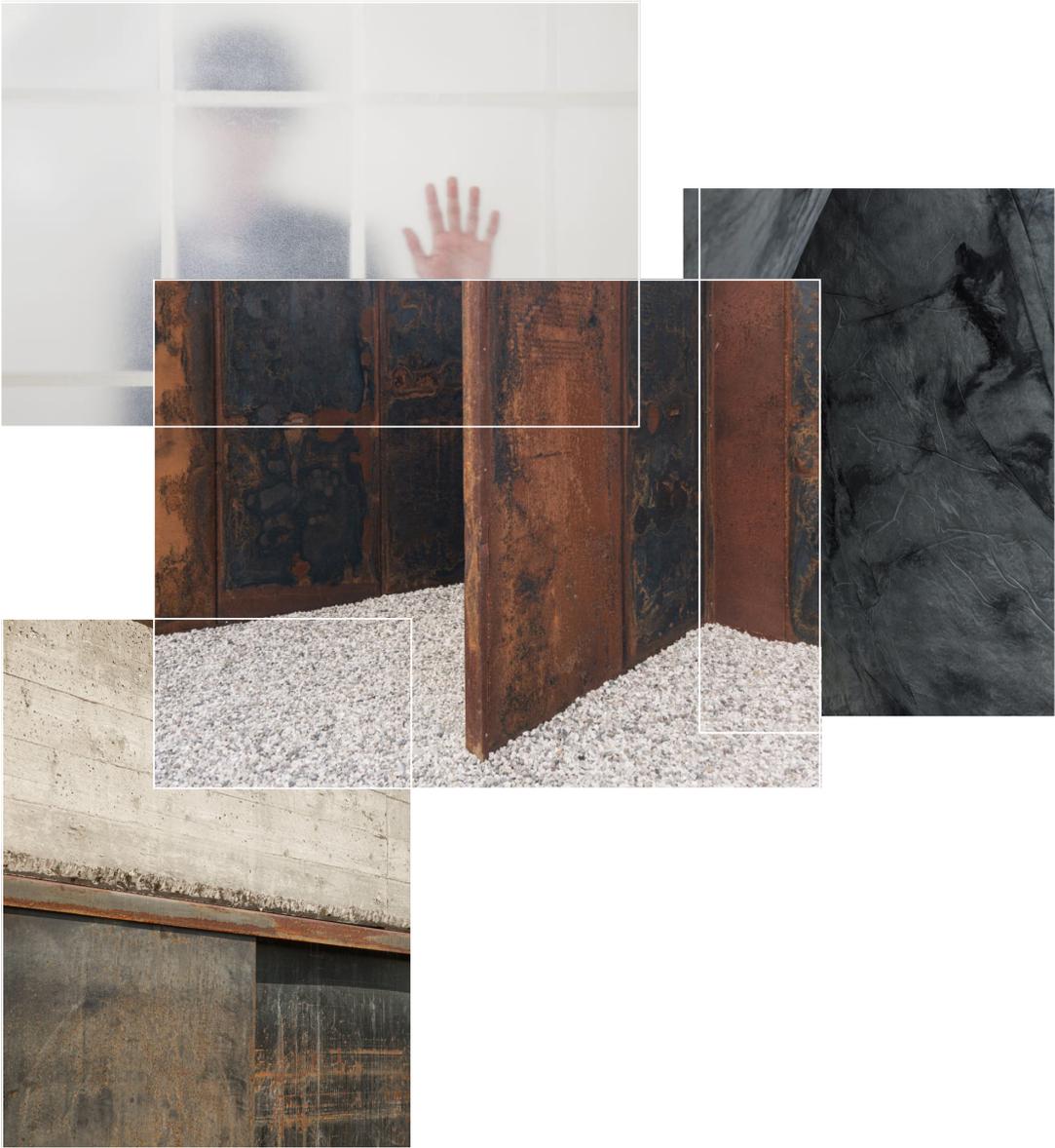
Tate Modern garden | See
Facade sketches



Tate Modern garden | See
Landscape process



Tate Modern garden | See
Interior process



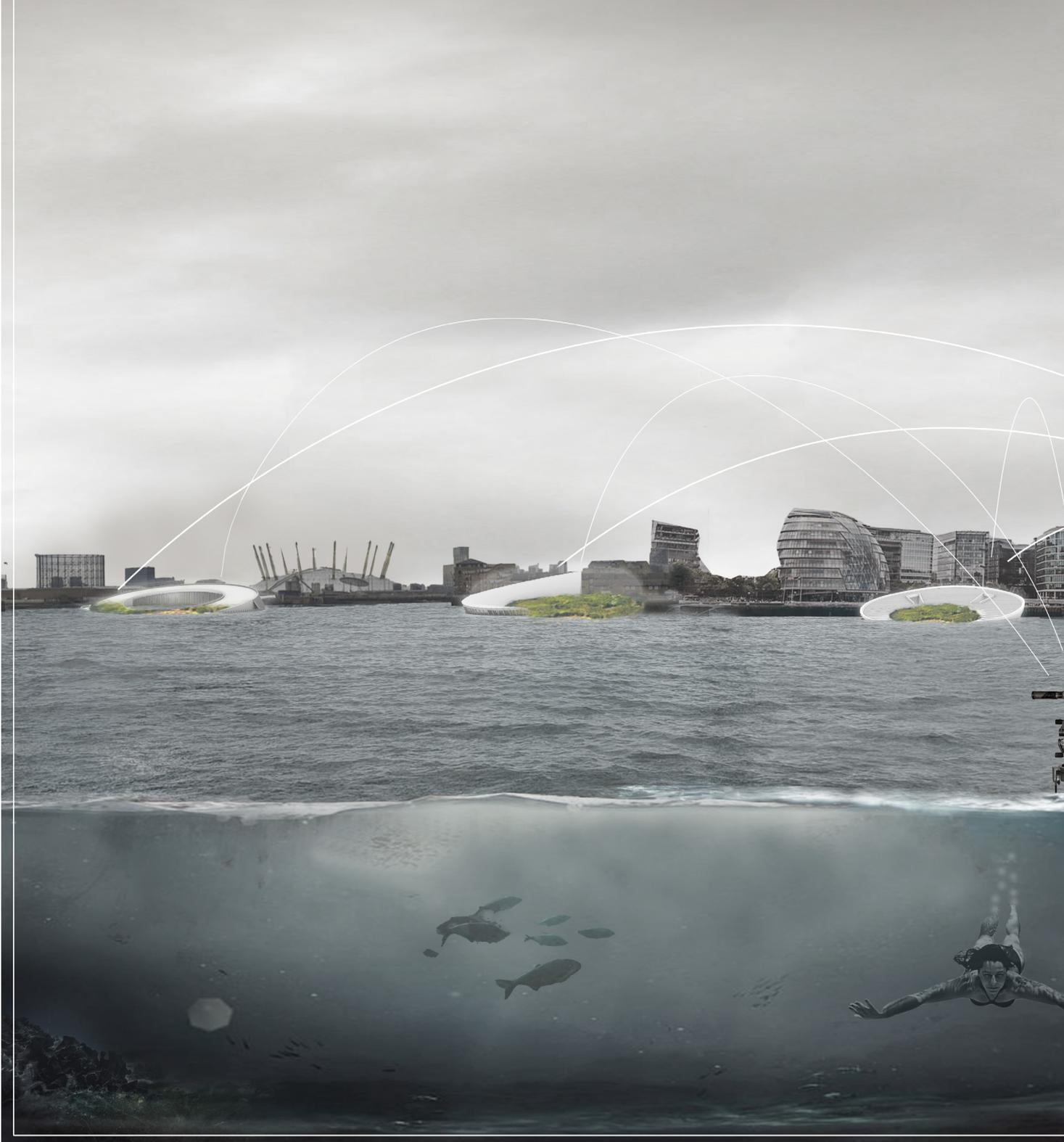
Part IV | **Final Project**

The Masterplan

Thames River Rooms

Thames River Rooms

Regenerative and observing oligoptica through the five senses





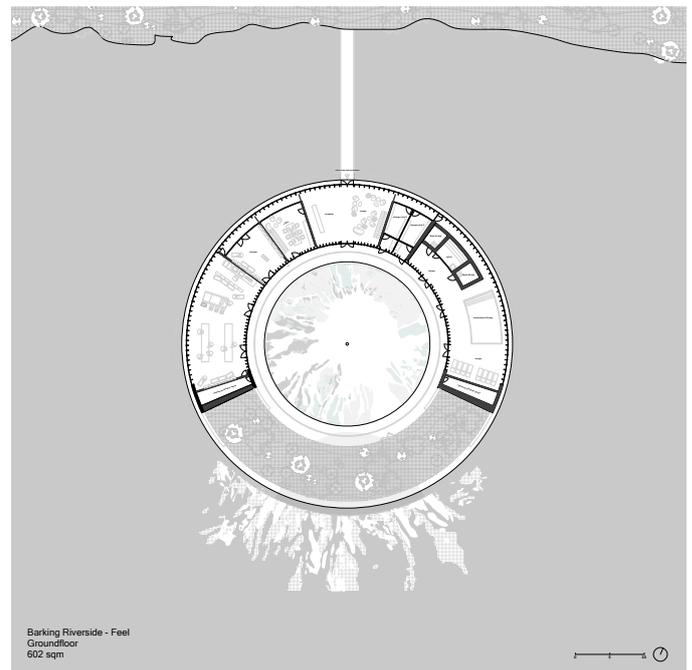
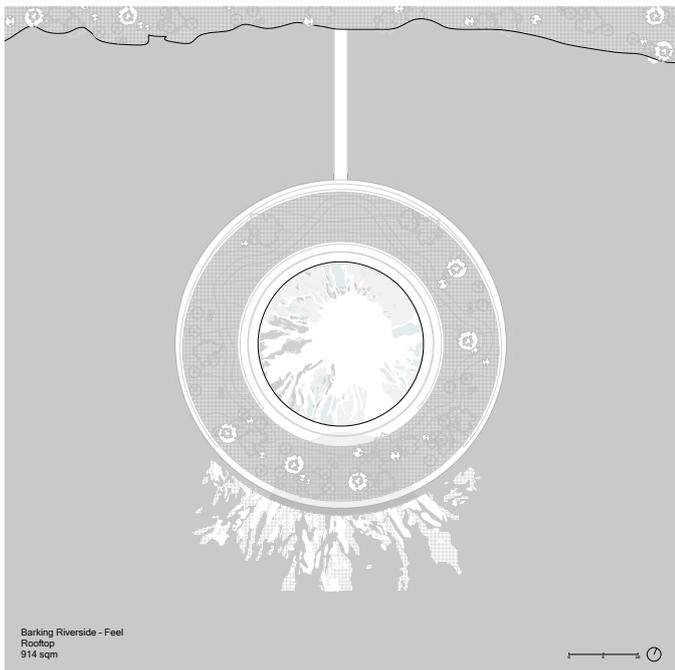
Final Project | **Thames River Rooms**

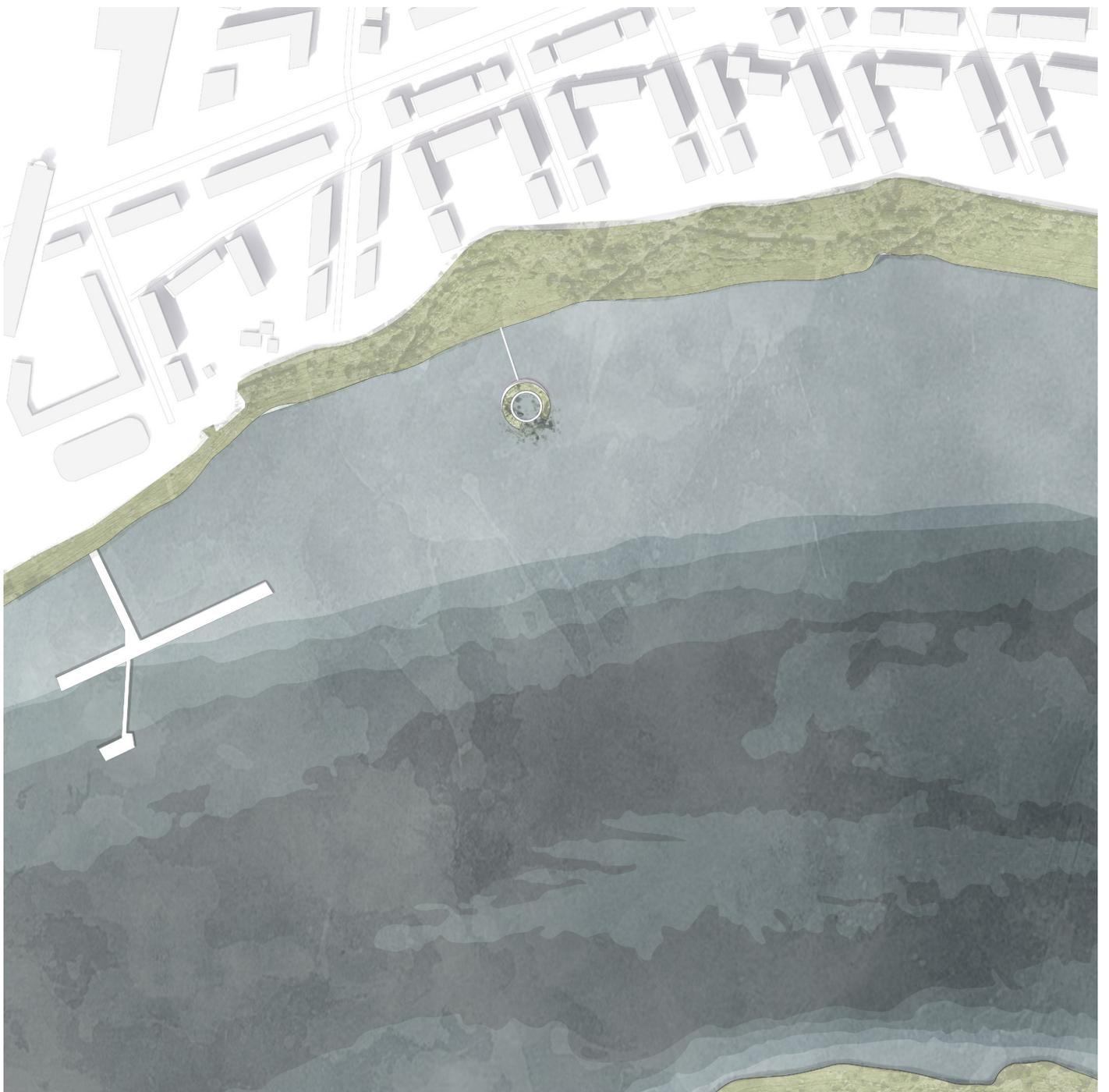
Barking Riverside - Feel

Bathhouse & monitoring

River Program	Riparian labs (monitoring temperature)
Public Program	Bathhouse and outdoor pool
Symbiosis	Riparian rooftop
Diameter	47m
Building	745m ²
Riparian	914m ²
Thames Clipper	Barking Riverside pier

This eastern most intervention of the Thames River Rooms is located in a marine environment with a wide transitional zone softly edged by vegetation on both sides. The natural conditions thrive here the best and it is therefore been chosen as perfect place to focus on 'feeling' the river. The building can be reached by bridge, bringing the visitors and scientists in a environment completely surrounded by the river. Once entered the program is divided logically. On the east side one can find the riparian labs and back of house whereas on the west side visitors can access the bathhouse. The indoor part of the bathhouse is also linked with the riparian pool in the middle of the building. This can be seen as the ultimate way to connect with the Thames river by using the sense of feeling. As the tide divers the experience will be different each time. Visitors can take a rest on the circular riparian rooftop. However, the river dynamics will determine to what extend this is possible as it will sometimes cover parts of it. Besides the standard monitoring the riparian labs will also monitor the temperature of the river water, as it is related to how water organisms 'feel' the river.







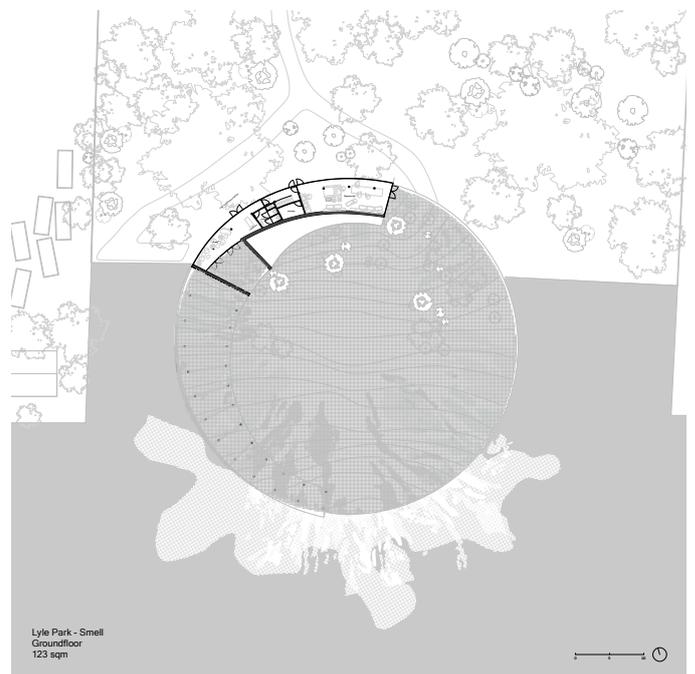
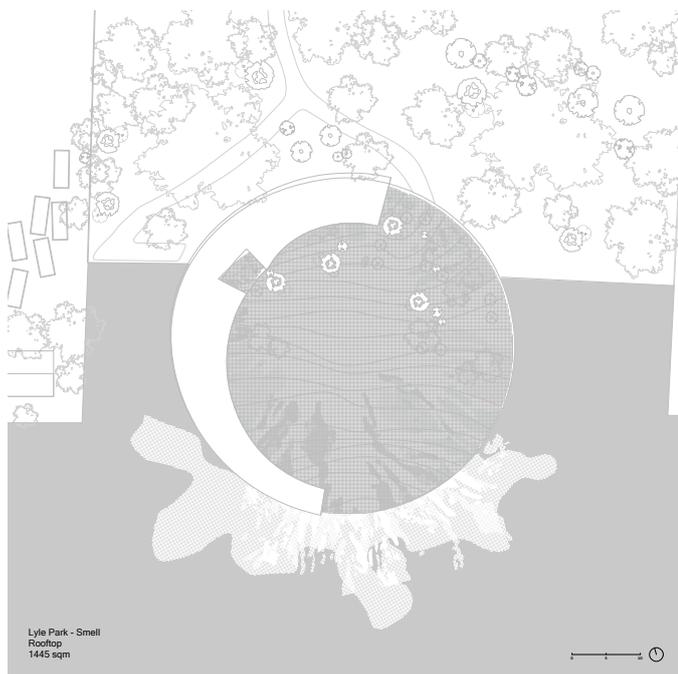


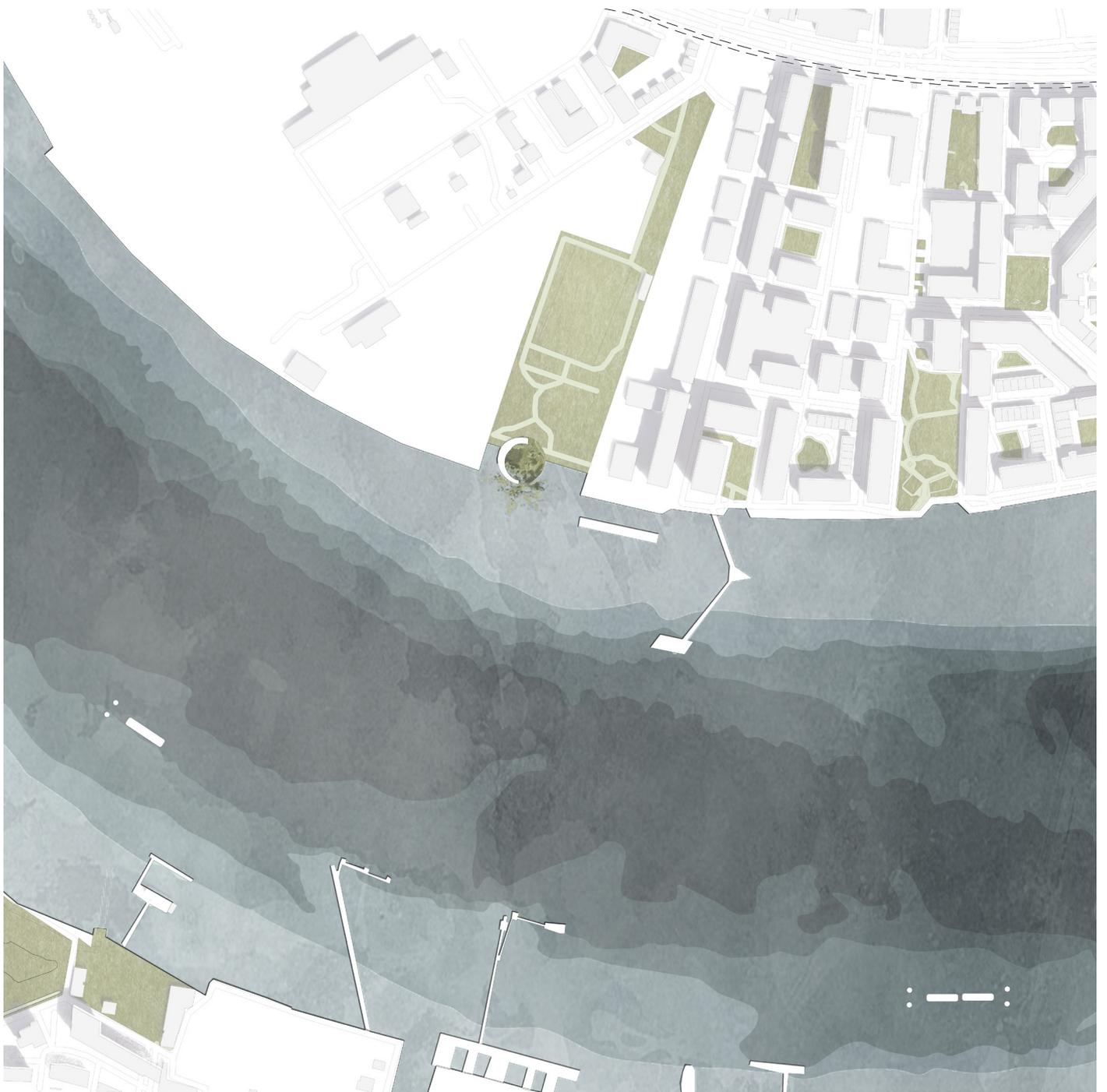
Lyle Park - Smell

Olfactionary & monitoring

River Program	Riparian labs (monitoring river smells)
Public Program	Outdoor olfactionary
Symbiosis	Riparian middle
Diameter	50m
Building	165m ²
Riparian	1445m ²
Thames Clipper	Royal Wharf pier

This intervention is located in a rather industrial area, therewith a great place to monitor the underwater smell pollution for fish and other organisms in the Thames, besides gathering the standard data. Herewith new ideas and applications can be tested to reduce this threat. The public program will focus on various smells that can be found along the tidal stretch of the river. These will be released as mist or vapor along the covered outdoor rooftop. This also connects with the identity of the surrounding, industries and factories releasing steam. Visitors can walk by and engage with the river by smelling its conditions, ending up at the edge of the waterline of this intervention. Besides the fact that the building allows the smells to be released in its outdoor part it also houses a indoor lounge and toilets for visitors and a riparian lab. The shape of the building is carefully mediating between the low industry area on the west and the newly built residential high-rise area in the west. The rather open structure for the building relates to the open structures found in its industrial surroundings.







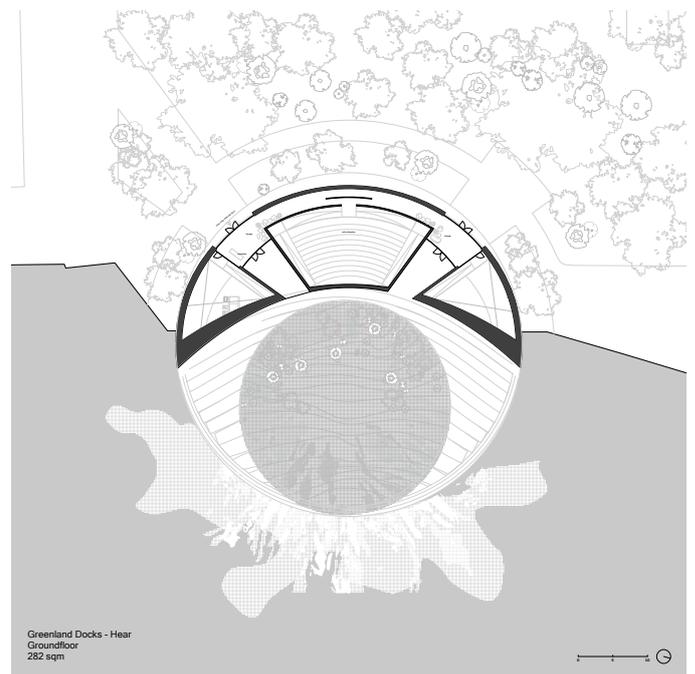
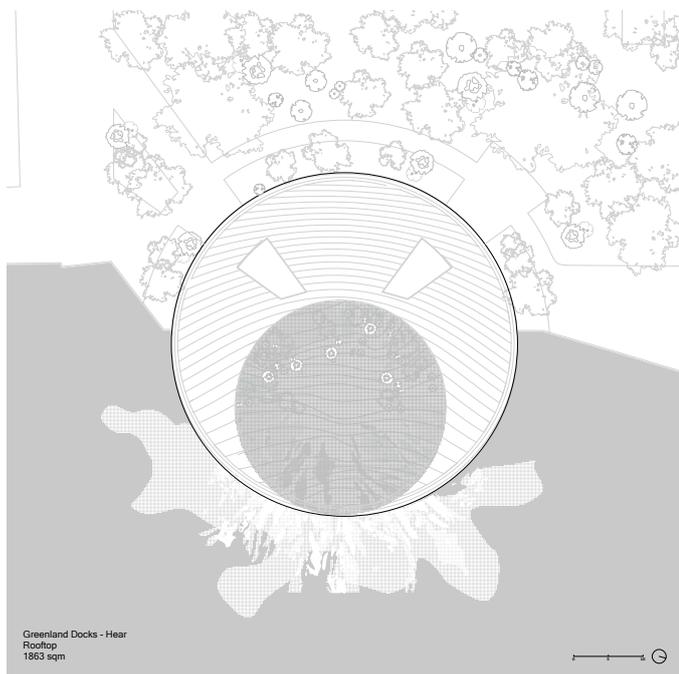


Greenland Dock - Hear

Echo chamber with amphitheater & monitoring

River Program	Riparian labs (monitoring river noise pollution)
Public Program	Echo chamber (indoors) & amphitheater
Symbiosis	Riparian middle
Diameter	50m
Building	712m ²
Riparian	1863m ²
Thames Clipper	Greenland Surrey Quays pier

The Greenland Dock intervention is surrounded by busy river traffic, a dock and residential area, therefore making the sense of hearing a logical choice. The shape of the building allows to not only create a functional amphitheater on the rooftop, but also creates an useful space functioning as echo chamber. Because of that the public can listen to the 'unvoiced' river in new and different ways, but perhaps it also turns out to be a much needed mediation space for some. Besides the public program the building also offers space for the riparian labs on the left and rehearsal and storage spaces on the right. The riparian labs will monitor both standard data and noise pollution in the river caused by water traffic and the urban realm. Aim of the monitoring is to find new ways to reduce this noise. New innovations can be tested on site and integrated with the building over time. Visitors can enter the building on two sides and decide to stay inside or walk straight outside to the rooftop. Depending on the tide of the river the space might offer interesting place to interact with it, but might also allow concerts and small performances to take place. This not only voices the river through sounds but also because of the realization of its natural dynamics.







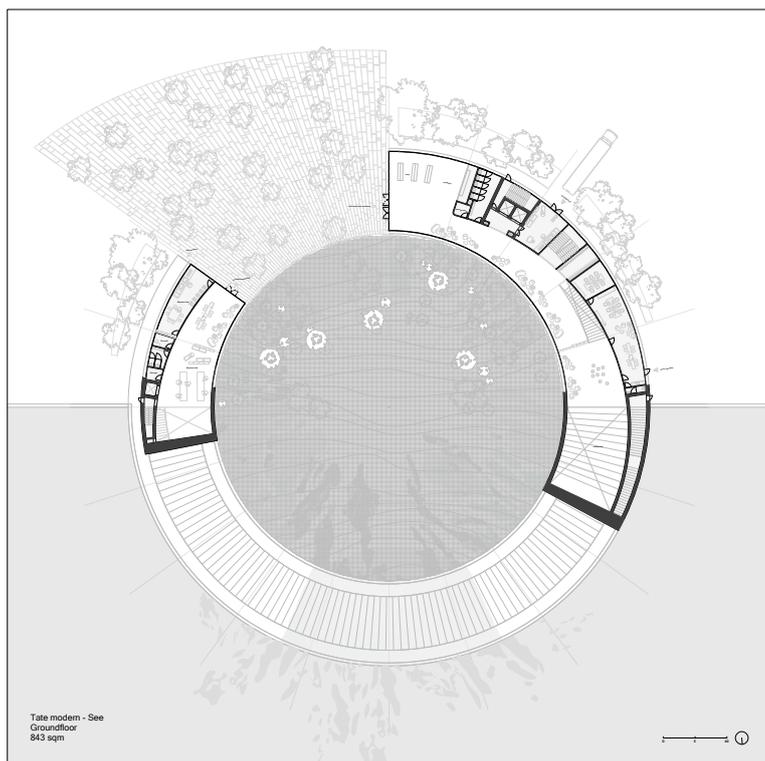


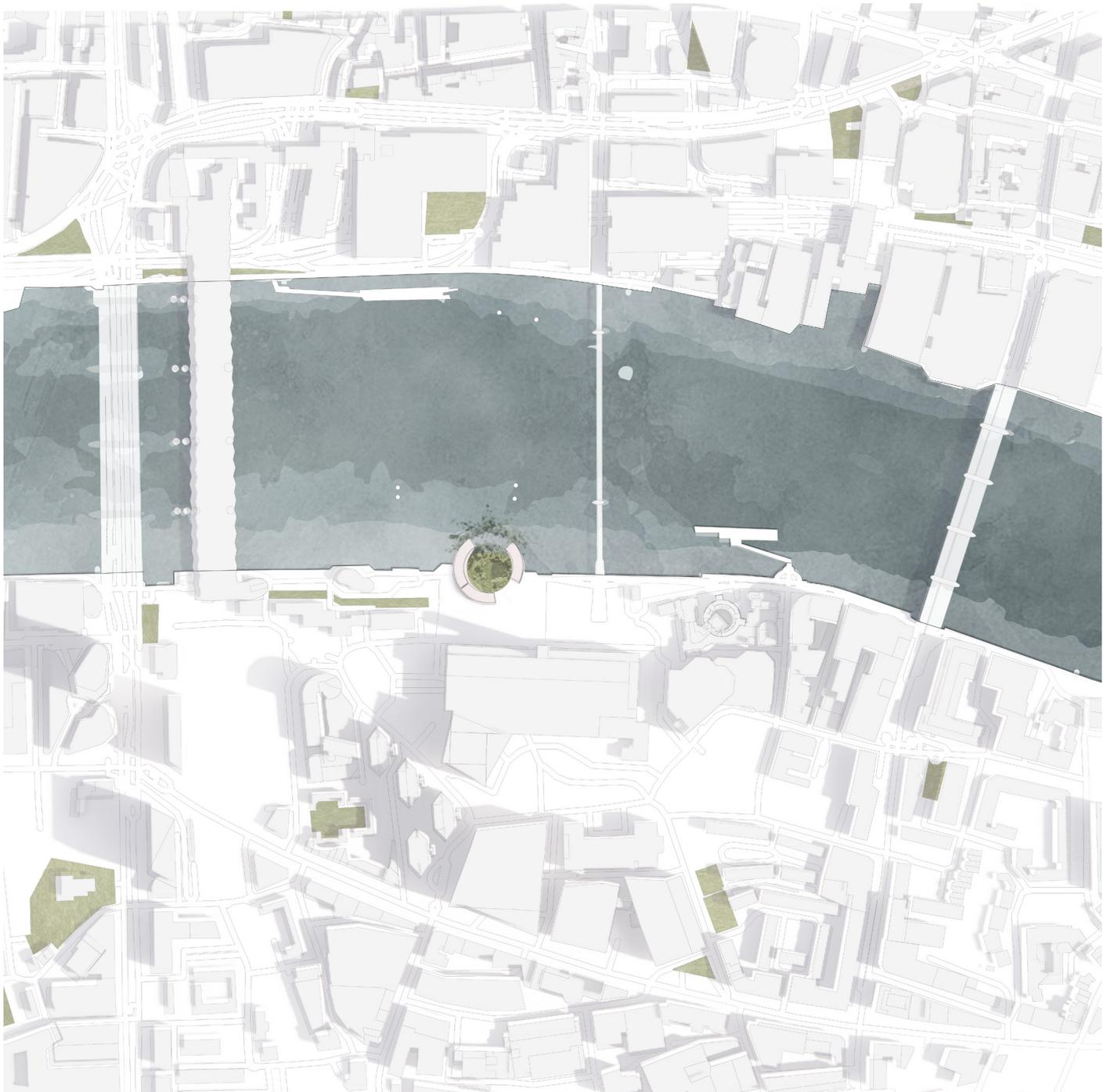
Tate Modern Park - See

Underwater observatory & monitoring

River Program	Riparian labs (monitoring underwater life)
Public Program	Underwater observatory
Symbiosis	Riparian middle
Diameter	80m
Building	7309m ²
Riparian	4705m ²
Thames Clipper	Bankside pier

The see focused intervention in front of Tate Modern will be the most central located River Room. This will be the headquarters of the five interventions combining all senses and monitoring data together. It also allows the majority of the public to engage with the water in an easy and approachable way at the spot where a lot of public is gathered. The shape of the building attracts and protects the riparian zone, but also functions a mediation between the lower river and tall surrounding urban buildings. The building has two main accesses, one for the public riparian labs that focus on monitoring underwater life and the development of the riparian zone, and one entrance is dedicated for the public underwater observatory, allowing visitors to descend down into the river to see the 'unseen'. The circulation also follows the shape of the building and eventually brings visitors up to the second floor from where they can descend along the riparian rooftop stairs for an up-close moment with the river Thames. Depending on the tide loop can be completed. Herewith the notion of the river dynamics becomes more obvious for the public of London. Besides that also some riparian restoration labs, seed and water sample vaults and the private laboratories are located in the building. More information about this design will be provided in the next sub chapter.







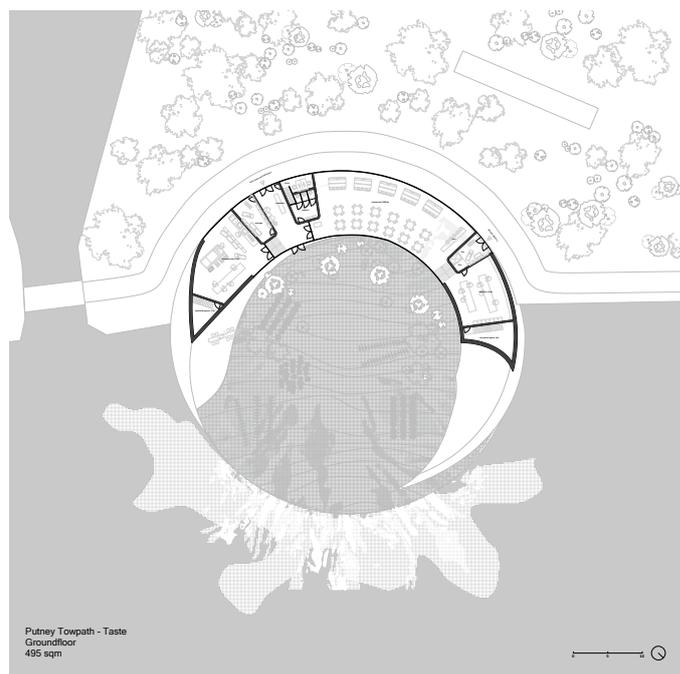
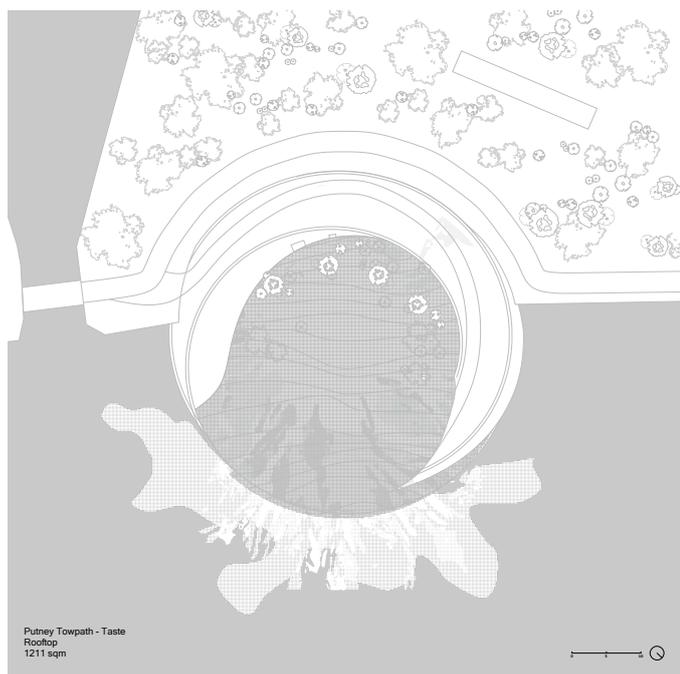


Putney Towpath - Taste

Tearoom with restaurant & monitoring

River Program	Riparian labs (monitoring oxigen & temp)
Public Program	Tea room & restaurant
Symbiosis	Riparian middle
Diameter	50m
Building	510m ²
Riparian	1190m ²
Thames Clipper	Putney pier

The most Western located intervention is surrounded by lots of greenery and has soft green edges along the river. Water traffic is characterized by rowing boats and the surrounding residential area shows a certain freshness and openness that can hardly be found elsewhere in London. This stretch of the river also contains fresh water, combined with the other characteristics making it a logical choice to focus here on taste. The building rises from the ground and twists on the surface, therewith making the rooftop an access point for visitors of the riparian middle. In the riparian zone various 'tastes' of the river can be found, for example seaweed racks, oysters and local tea leaves. The building itself houses a tearoom during the day and a restaurant by night. Food and drinks will party be obtained by its riparian middle. On the south side of the building one can find the riparian labs. Besides the standard data also oxygen and temperature levels will be monitored as these aspects relate to how taste affects for underwater organisms.









Final Project | **Riparian mediator - the underwater observatory**

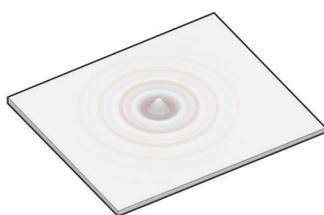
The underwater observatory

A riparian mediator

The ripple, the effect being caused by the interaction between a falling stone and the water, proved to be the physical representation of the relationship between form and fluidity, or Londoners and river. Therewith I approached the project as a string of connected ripples, acting as the physical shape representing the relationship between the city and water. Just like ripples, sizes and exact forms differ, but connectivity between them is found nonetheless. The architecture itself, despite being considered static by some, is operating in flux and therewith complies with the idea of the ripple too. They create and facilitate the shaping of a new symbiotic relationship, and allow the spaces to be subject to future change and possibilities. Herewith the definition of my project became clear.

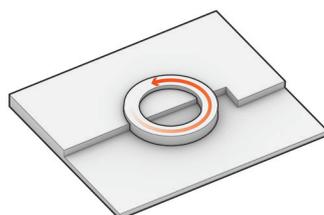
As the architecture had to be further defined the strategy continued upon the idea of negotiating boundaries. Not only between humans and non-humans, as already established, but also between form and fluidity, between architecture and landscape, and between program and regeneration for humans and non-humans. This not only strengthens the concept of architecture as a mediator but also takes on the role of being an interdependent system. As the relationship is shaped over time, the building should also be designed to withstand the notion of time. The program and exact boundaries between the city and river are subject to change in the river and public dynamics. Therewith it becomes a much-needed and long-lasting protagonist in the re-establishment of the relationship between the water and the city.

By creating a reciprocal symbiosis across different scales and by reducing existing pressing waterfront issues the proposal could help regenerate both the river and the urban collective and therewith making a positive effect on general urban and river resilience.



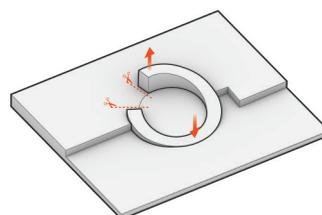
RIPPLE

Ripple as physical representation of relationship between fluid (river) and form (city)



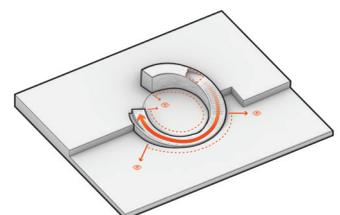
FRAMING THE RIPARIAN

Ring frames inner riparian zone, highlighting the space of symbiosis



ENGAGE & PROTECT

Openings and adjusted shape open up volume to water, while still protecting the riparian



OPTIMAL VIEWS & LOOP

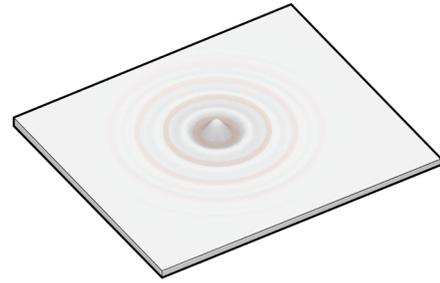
360 views inwards and outwards, and optimal circulation in and outside building



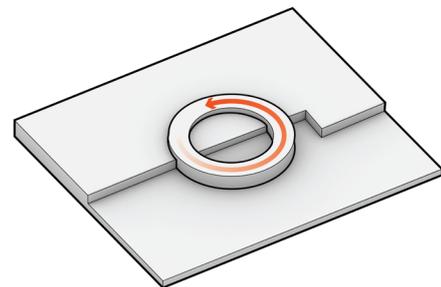
Landscape design

Concept

The landscape concept has been derived from the initial idea of a ripple. Once the building had been shaped the ripple continued and formed a new ring of spaces for the surrounding landscape. Besides the ring around the building there also is a landscape being formed in front of it and in the middle of the intervention. These areas will have the different identities related to the natural areas in a riparian zone. Starting with the aquatic zone consisting out of underwater plants, oysters and sediment. The middle part will be focused on the riparian zone itself and the outside ripple space represents the upland area with higher and lush vegetation. In addition, an entrance plaza has been added as a way to invite the public into the riparian zone and start engaging with the river. This is also done through the riparian rooftop landscape on top of the building. As This space will be covered with water and sediment, it will create new interesting and symbiotic landscape between the limestone finish and water organisms and leftovers.

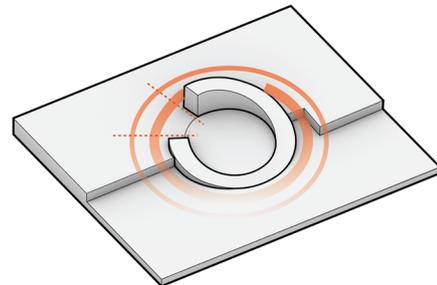


RIPPLE



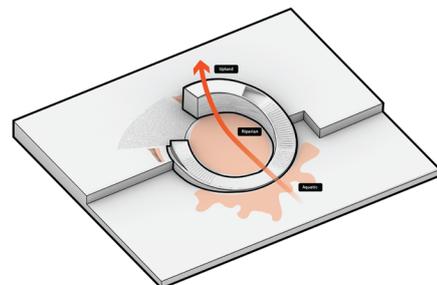
RIPPLE FORMING BUILDING

Ring frames inner riparian zone, highlighting the space of symbiosis



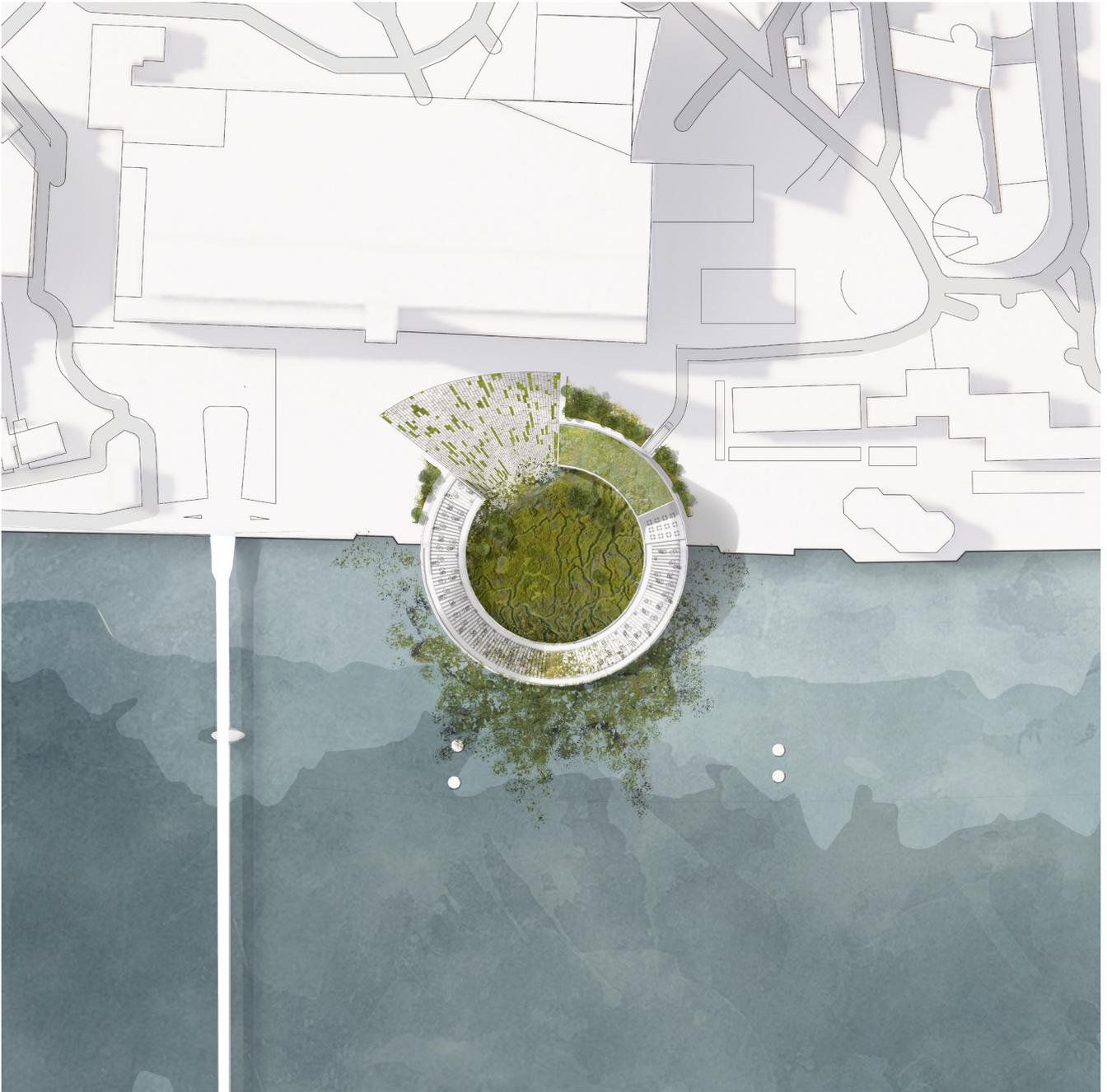
LANDSCAPE RIPPLE & GRID

The ripple will be continued to create spaces for landscape while also opening up the riparian zone



RIPARIAN INFORMING LANDSCAPE

The landscape variety in natural riparian zones informs the landscape concept here



aquatic zone



riparian zone



upland zone



entrance plaza

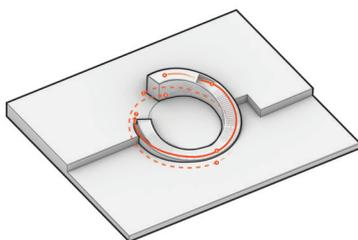


riparian rooftop

Axonometric diagram

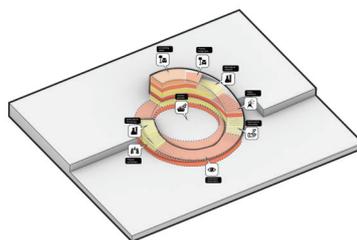
Overview

The exploded axonometric view on the next pages gives an overview of the building. It aims to reduce its complexity regarding the way it is stacked, where the program is located and in what way visitors will walk through the building. The specific spaces are highlighted on the side in black. On the following two pages the circulation has been highlighted as well as the division of river and public programs in the building. Therewith the building should have been made more understandable, even though it has a complex shape. At the bottom of this page we can observe quick overview diagrams of the routing, program and interior concept adding to the understanding of the overall building.



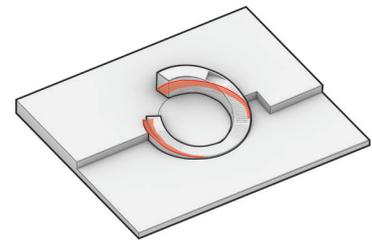
ROUTING

Walking a continuous loop (educate, encounter, connect)



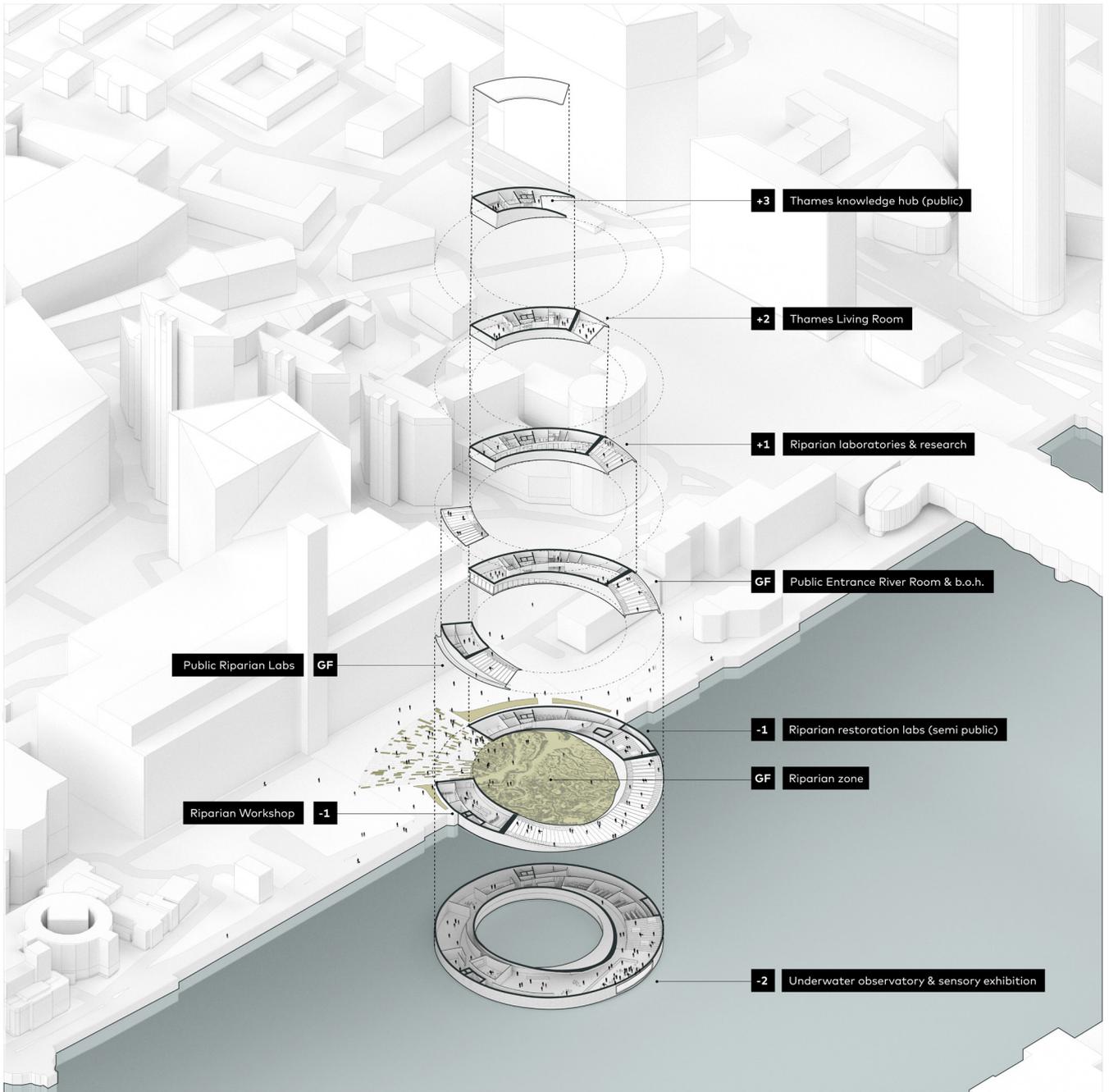
PROGRAM

Mixed program logically stacked around loop



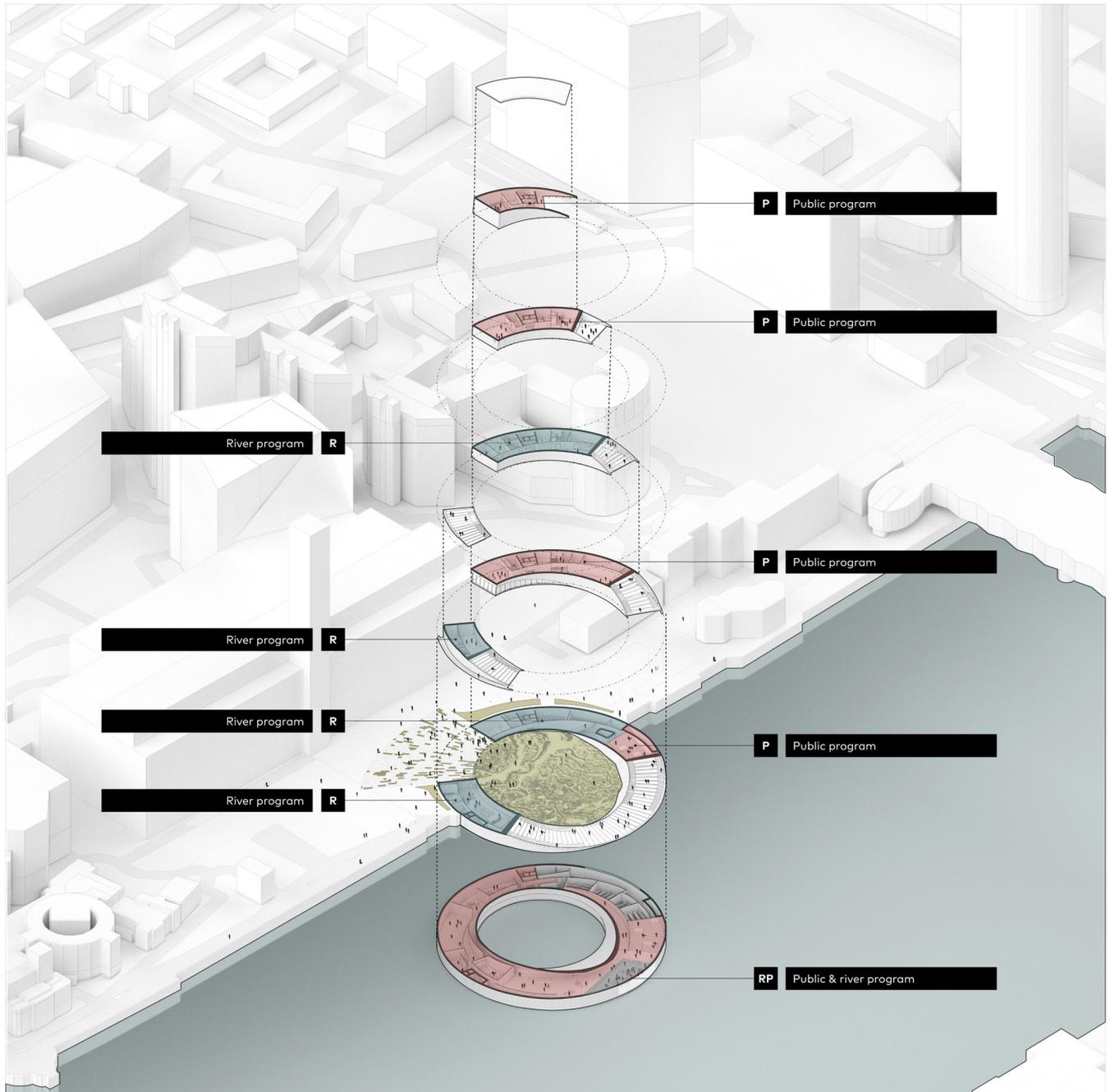
RIVER SEDIMENT AS PROGRAM

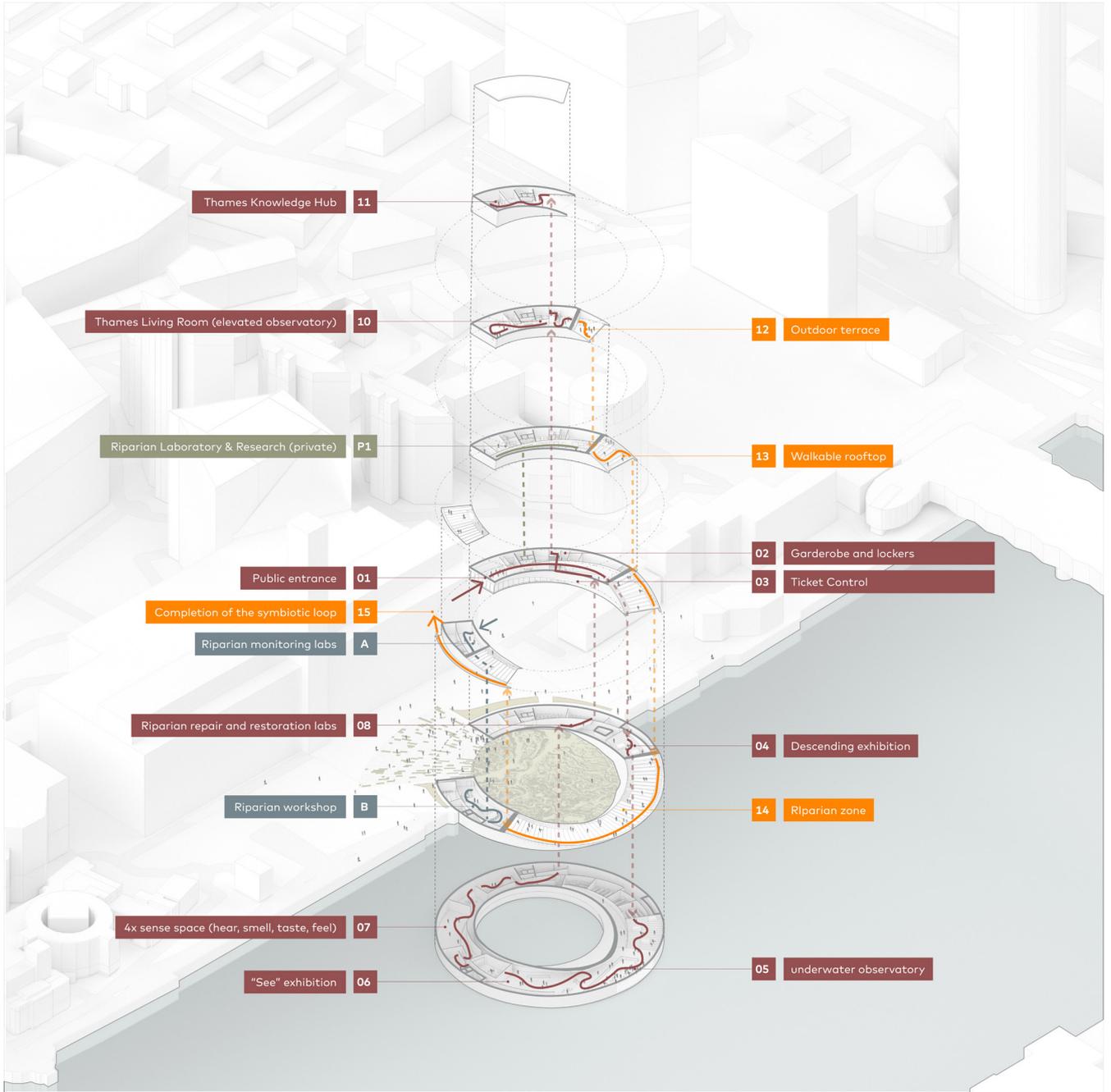
River sediment as interior approach, spaces where knowledge builds up



Axonometric diagram

Program and circulation



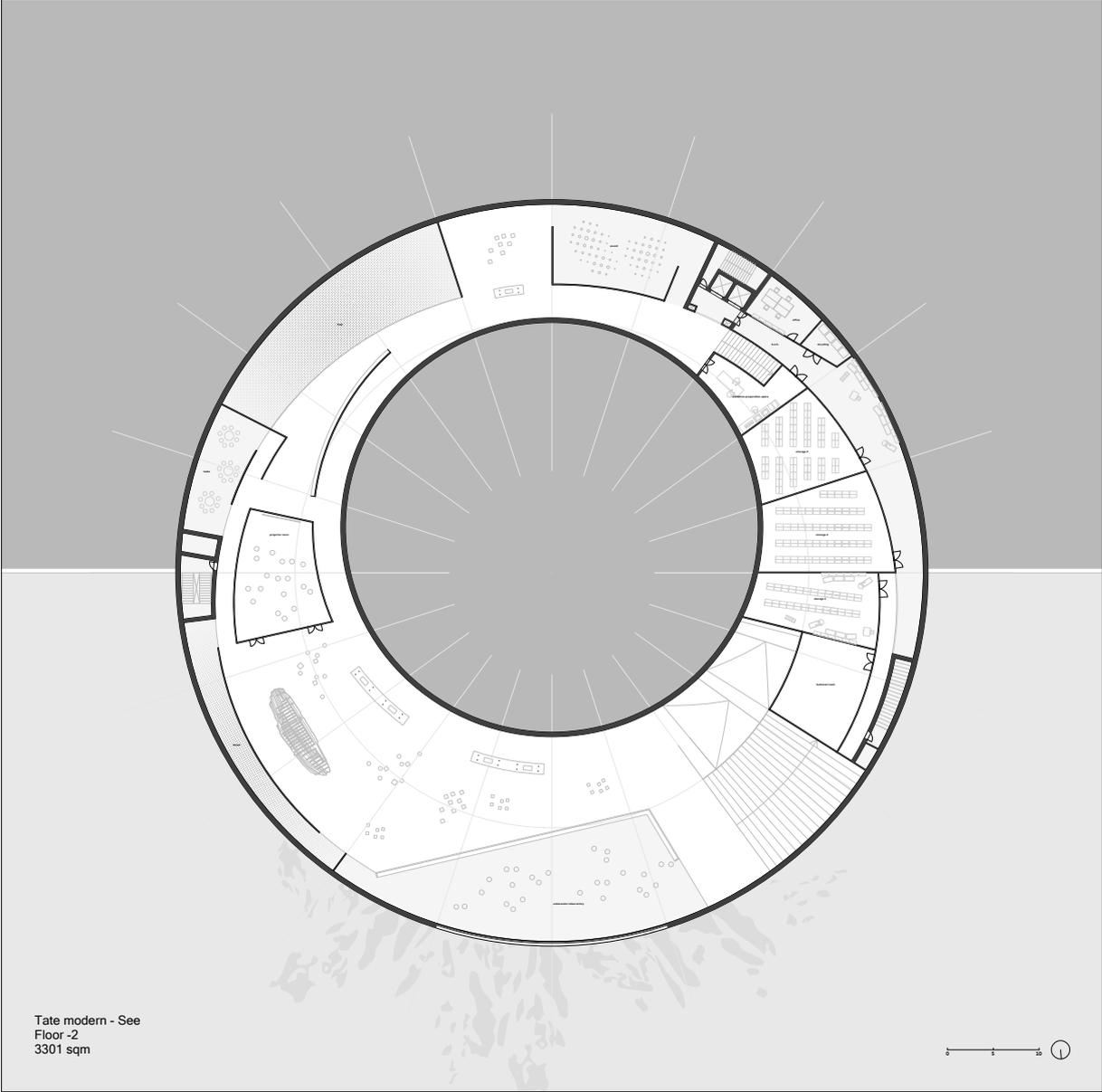




TATE MODERN - FREE AND OPEN TO ALL

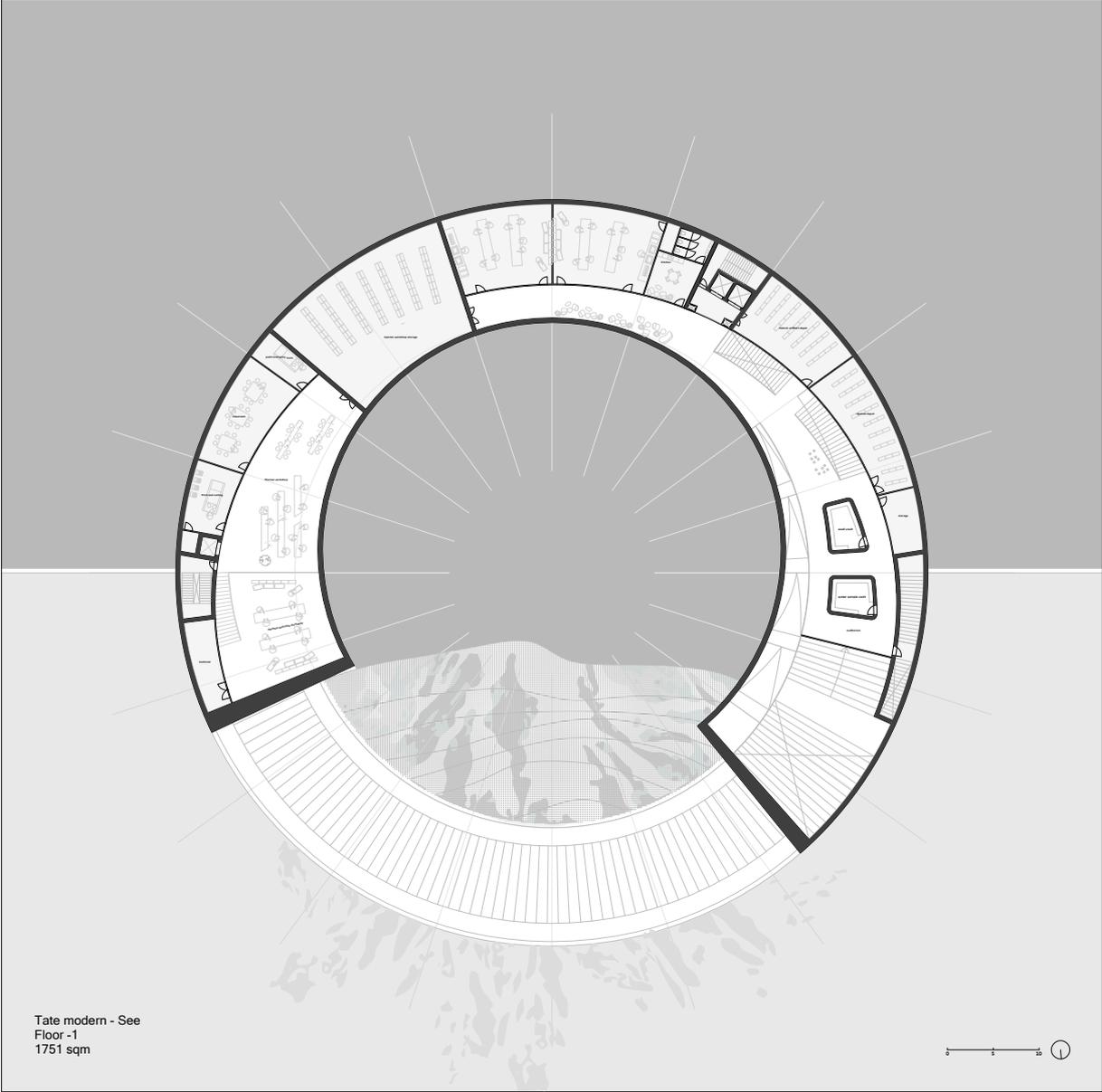
COME TO T





Tate modern - See
Floor -2
3301 sqm





Tate modern - See
Floor -1
1751 sqm





5
4
3
2
1

LOW TIDE



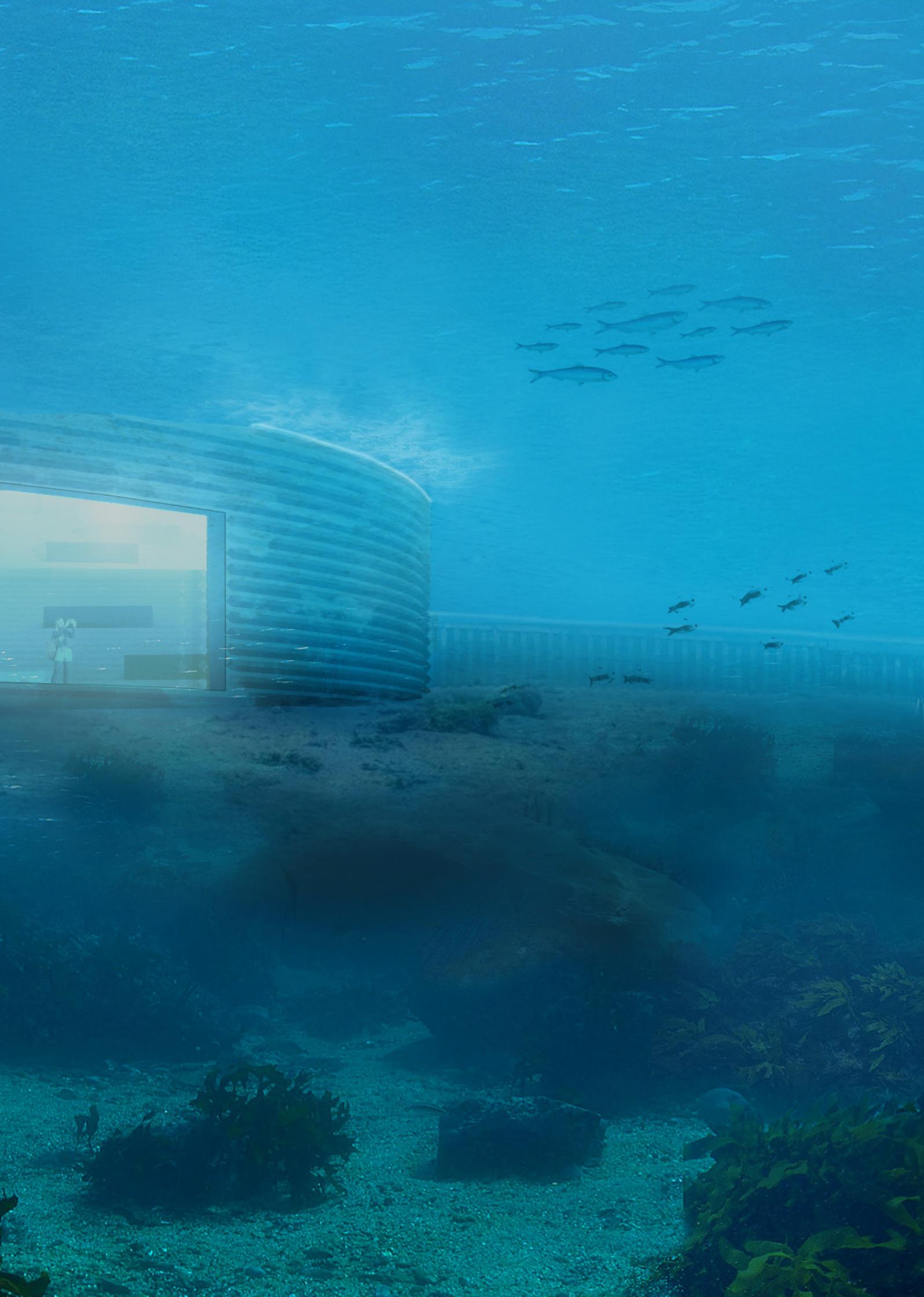


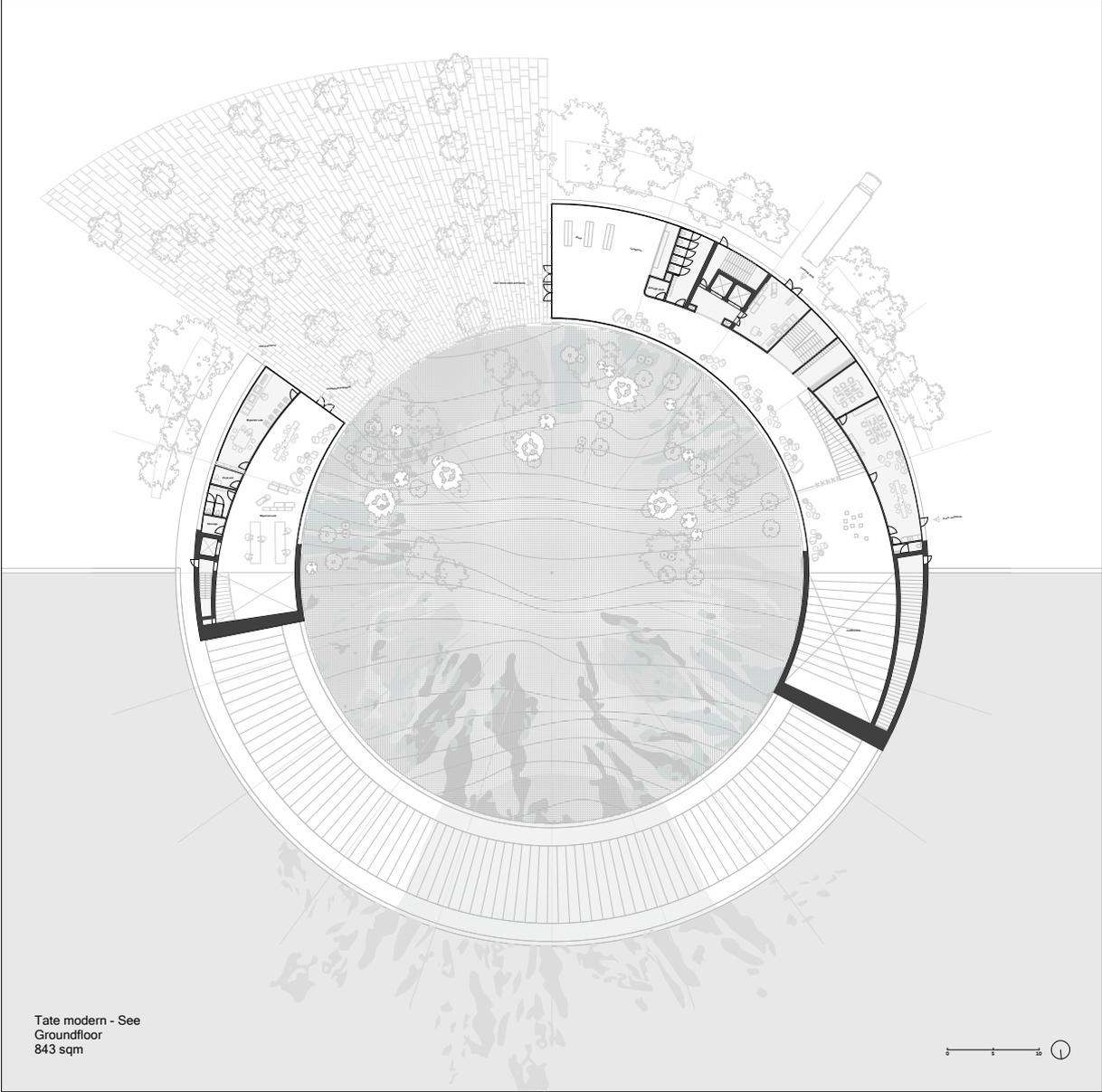
4
3
2
1

LOW TIDE





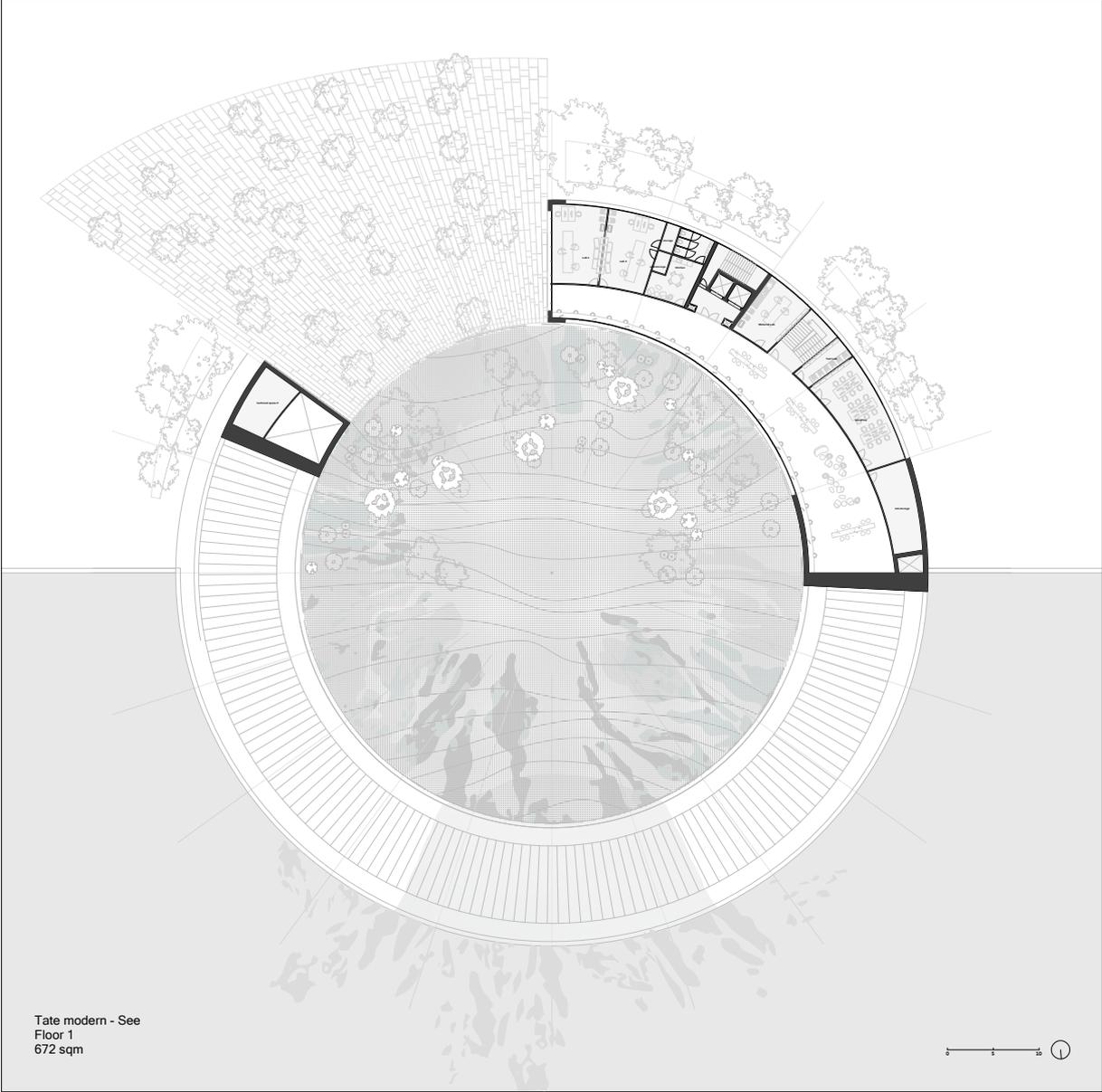




Tate modern - See
Groundfloor
843 sqm

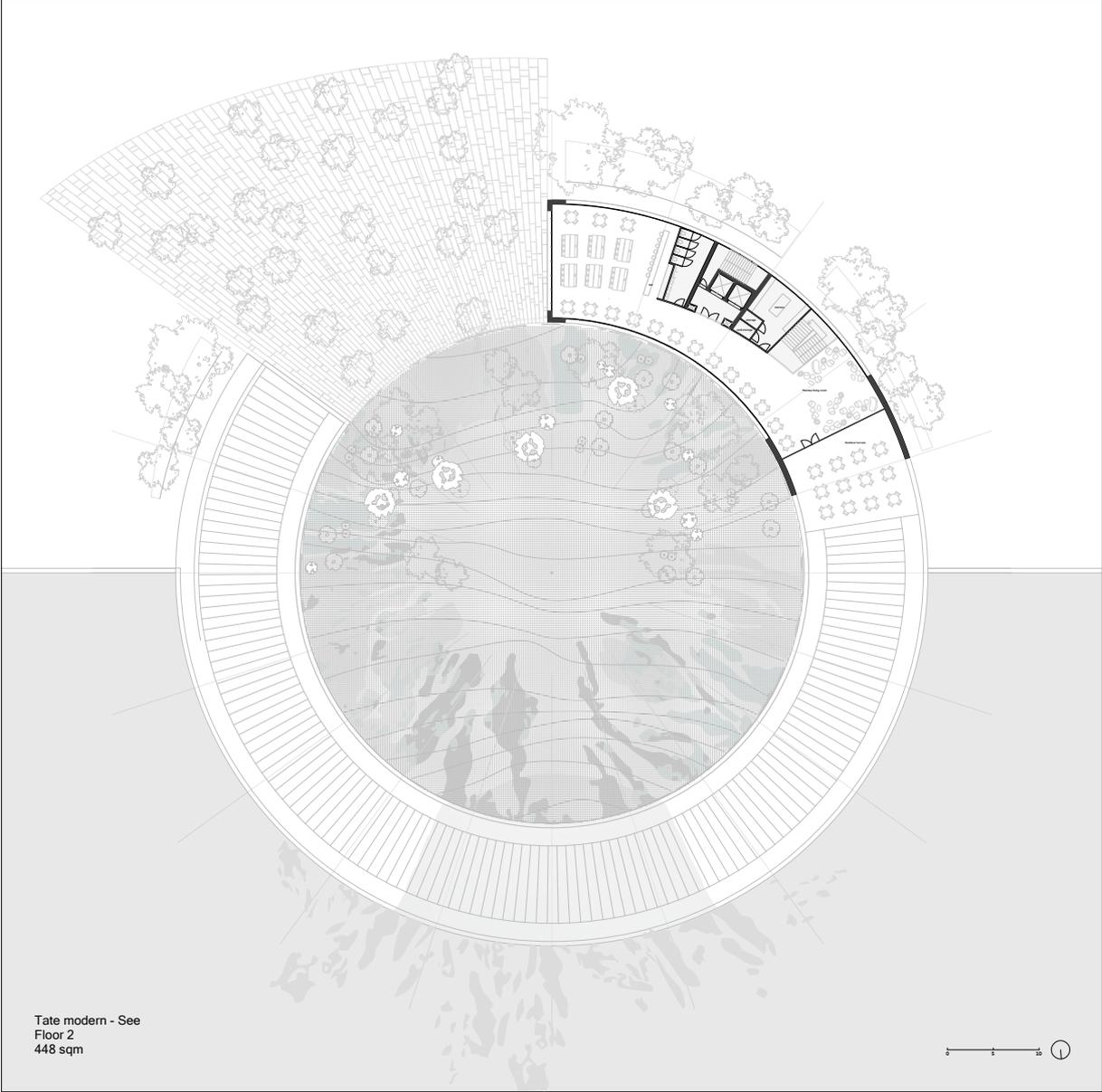






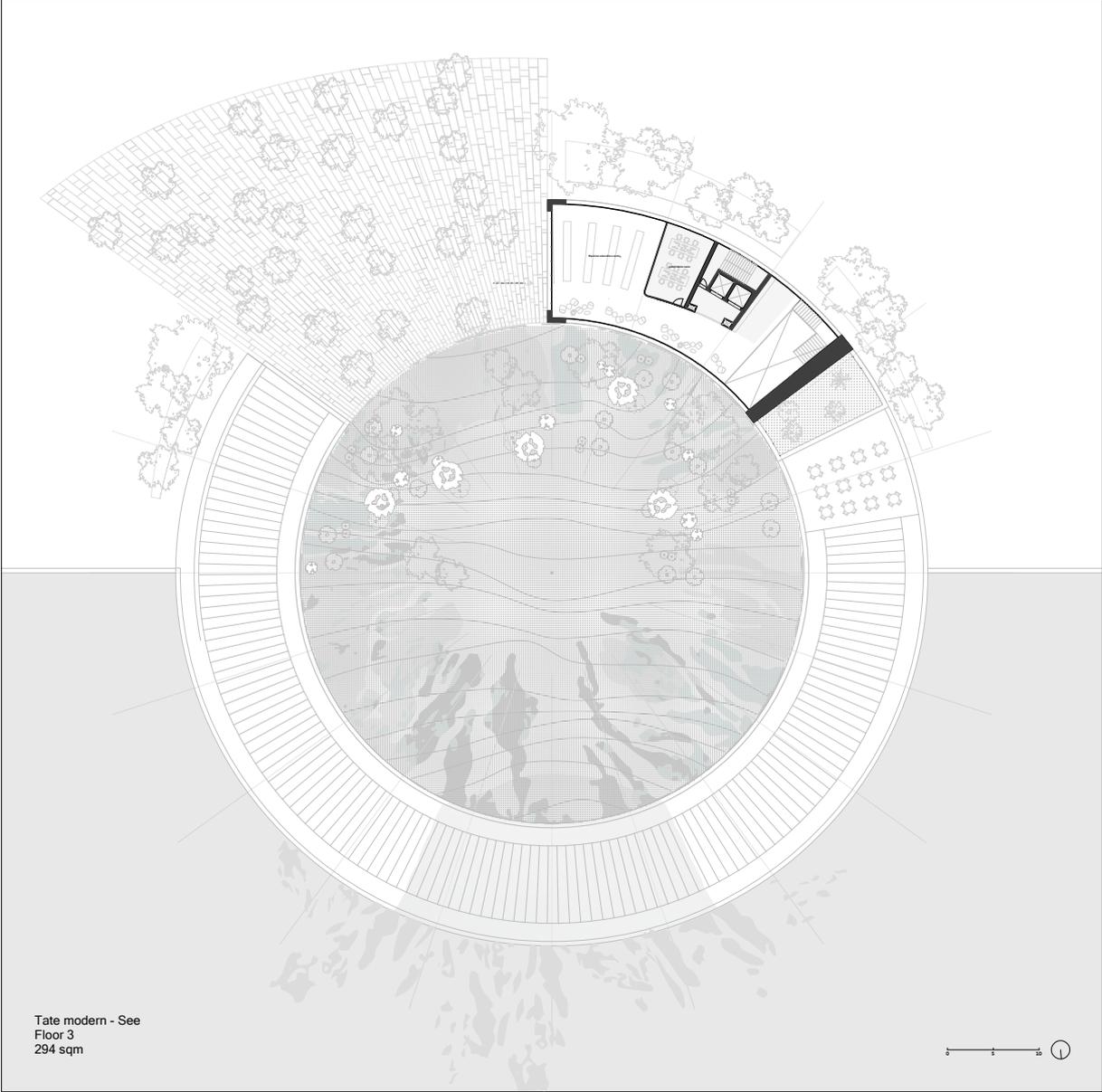
Tate modern - See
Floor 1
672 sqm

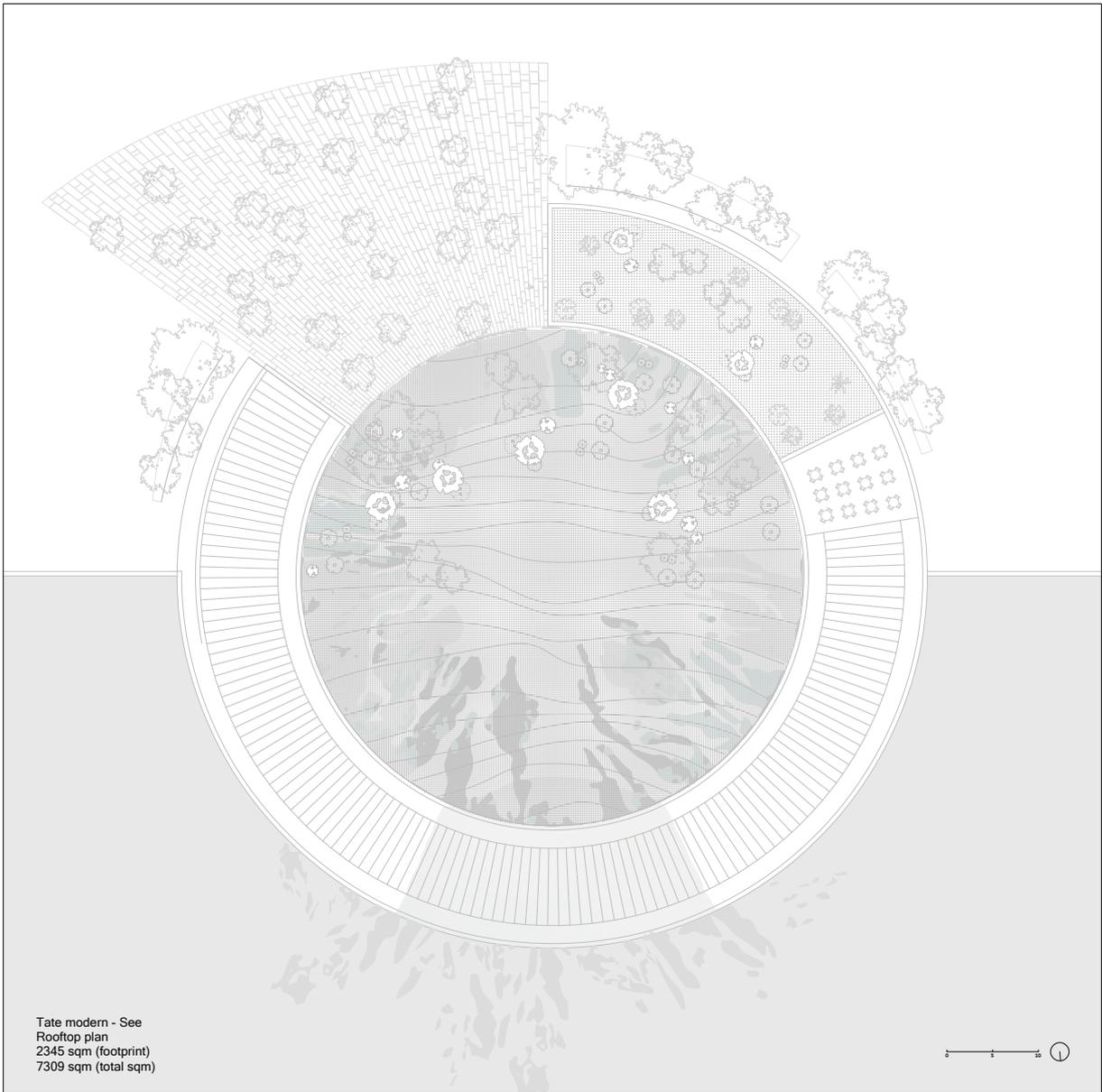




Tate modern - See
Floor 2
448 sqm





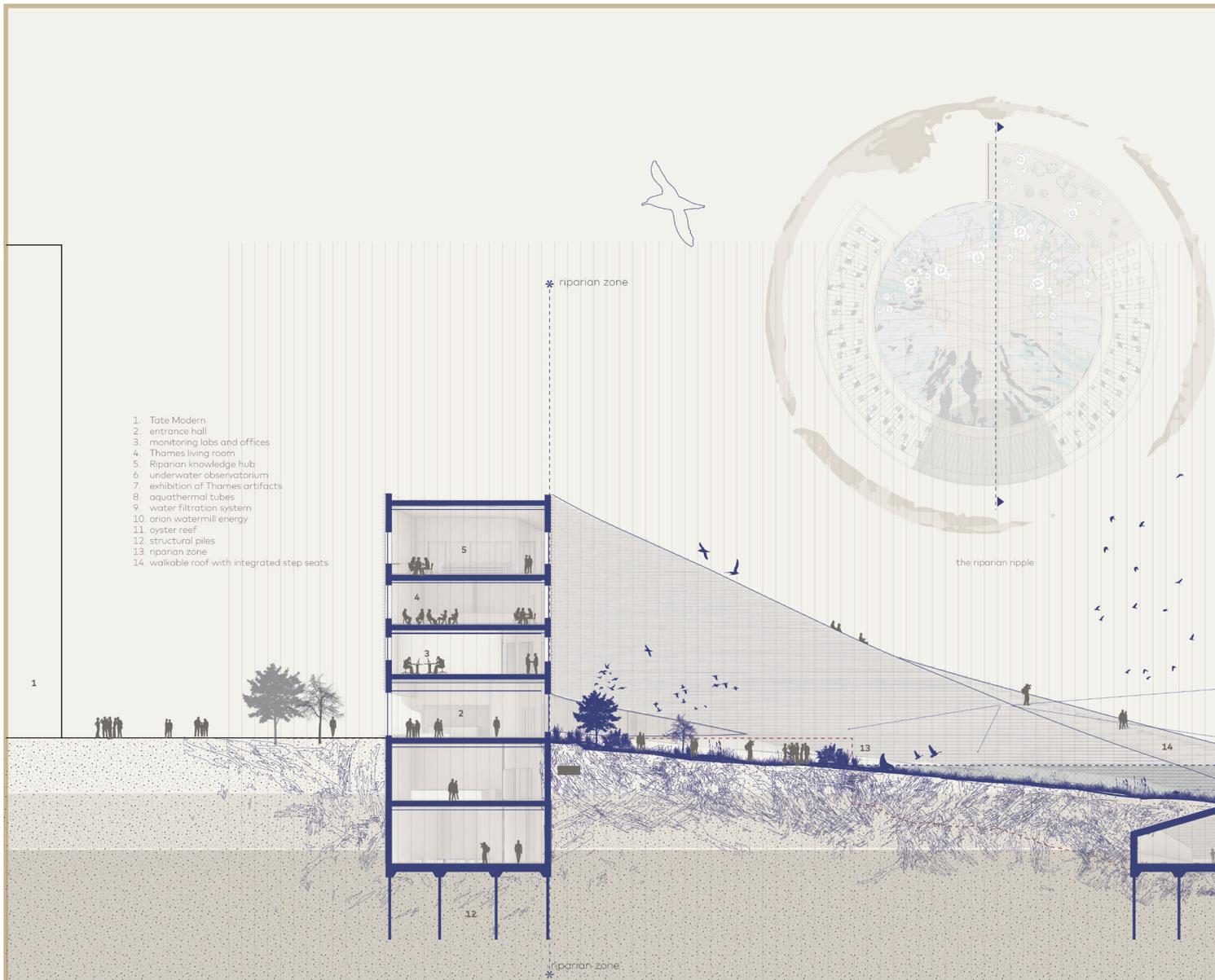






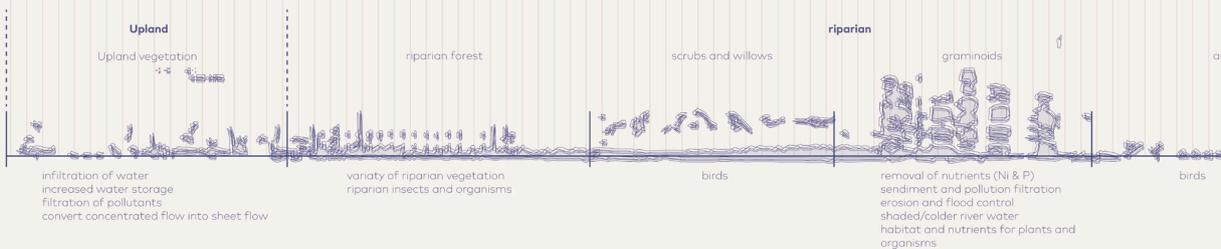
Section

Longitudinal



1. Tate Modern
2. entrance hall
3. monitoring labs and offices
4. Thames living room
5. Riparian knowledge hub
6. underwater observatorium
7. exhibition of Thames artifacts
8. geothermal tubes
9. water filtration system
10. orion watermill energy
11. oyster reef
12. structural piles
13. riparian zone
14. walkable roof with integrated step seats

the riparian ripple



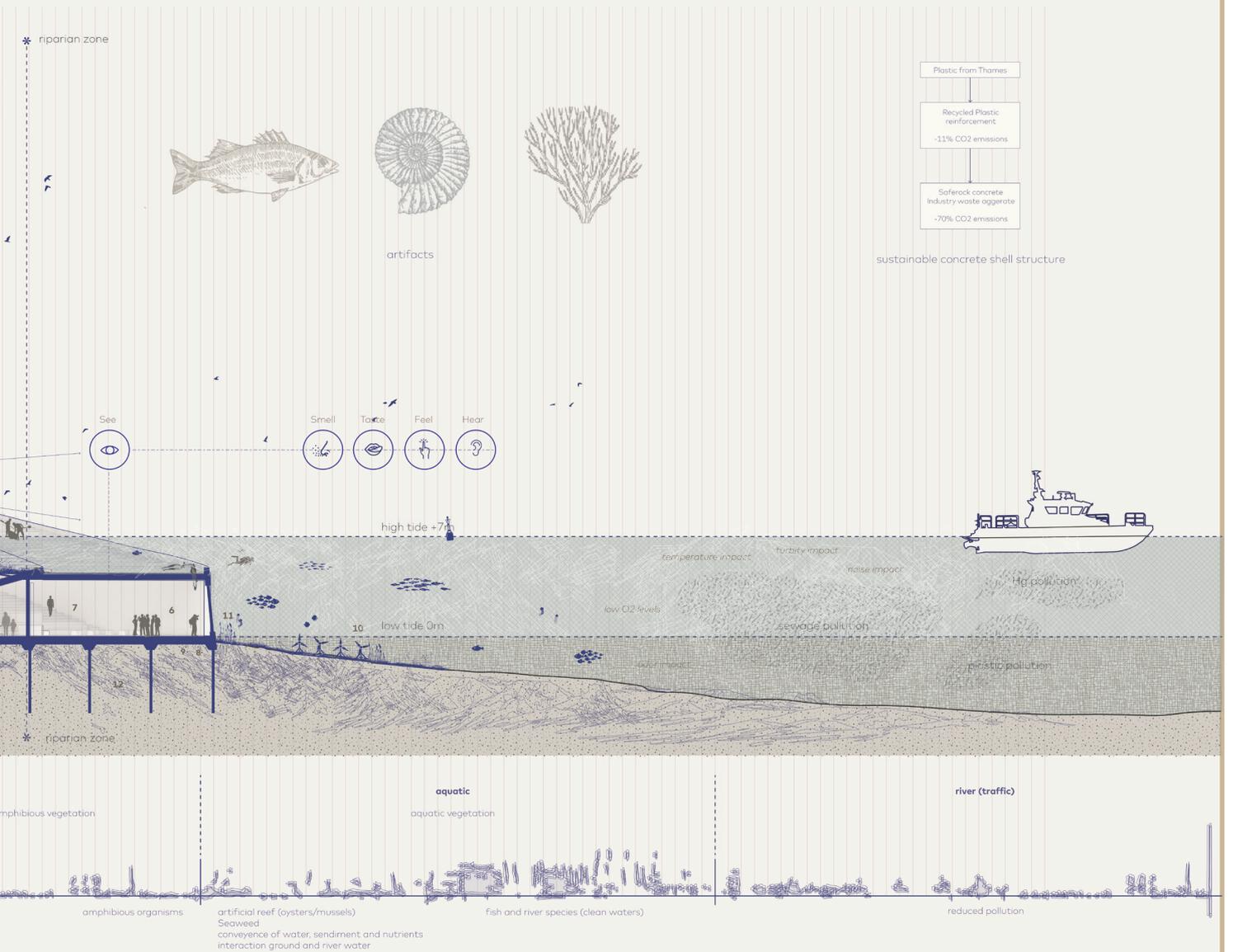
PROPOSED SECTION

Riparian vegetation functions as soil, water protection, and conservation and maintains river health by providing mechanical support to soil through root system.

0 10

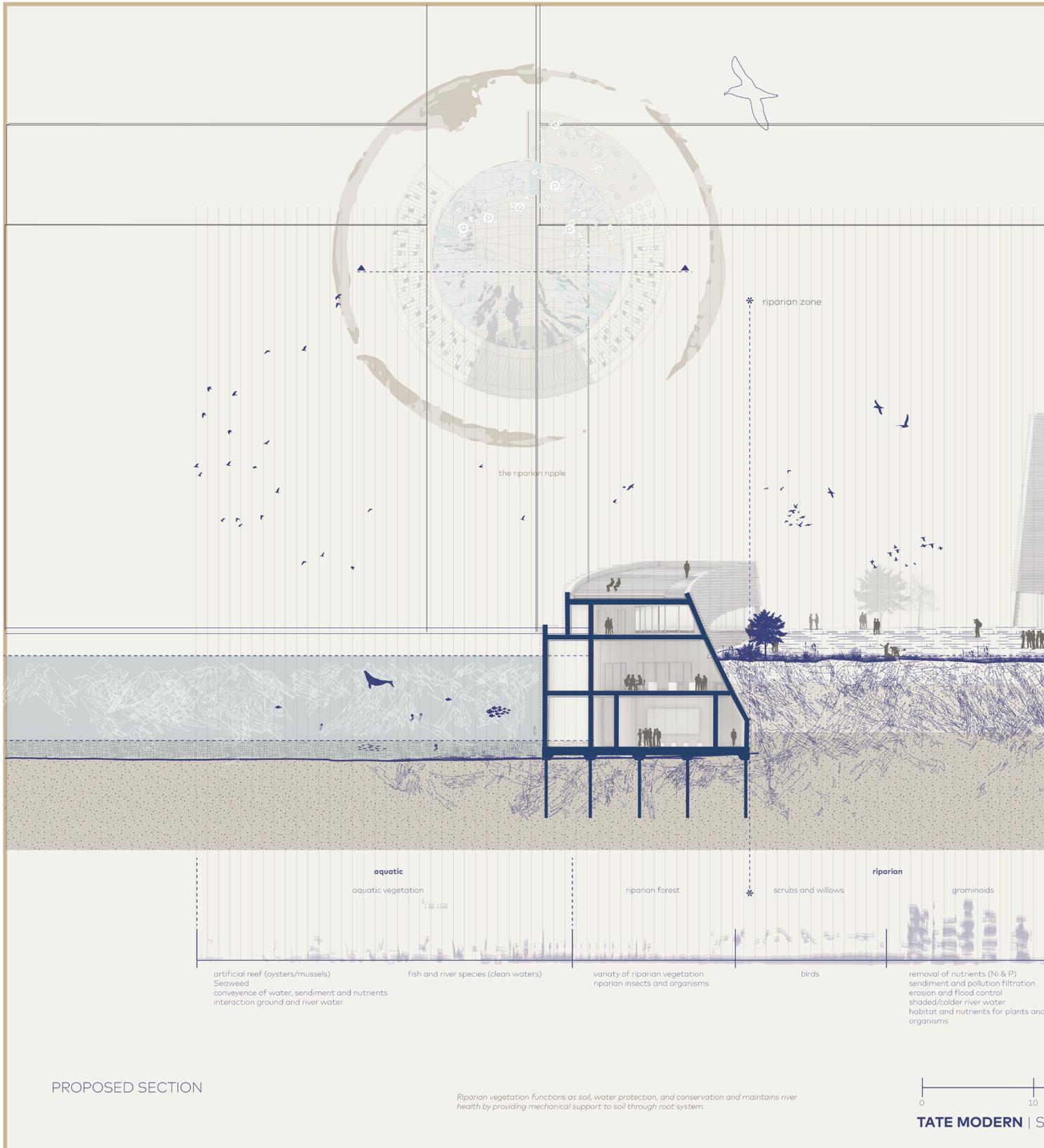
TATE MODERN | S

"In what way might the delicate ecosystem of the Thames be renewed amidst an extant landscape of urban dominance and post industrial degradation?"



Section

Cross

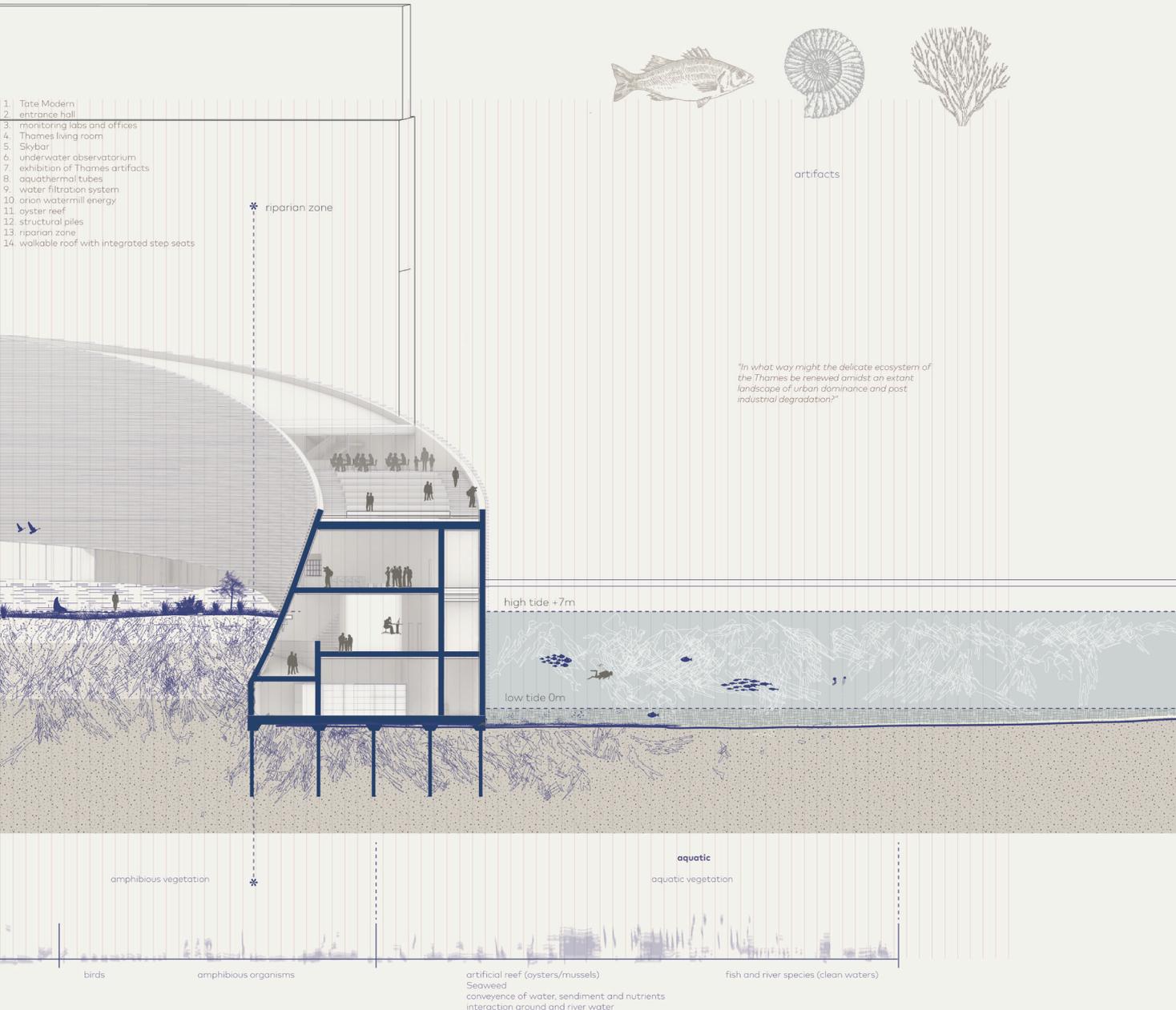


PROPOSED SECTION

Riparian vegetation functions as soil, water protection, and conservation and maintains river health by providing mechanical support to soil through root system.

0 10

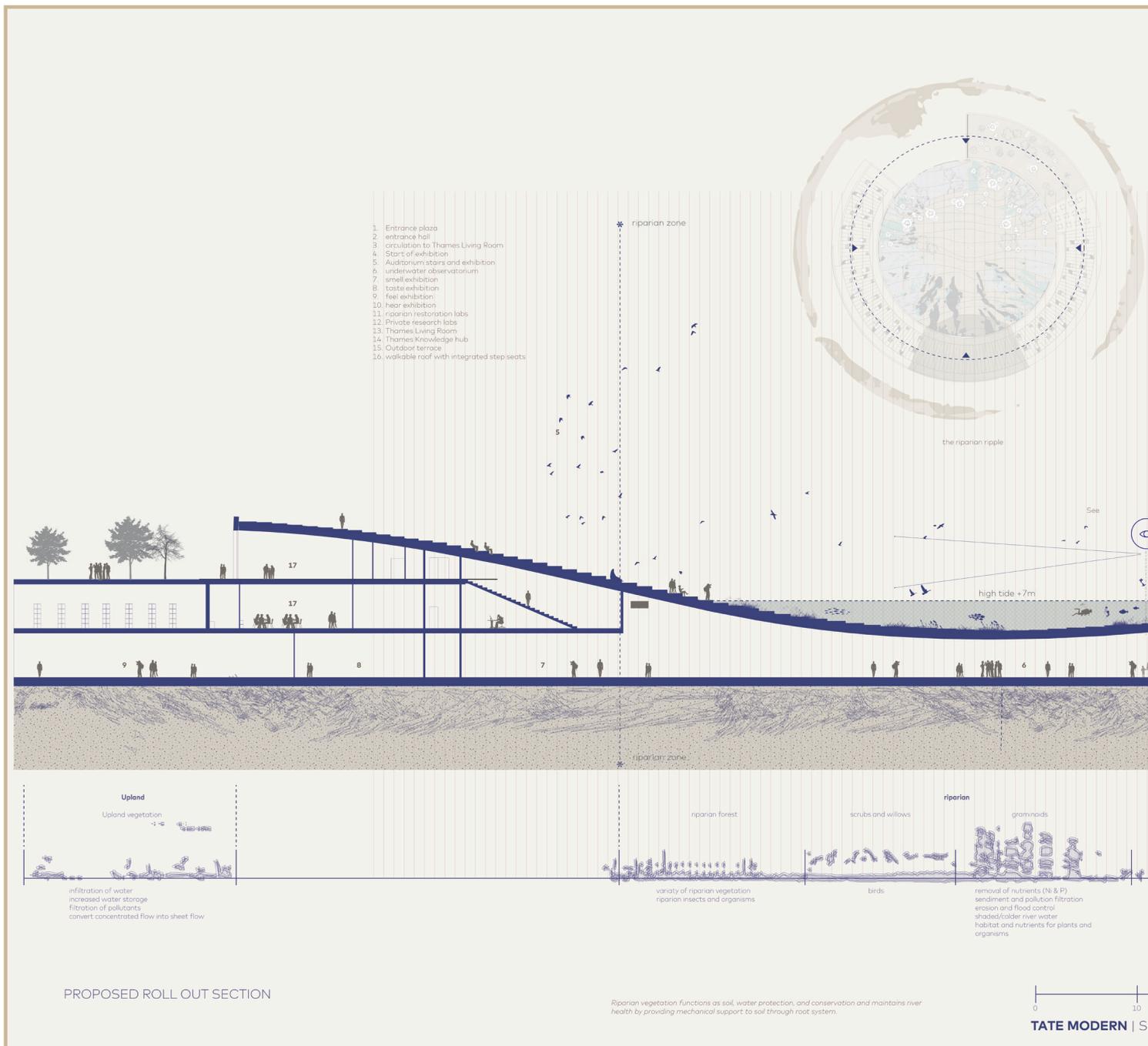
TATE MODERN | S



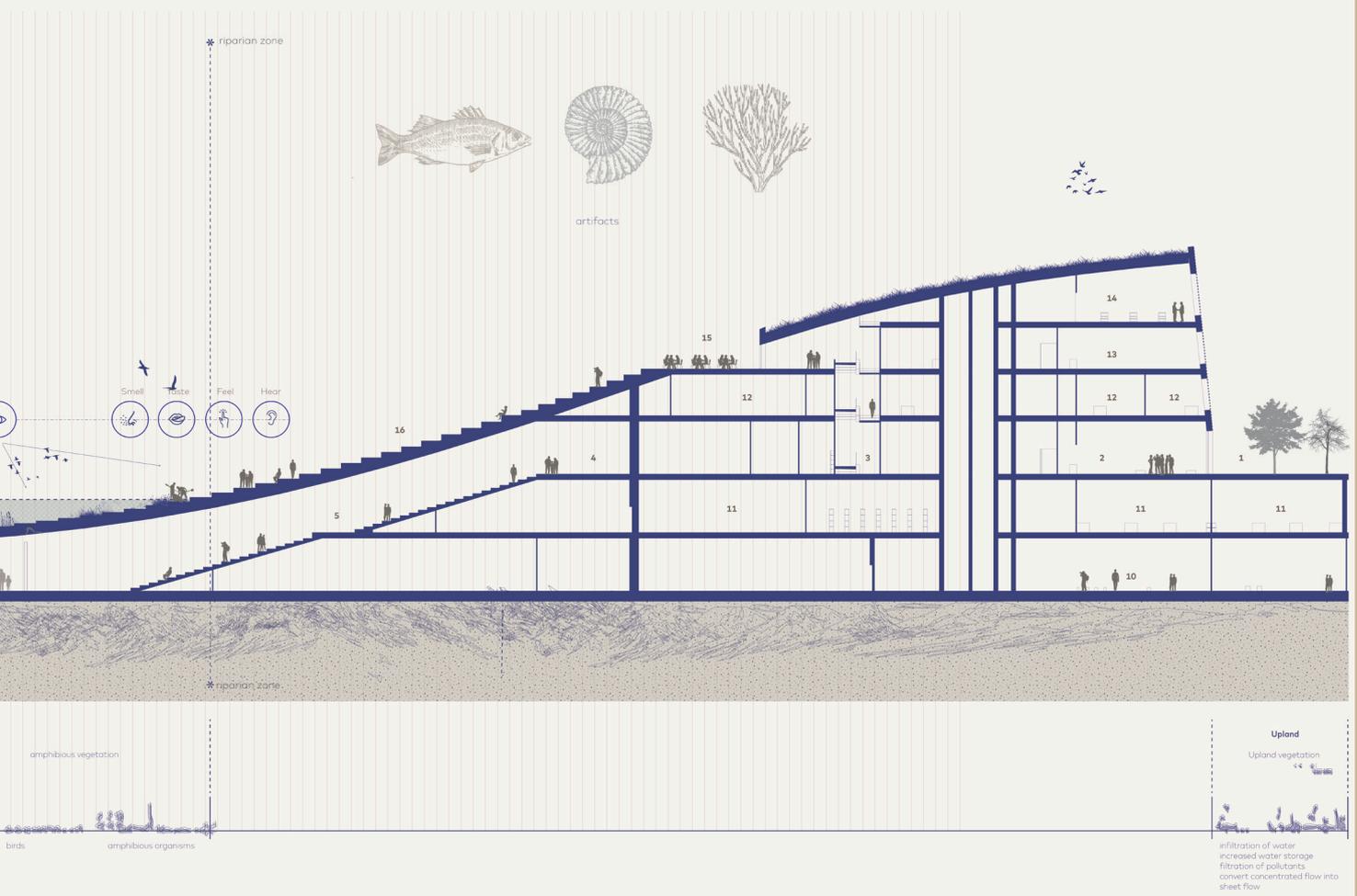
The sectional survey of Tate Modern bankside suggests the areas where new interventions may begin to renew and improve the dilapidating ecology and infrastructure.

Section

Circular - Rolled out



"In what way might the delicate ecosystem of the Thames be renewed amidst an extant landscape of urban dominance and post industrial degradation?"



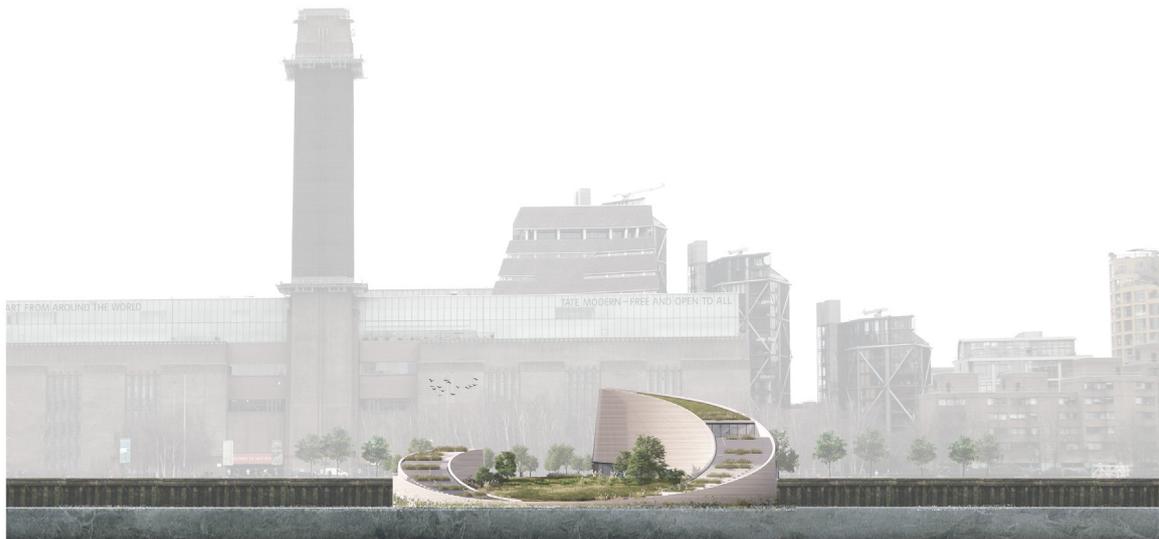
20
 EE - SITE CONDITIONS

The sectional survey of Tate Modern bankside suggests the areas where new interventions may begin to renew and improve the dilapidating ecology and infrastructure.

Elevations

North, East & West facade

In the three elevations below it shows how the building is mediating between the higher buildings of the urban context and the lower river environment of the Thames. It also shows the tidal imprint of the river life attached on its facade. Thereby, we see that the back of the building, closest to the Tate Modern facade, lifts up from the ground to open up the ground space for the public to be invited in the riparian zone.

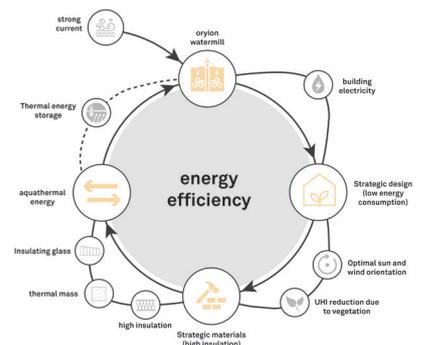
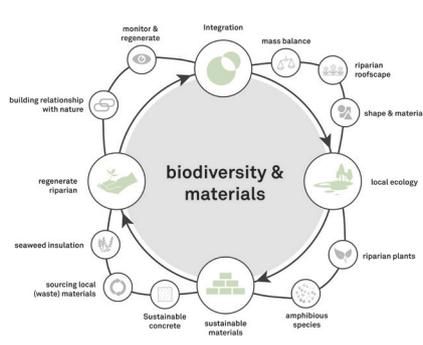
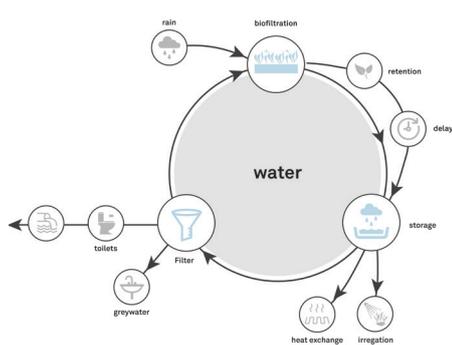
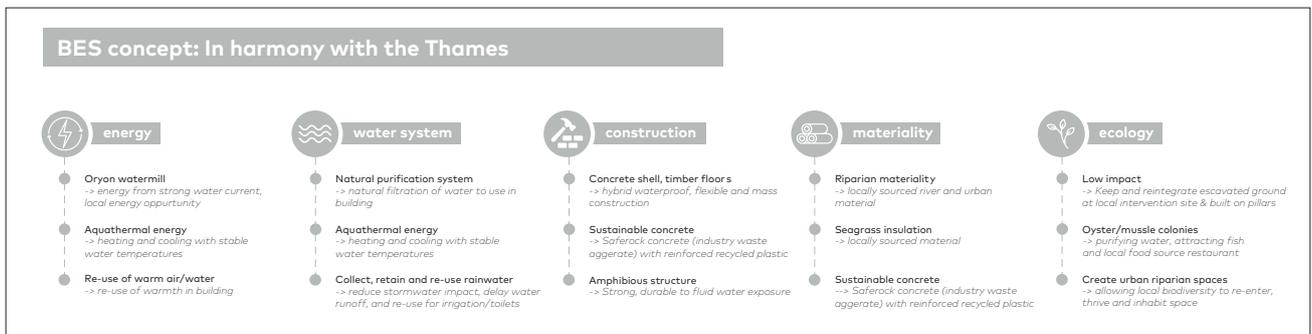


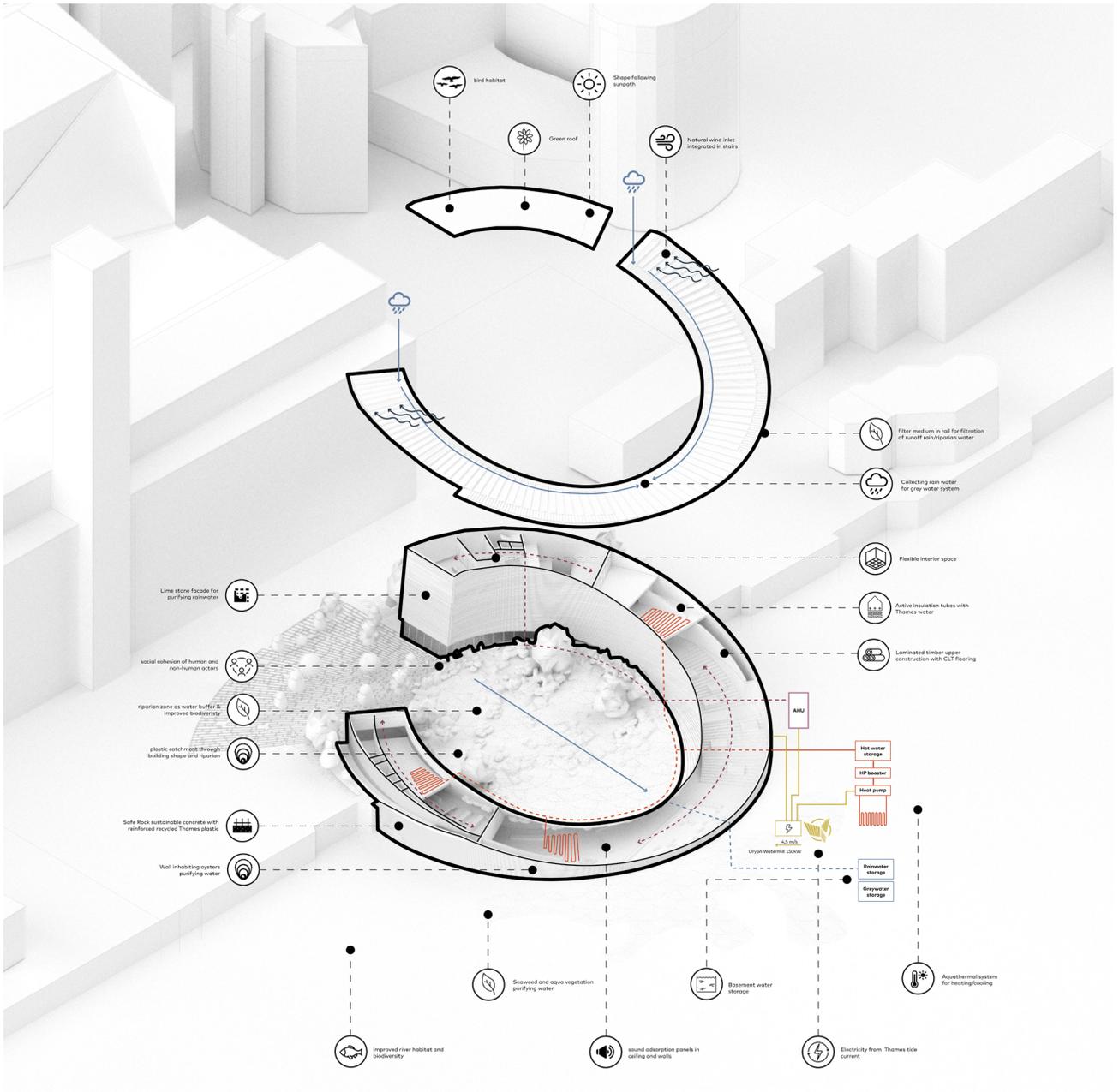


Building Engineering

Climate concept

The building engineering (BES) concept is all focused on being in harmony with the Thames. Therewith the architectural concept has been translated into the technical aspects of the building as well. This will be done across the themes of energy, water systems, construction, materials and ecology. In essence it focuses on how the engineering aspect can utilize both urban and river assets for a well working symbiosis with a low impact on its natural environment and urban systems. Energy will be gathered from the strong river current, as well as heating and cooling. Rainwater will be purified on its way to its catchment through the use of limestone finishes on the building. This also allows each body of water, thus also the Thames to be a little more purified each time it contacts the building facade. The construction will be a symbiosis of a concrete base, necessary for mass to keep the building in place as well as protecting the building for water leakage, whereas the timber laminated construction on top has been chosen to reduce CO2 emissions and to give a more natural character inside the building. Materiality wise the building will use and represent materials from both urban and natural environment. Furthermore, the engineering concept is focused on giving back to both the urban collective and the river environment and therefore it allows the building to age but also for river life to attach to its facade.





CLIMATE DESIGN

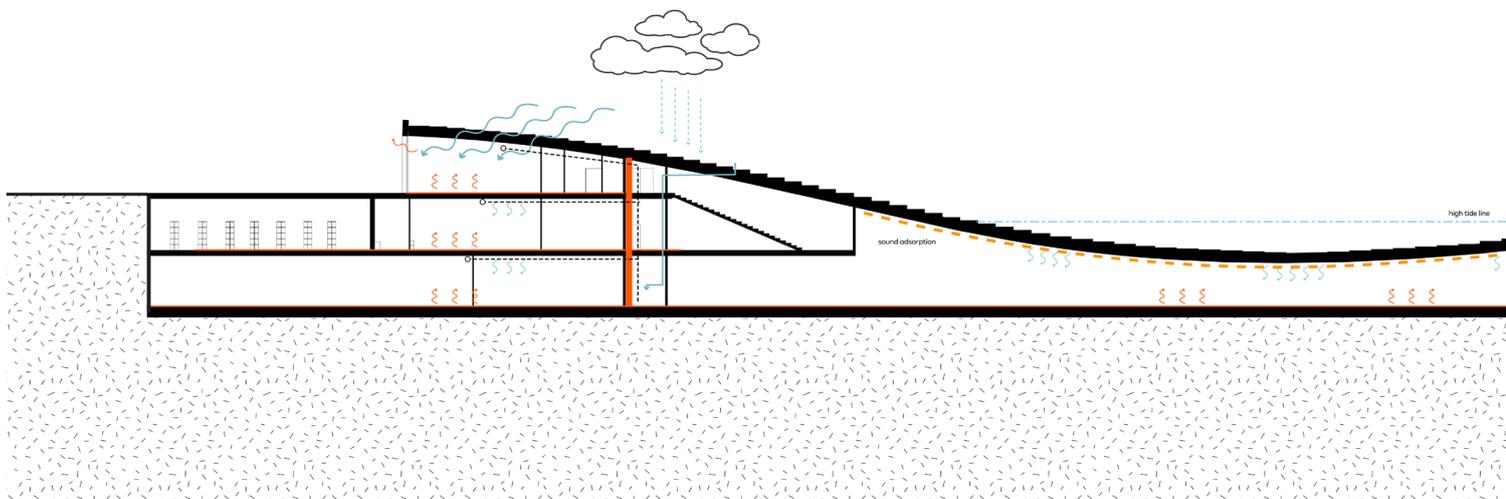
in harmony with the Thames

Building Engineering

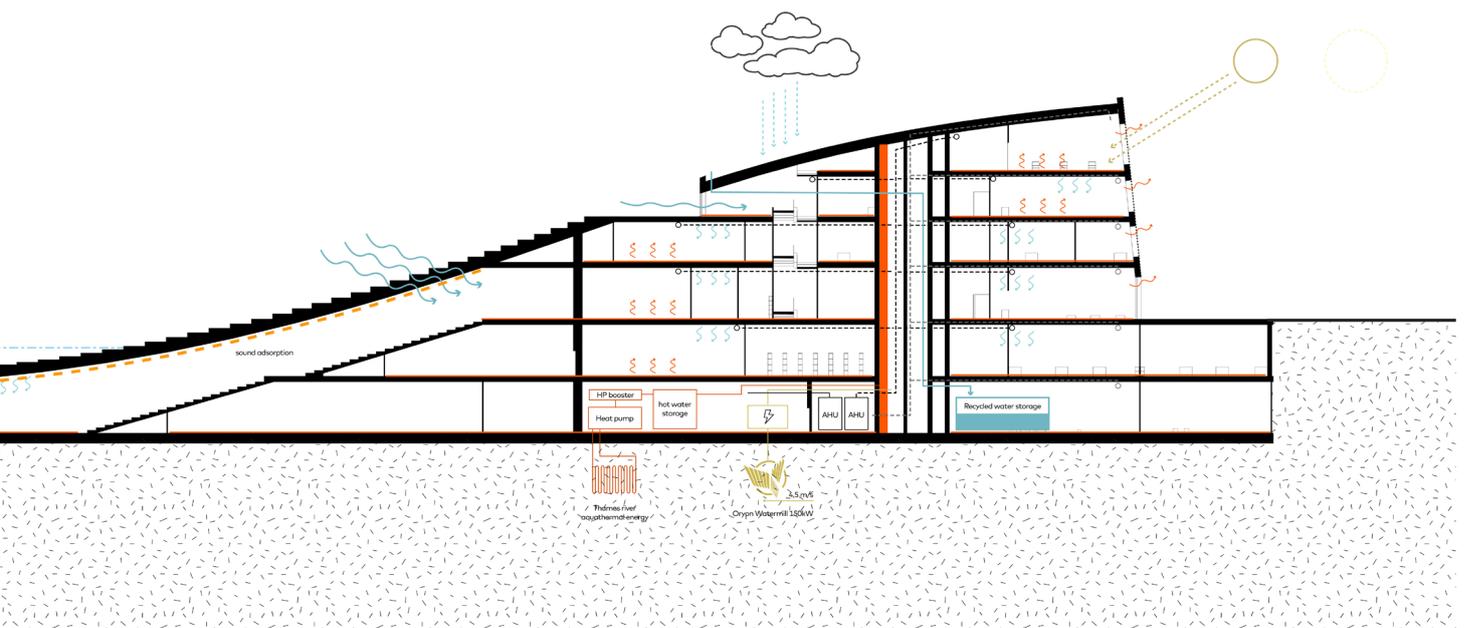
Climate section

This rolled out section gives a clear overview of how the ventilation, heating and cooling and energy systems in the building work and where its placement is. The shape of the building allows to easily catch rainwater and re-use for its grey water system. The section also shows how the spaces are heated and cooled through floor heating powered by aqua thermal energy. Energy is provided by the Orion Watermill gaining energy from the strong current in the Thames. Lastly the ventilation concept is shown, as well as the possibility for natural ventilation coming in through the stairs on the roof or opening at the terrace during warmer days.

To ensure visitor comfort, a sophisticated ventilation system maintains optimal air quality within the enclosed space. The system utilizes advanced filtration techniques to remove impurities, while also incorporating natural airflow patterns inspired by the river's currents. This creates a refreshing and invigorating atmosphere, enhancing the overall experience for visitors.



CLIMATE AND VENTILATION | RO

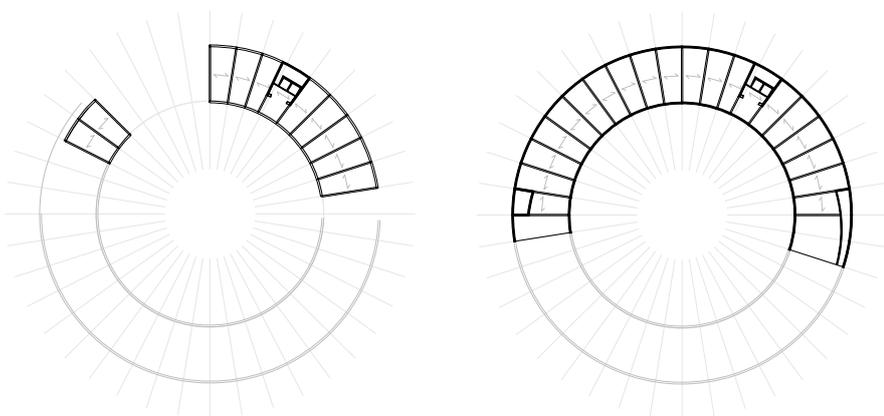


ELLED OUT SECTION

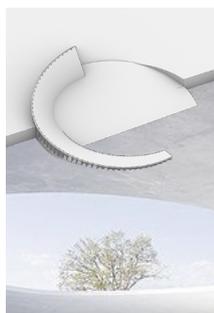
Building Engineering

Structural concept

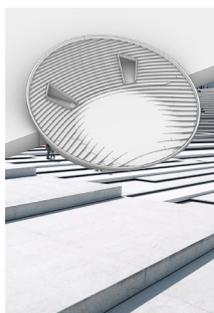
The structural concept is focused on the idea of creating a symbiosis as well. Because of the fact that the building is acting as landform and needs to be water resistant in the river the lower structural material needs to be made out of concrete. This is necessary to allow the floorplans to be free of columns and therewith making flexible. The concrete will also be the base material for the other interventions as they are all operating as landform buildings. The exact use and shape of them will diver as one can see in the sketches and impressions below. To reduce the environmental impact the type concrete will be made from SafeRock. This concrete uses industrial aggregate, therewith reducing the CO2 emissions by 70%. Besides the concrete there will also be a second material, therewith making it a symbiotic and more ecofriendly construction. For the main intervention there will be made use of a laminated timber upper construction and CLT floors in between them from the ground floor onwards. From this level water pressure or resistance for the construction is not necessary. The timber will add a more natural character to the building, and allowing it to be more demountable, but it will also reduce the environmental impact.



Barking riverside
Feel



Lyle Park
Smell



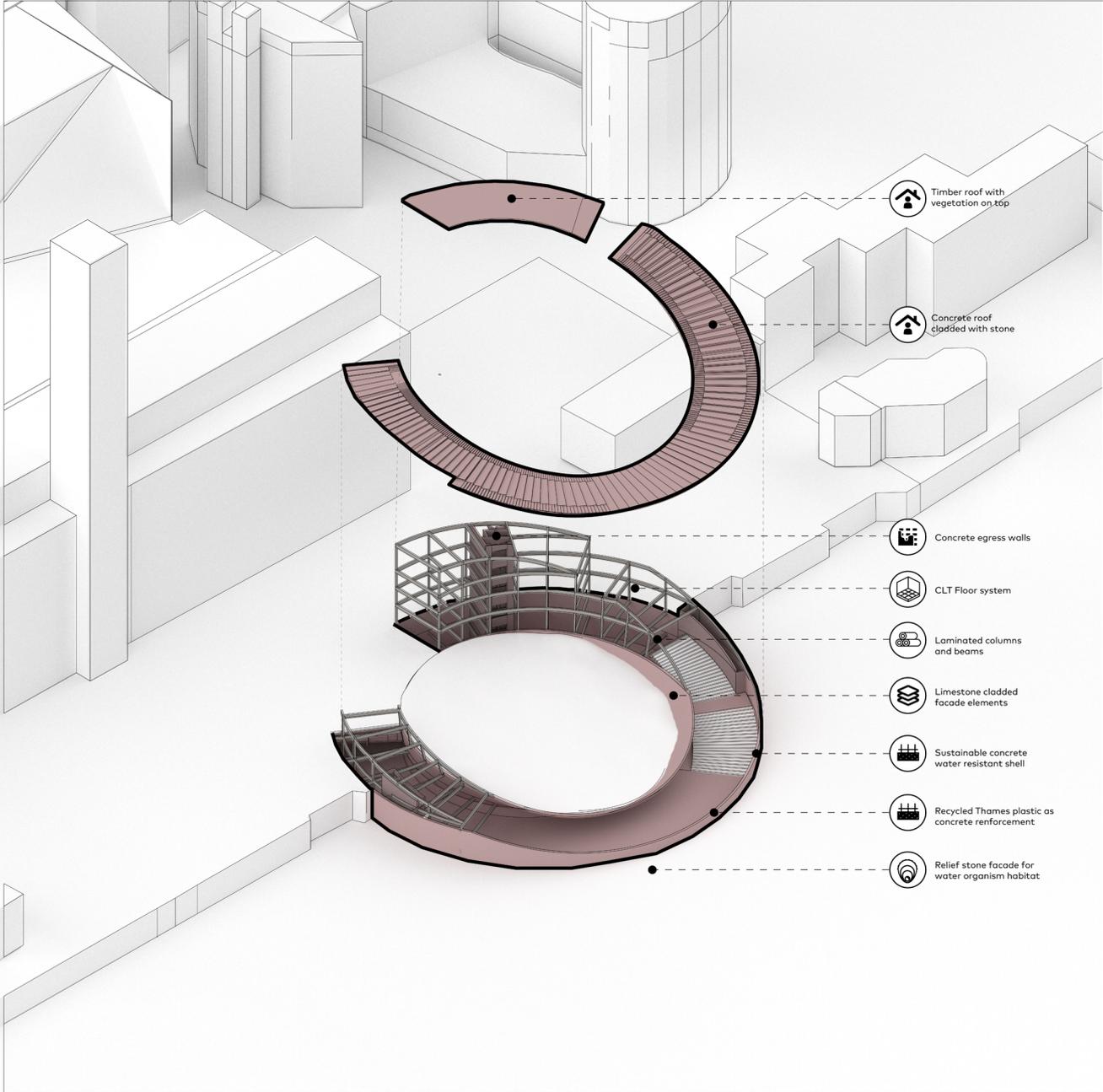
Greenland Docks
Hear



Tate Modern
See



Putney Towpath
Taste



SYMBIOTIC STRUCTURE

Interior Concept

The interior concept of the underwater observatory revolves around creating an enclosed urban riparian zone, inspired by the natural habitat of the River Thames. The observatory is designed as a circular ring structure, symbolizing the interconnectedness of the river and the city. As visitors step inside, they are enveloped by an immersive environment that transports them to the underwater world.

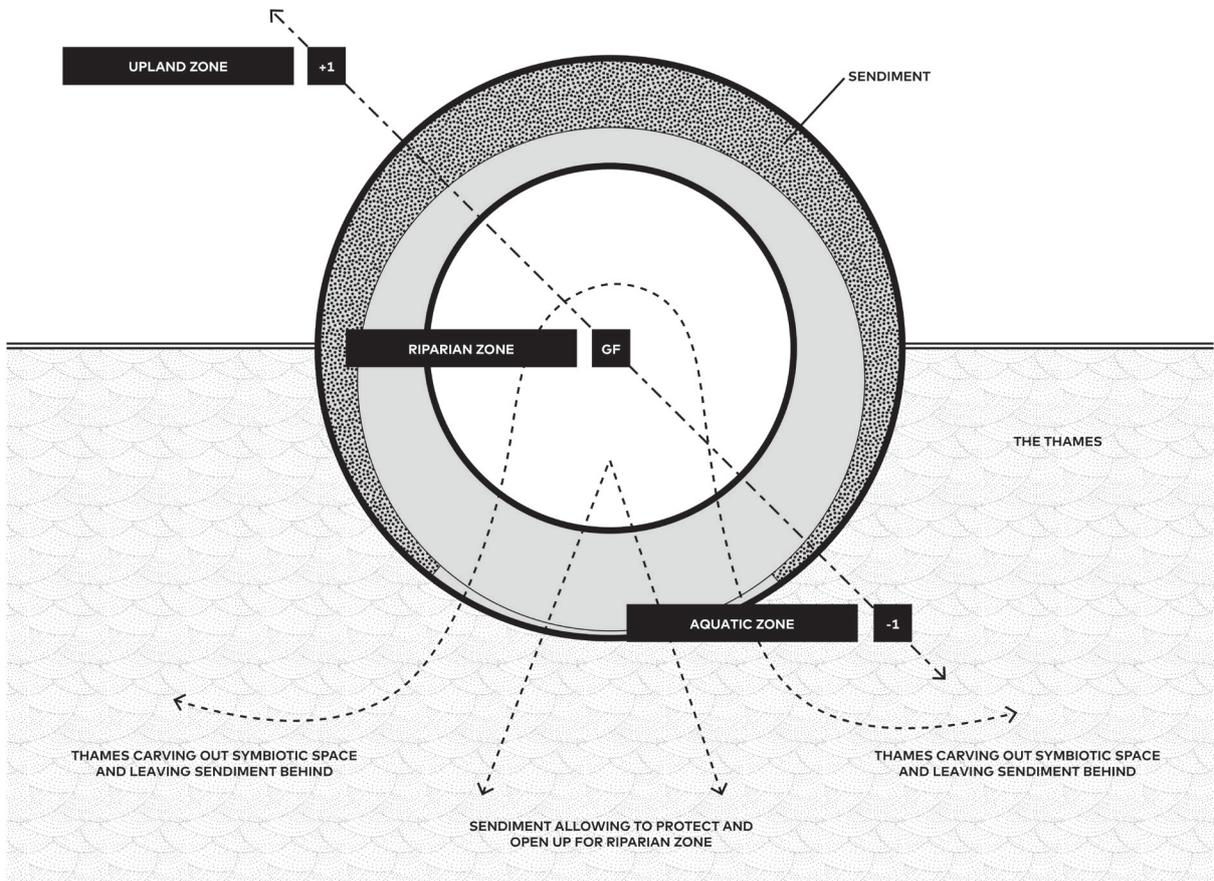
The interior spaces are based upon the idea of sediment that has been leftover by the river that has carved through the building. The sediment will function as offices, labs, exhibitions and back of house spaces, leaving the inner circle open for circulation through the building.

The observatory's interior is carefully designed to mimic the diverse flora and fauna found along the banks of the Thames. The spaces will represent a different zone, from deep river to lush riparian as one can see in the sketch on the next page. The two lower floors under water have a more aquatic character, the ground floor has a riparian character and the upper floor represent the upland area. There

Chosen materials aim to be calm and modest to keep a full focus on the riparian and river. Thereby, the materials should be locally sourced, be natural and sustainable with a low impact for the urban and river environment.

Overall, the interior concept of the underwater observatory aims to create a harmonious fusion of nature and urban life, rekindling the connection between Londoners and the River Thames. By immersing visitors in a carefully crafted riparian environment, the observatory provides an educational, awe-inspiring, and sustainable experience that fosters appreciation for the river's ecological significance and promotes environmental stewardship among visitors.

INTERIOR CONCEPT

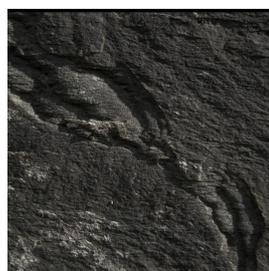
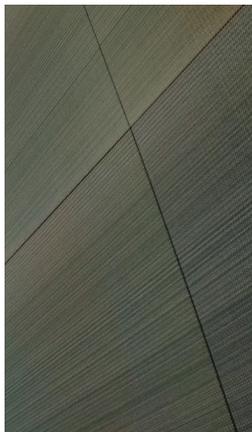


Interior

Aquatic | Floor -2 & -1



- M1 | Interior walls (sendiment) - corten steel panels
- M2 | Floors - Senso Bcrete floor (dolomite grain) (from recycled fishnets)
- M3 | Exterior walls - Kvadrat acoustic panels (gradient in dark to light colors)
- M4 | Ceiling - Kvadrat acoustic panels (gradient in dark to light colors)
- M5 | Furniture - Natural stone elements
- M6 | Mullions - aluminium with natural finish



Interior

Riparian | Ground Floor



- M1 | Columns exposed - Laminated timber
- M2 | Interior walls (sendiment) - Timber cladding natural oil finish
- M3 | Floors - Senso Bcrete floor (grain) (flooring from recycled fishnets)
- M4 | Exterior walls - Senso Bcrete wall covering (off white)
- M5 | Ceiling - sound absorbing plaster
- M6 | Furniture - Light toned textile
- M7 | Mullions - aluminium with natural finish



Interior

Upland | Floor +1/+2/+3

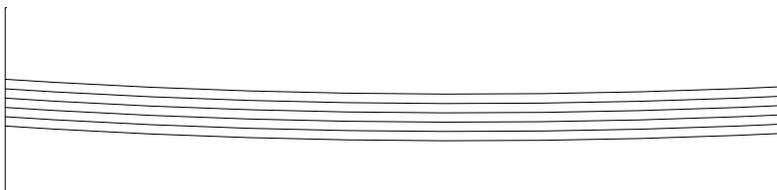
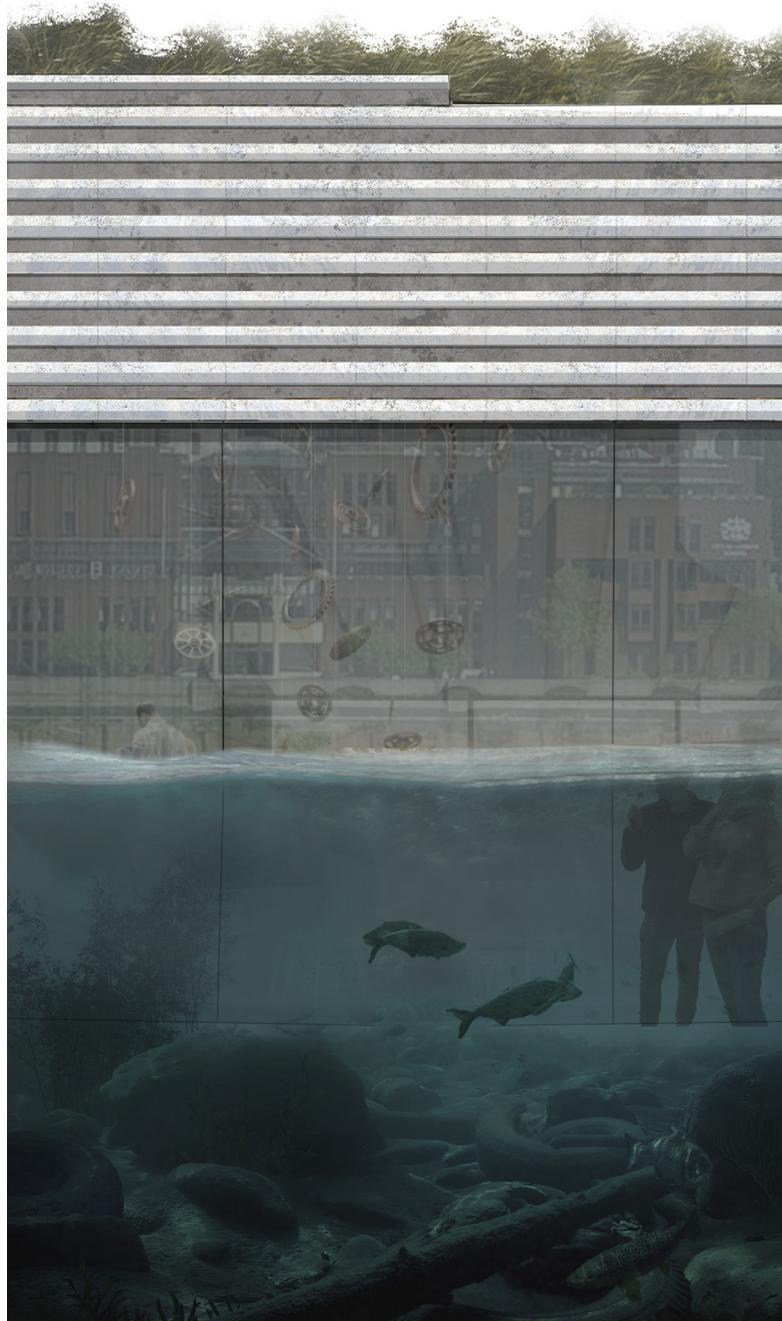


- M1 | Columns exposed - Laminated timber
- M2 | Interior walls (sendiment) - Timber cladding natural oil finish
- M3 | Floors - Senso Bcrete floor (off white) (flooring from recycled fishnets)
- M4 | Exterior walls - Senso Bcrete wall covering (off white)
- M5 | Ceiling - sound absorbing plaster
- M6 | Furniture - Light toned textile (green)
- M7 | Mullions - light (exterior) dark (interior) aluminium with natural finish



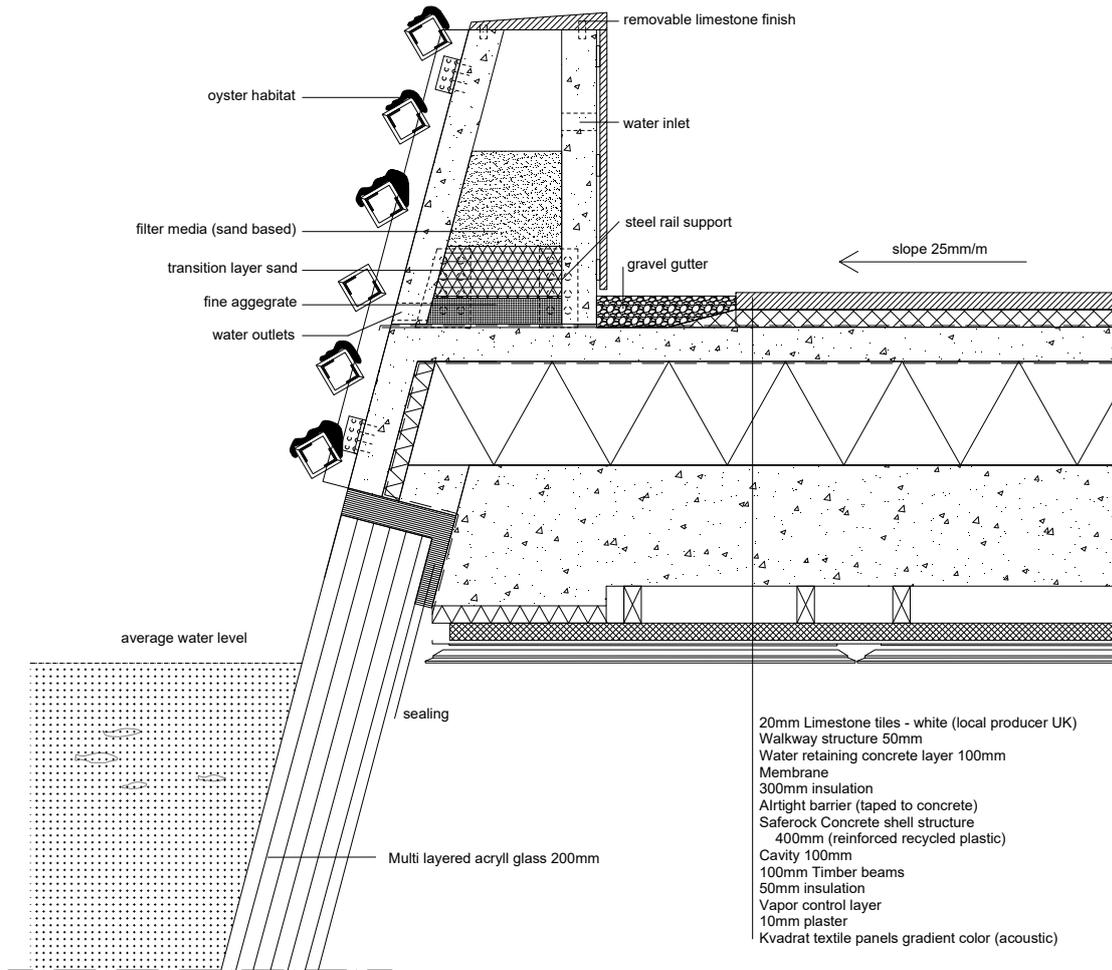
Detail 1:20

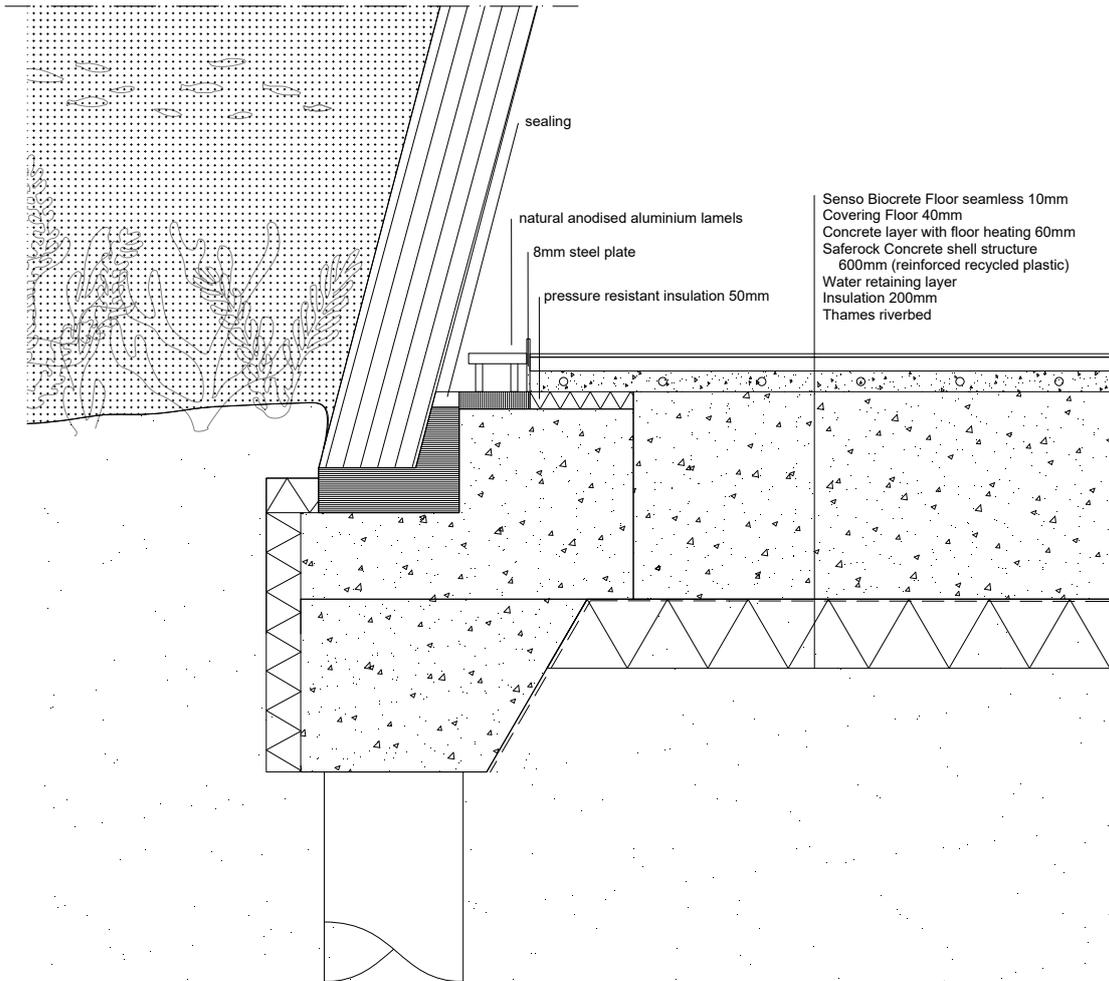
Underwater observatory | level -2



Detail 1:5

Underwater observatory | level -2

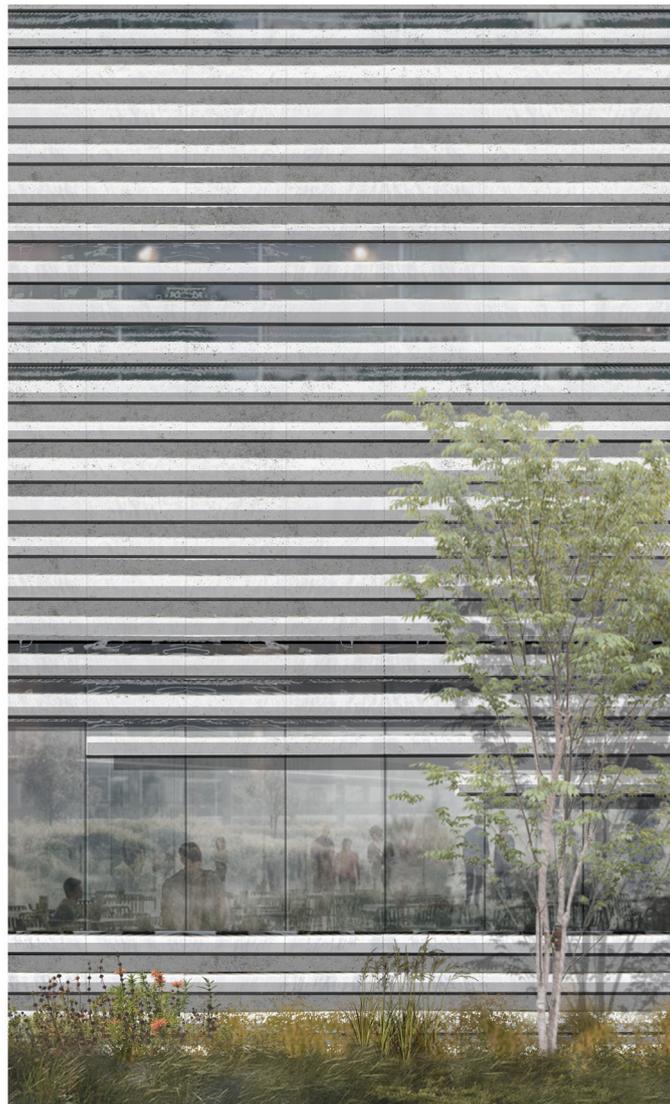


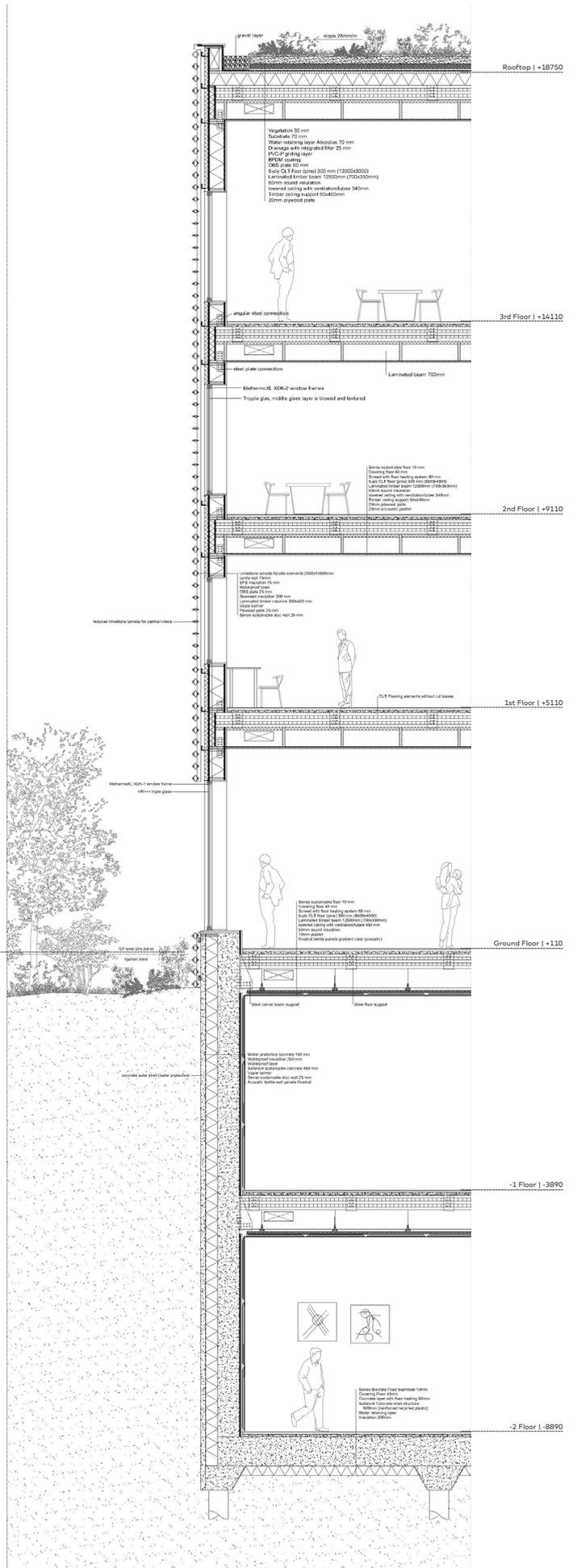
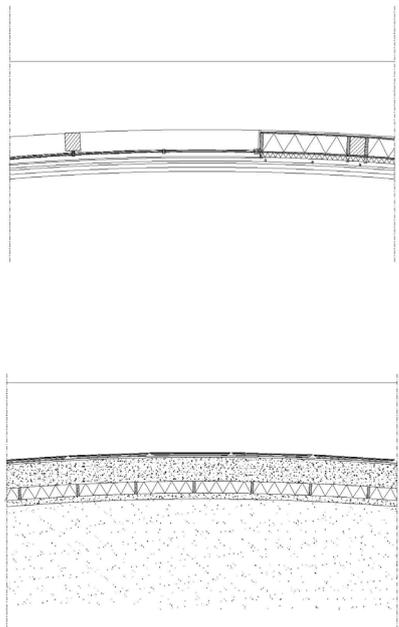


Detail 1:20

Underwater observatory | all levels

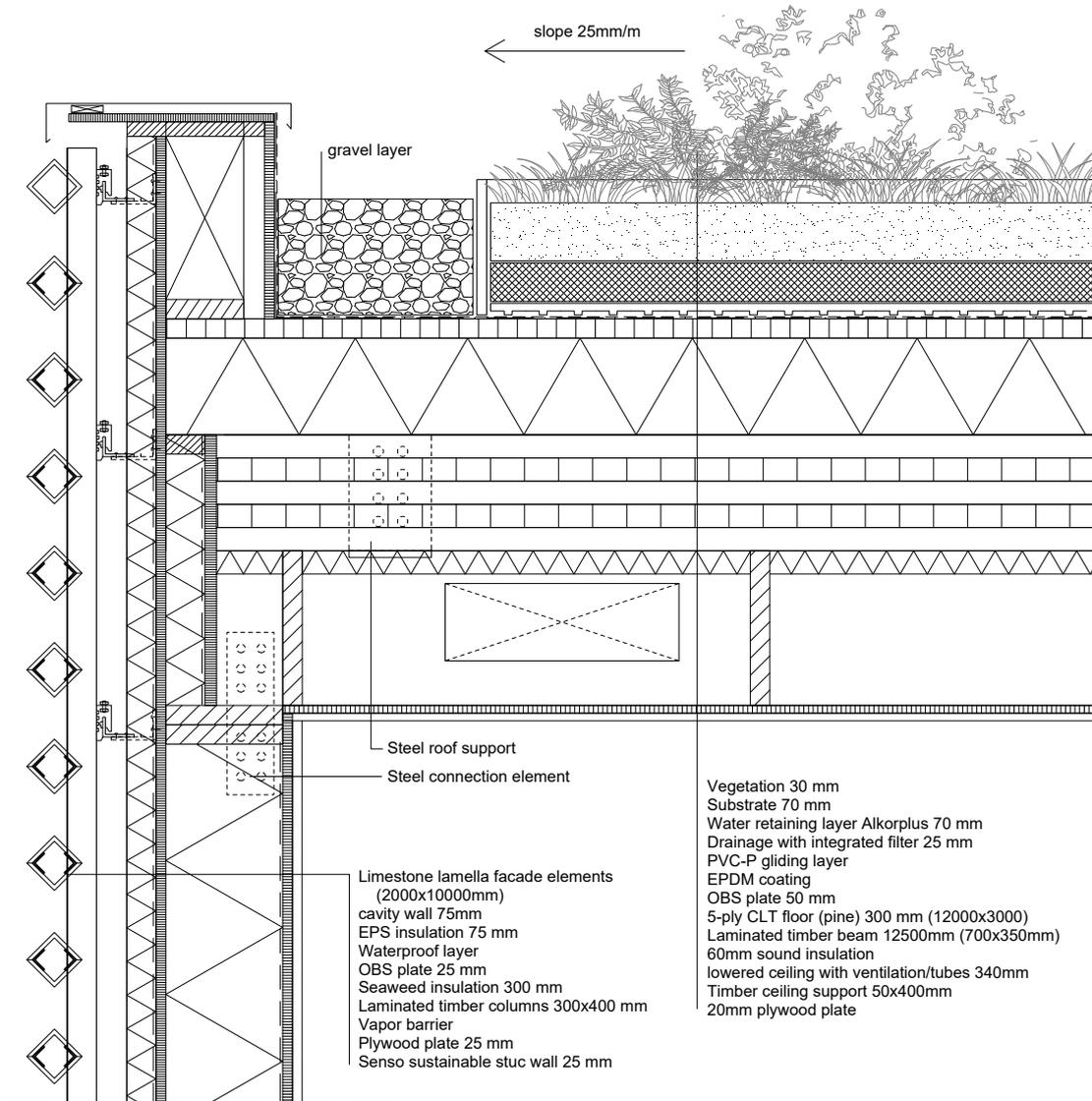
This facade detailed elevation shows the character of the double facade system the building has. It creates an unified and monolith identity while also allowing great views over the riparian zone. Thereby the 1:20 section highlights the different construction systems and various materials being used and how they were integrated together to reach the architectural ecstasies as seen on various renders earlier on.

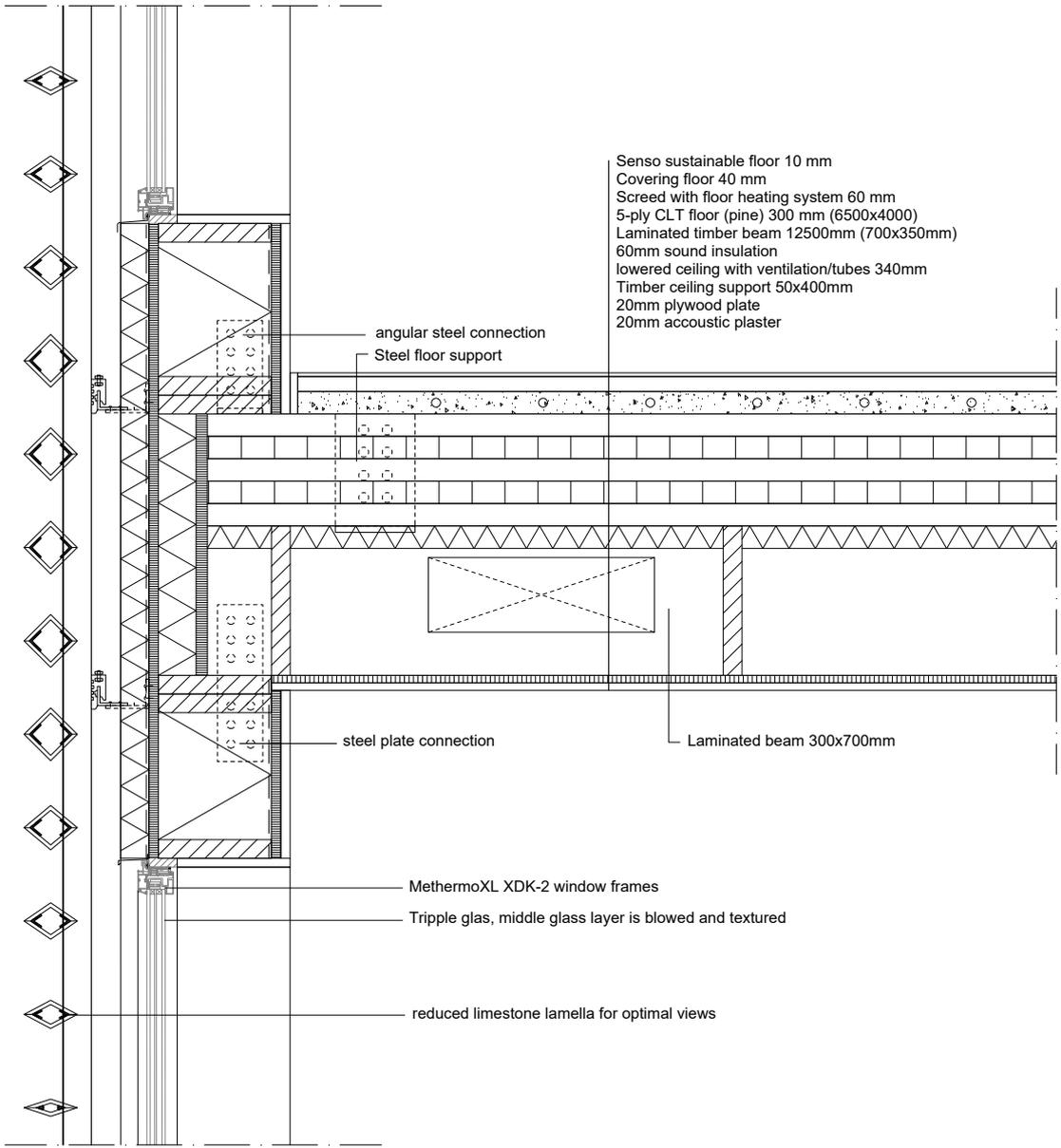




Detail 1:5

Rooftop & Floor/wall





Senso sustainable floor 10 mm
 Covering floor 40 mm
 Screed with floor heating system 60 mm
 5-ply CLT floor (pine) 300 mm (6500x4000)
 Laminated timber beam 12500mm (700x350mm)
 60mm sound insulation
 lowered ceiling with ventilation/tubes 340mm
 Timber ceiling support 50x400mm
 20mm plywood plate
 20mm accoustic plaster

angular steel connection
 Steel floor support

steel plate connection

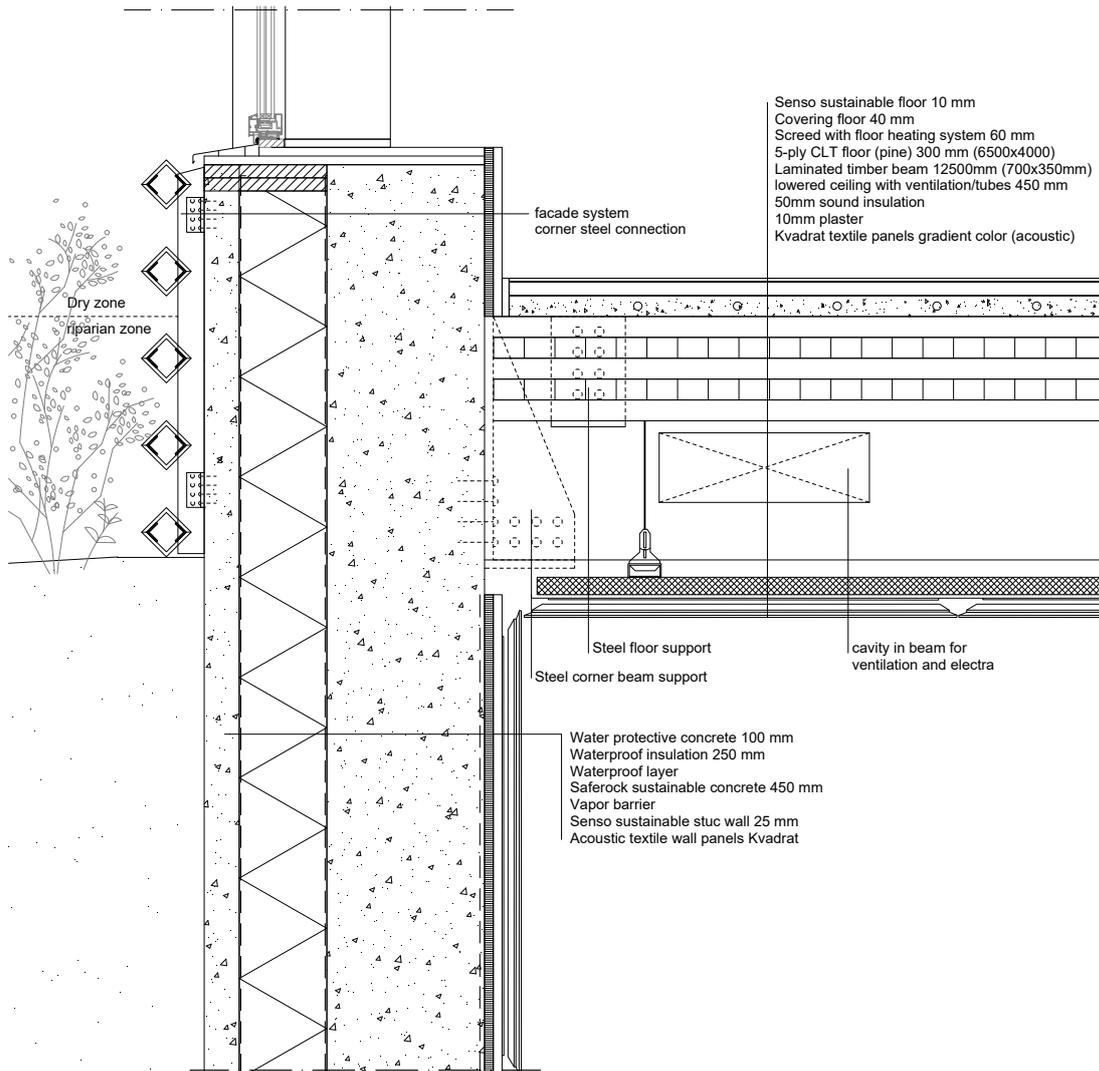
Laminated beam 300x700mm

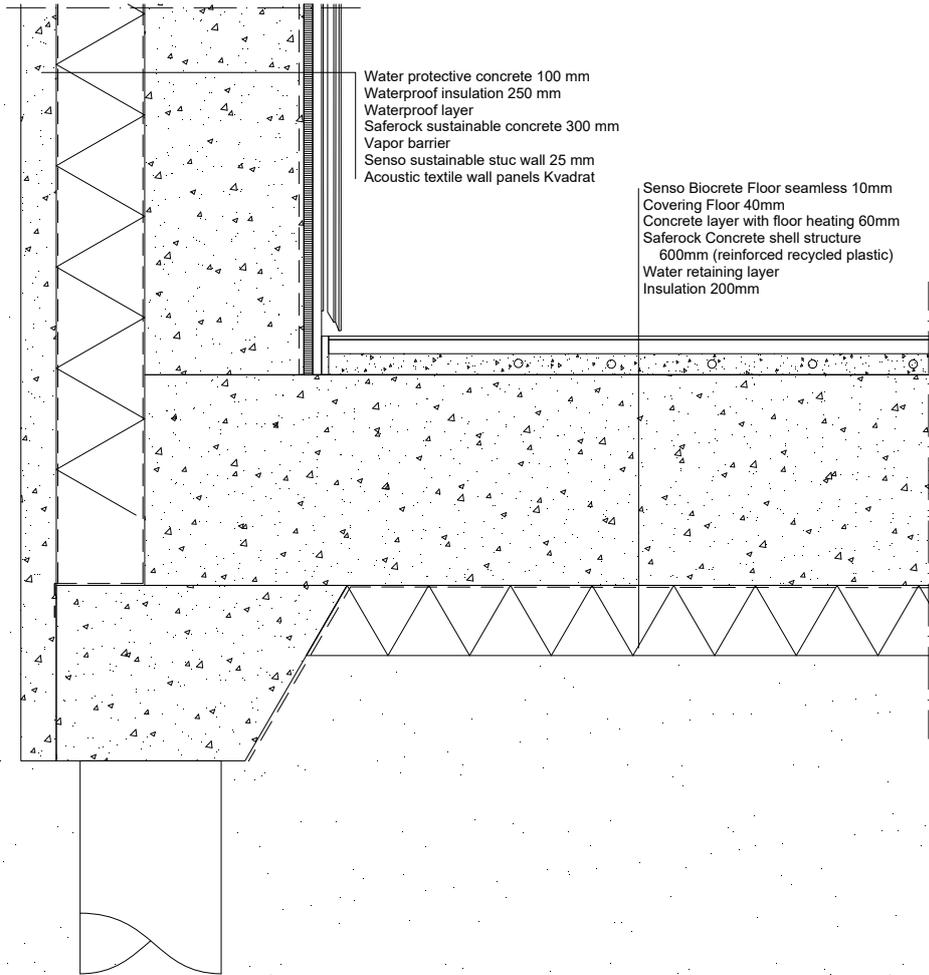
MethermoXL XDK-2 window frames
 Tripple glas, middle glass layer is blown and textured

reduced limestone lamella for optimal views

Detail 1:5

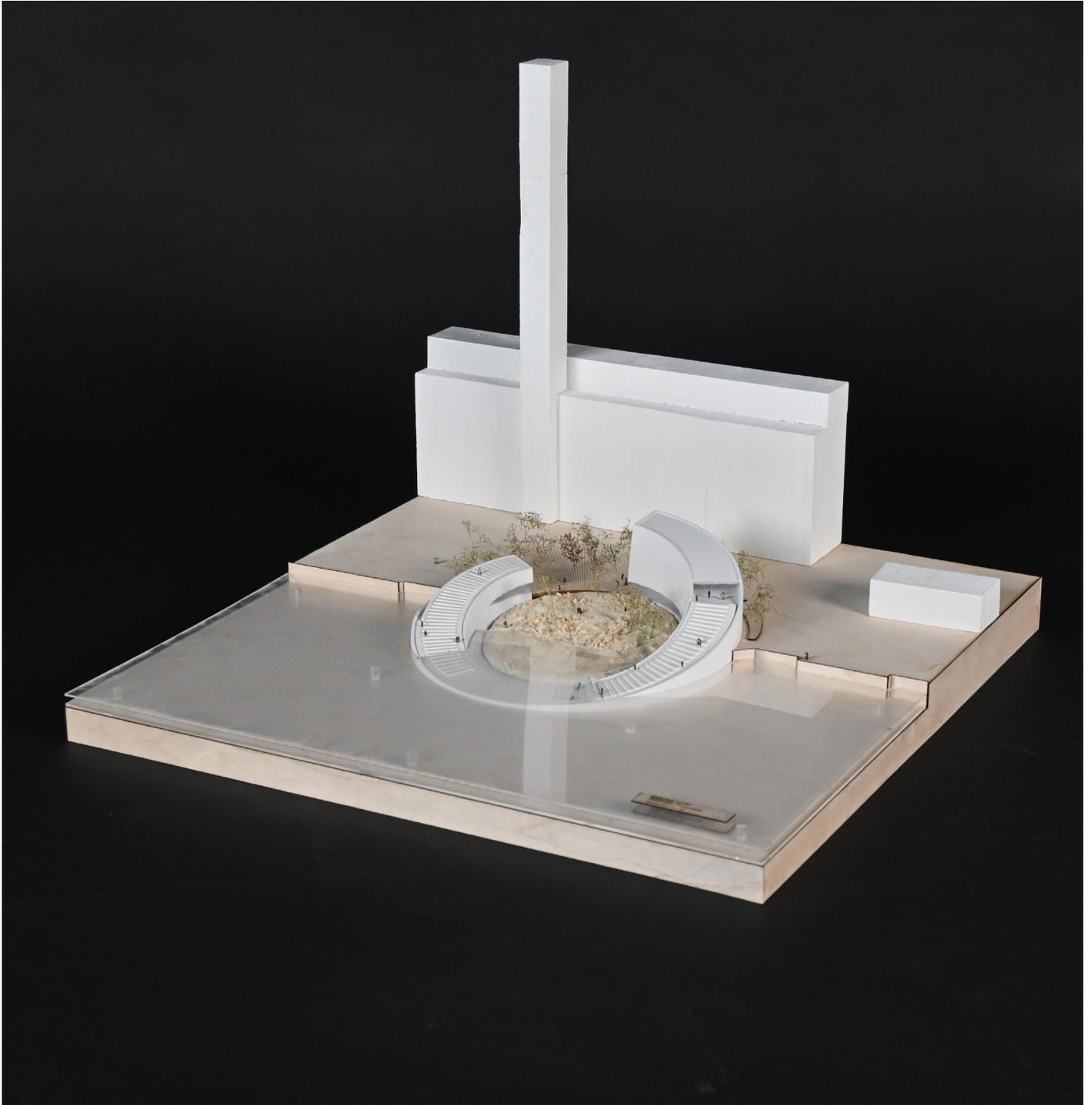
Floor/wall & basement

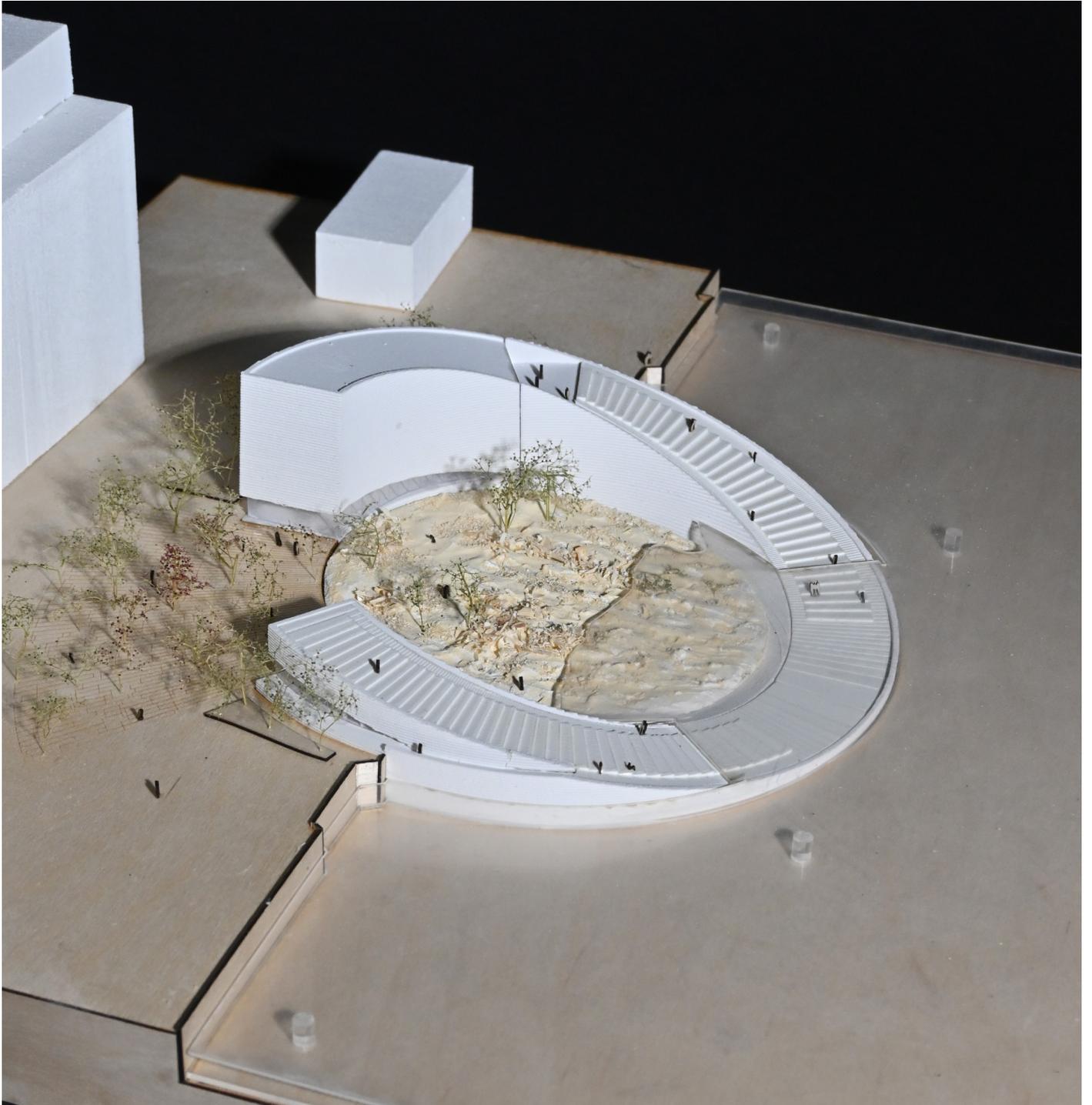




Scale model

1:350





Scale model

1:350





Scale model

1:350





Scale model

1:1000

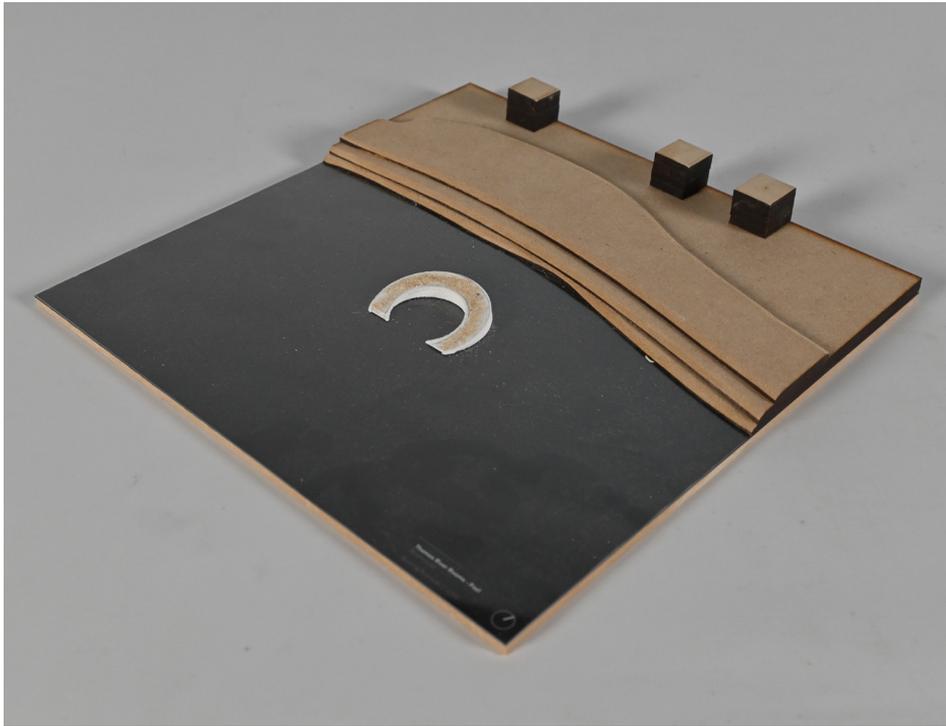




Scale model

1:1000







NEW TATE MODERN



NEW TATE MODERN

Attachments | **Reflection**

Reflection

This graduation project has proven to be a true exploration. An initial focus on eco-centrism and related philosophical theories directed me to an extremely challenging topic which lacked opportunities for demarcation or specificity. Therefore a more focused step was made into the topic of water, more specifically the Thames. With the help of my tutors, I was able to condense extensive research, testing, and speculation into manageable design components. But I must admit that it was a challenging process for me. The initial lack of design and the distractions during my research, as new information came up, affected my confidence as an architect and questioned my approach so far. Something I had never experienced before. To navigate this process systematically, I adopted a methodical approach. I created a series of drawings to document my discoveries at each stage and worked simultaneously on between macro and micro scales. It has taught me new ways of thinking, understanding, addressing and researching complex issues. It paved the way to make ideas and thoughts more concrete, establish theoretical understanding and be more aware of my thought process during a design project. Rather than finding problems to solve through architecture, I was now trying to uncover the layers of the river as an entity in London. It was about understanding and exploring, not about being forced to find the problematical aspect of it.

This thesis explored the meaning of water and the riverfront in London today, accompanied by an overview and understanding of the various waterfront conditions of the Thames, but also focused on a strategy to (re-) connect humans and rivers through the use of architecture as a riparian mediator. The approach and used methods allowed me to uncover the layers and systems of the Thames and urban collective and thus helped steer me towards conscious spatial development for an architecture mediating between river and public. The ongoing cycle of converging and diverging to find more specificity and abstraction contributed to the necessary framing of the research. It helped to create structure in ideas and created a priority in the found theories during the continuation of the research and design phases. Especially the integration between research and design made it possible to explore the spatial and societal consequences of the proposed theories and framework. The design could therefore be seen as a way of testing and refining theoretical findings and in turn help formulate solutions and possibilities. For example, after the P2 this integration proved to be very useful. It not only guided the scouting of the five locations subject to intervention but also informed the design brief, strategy and need to proceed in a multidisciplinary fashion as landscape, urbanism and ecology had to be carefully integrated together in the project.

According to the research, architecture has to function as a connected public sensory observatory aiming to monitor and engage with the river in a new way. The combination of the "third generation city" theory by Marco Casagrande and the "oligopticon" theory by Bruno Latour provided a powerful framework for developing an architectural typology that focuses on connecting humans and the non-human, while simultaneously regenerating the ecosystem. The first theory emphasizes the integration of human activities with natural systems. It advocates for a more holistic and symbiotic approach to urban design, where architecture is not merely built for human use but actively interacts with and responds to the natural environment. The oligopticon, on the other hand, recognizes the multiplicity of actors, layers and perspectives in the urban and river system. It encourages a collaborative approach that involves diverse stakeholders, including local communities, environmental experts, and policymakers. This inclusive and collaborative process ensures a better understanding of the river leading to more effective solutions in time. Within this framework architecture functions as a space

to explore and rethink the way we engage with the non-human and how we find back the identity, meaning and functionality of the river through 'micro-narratives'.

Despite its potential, I was also aware of the potential pitfalls as a result of combining the two chosen theories. It should be mentioned that both theories originate from different perspectives and disciplines causing a complex situation with the possibility of creating some inconsistencies in it. More in-depth research on both concepts is therefore required to really pursue the possibility of combining the two for architectural purposes. One could also pose another follow-up question; *what other theories besides the one of Casagrande and Latour, might work better to create a framework for human non-human symbiosis through the use of architecture?* Thereby, it should also be admitted that there is a lack of practical examples which complicates the set up of guidelines or best practices. Again, further research, experimentation, adaption and continuous evaluation are essential to refine the combined framework.

The proposed framework sounded promising, but its translation into architecture proved to be rather challenging. There was a need for a coherent design language for the five different interventions while they also had to be connected to their local context. The initial idea tied them together through the use of different simple geometric shapes combined with similar materials. However, the distance in-between the interventions caused this approach to be lacking in connectivity. By simply taking a step back, and going to my local waterfront I was able to find the essence of the project. The ripple, the effect being caused by the interaction between a falling stone and the water, proved to be the physical representation of the relationship between form and fluidity, or Londoners and river. Therewith I approached the project as a string of connected ripples, acting as the physical shape representing the relationship between the city and water. Just like ripples, sizes and exact forms differ, but connectivity between them is found nonetheless. The architecture itself, despite being considered static by some, is operating in flux and therewith complies with the idea of the ripple too. They create and facilitate the shaping of a new symbiotic relationship, and allow the spaces to be subject to future change and possibilities. Herewith the definition of my project became clear.

As the architecture had to be further defined the strategy continued upon the idea of negotiating boundaries. Not only between humans and non-humans, as already established, but also between form and fluidity, between architecture and landscape, and between program and regeneration for humans and non-humans. This not only strengthens the concept of architecture as a mediator but also takes on the role of being an interdependent system. As the relationship is shaped over time, the building should also be designed to withstand the notion of time. The program and exact boundaries between the city and river are subject to change in the river and public dynamics. Therewith it becomes a much-needed and long-lasting protagonist in the re-establishment of the relationship between the water and the city.

The quantitative limit of interventions was based on the idea of the five senses. This is a logical outcome from the framework as senses foster a deeper connection between Londoners and the river, promoting a sense of stewardship and care for the natural environment. This allowed for new ways of observation going beyond the visual aspect solely. The forgotten idea of the Thames as an essential entity now starts to make its way back into the daily lives of Londoners. The sites were chosen as strategic spaces of regeneration and social-ecological integration potential. That offered a way to locate river city systems in a relationship that would benefit a resilient coexisting future of both the ecology and social. Although

the use of senses is considered strong, further research should explore if the use of senses, but also the proposed quantity of five interventions, and the quality of chosen sites are most purposeful and effective.

Further on in the process, I realized it would be impossible to come up with a detailed approach for all five interventions. Therefore I developed a shared narrative and conceptual strategy informing each of the river rooms. A set of rules were followed in a different way depending on their local context and program. The combination of river rooms, programs and gestures has created a connective system on an urban scale level. Regarding the scarce time for graduation, a more detailed approach would only be taken for one of the interventions. Herewith, the general concept was able to be explored in more detail and in a spatial sense. Even though the outcome would probably be different for the other interventions, the idea of one still would generate a certain potential for the others. This method proved to be effective and efficient throughout the process. While developing the research indication of potential follow-up research has risen. Although the contextual and close study along the Thames offered an in-depth and knowledgeable understanding it should be mentioned that the study of a single empirical context posed certain limitations for both research and design. Further research to validate and refine the framework and design principles are necessary to test the effectiveness of architecture as riparian mediator. Therewith the design is no longer the end, but becomes the conversation starter and helps formulate the next steps towards a more symbiotic waterfront development.

Societal relevance

The project stated that there is an urgent need to rethink the Thames waterfront towards a justification for its existence. By creating a reciprocal symbiosis across different scales and by reducing existing pressing waterfront issues the proposal could help regenerate both the river and the urban collective and therewith making a positive effect on general urban resilience. In addition, this research might not only benefit London, but also other cities as this is a problem that also occurs elsewhere. Therefore the design of a new systematic approach for riparian architecture becomes necessary. Although several architectural projects have aimed to come up with new strategies and solutions, the tendency shows that these solutions are often created from a solely human-centred perspective resulting in design strategies that involve fear and neglect towards the water. The lack of ecocentrism and non-human thinking lowers the chances of a true mediation and symbiosis between the river and the public. The proposed collaboration between different species may appear to be somewhat of an 'utopian' idea, but it has been proven to be an effective approach in developing resilient projects that acknowledge and appreciate the value of non-human life. As the project aims to come up with a strategy based on the variety of species and collaborative relationships all focused on interdependence rather than exploitation, a new architectural typology can be created, the riparian mediator. By conducting a context specific approach the spatial and ecological integrability and potential a better understanding of how such riparian architecture could function and be made feasible was obtained.

Academic relevance

Scientifically the research proved its relevance through the history and meaning of water but also shows the potential for public-river engagement through a series of local photos. The continuation of highlighting the changing waterfront conditions gave thereby a clear and much-needed overview of the ambiguous waterfront conditions in London. Besides the results of London, it also shows a useful method of uncovering the layers and systems affiliated with the waterfront that might

be meaningful to other related research too. However, it is mainly the focus on the integration of several theories creating the concept of riparian architecture, that functions as much needed starting point for further research on this topic. The theories showcase the potential spatial, ecological and societal outcome of the concept, but leave room for others to refine and perhaps change aspects of it towards a more defined and new architectural paradigm. It thereby contributes to more exposure and attention to riparian architecture as a new typology in general.

Ethical question

The project also posed an obvious ethical question throughout the process; *“Should humans, or more specifically, architecture, representing a previously destructive impact on rivers, actually intervene along the sensitive river ecosystem?”* Rivers are complex and layered systems with many actors in them. Just like beavers and fish, we are part of that ecosystem as well, and we all make our own impact on it. Therewith I am suggesting that also humans should be able to make their impact. Just like fish, we cannot just remove humans as a specie from the river. In turn, this thinking should also allow the river to sometimes make an impact on our ecosystem. At the same time, it should be mentioned that this thinking moves far away from the current neglecting and exploiting impact of humans on rivers. This problematic paradigm won't change that easily, and therefore the importance of careful engagement and connection between humans and non-humans is argued to be essential. That requires intervention to a certain extent. I believe this thesis has proven itself it is possible to create careful interventions obtained from a coexisting perspective allowing us to create a symbiosis. The negatives should be outweighed by the positive effects. Admittedly, all interventions affect the river to a certain extent, but it also allows for major regeneration and the much-needed river-city symbiosis that creates a sustainable and coexisting future for both. Only then, when a space is provided humans and rivers can negotiate boundaries and resources and develop a place in which we can repeatedly engage with each other. I believe that this is a feasible way of shaping a fruitful and sustainable relationship between water and the city.

Transferability and Relation to Practice

As the observed problems don't limit themselves to London, but to many waterfront urban areas elsewhere, the research acts as useful and necessary insight for the approach and tools of waterfront regeneration and synergy. The proposed concept of architecture as a riparian mediator and affiliated strategy and set of rules can be perceived as a generic solution to similar waterfront issues. That allows the ideas also to be used in different contexts. However, it must be pointed out that the strategy has been developed through extensive site analysis and site-specific interventions. Therefore it might be necessary to adjust and refine the strategy and tools once applied in other places. By conducting site research and context analysis that could be achieved.

That allows us to place this research in the context of practice. The concept of riparian architecture can be used to create a symbiosis between river and city, help regenerate a river ecosystem and steer towards a more ecocentric architectural practice. This concept is an essential tool towards the practice of improving waterfronts within the built environment. It not only creates a base for much-needed regeneration of the river and a sustainable coexistence but also allows the river to be embedded as a living entity within the city, therewith regaining meaning and functionality.

"The sea, everywhere the sea, and no one looking at it."

Dany Laferrière

06/09/2022 1.45 pm - 06/07/2023 11.45 am