

Symbiotic Thames

Koen Stam

P5 Presentation
July 6th 2023

Architectural Design Crossovers graduation studio
Delft University of Technology, faculty of Architecture

Cover by David van Dartel (2020)



The Thames
fascination



figure 1 | *Sil on the mudflats I*. David van Dartel, 2020

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

Dany Laferrière

Symbiotic Themes

I | RESEARCH

Symbiotic Thames

Tidal stretch of the Thames in Greater London



Symbiotic Thames

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?**

Role of water

anthropogenic neglectance



figure 2 | *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>

Role of water
changing tension



Figure 42 | *Continuous tension between city and river.* 2022.

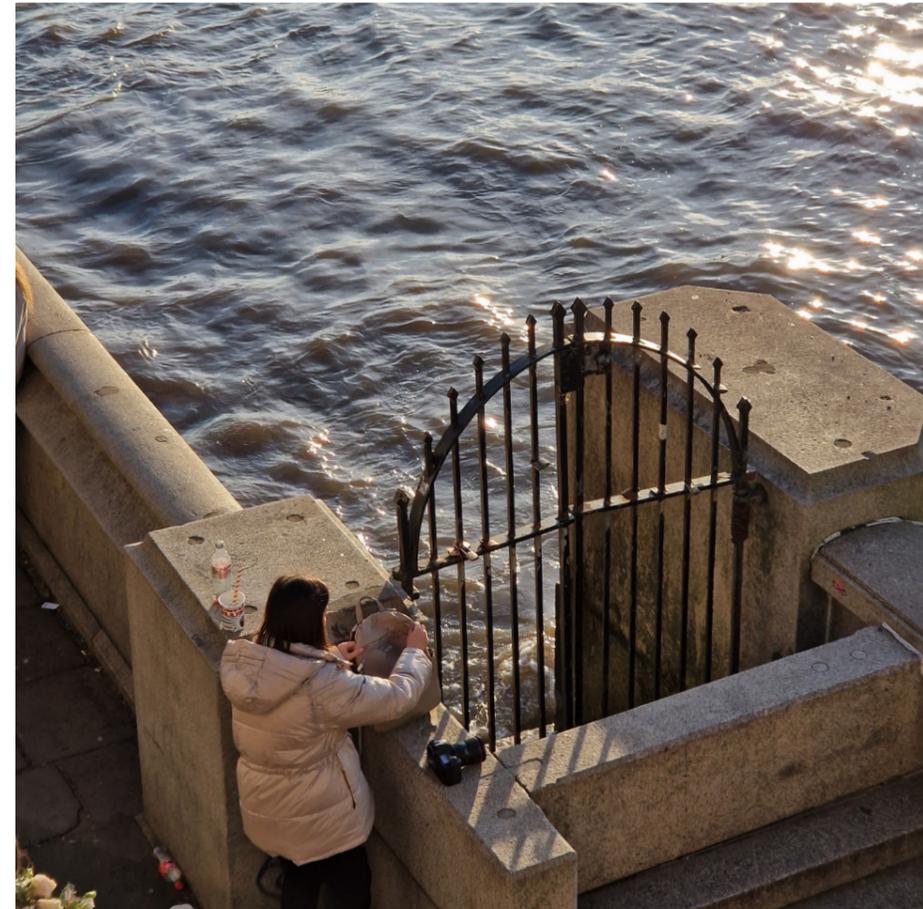


Figure 42 | *Access forbidden.* 2022.

Role of water

anthropogenic neglectance



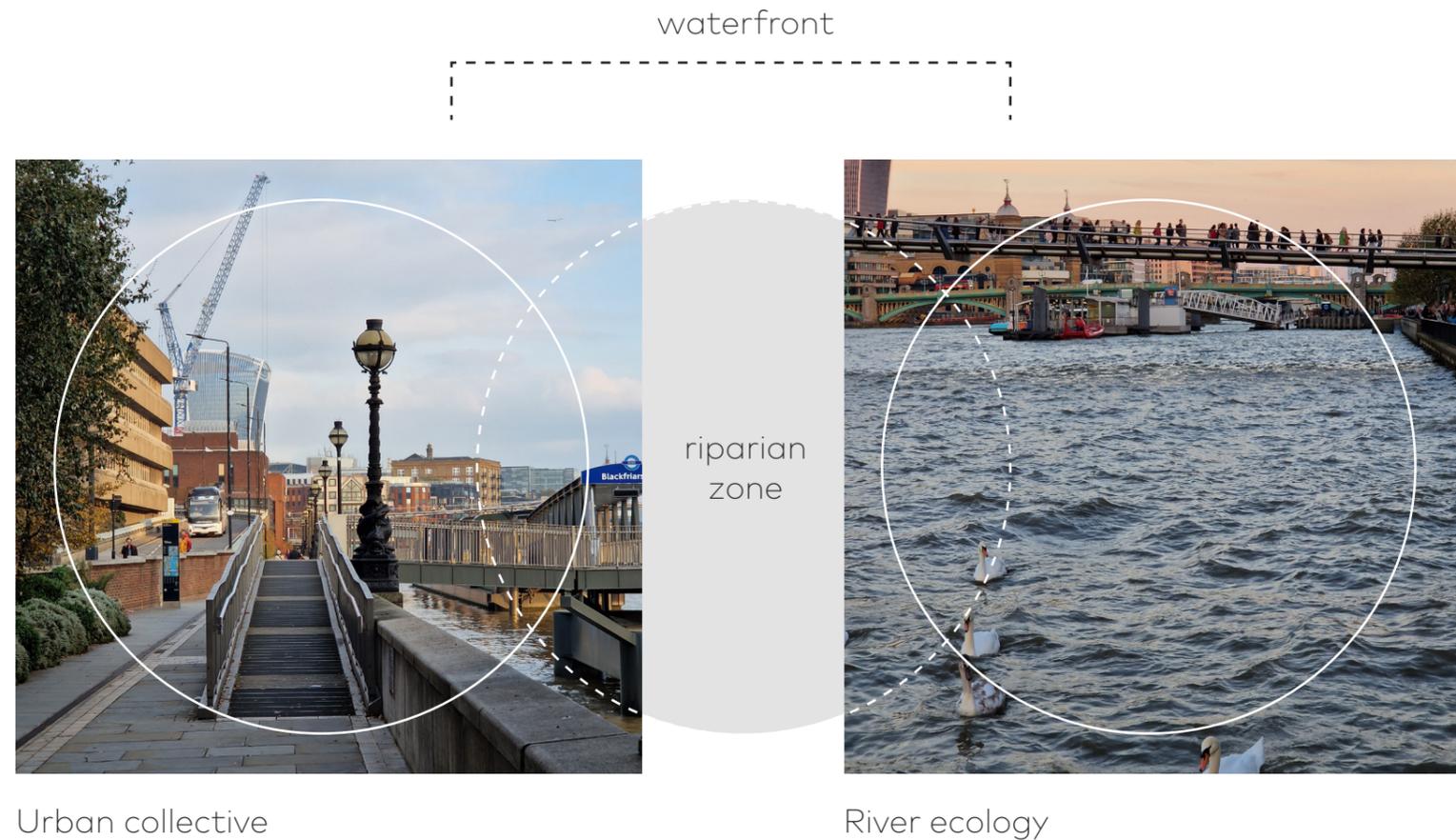
Figure 42 | *Submerged London*. Laura Proto, 2016.



Figure 43 | *Pollution in the tidal Thames*. Thames21, 2020.

Waterfront conditions

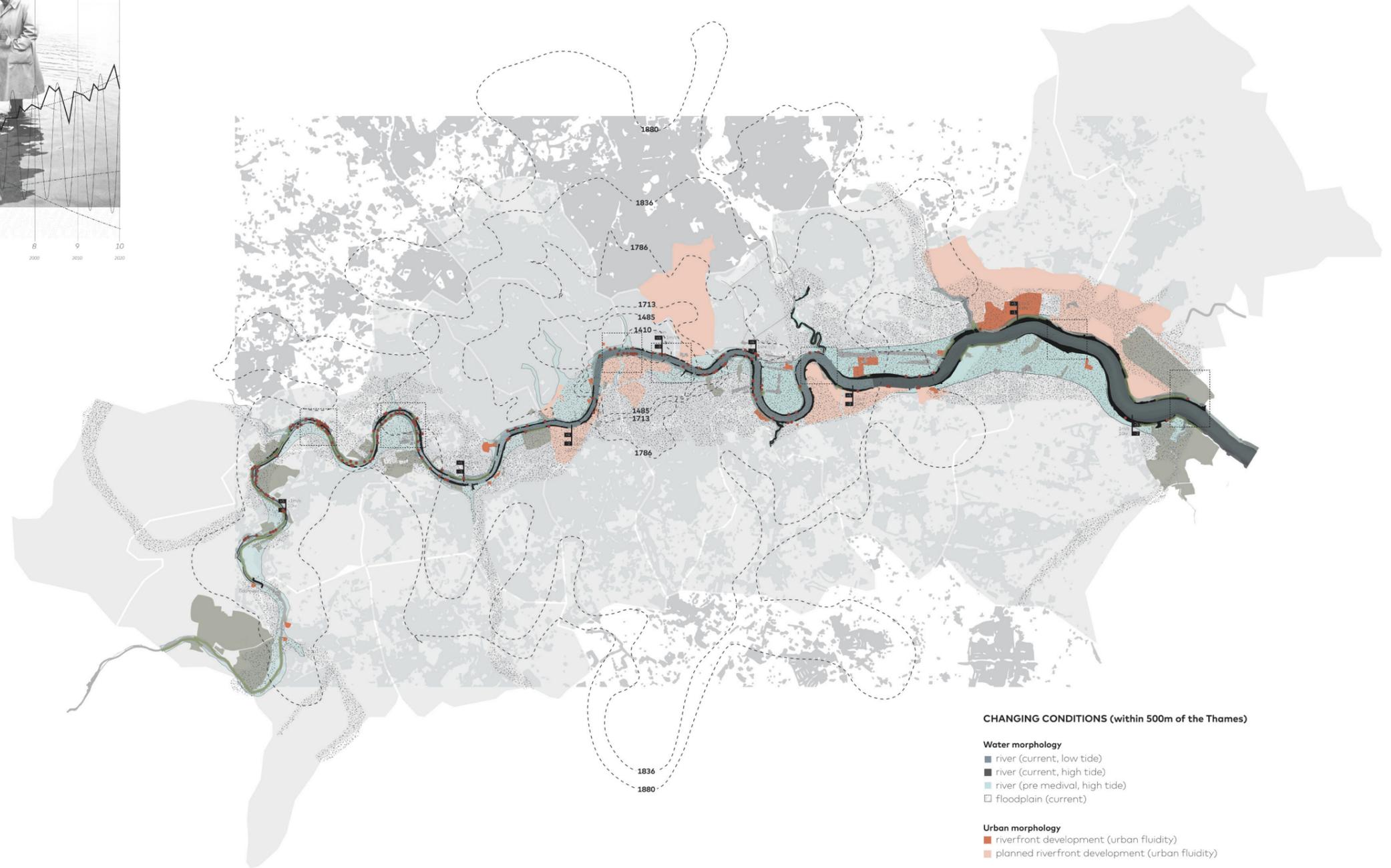
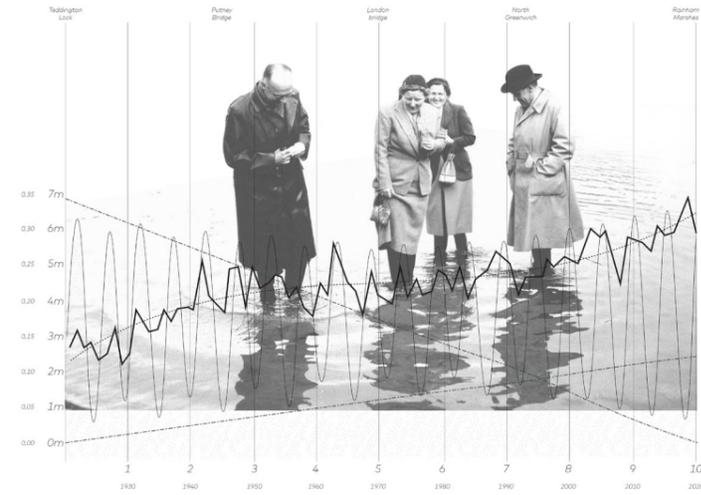
Constant motion and tension



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.

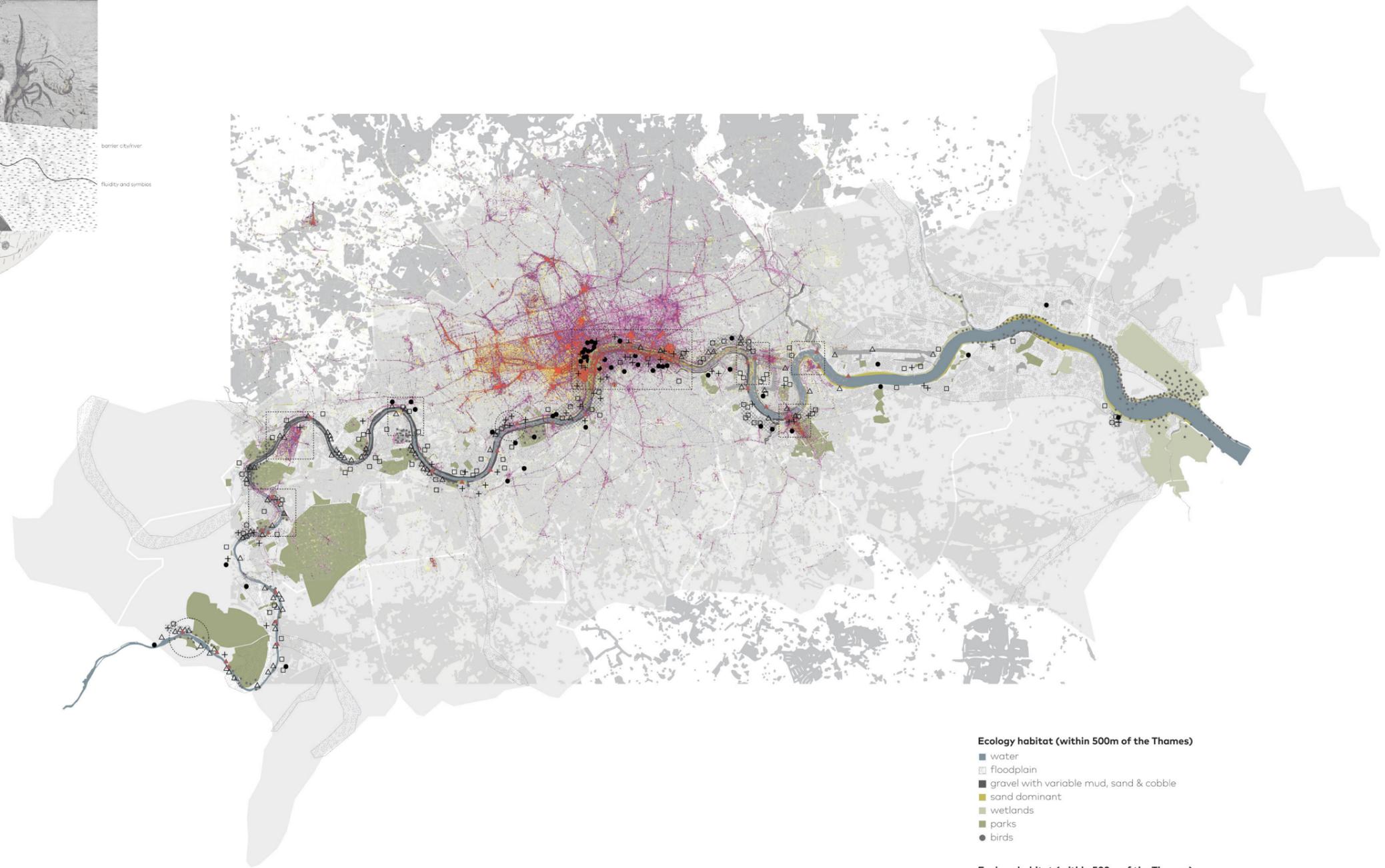
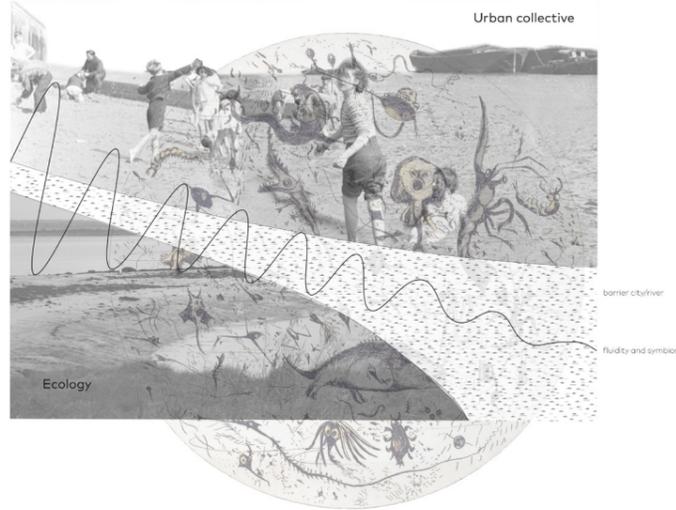
Thames waterfront condition

fluidity



Thames waterfront condition

habitat

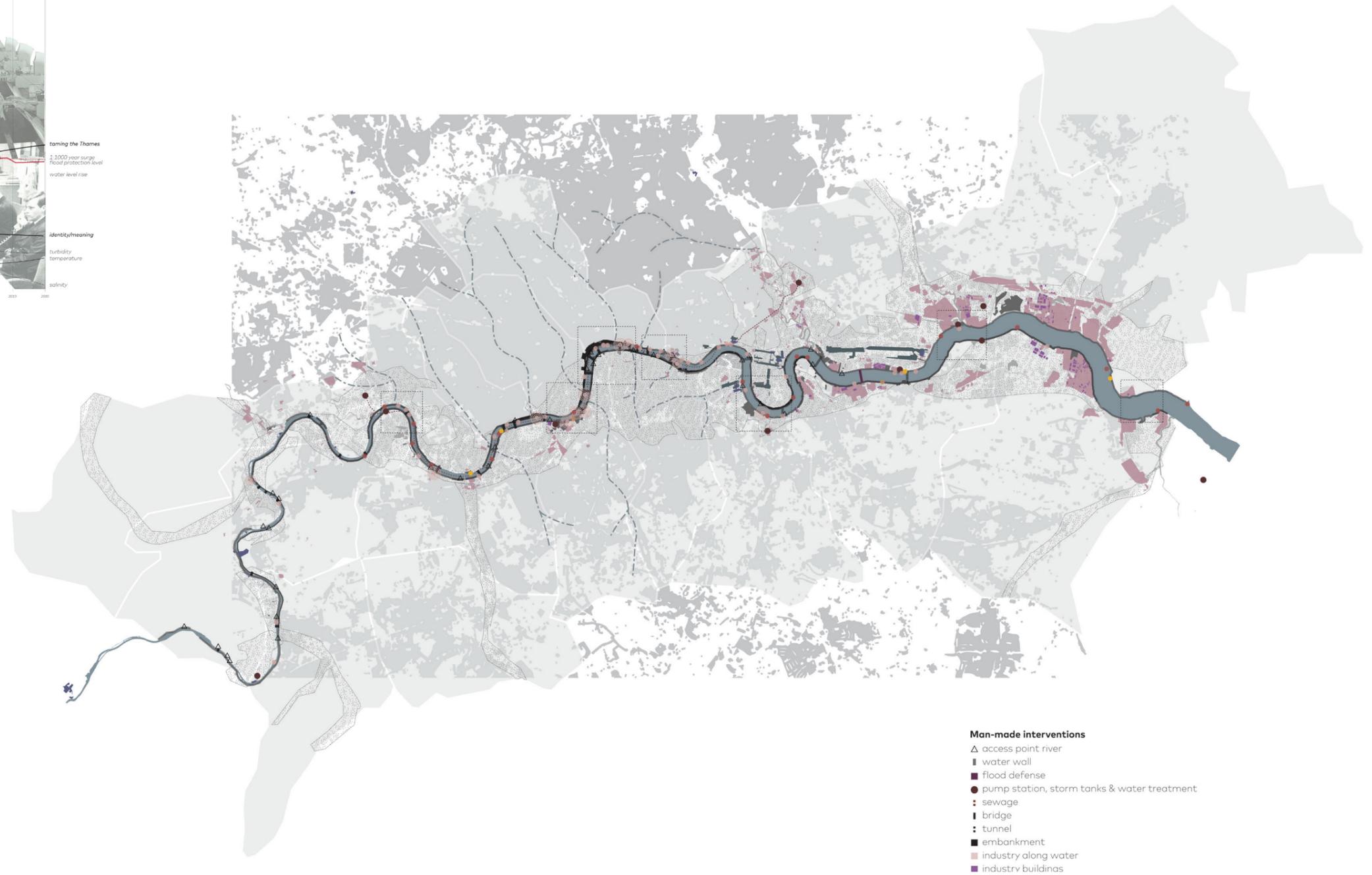
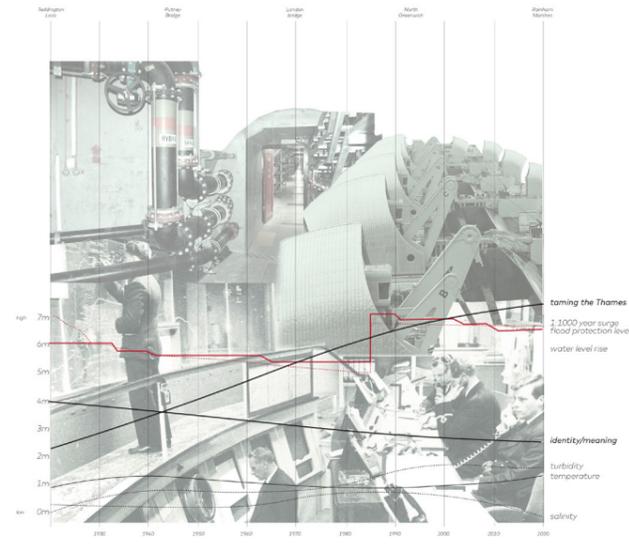


- Ecology habitat (within 500m of the Thames)**
- water
 - floodplain
 - gravel with variable mud, sand & cobble
 - sand dominant
 - wetlands
 - parks
 - birds

Ecology habitat (within 500m of the Thames)

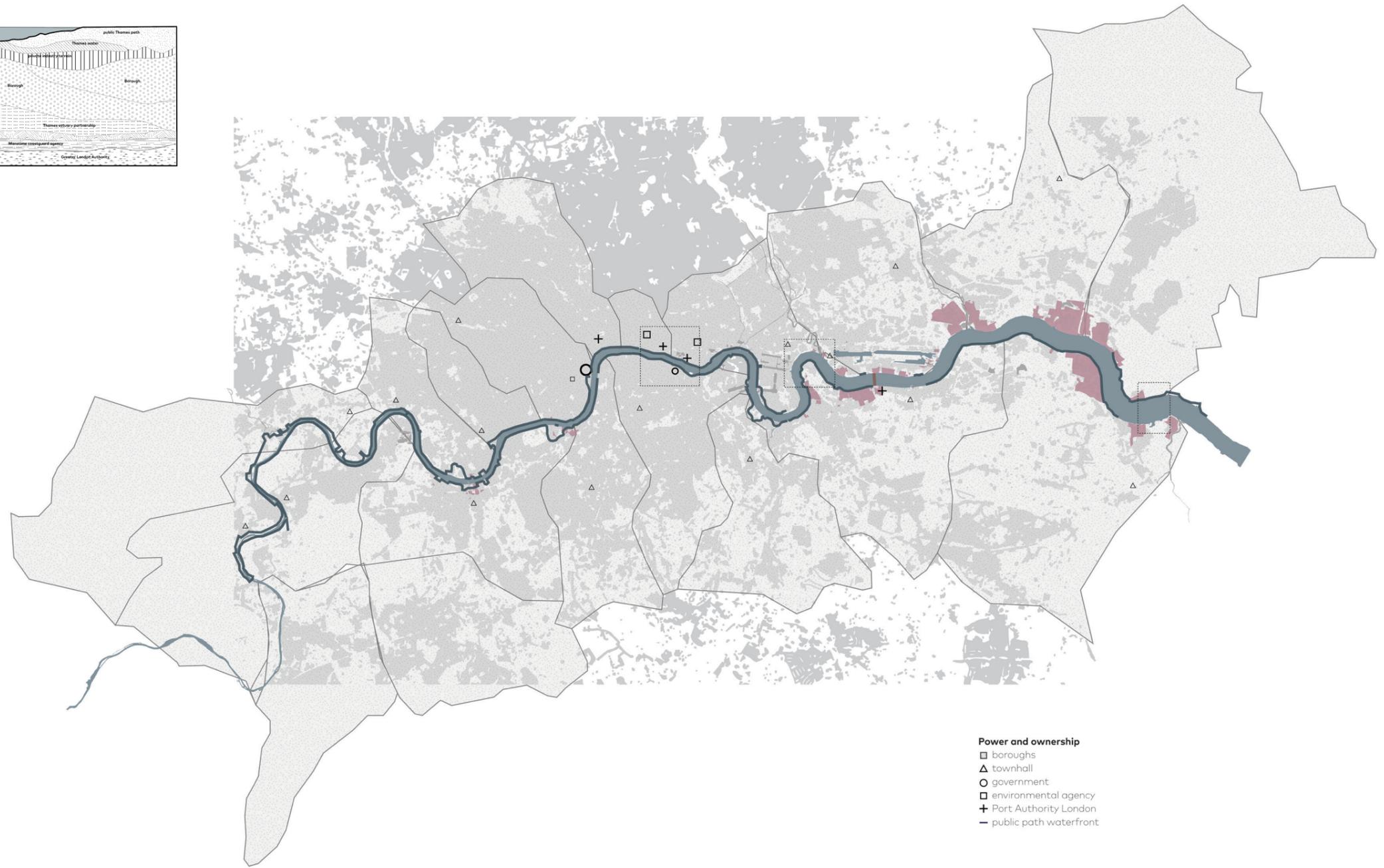
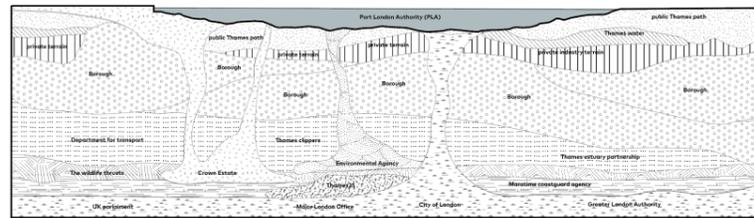
Thames waterfront condition

man-made



Thames waterfront condition

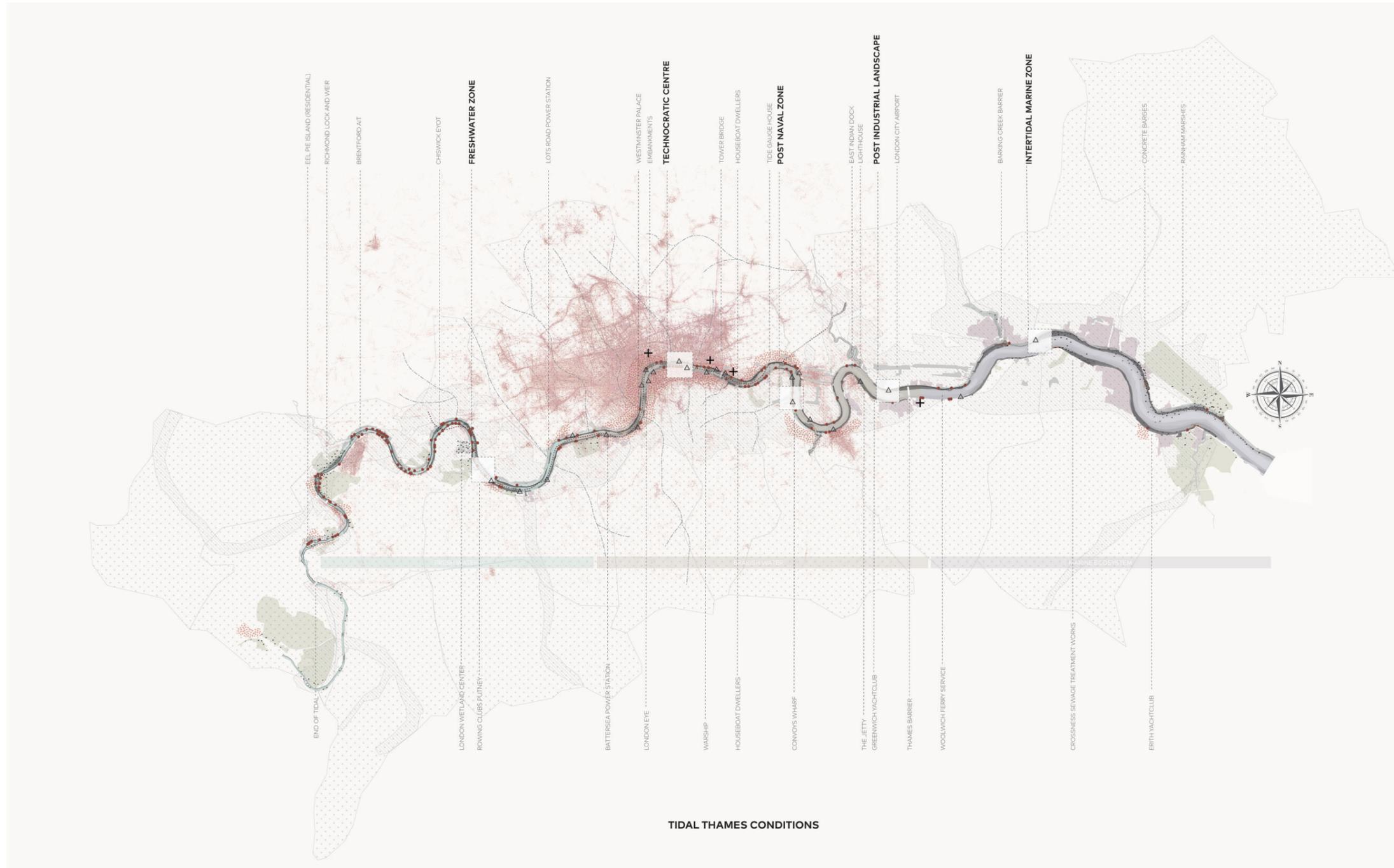
politics



- Power and ownership**
- boroughs
 - △ townhall
 - government
 - environmental agency
 - + Port Authority London
 - public path waterfront

Thames waterfront condition

accumulated condition



Thames waterfront condition

Findings

In a continuous state of fluctuations the various waterfronts have been shaped and formed both by ecological, but mainly by anthropocentric influences.

AN **AMBIGUOUS PSYCHO-GEOGRAPHICAL ZONE** THAT CONFRONTS THE URBAN COLLECTIVE WITH ITS **VARIOUS, POLLUTED AND NEGLECTED CONDITIONS** BOUNDED BY MAINLY HARD EDGES AND MAN-MADE INTERVENTIONS THEREWITH **LOSING ITS MEDIATING GROUND** AND CHARACTER BETWEEN CITY AND WATER AND THUS **CREATING A CITY-RIVER DETACHMENT**.

Architecture as riparian mediator

The strategy

FOR AN INTERDEPENDENT SYMBIOSIS WE SHOULD ASK OURSELVES
HOW WE CAN LISTEN TO AND ENGAGE WITH THE THAMES?



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

Architecture as riparian mediator

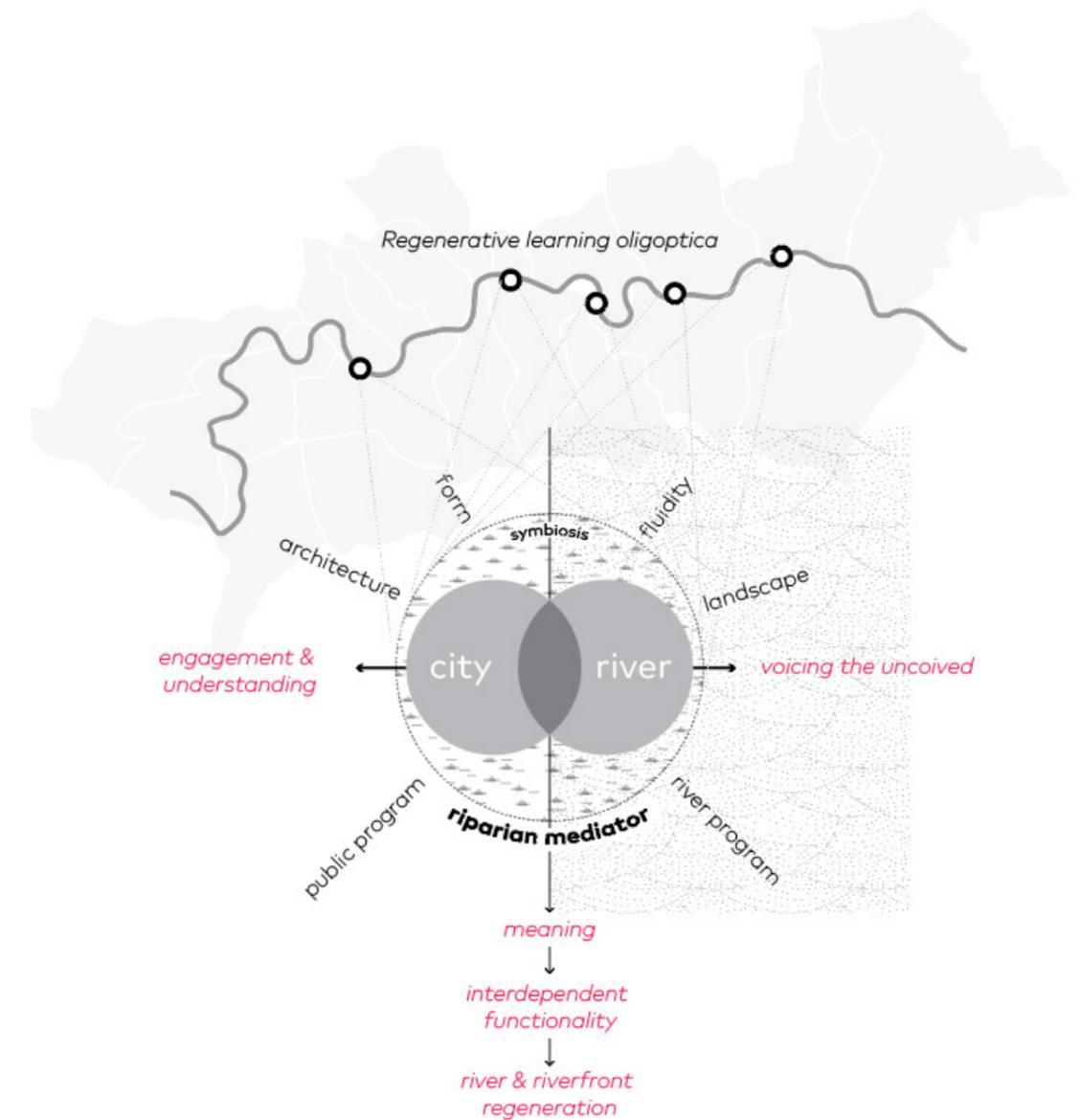
The strategy

THIRD GENERATION CITY THEORY (CASAGRANDE)
URBAN ACCUPUNCTURE FOR REGENERATION AND SYMBIOSIS

OLIGOPTICON THEORY (LATOUR)
OBSERVING SOMETHING VERY SPECIFIC THROUGH CONNECTIVE
NODES TO UNDERSTAND THE WHOLE

ARCHITECTURE 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.

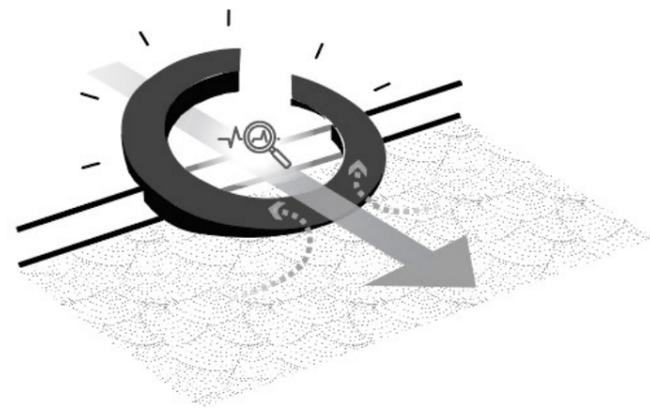
THE RIPARIAN MEDIATOR IS AN INTERDEPENDENT SYSTEM THAT
NEGOTIATES BOUDNARIES BETWEEN HUMAN AND NON-HUMAN,
FORM AND FLUIDITY, BETWEEN ARCHITECTURE AND LANDSCAPE AND
BETWEEN PROGRAM AND REGENERATION FOR PUBLIC AND RIVER.



Architecture as riparian mediator

The concept

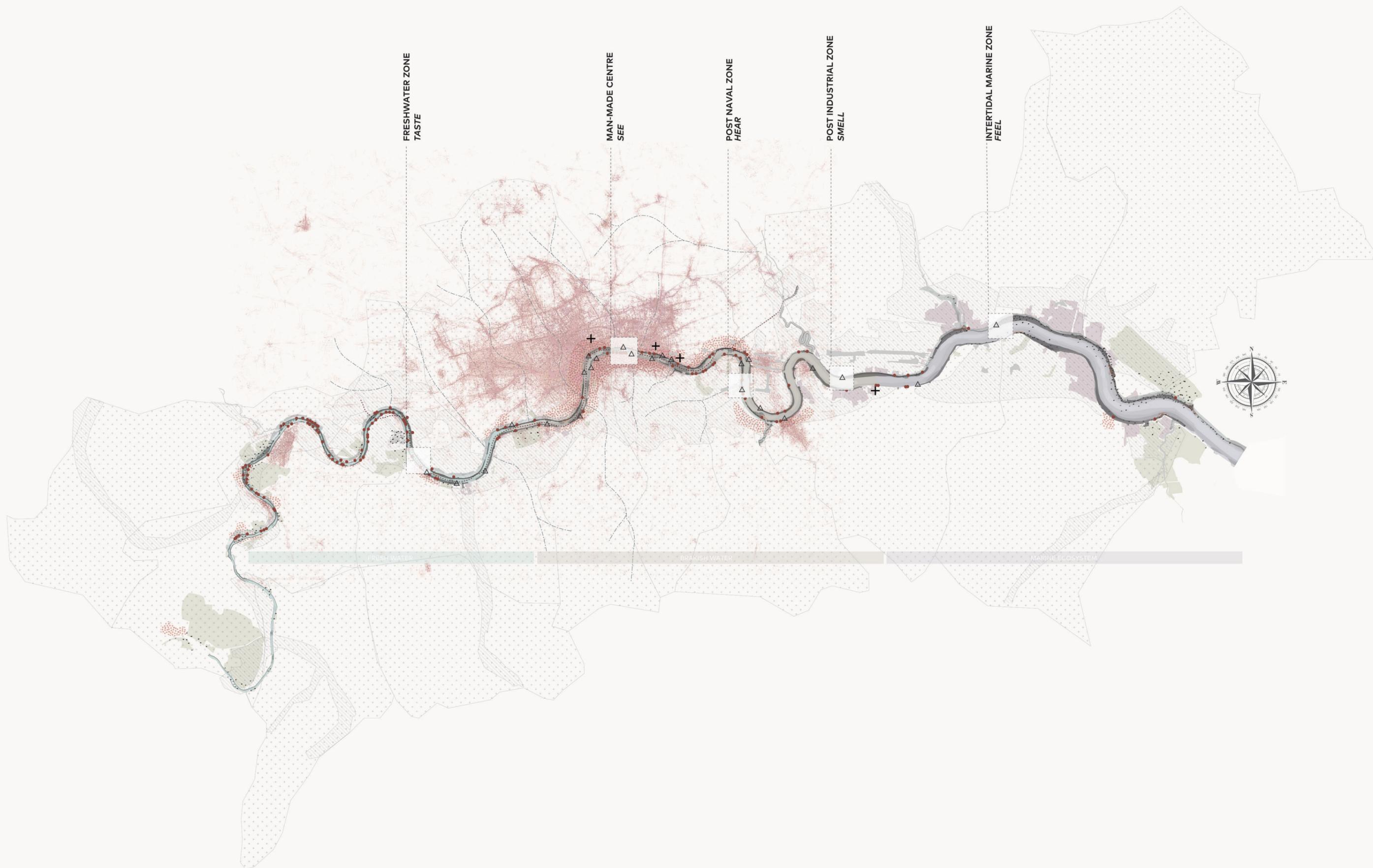
At the crucial and potential nodes the architecture should intervene...



Connected public observatory (for monitoring and engagement)



Engagement & monitoring through senses



FRESHWATER ZONE
TASTE

MAN-MADE CENTRE
SEE

POST NAVAL ZONE
HEAR

POST INDUSTRIAL ZONE
SMELL

INTERTIDAL MARINE ZONE
FEEL

FRESH WATER

BRACKISH WATER

MARINE ECOSYSTEM



Architecture as riparian mediator

Locating the sites



Unique waterfront condition



Close to Thames Clipper ferry terminal



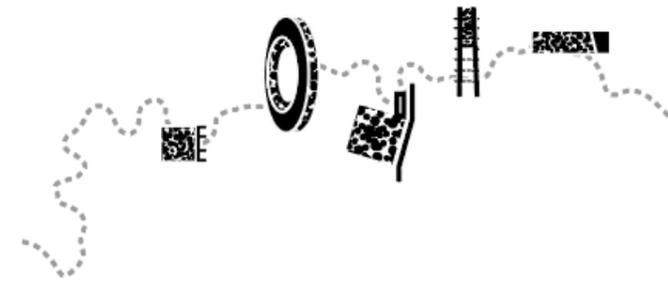
Regenerative need and potential

Architecture as riparian mediator

The strategy



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

Symbiotic Thames

I | RESEARCH

The Ripple

II | CONCEPT

Between water and city
When form and fluid meet



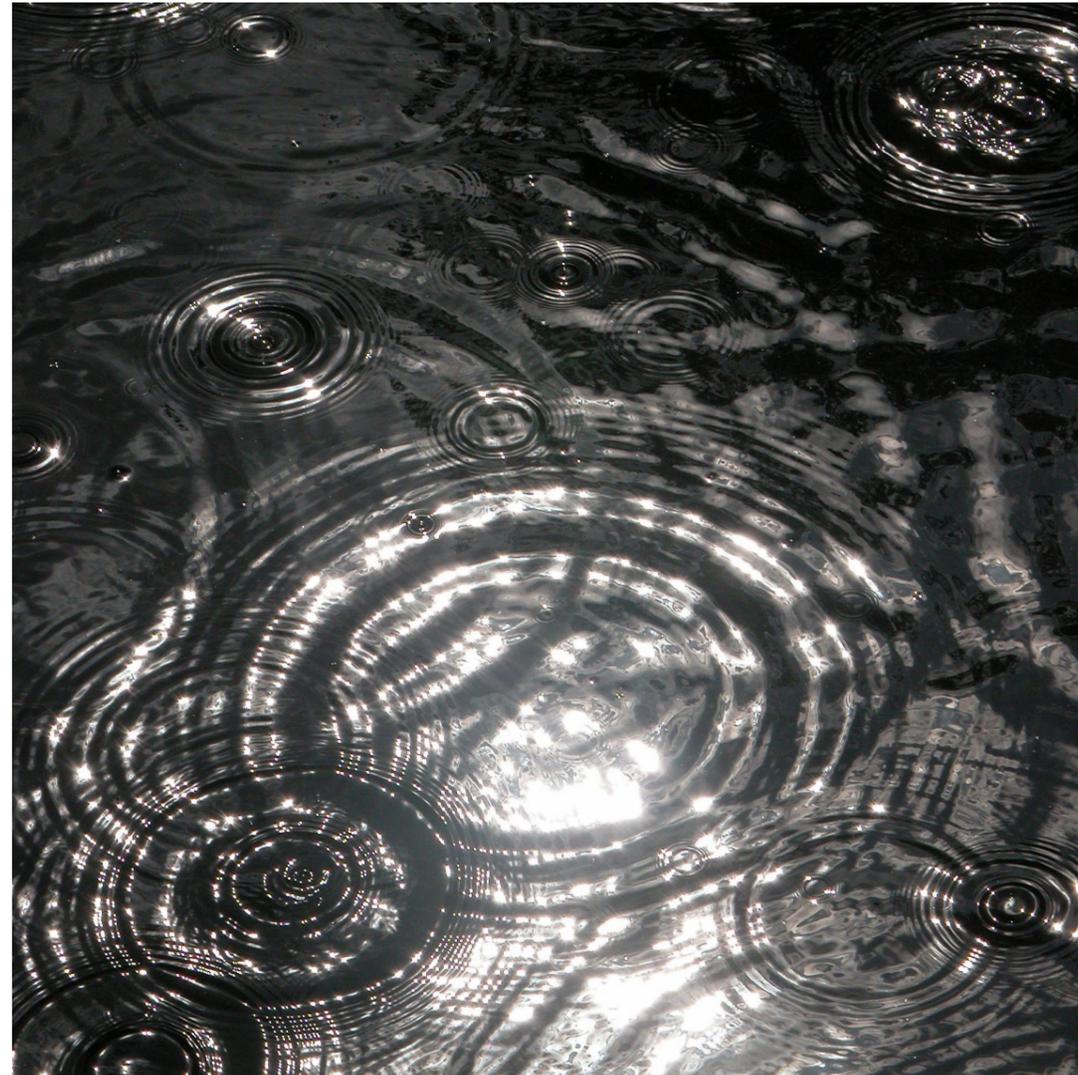
Between water and city
When form and fluid meet



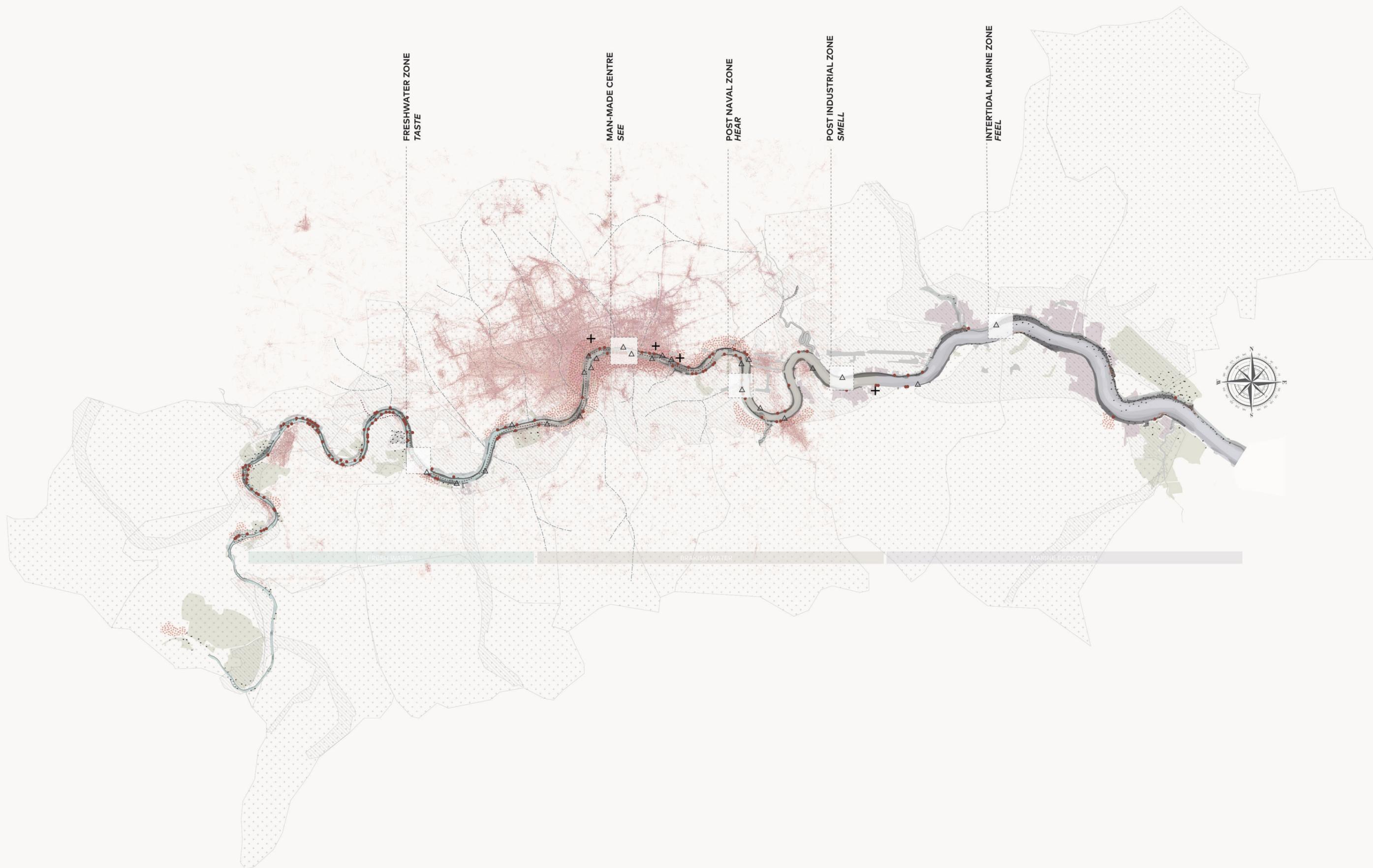
Ripple symbolizing connection between fluid and form

Between water and city

When form and fluid meet



Ripple rings as connective chain between fluid and form



FRESHWATER ZONE
TASTE

MAN-MADE CENTRE
SEE

POST NAVAL ZONE
HEAR

POST INDUSTRIAL ZONE
SMELL

INTERTIDAL MARINE ZONE
FEEL

FRESH WATER

BRACKISH WATER

MARINE ECOSYSTEM



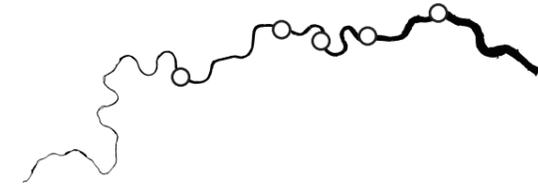
Thames River Rooms

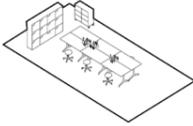
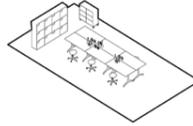
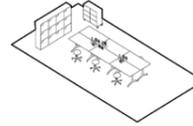
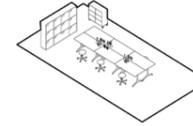
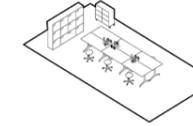
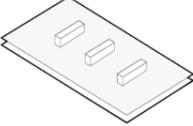
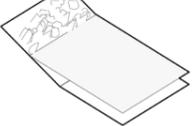
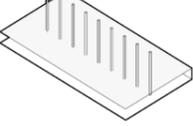
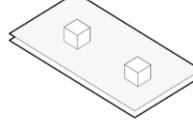
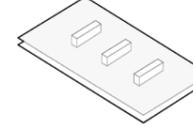
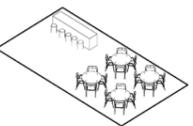
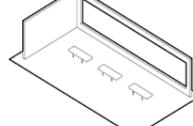
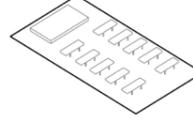
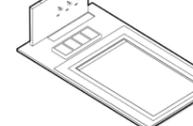
Regenerative and observing oligoptica through the five senses



Program

The river rooms



	Freshwater Zone Taste <i>Putney Towpath</i>	Man-made centre See <i>Tate Modern Park</i>	Post Naval Zone Hear <i>Greenland Docks</i>	Post Industrial Zone Smell <i>Lyle Park</i>	Intertidal Marine Zone Feel <i>Barking</i>
River	 <p>Monitoring Lab Water purification & waste</p>	 <p>Monitoring Lab Underwater species & urban riparian behaviour</p>	 <p>Monitoring Lab Underwater sound</p>	 <p>Monitoring Lab Underwater scents</p>	 <p>Monitoring Lab Thermal pollution & waste</p>
Symbiotic	 <p>Symbiotic act Purifying oysters & filtration</p>	 <p>Symbiotic act Urban riparian zone, room for river and urban collective</p>	 <p>Symbiotic act oxidation bubblers for noise reduction</p>	 <p>Symbiotic act Scent purification filtration</p>	 <p>Symbiotic act Purifying oysters & filtration</p>
Public	 <p>Tea Room Tea with Thames water</p>	 <p>Observatory Riparian and underwater observatory</p>	 <p>Echo chamber Contemplation space</p>	 <p>Olfaction Steamy Thames scens</p>	 <p>Bathhouse Sauna and baths</p>

Program
The river rooms



Intervention

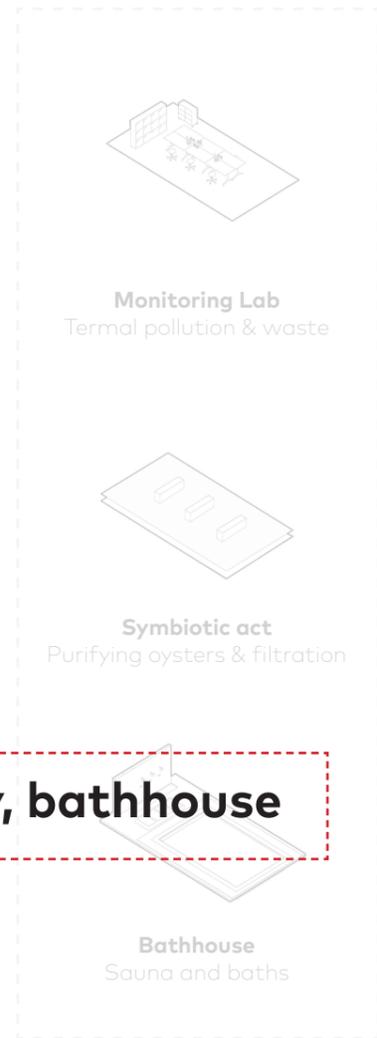
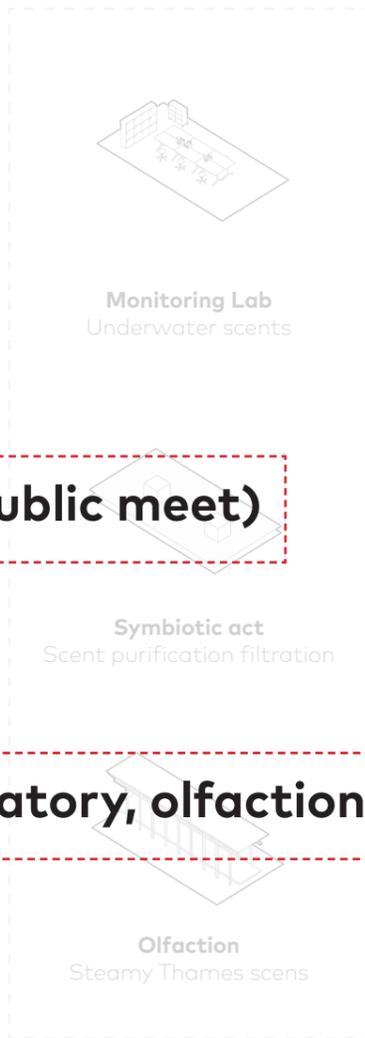
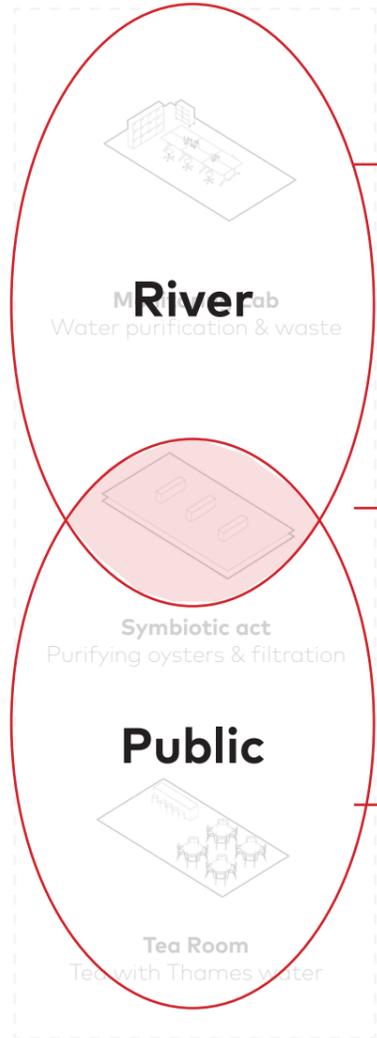
Sense
Freshwater Zone | Taste
Putney Tower

see, hear, smell, taste, feel
Man-made centre | See
Tate Modern

Post Industrial Zone | Smell
Lyle Park

Intertidal Marine Zone | Feel
Barking

River
program
Public



monitor & regenerate

riparian zone (where river and public meet)

tea room, echo chamber, observatory, olfactionary, bathhouse

River Lab
Water purification & waste

Symbiotic act
Purifying oysters & filtration

Public

Tea Room
Tea with Thames water

Monitoring Lab
Underwater species & urban riparian behaviour

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

Observatory
Riparian and underwater observatory

Monitoring Lab
Underwater sound

Symbiotic act
oxidation bubblers for noise reduction

Echo chamber
Contemplation space

Monitoring Lab
Underwater scents

Symbiotic act
Scent purification filtration

Olfaction
Steamy Thames scens

Monitoring Lab
Termal pollution & waste

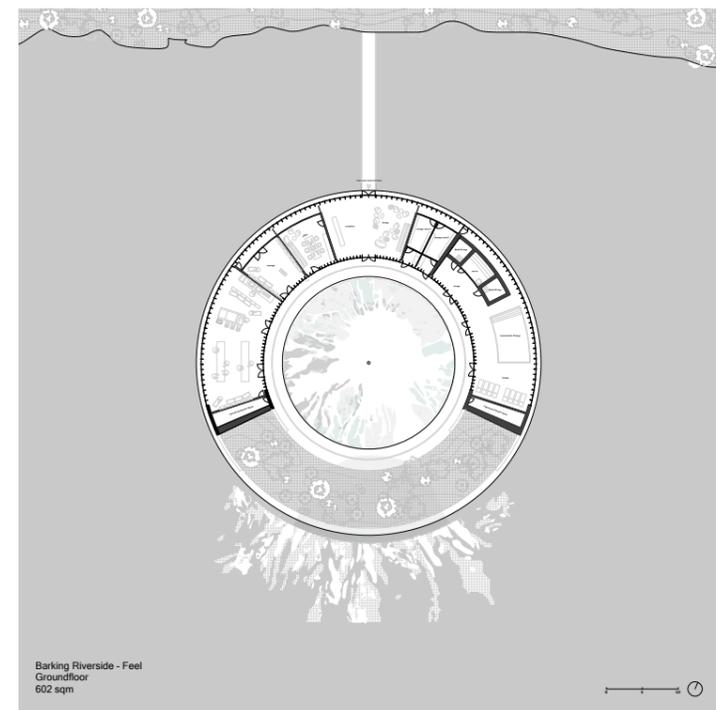
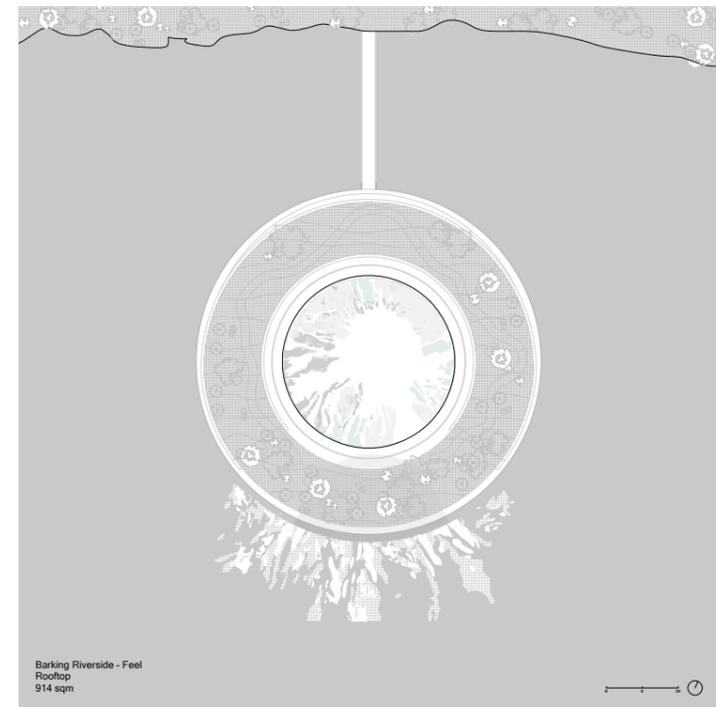
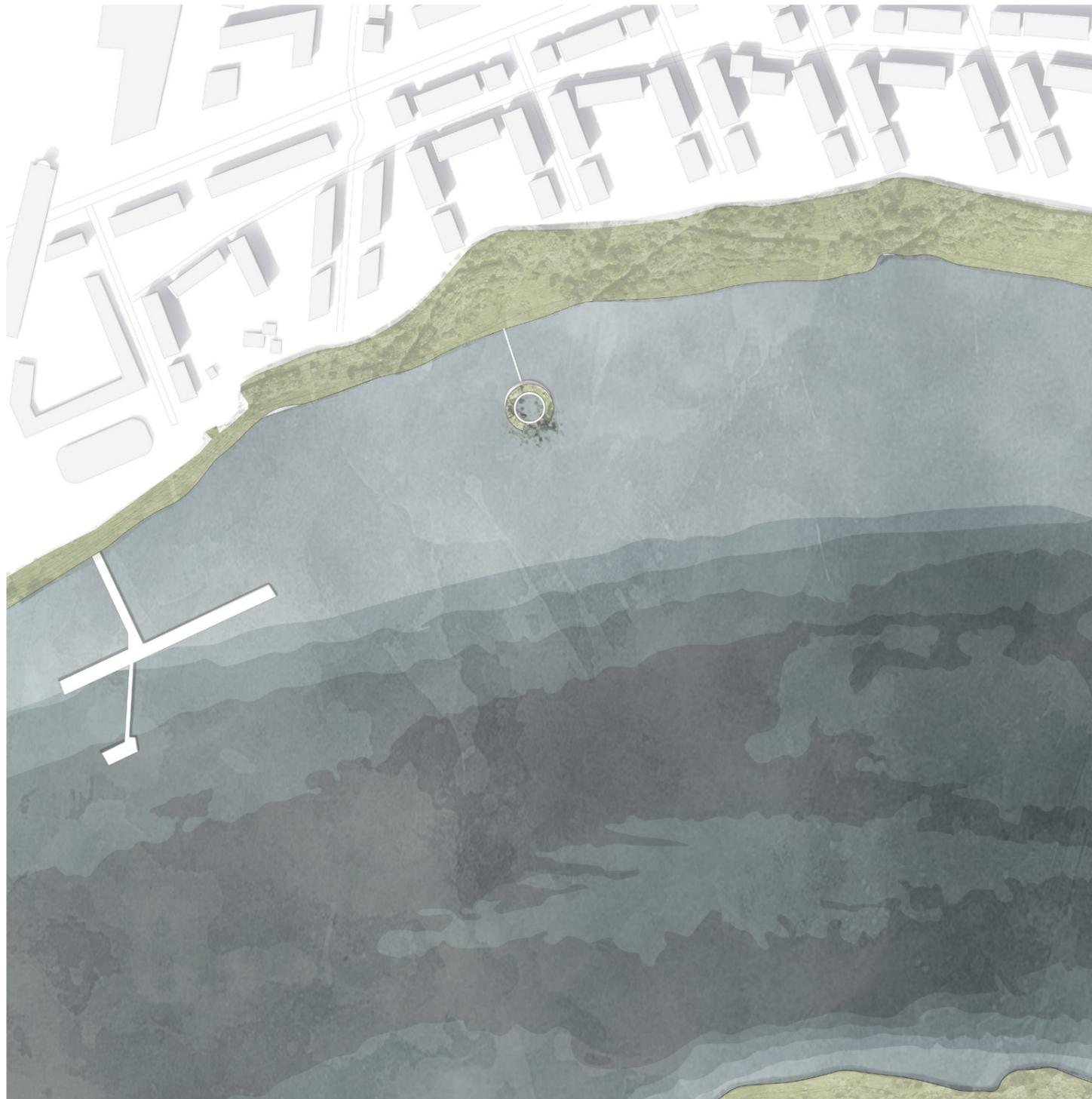
Symbiotic act
Purifying oysters & filtration

Bathhouse
Sauna and baths

Feel | Barking Riverside

River - monitoring standard data + temperature

Public - bathhouse



Feel | Barking Riverside

River - monitoring standard data + temperature

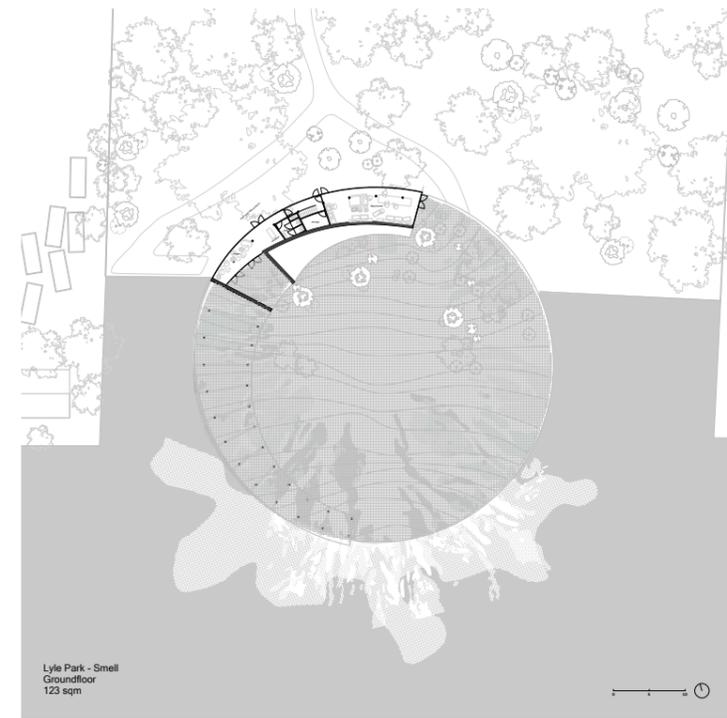
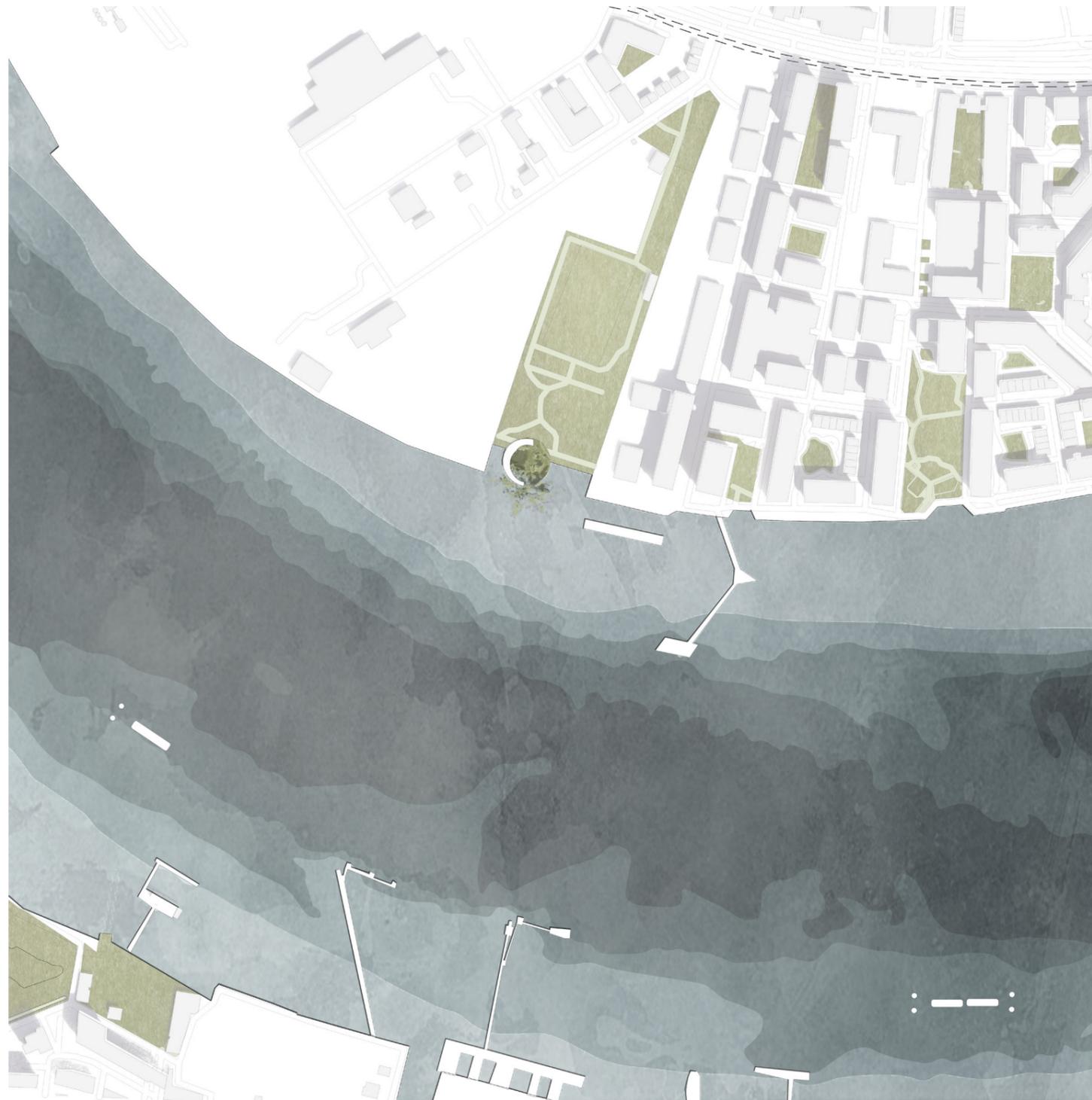
Public - bathhouse



Smell | Lyle Park

River - monitoring standard data + underwater odors

Public - olfactionary



Smell | Lyle Park

River - monitoring standard data + underwater odors

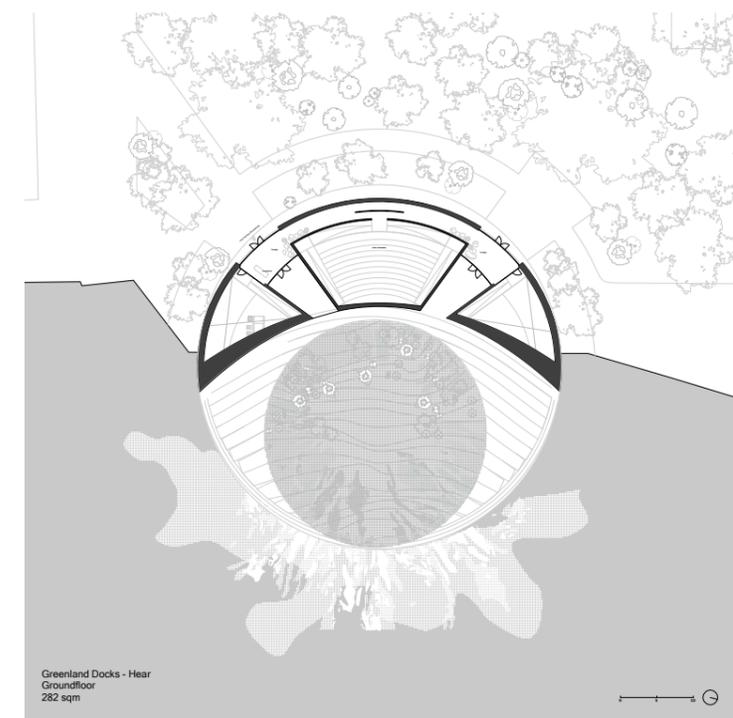
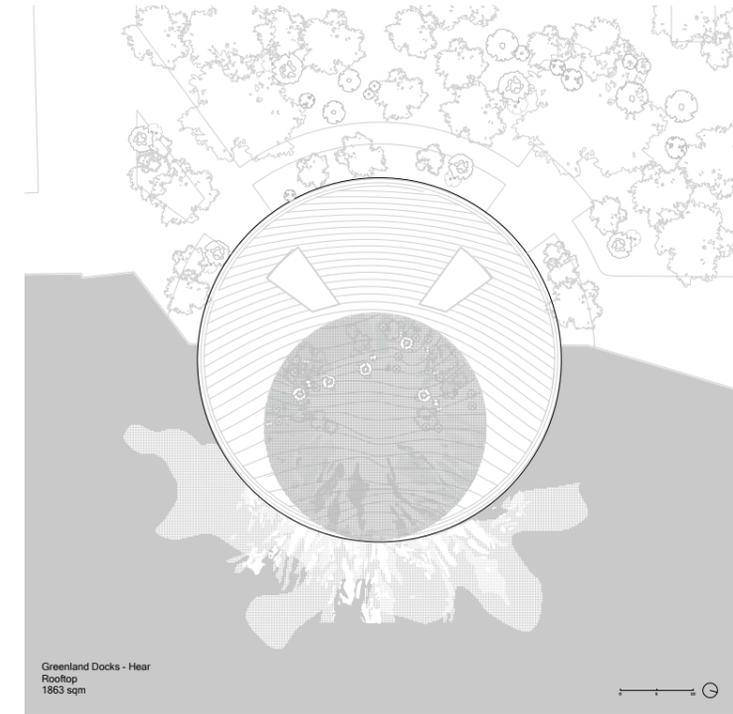
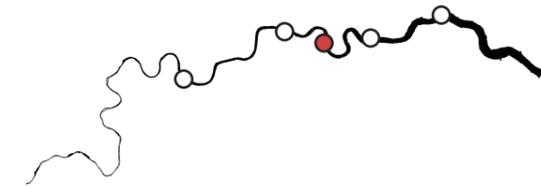
Public - olfactionary



Hear | Greenland Docks

River - monitoring standard data + underwater noise

Public - echo chamber & amfi theatre



Hear | Greenland Docks

River - monitoring standard data + underwater noise

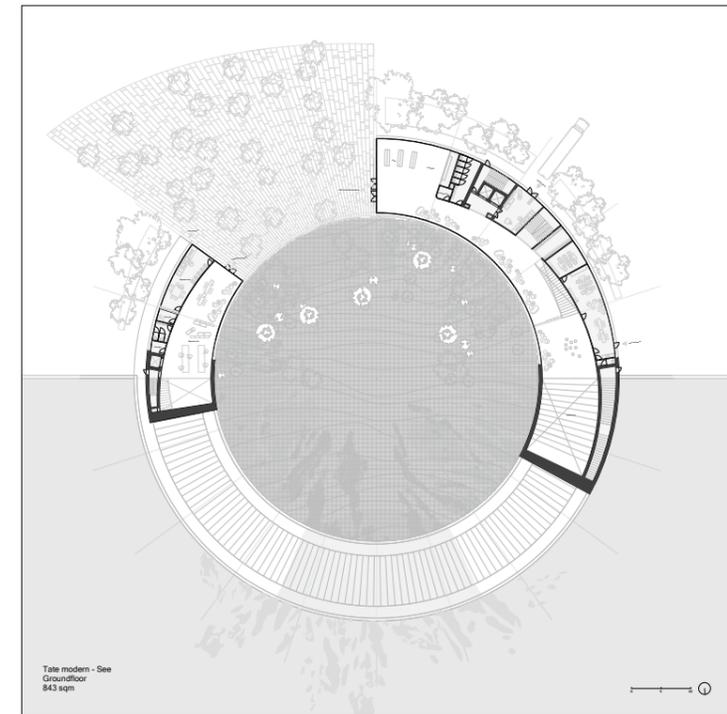
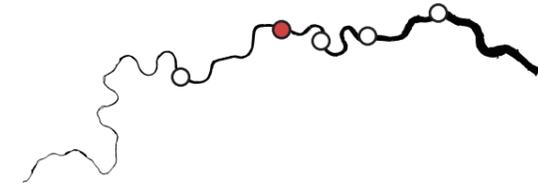
Public - echo chamber & amfi theatre



See | Tate Modern

River - monitoring standard data + underwater life

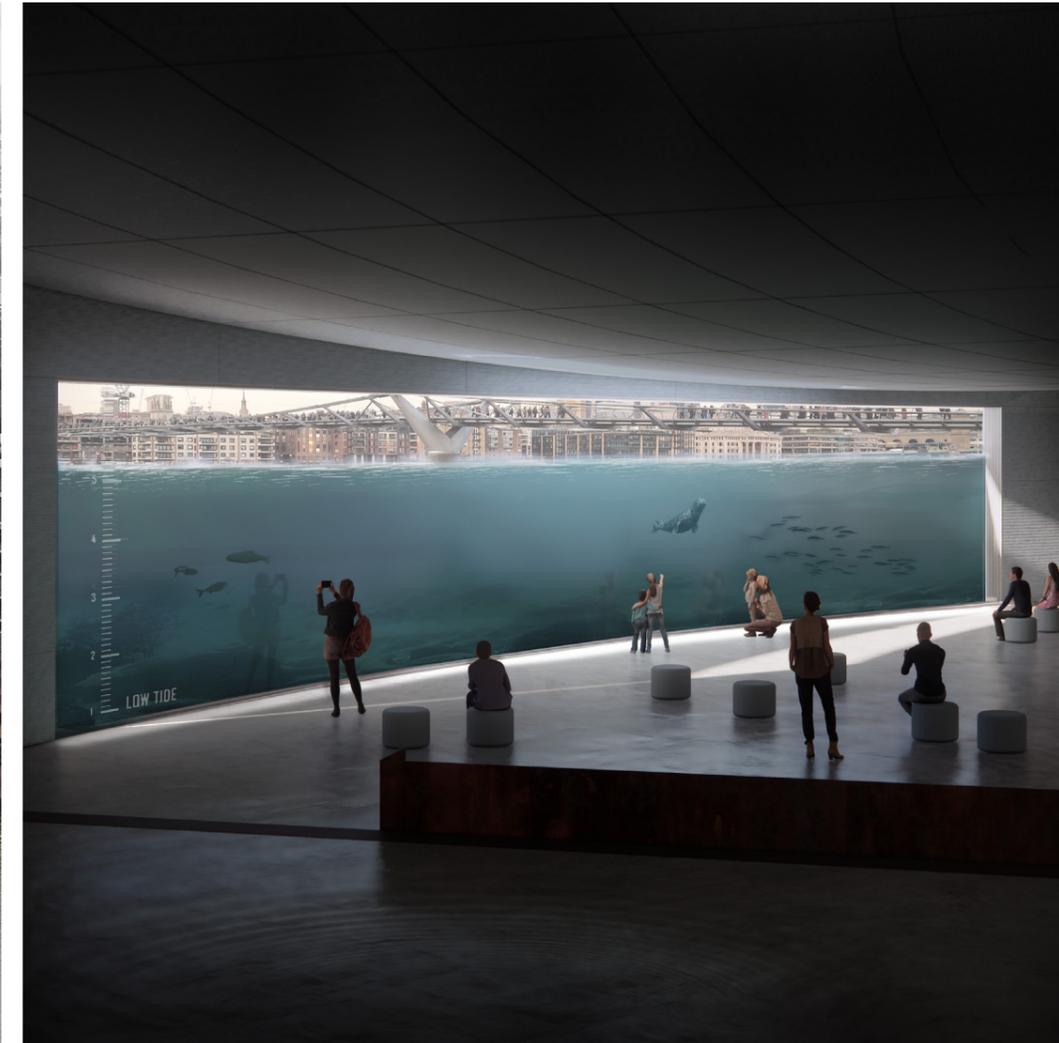
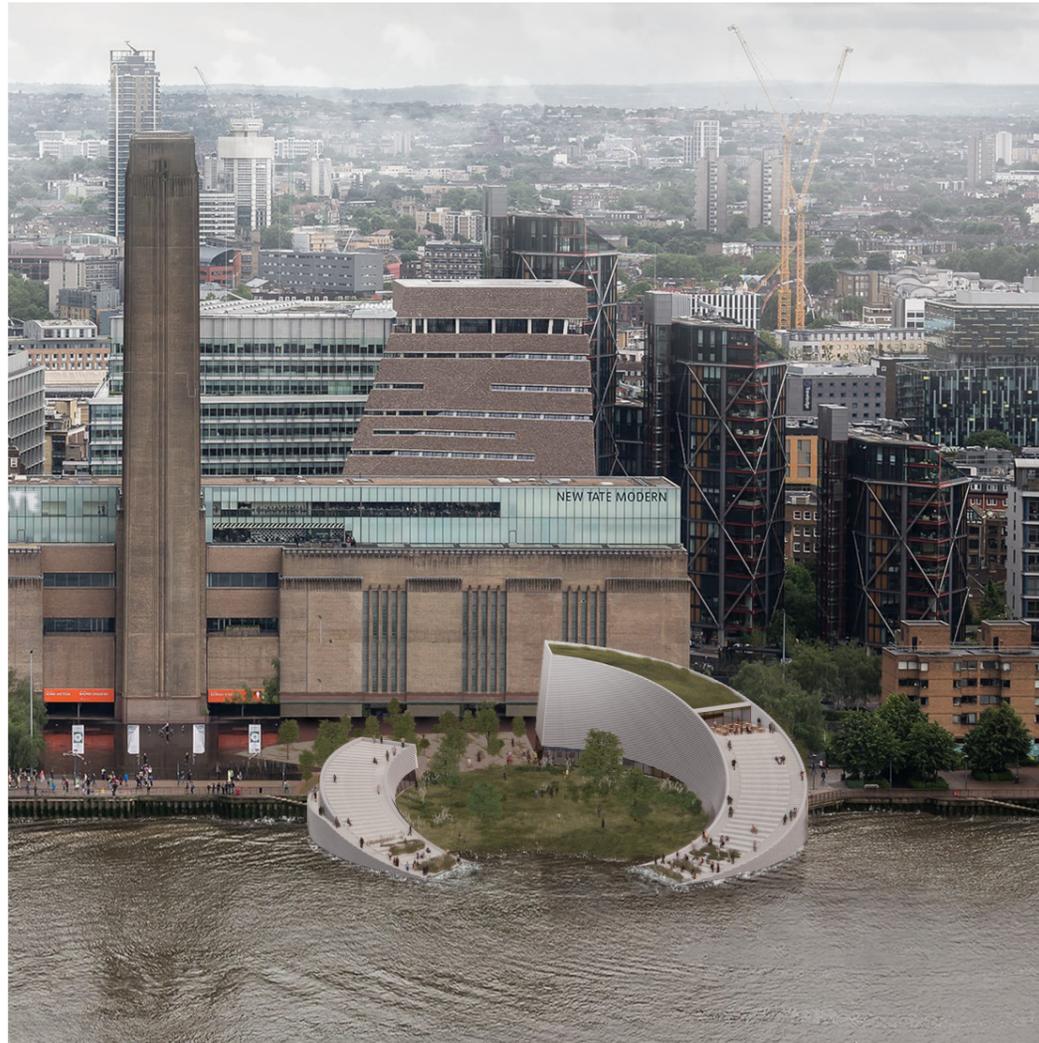
Public - underwater observatory



See | Tate Modern

River - monitoring standard data + underwater life

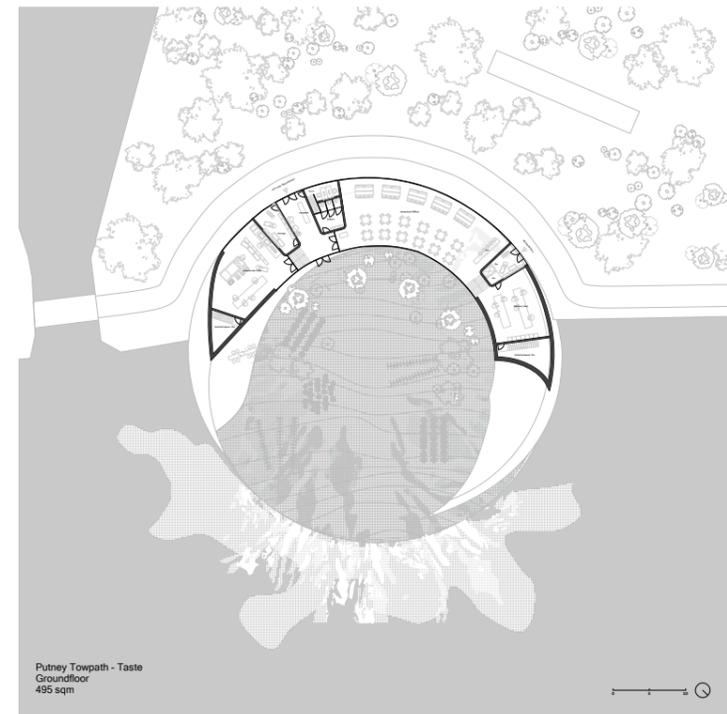
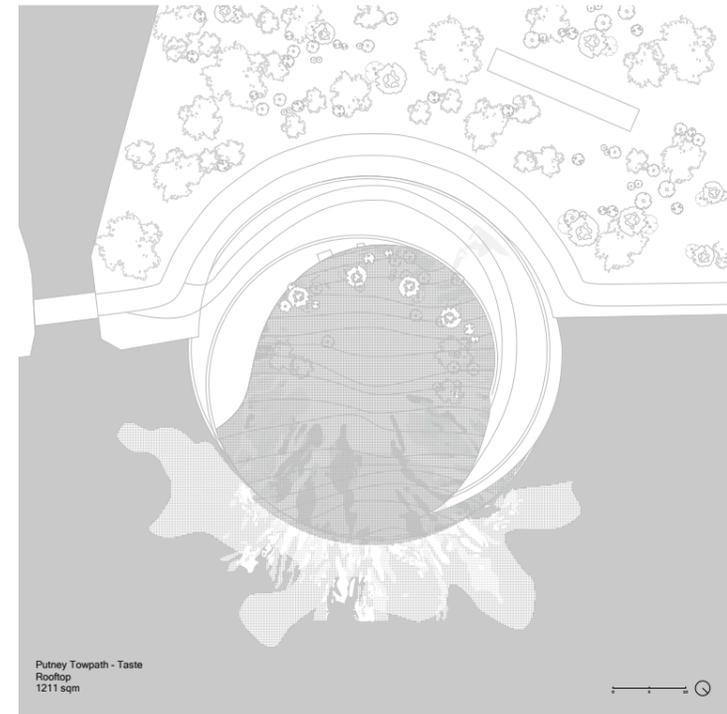
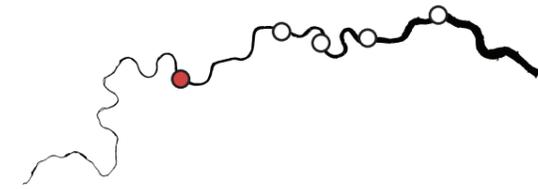
Public - underwater observatory



Taste | Putney Towpath

River - monitoring standard data + temperature & oxygen

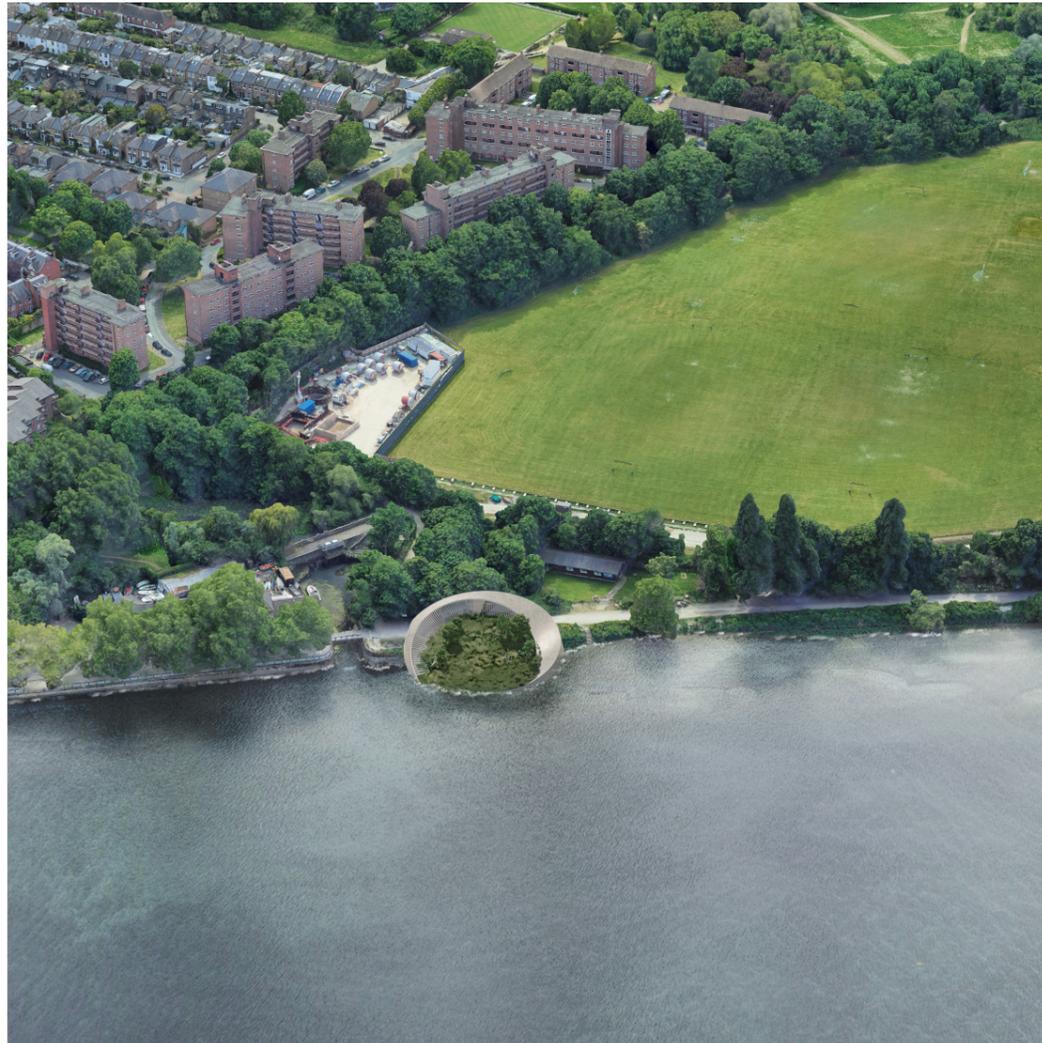
Public - tea room & restaurant



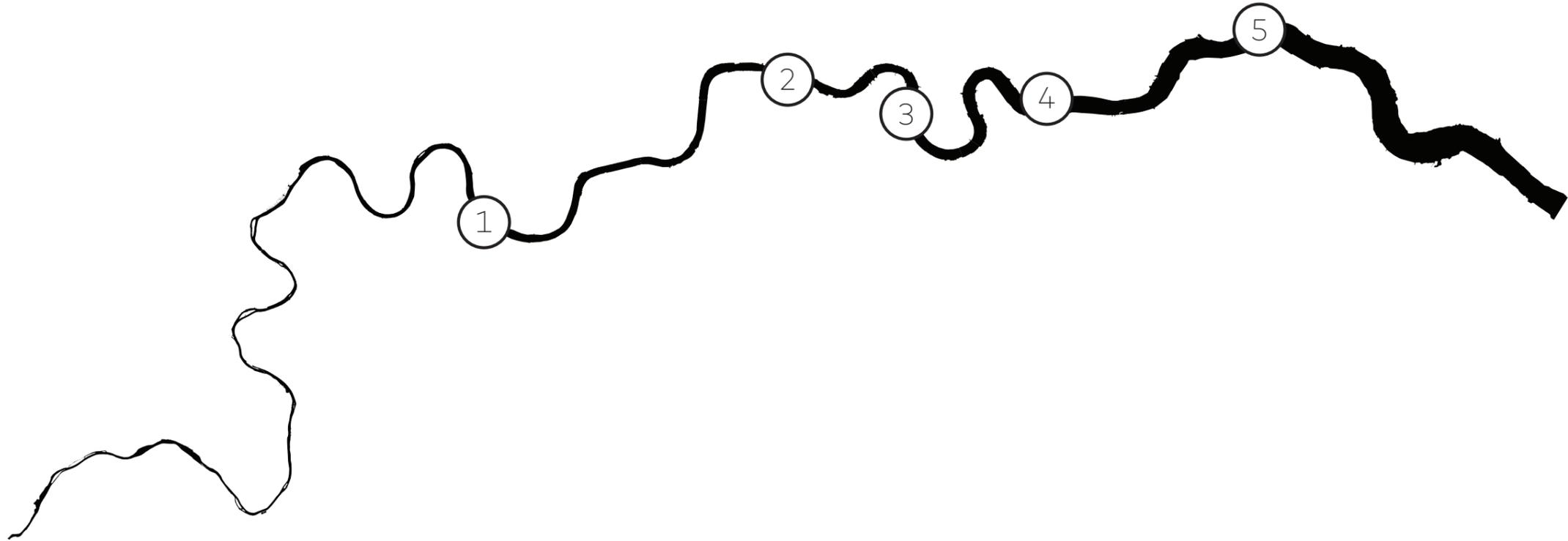
Taste | Putney Towpath

River - monitoring

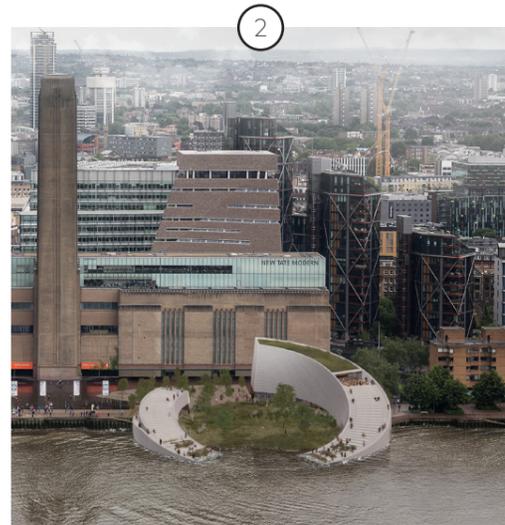
Public - tea room & restaurant



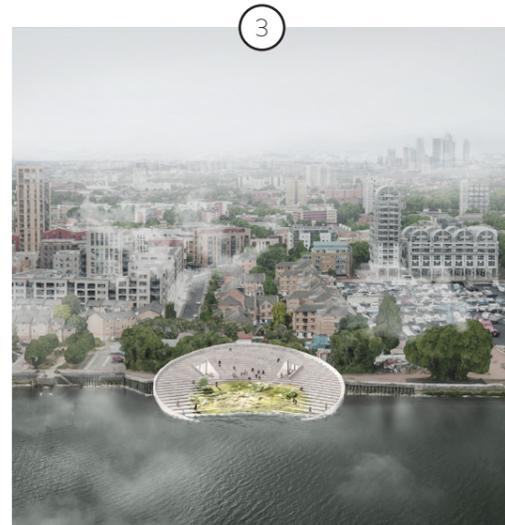
Masterplan | The Thames River Rooms



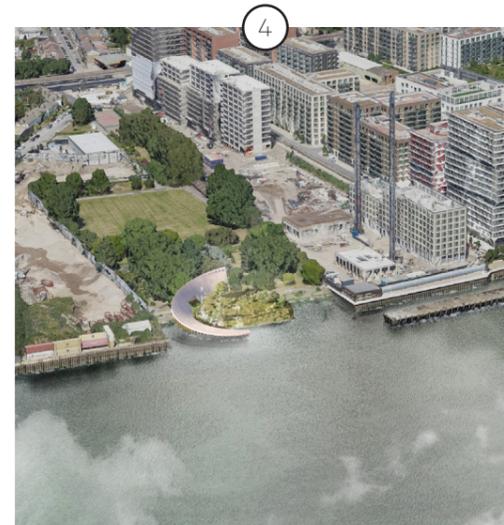
TASTE
Putney Towpath



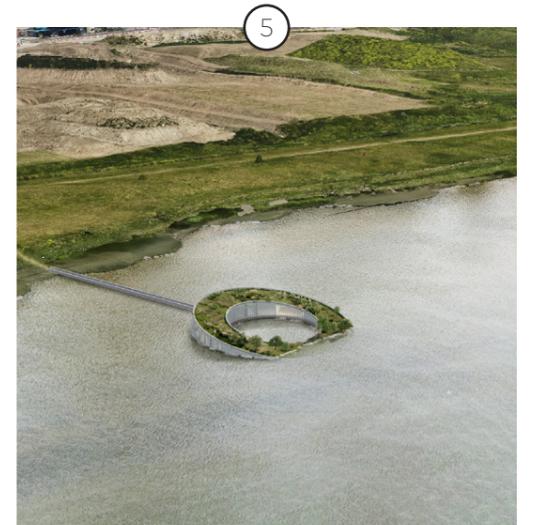
SEE
Tate Modern park



HEAR
Greenland Docks

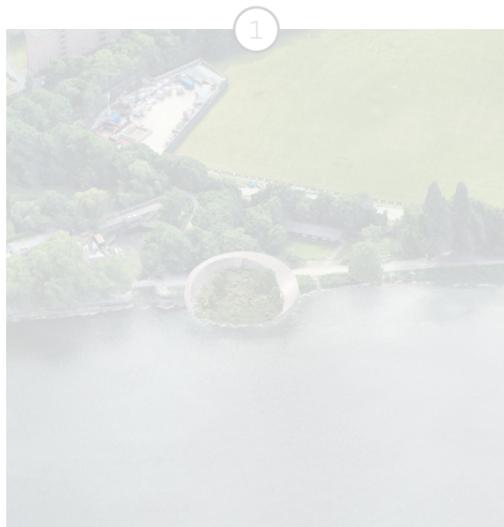
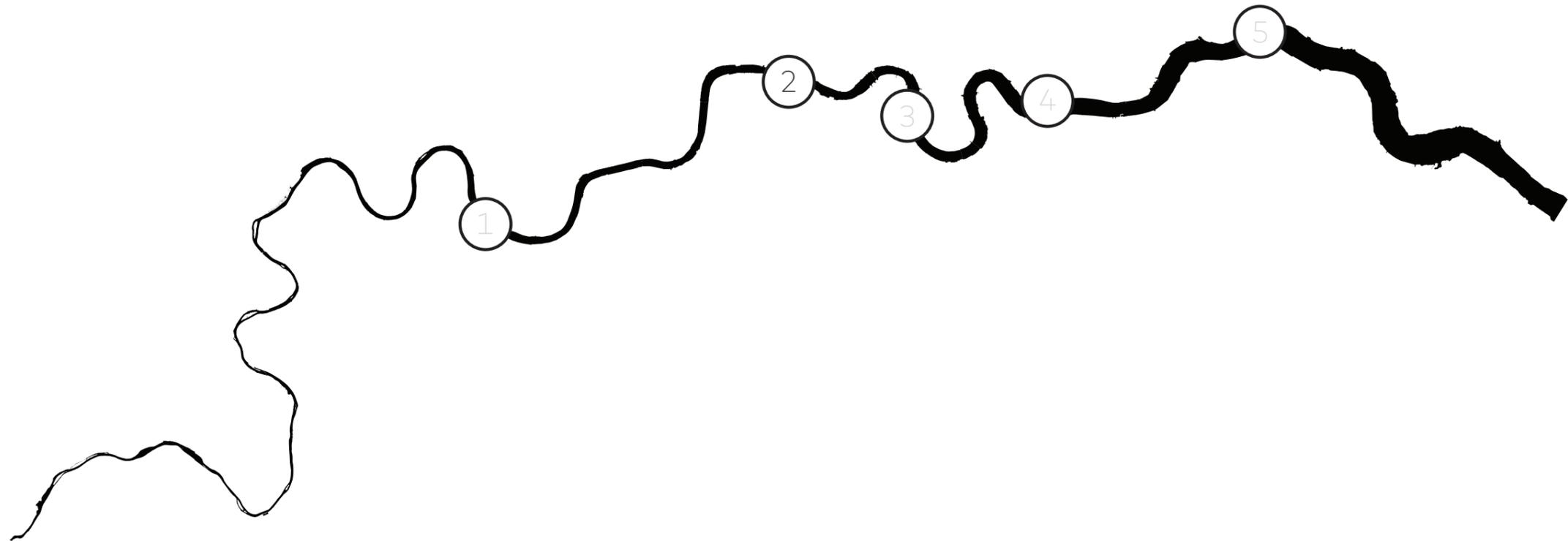


SMELL
Lyle Park

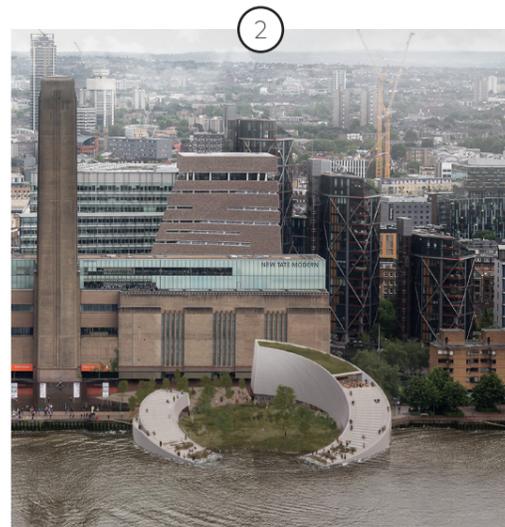


FEEL
Barking

Masterplan | The Main Intervention - SEE

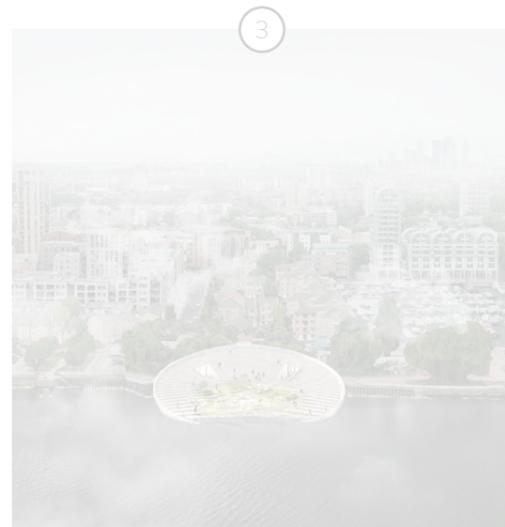


TASTE
Putney Towpath

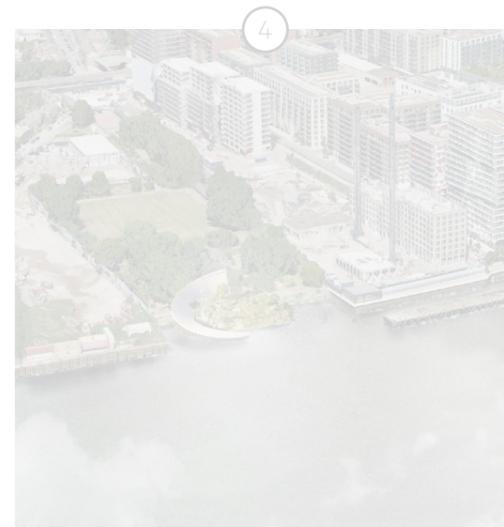


SEE
Tate Modern park

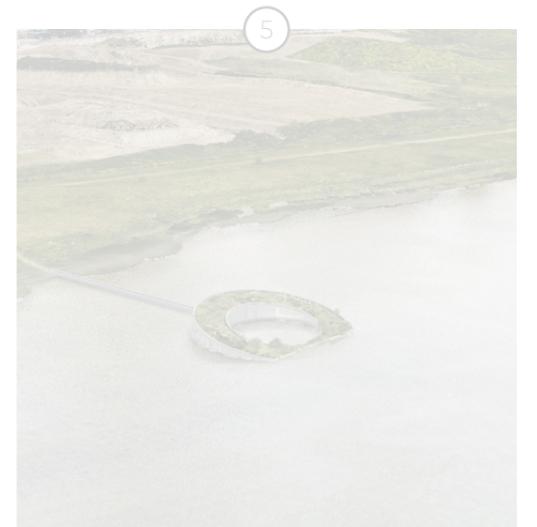
MAIN INTERVENTION OF THE RIVER ROOMS



HEAR
Greenland Docks



SMELL
Lyle Park



FEEL
Barking

Symbiotic Thames

I | RESEARCH

The Ripple

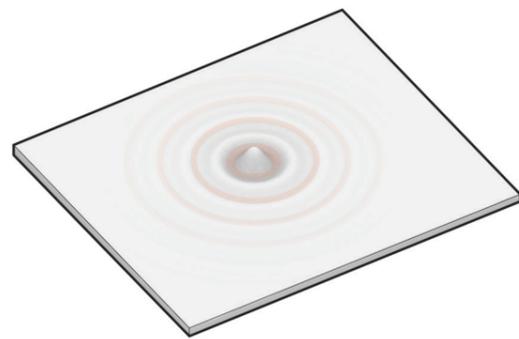
II | CONCEPT

The Riparian Mediator - See

III | DESIGN

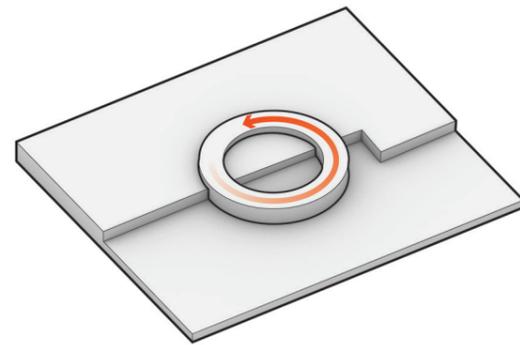
Process diagram

Massing



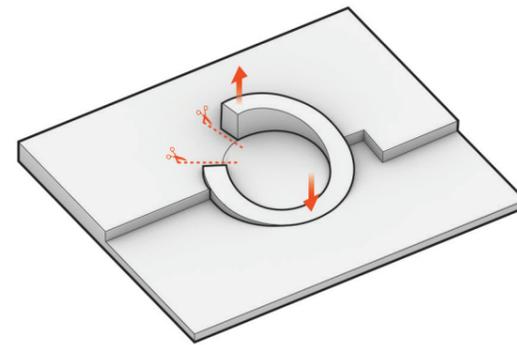
RIPPLE

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



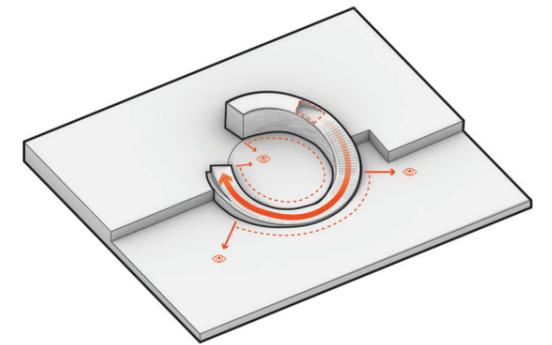
FRAMING THE RIPARIAN

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

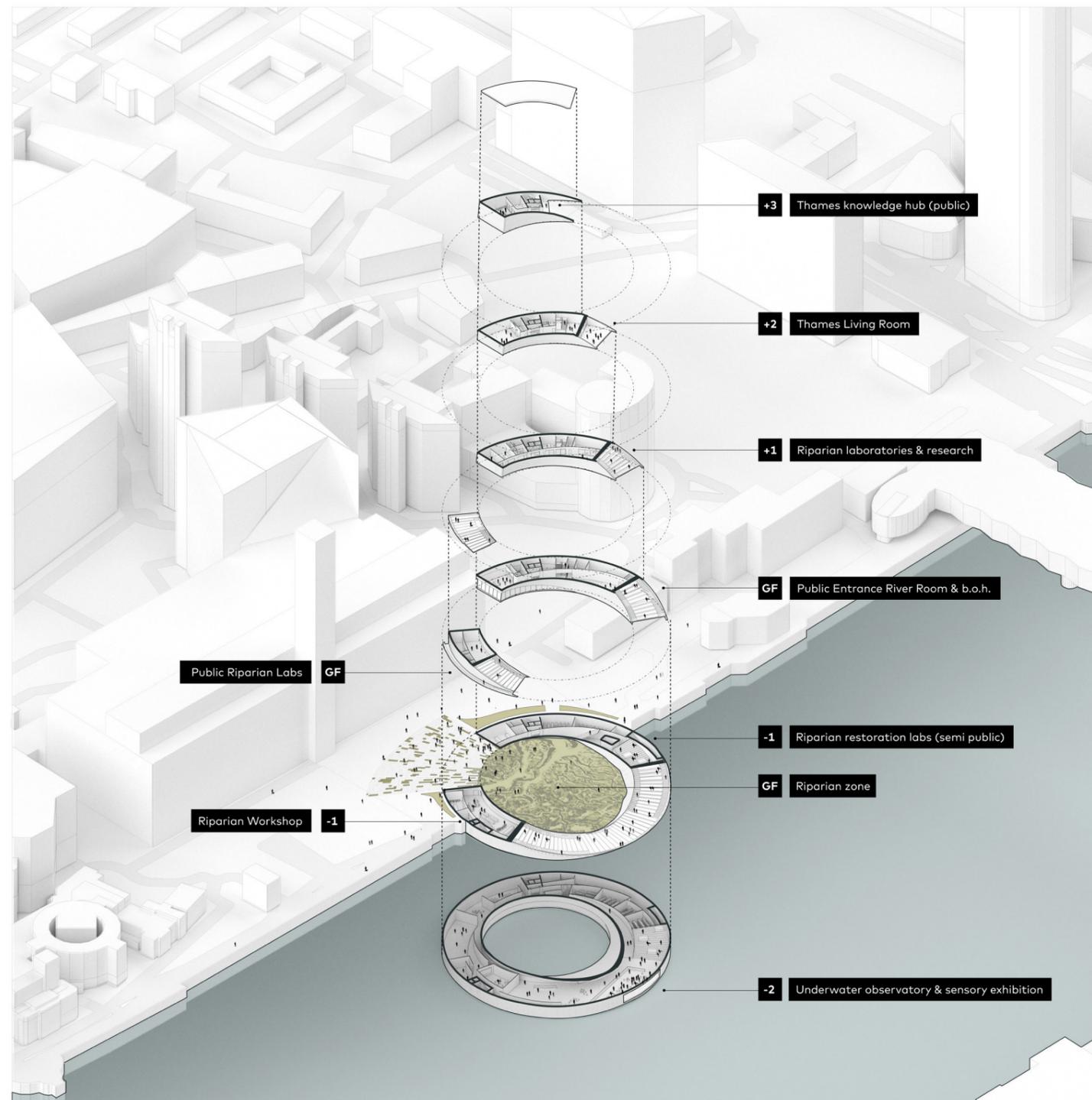
360 views inwards and outwards, and optimal circulation in and outside building



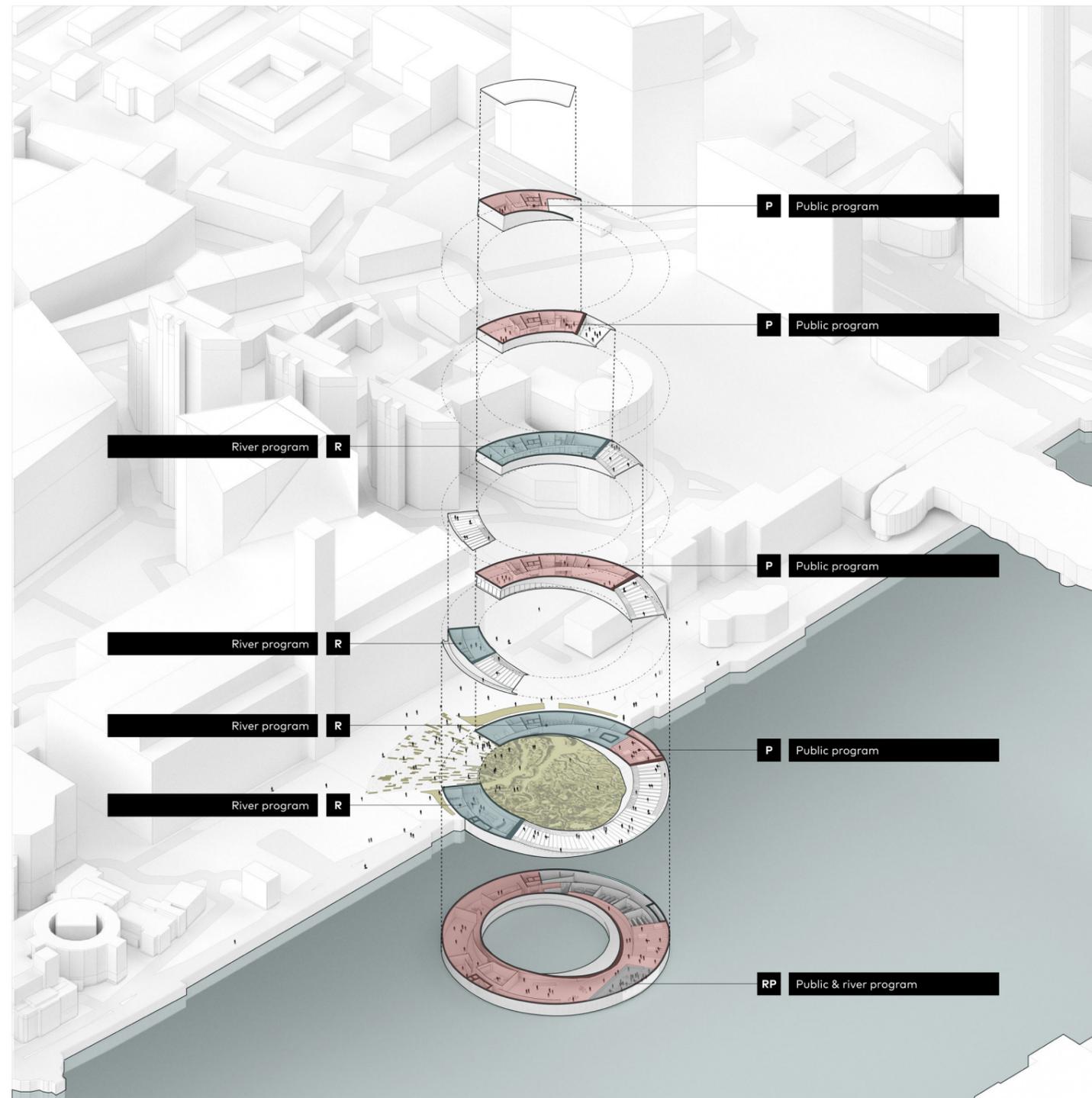


KOEN STAM - SYMBIOTIC THAMES

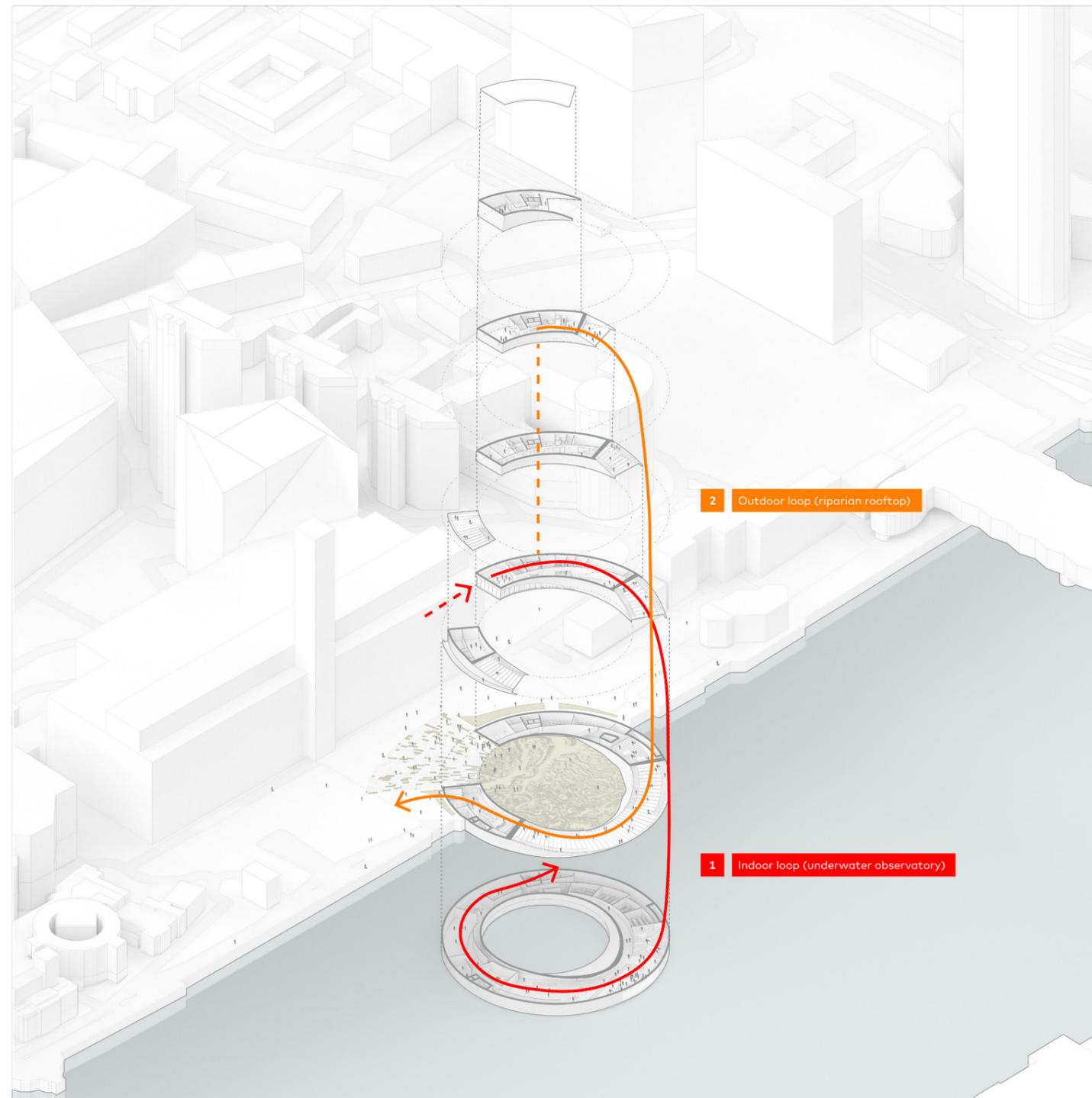
Exploded axonometric overview



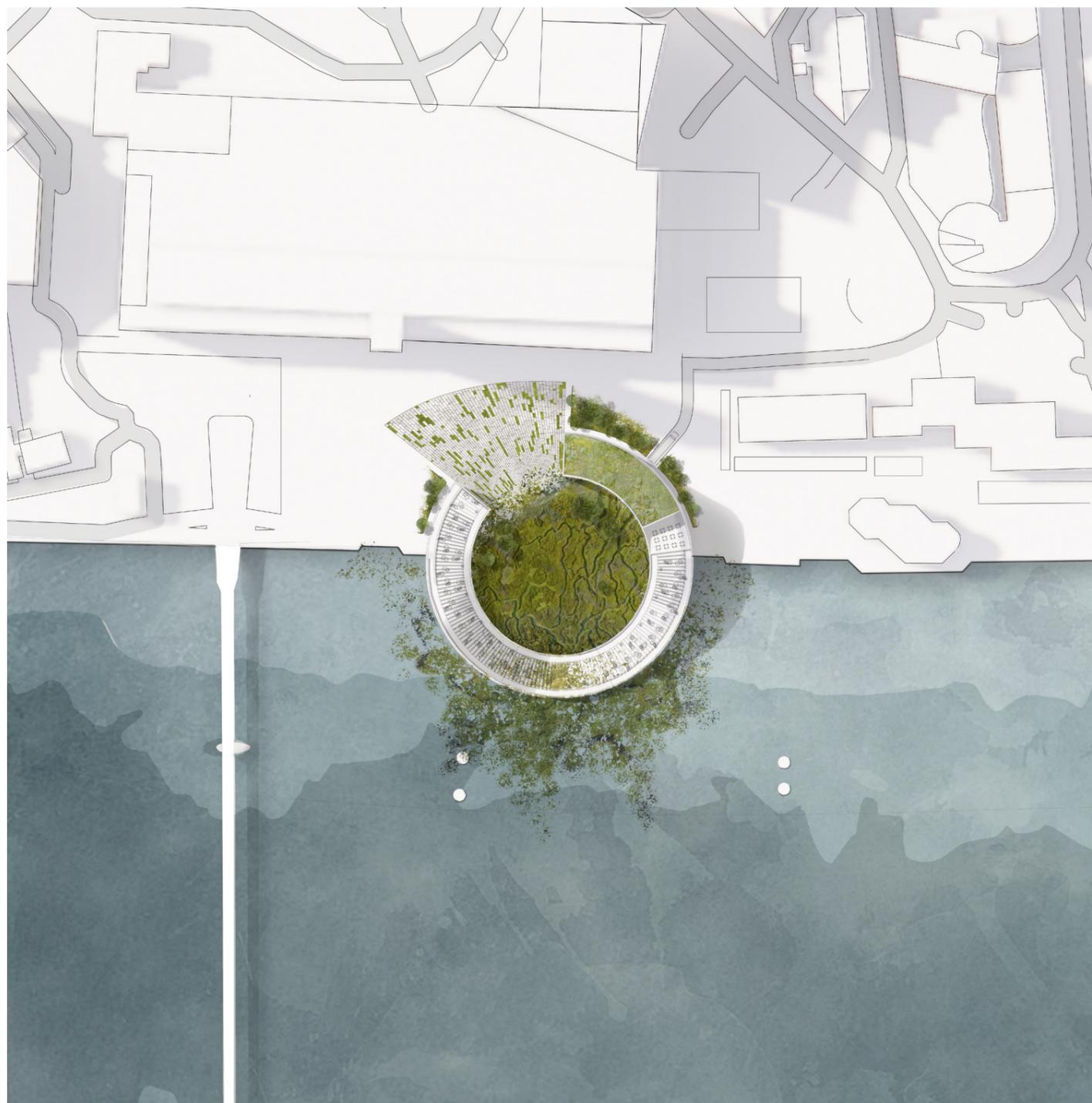
Exploded axonometric *Program*



Exploded axonometric
routing

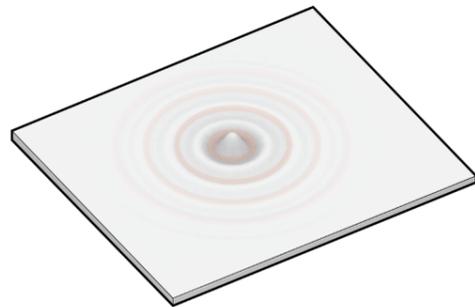


Landscape siteplan



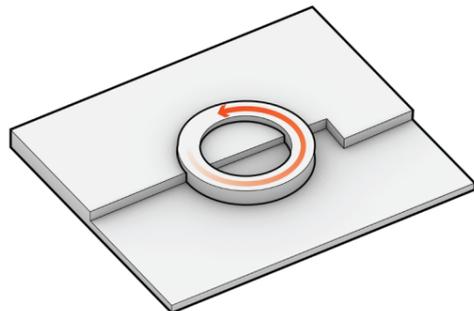
Landscape concept

Conceptual diagram



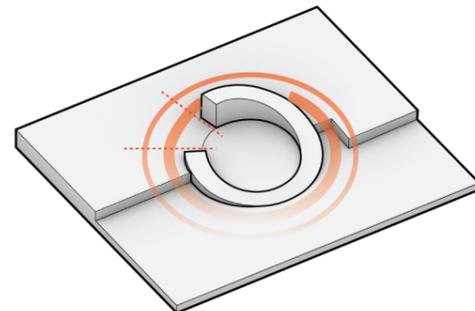
RIPPLE

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



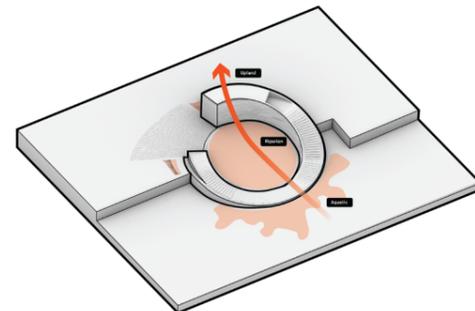
RIPPLE FORMING BUILDING

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

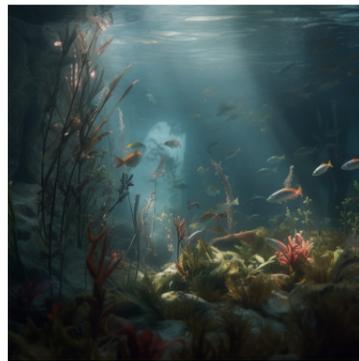


RIPARIAN INFORMING LANDSCAPE

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

Landscape

Character areas



aquatic zone

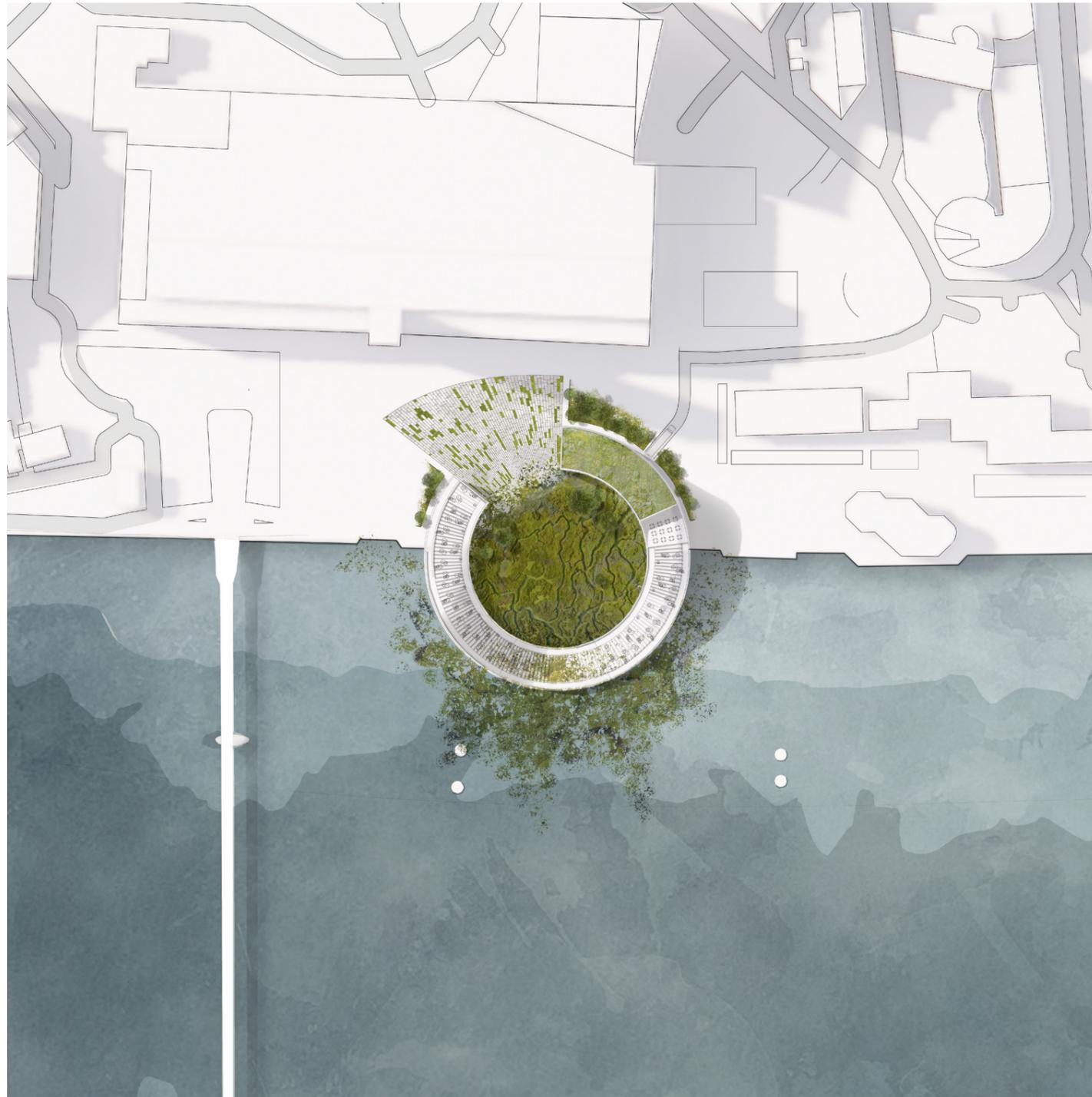
riparian zone

upland zone

entrance plaza

riparian rooftop

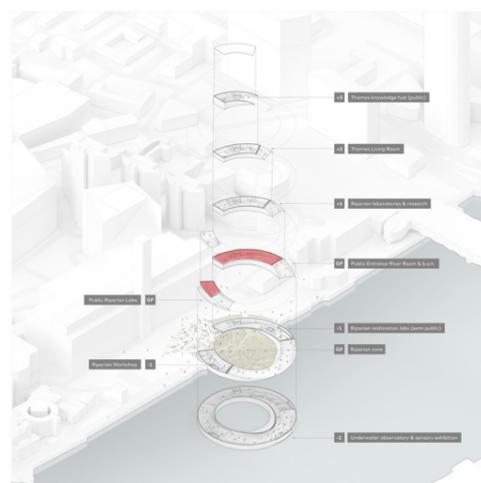
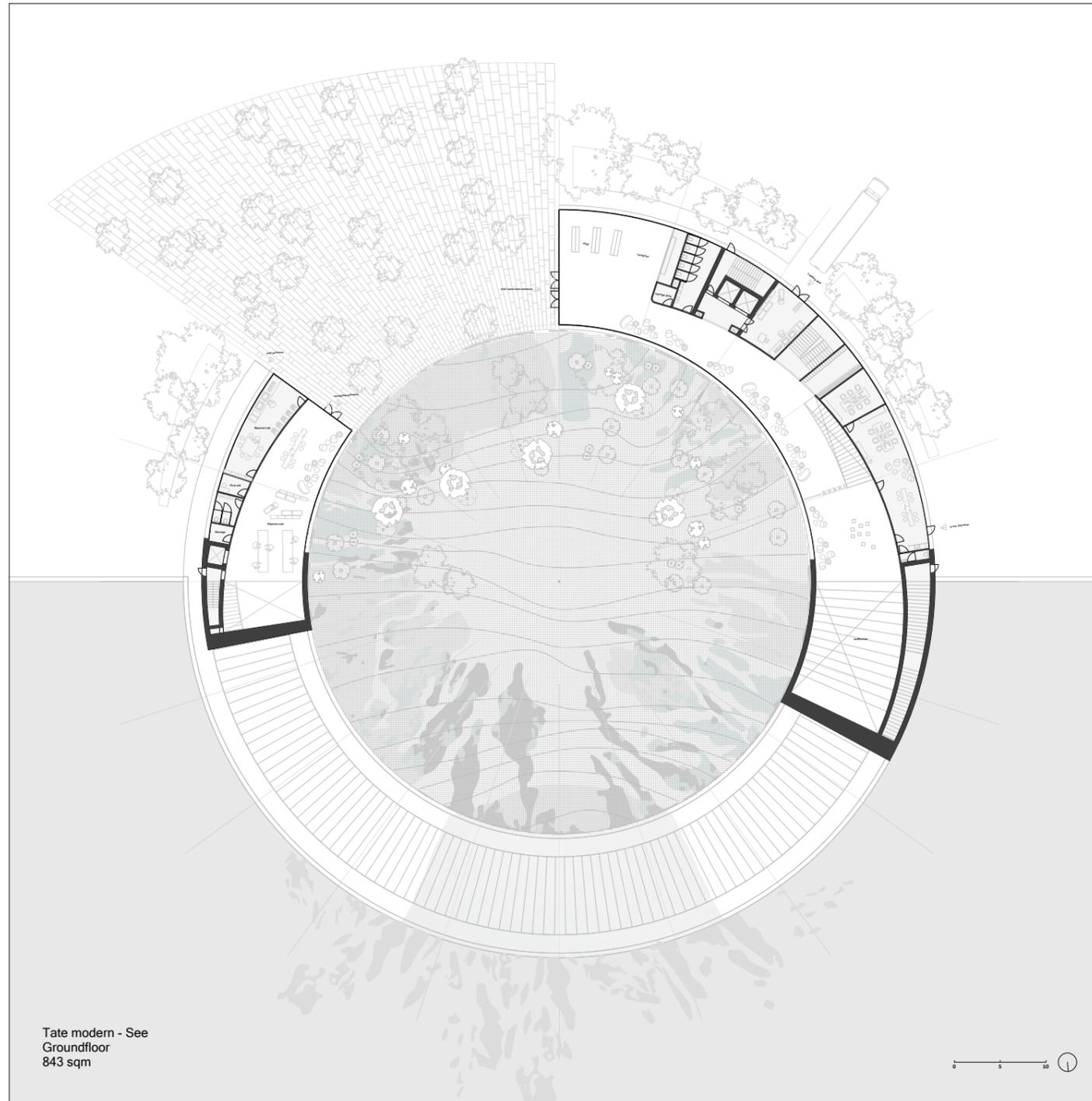
Landscape siteplan





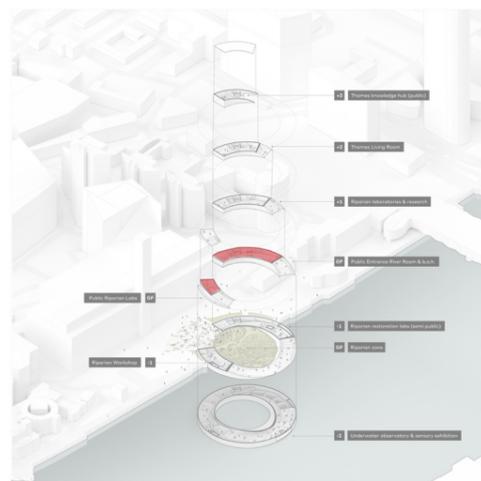
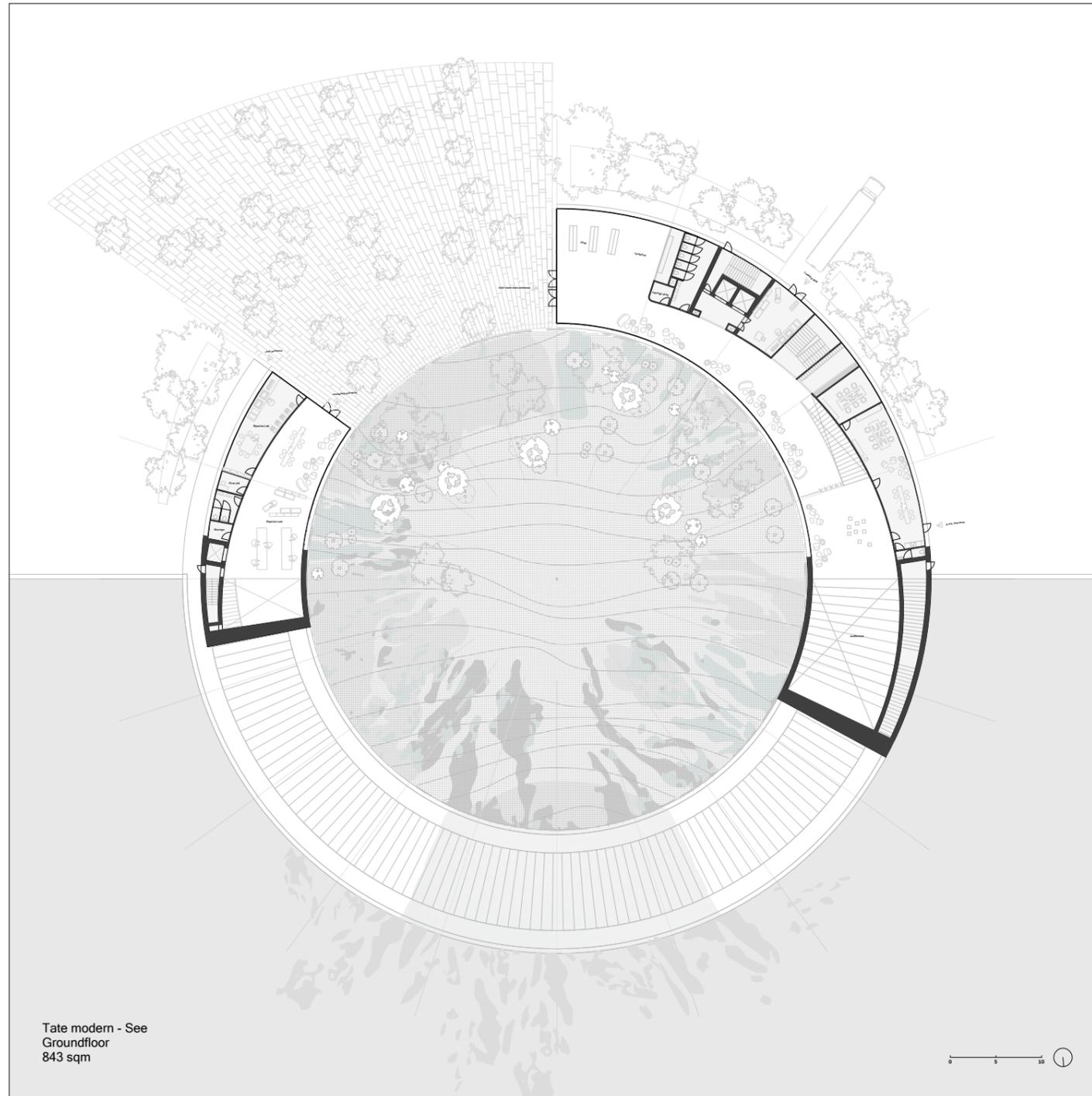


Plans 1:200
Groundfloor



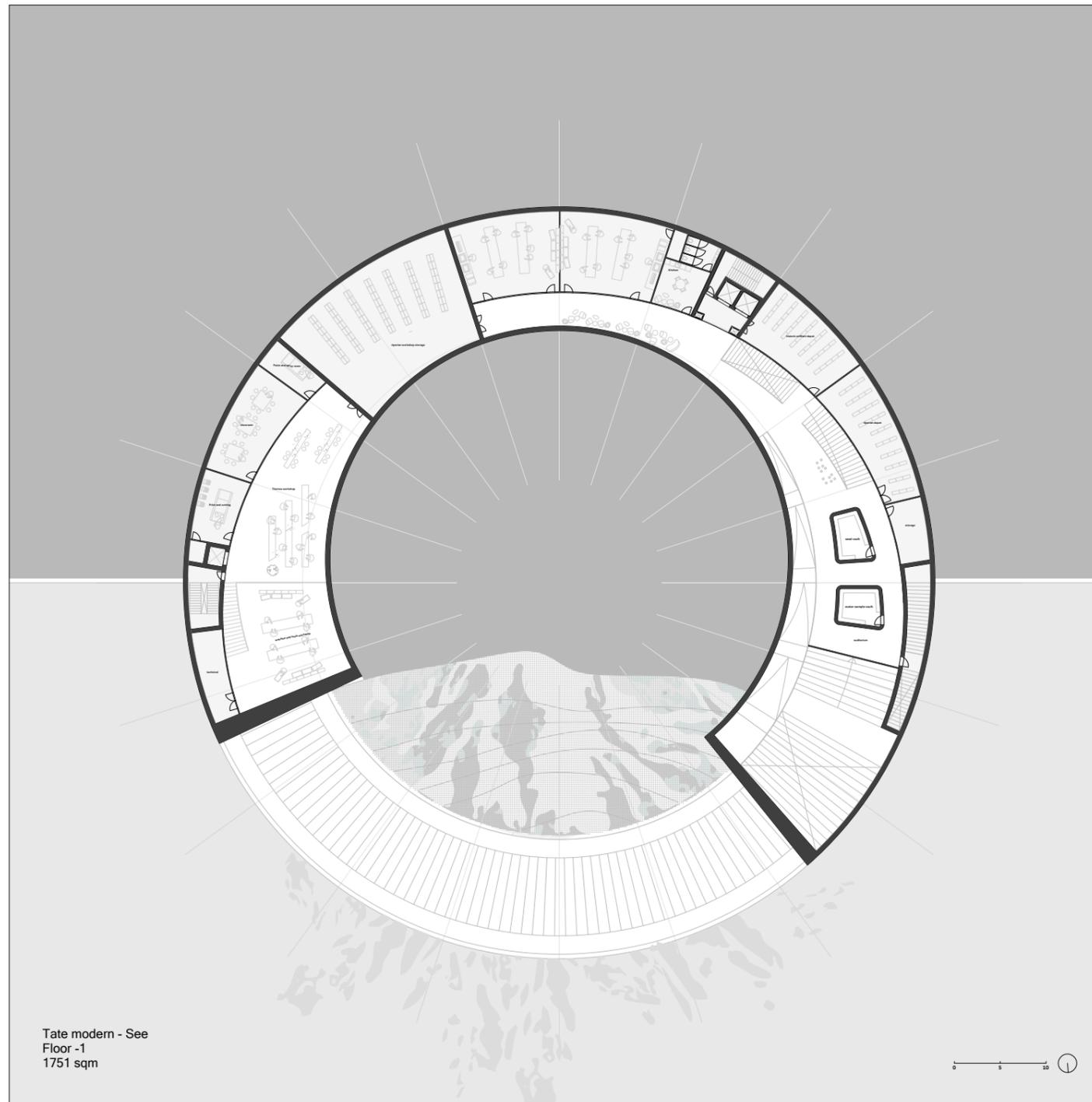
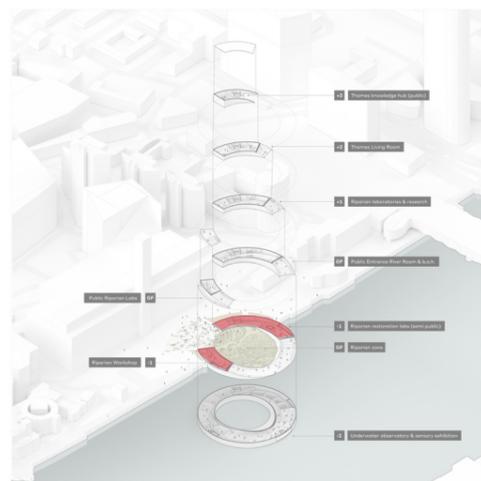


Plans 1:200
Groundfloor



Plans 1:200

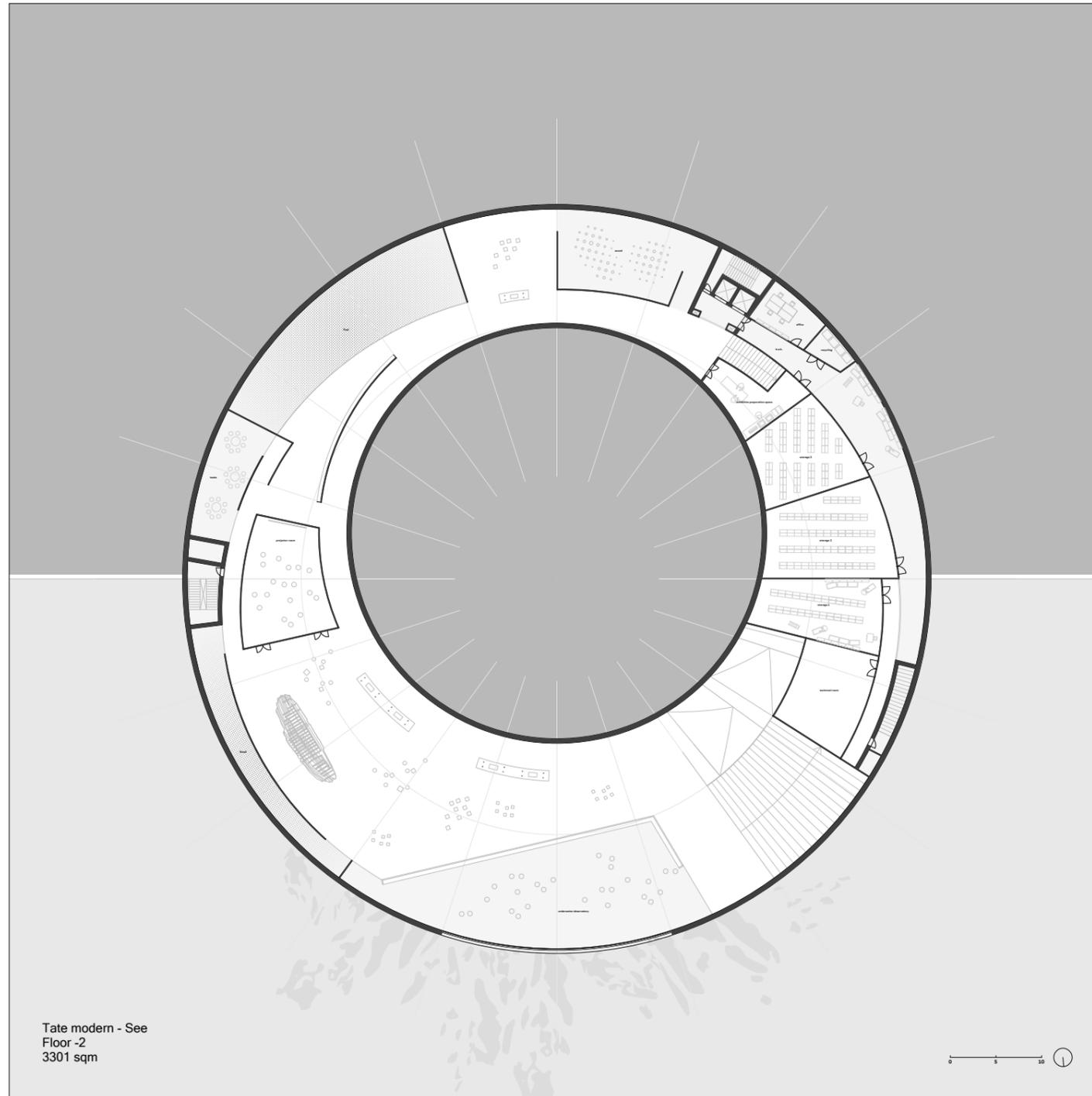
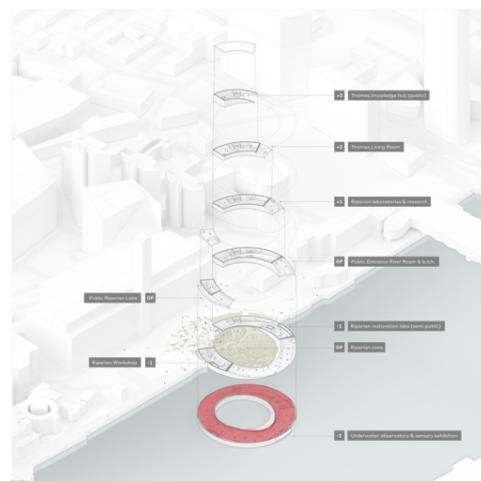
Level -1



Tate modern - See
Floor -1
1751 sqm

Plans 1:200

Level -2

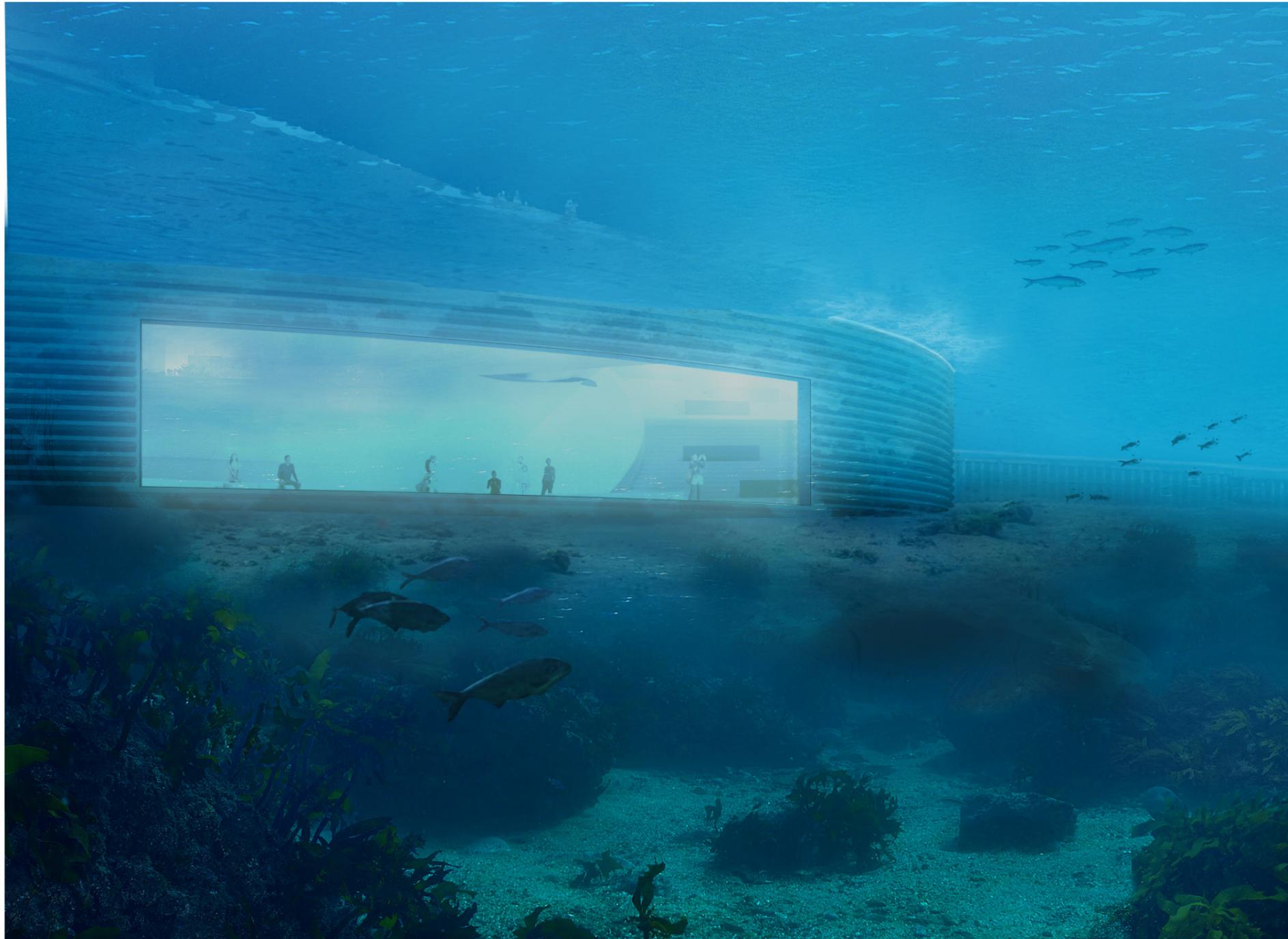


Tate modern - See
Floor -2
3301 sqm



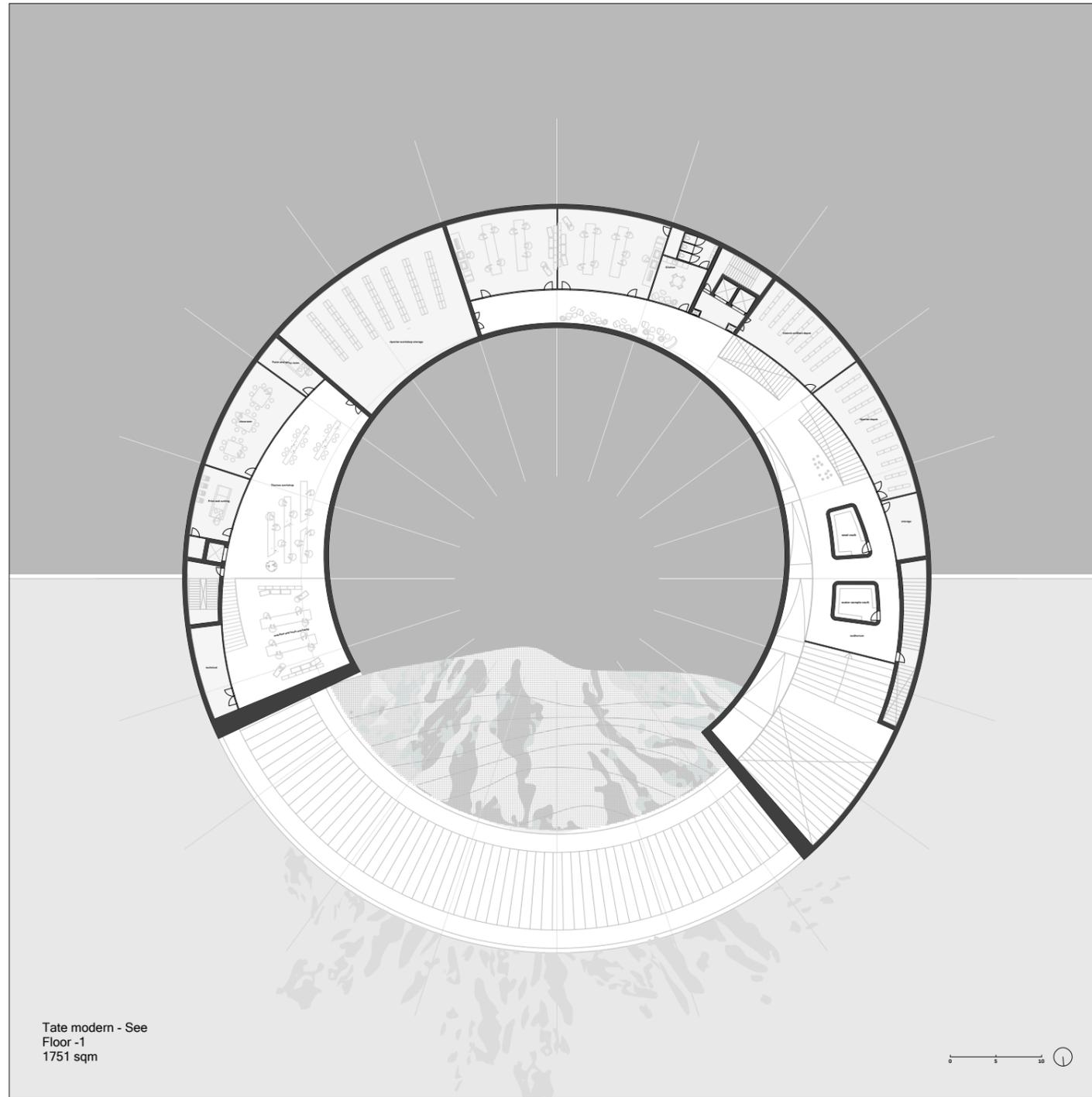
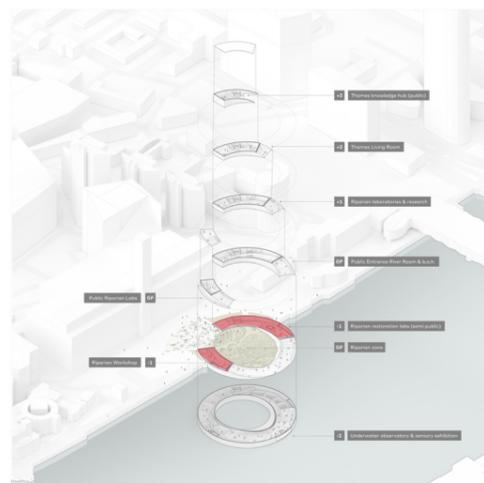






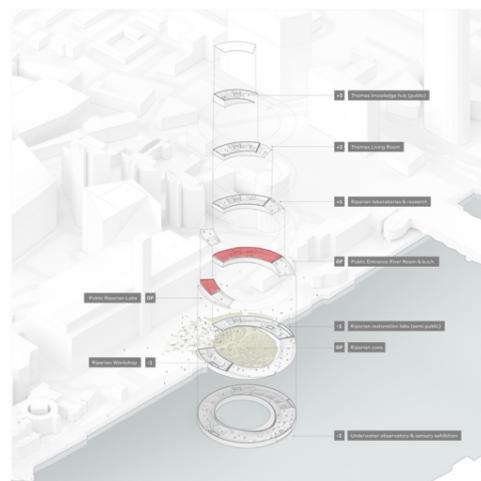
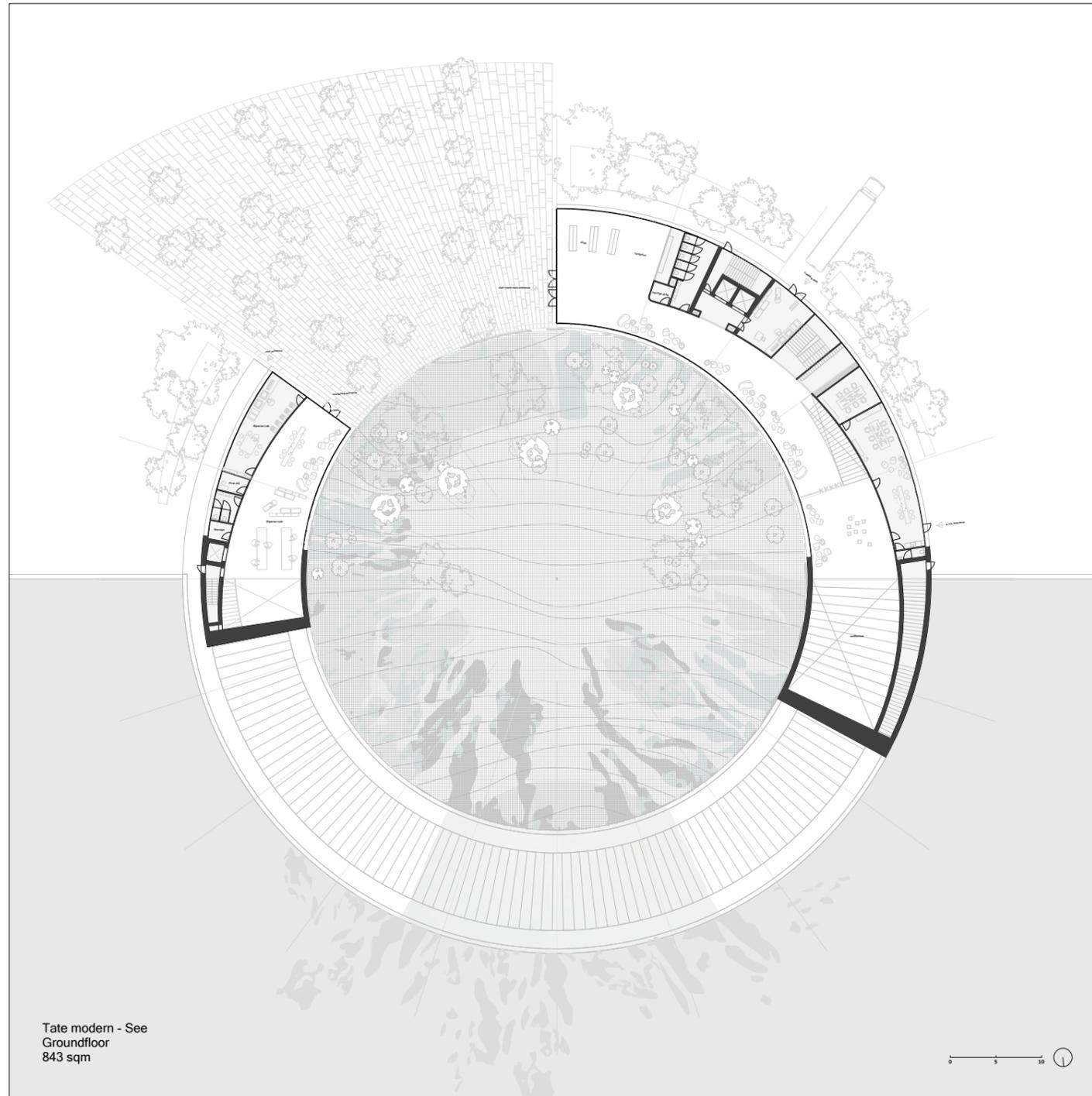
Plans 1:200

Level -1



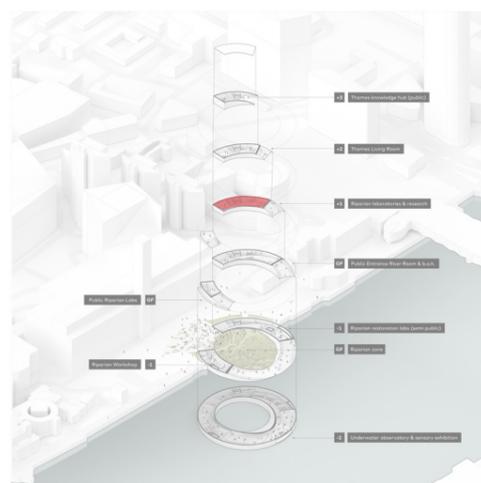
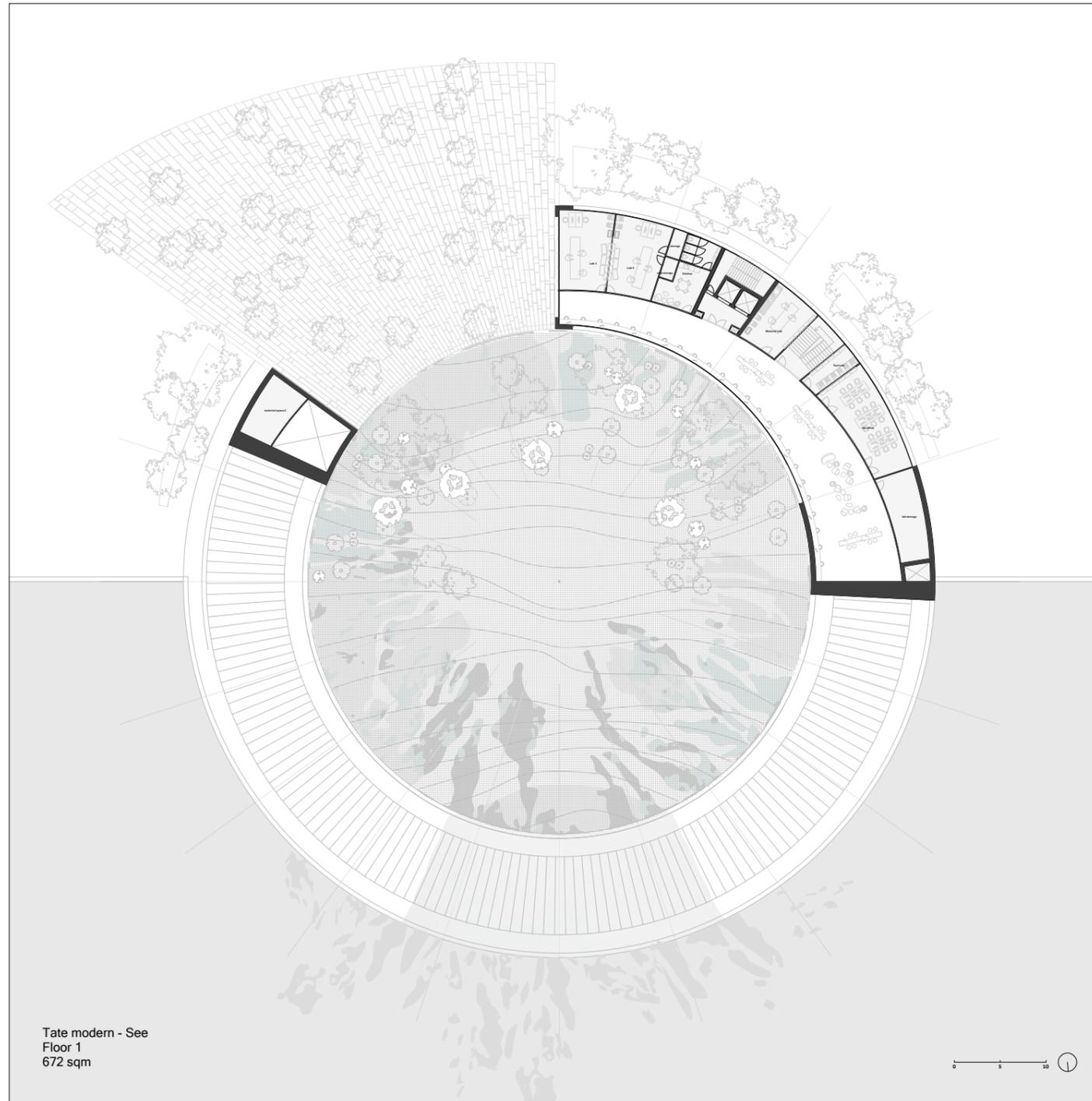
Tate modern - See
Floor -1
1751 sqm

Plans 1:200
Groundfloor



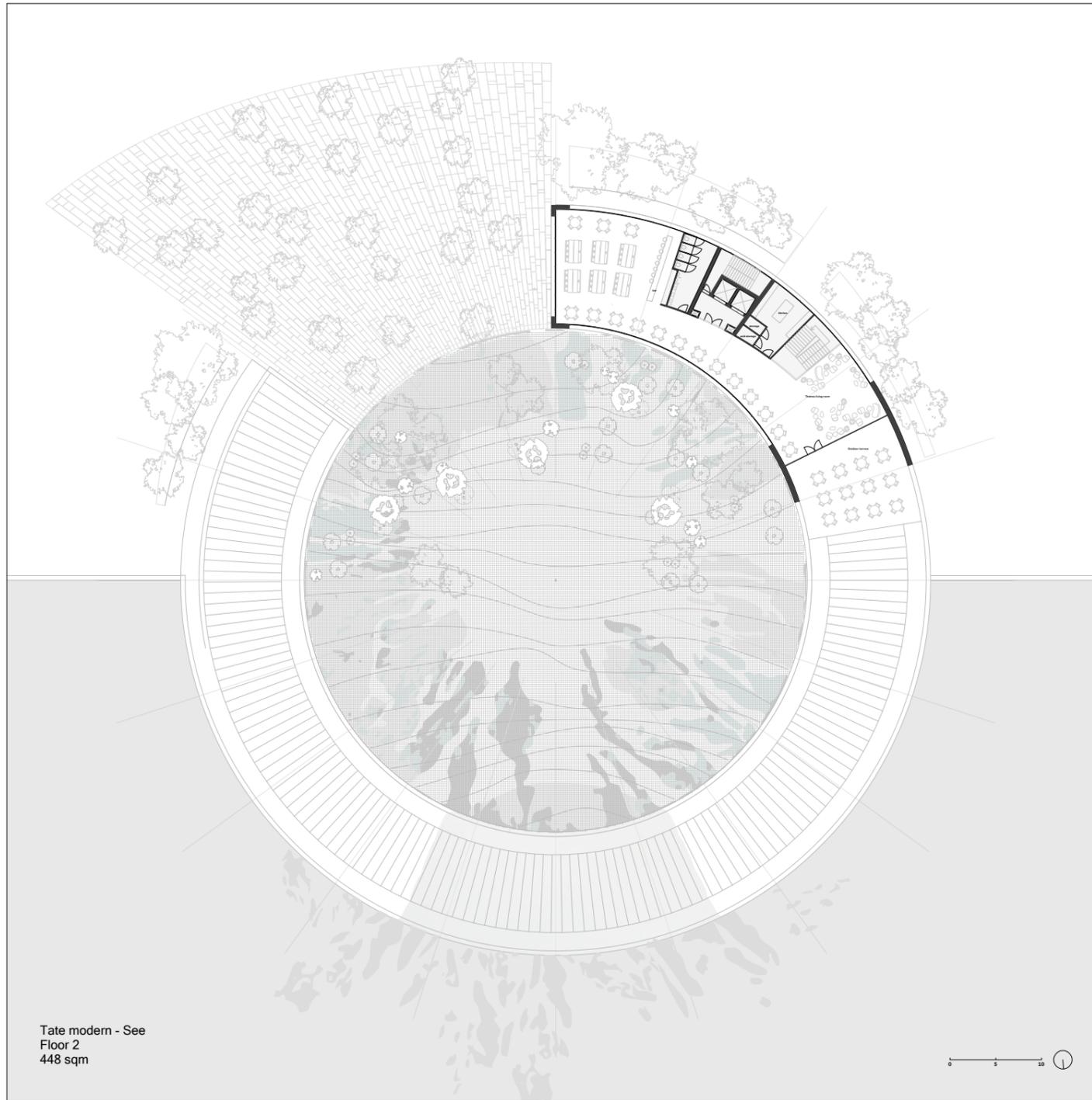
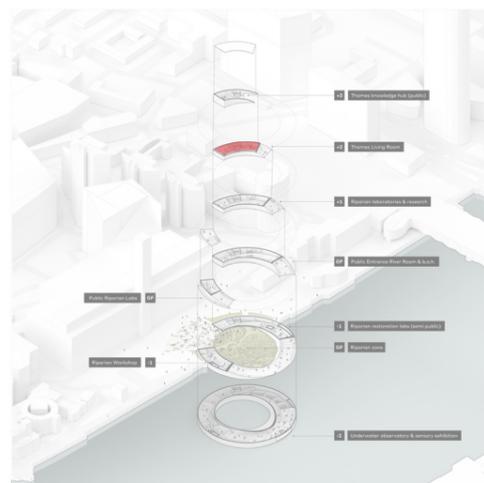
Plans 1:200

Level 1



Plans 1:200

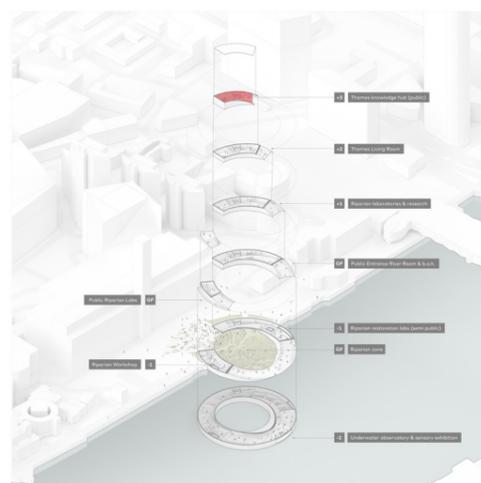
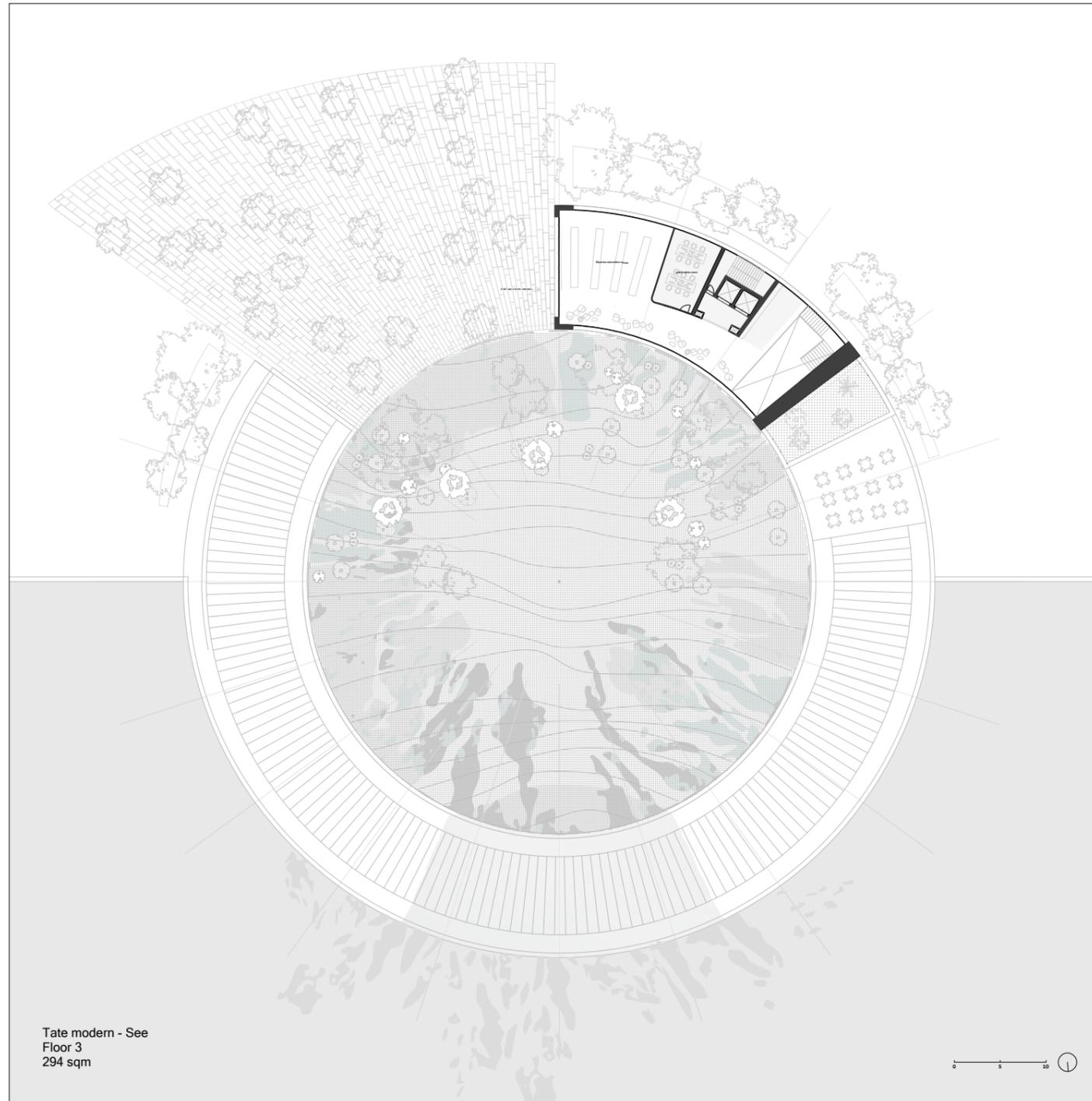
Level 2





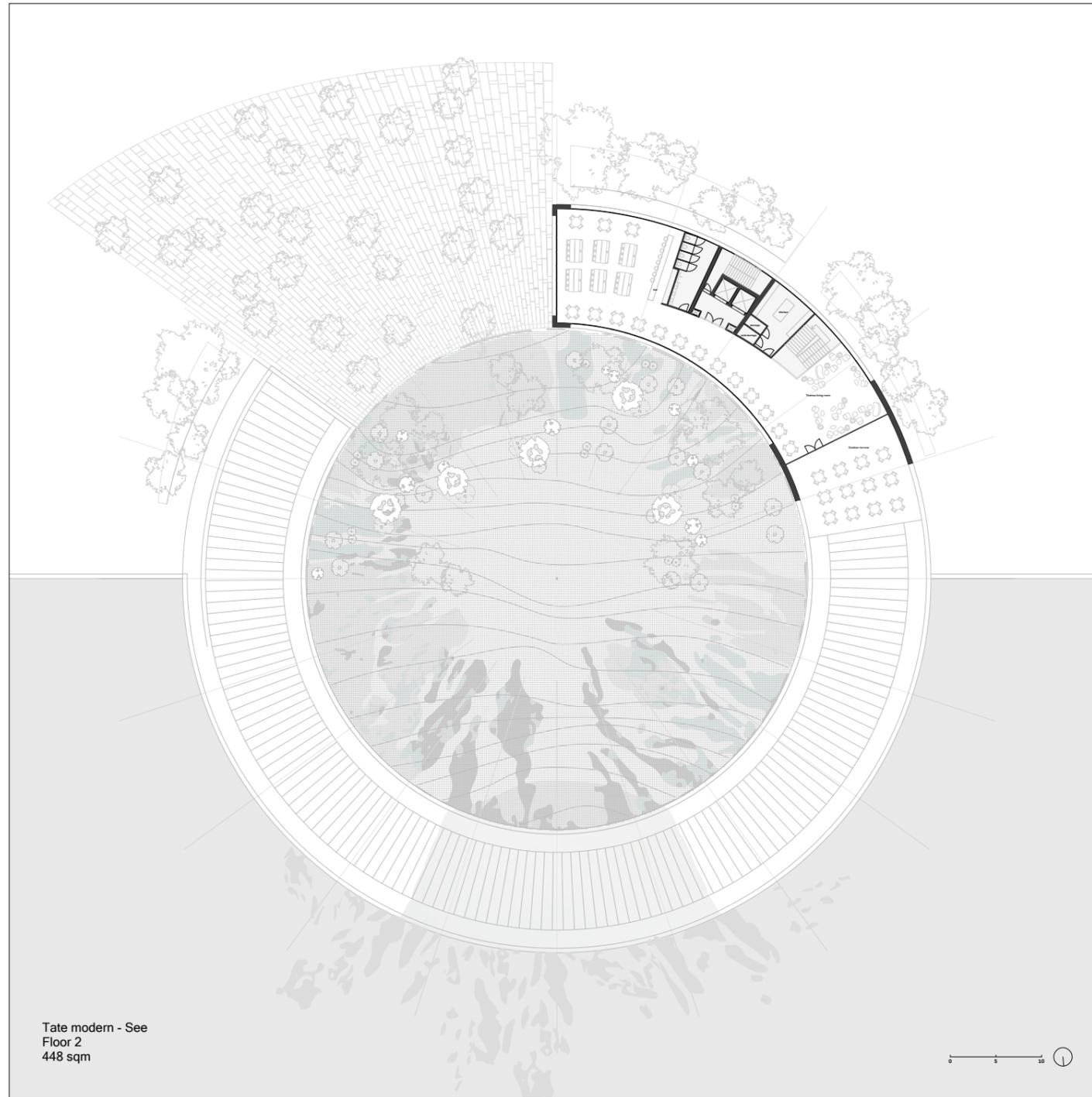
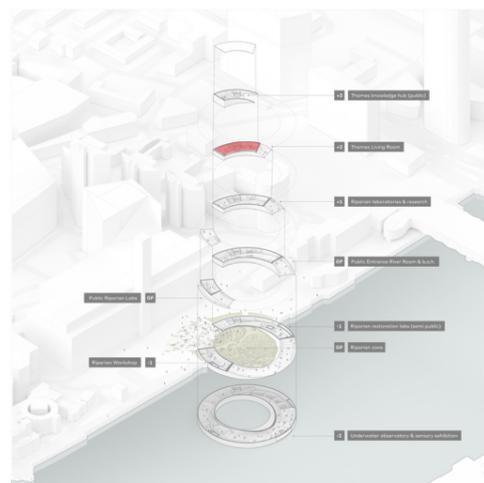
Plans 1:200

Level 3



Plans 1:200

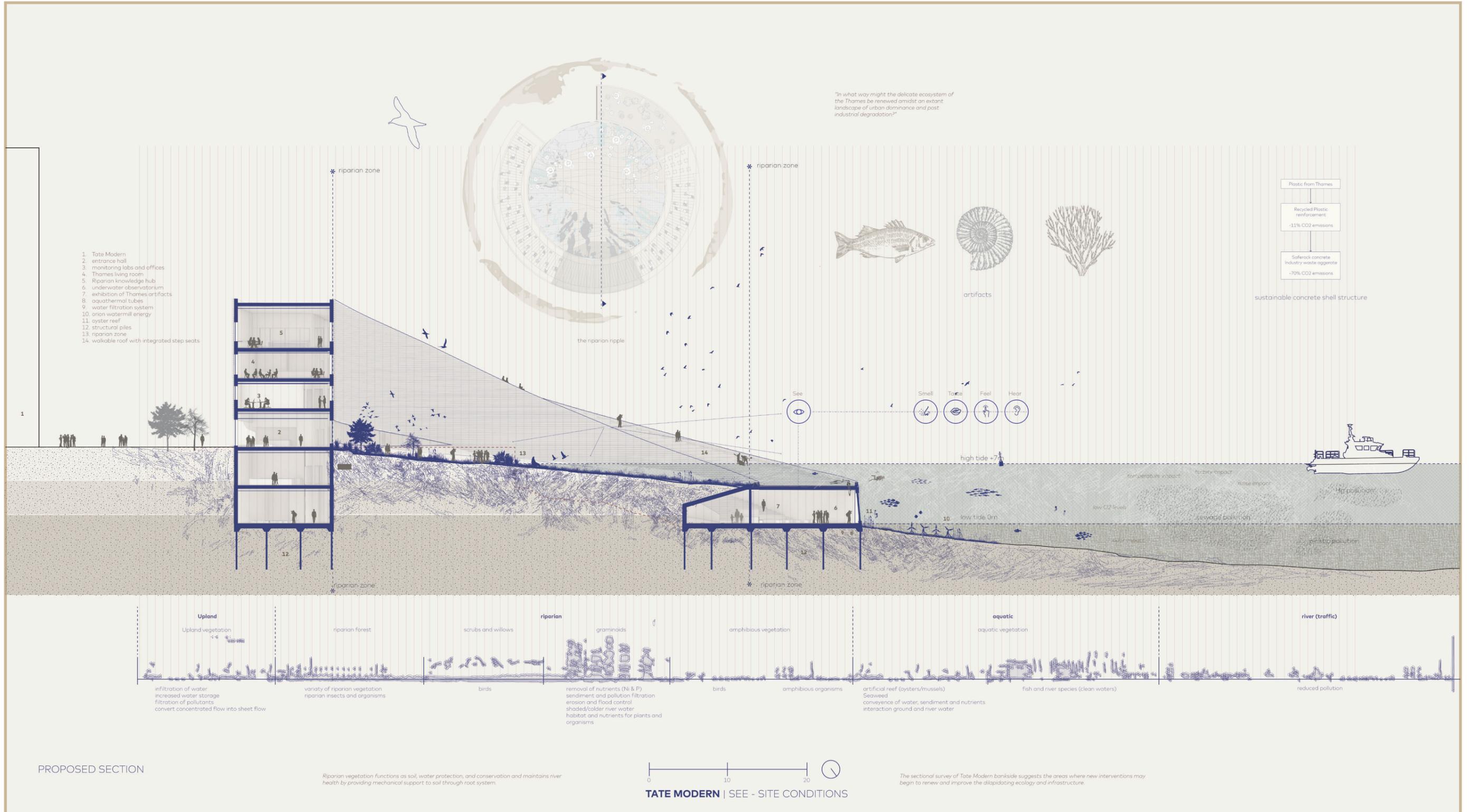
Level 2



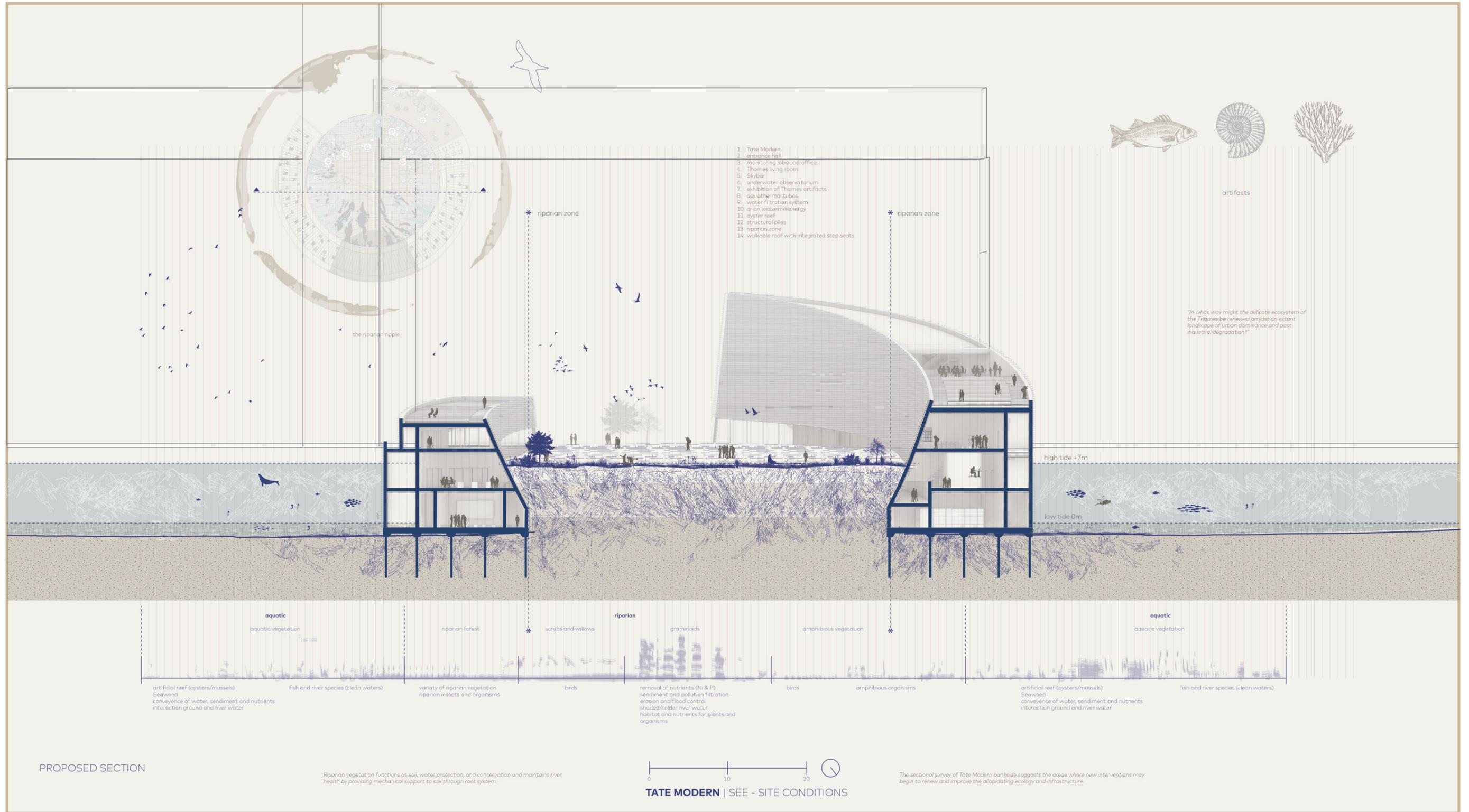




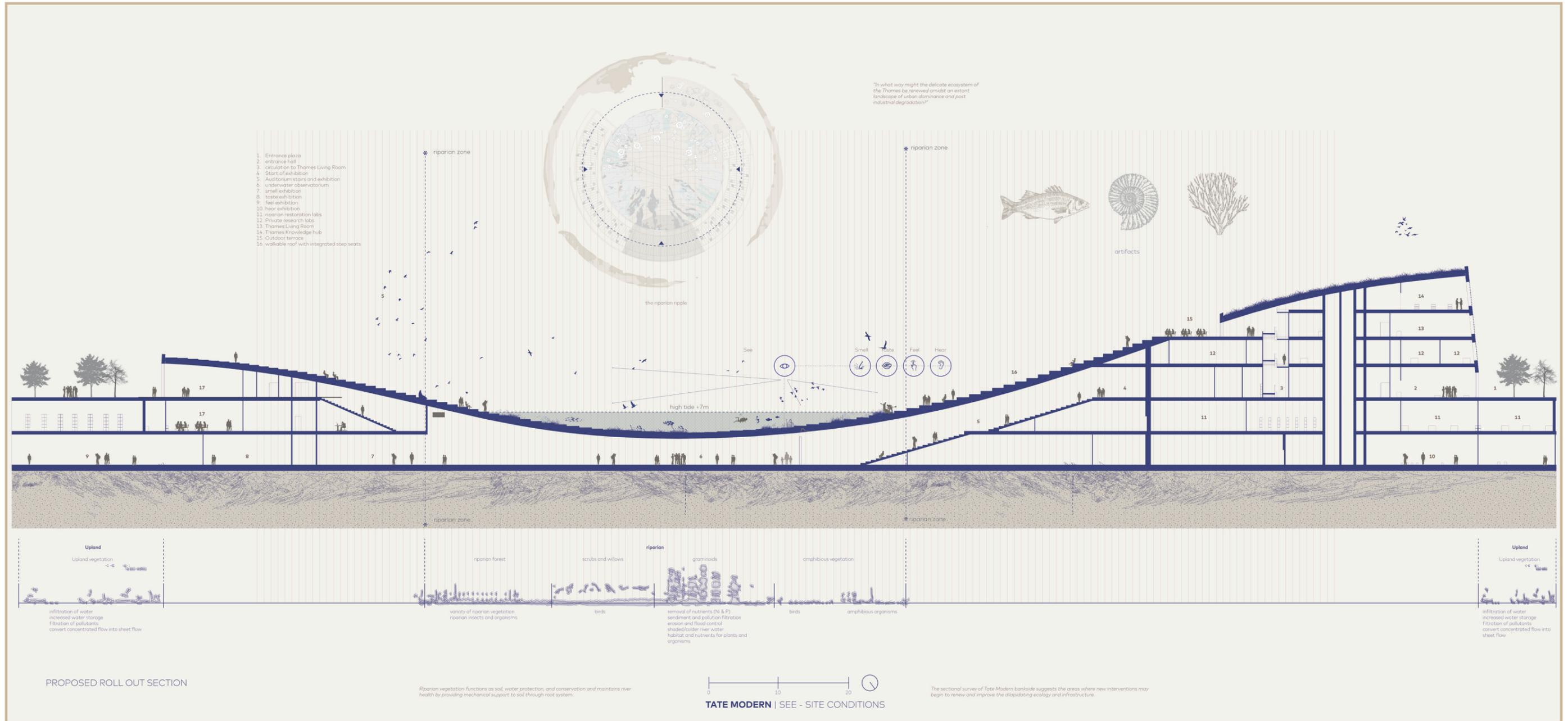
Section 1:200 | Longitudinal



Section 1:200 | Cross

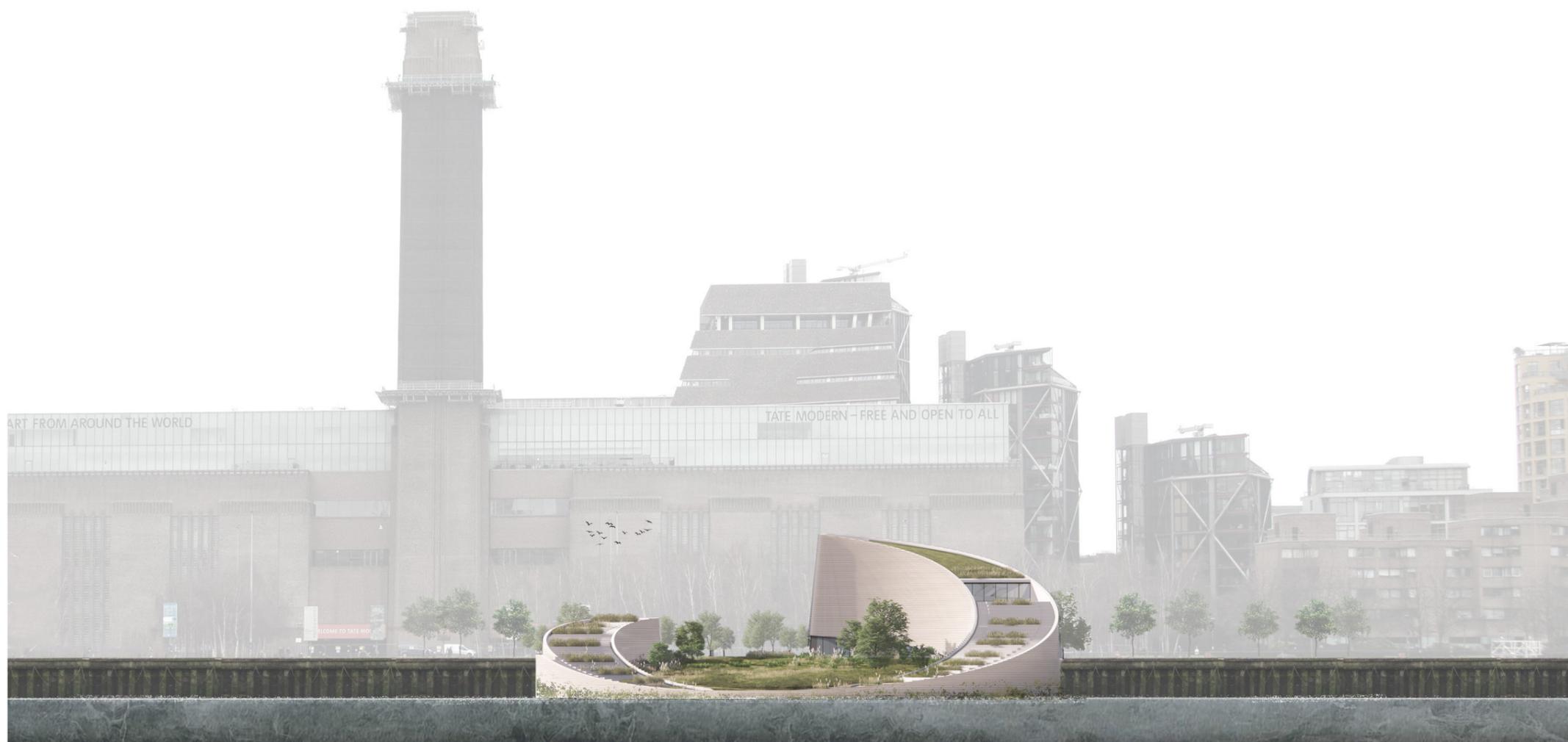


Section 1:200 | Rollout

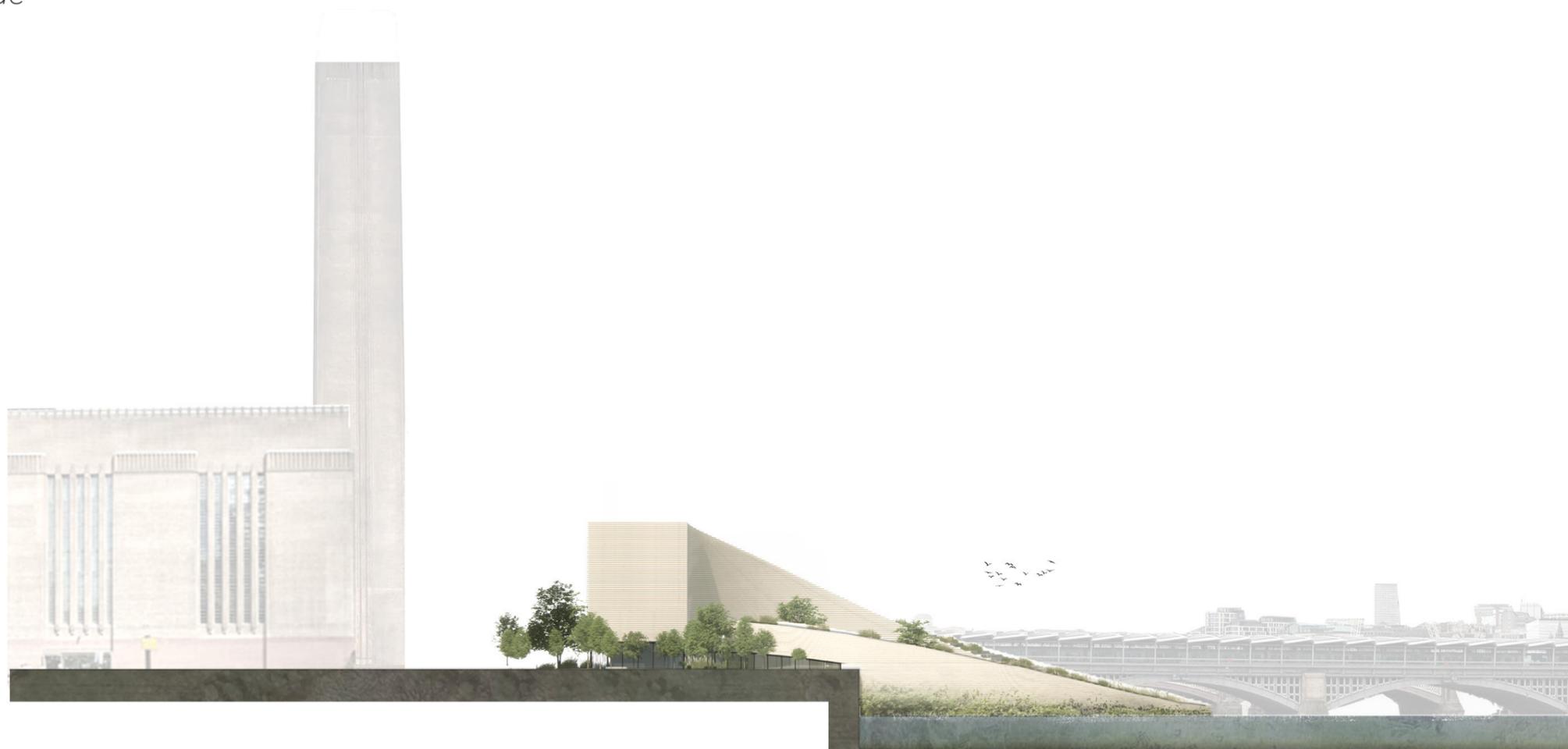


Elevation

North facade



Elevation
East facade



Elevation

West facade



BES concept: In harmony with the Thames



energy

- **Oryon watermill**
-> energy from strong water current, local energy opportunity
- **Aquathermal energy**
-> heating and cooling with stable water temperatures
- **Re-use of warm air/water**
-> re-use of warmth in building



water system

- **Natural purification system**
-> natural filtration of water to use in building
- **Aquathermal energy**
-> heating and cooling with stable water temperatures
- **Collect, retain and re-use rainwater**
-> reduce stormwater impact, delay water runoff, and re-use for irrigation/toilets



construction

- **Concrete shell, timber floors**
-> hybrid waterproof, flexible and mass construction
- **Sustainable concrete**
-> Saferock concrete (industry waste aggregate) with reinforced recycled plastic
- **Amphibious structure**
-> Strong, durable to fluid water exposure



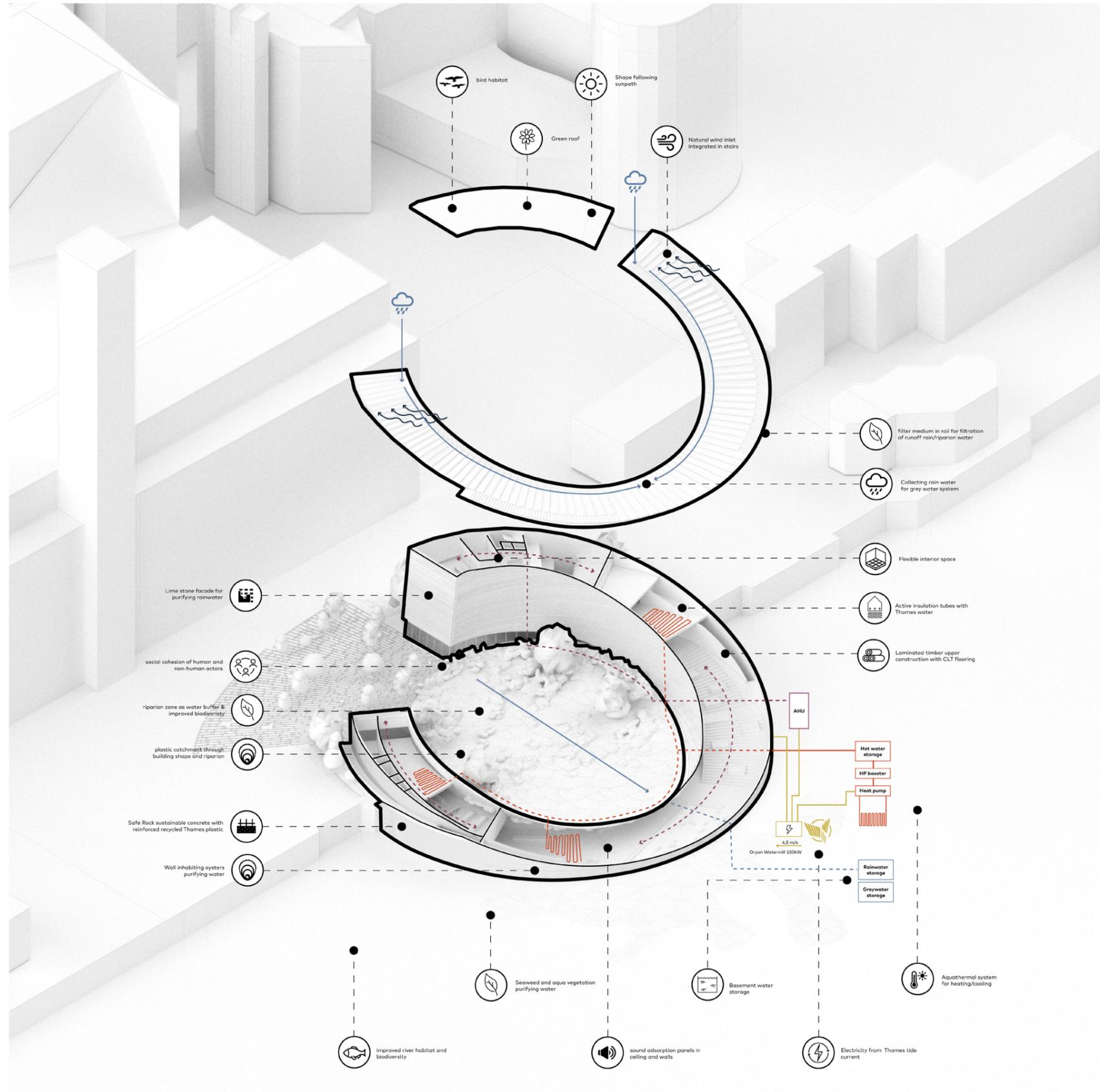
materiality

- **Riparian materiality**
-> locally sourced river and urban material
- **Seagrass insulation**
-> locally sourced material
- **Sustainable concrete**
-> Saferock concrete (industry waste aggregate) with reinforced recycled plastic



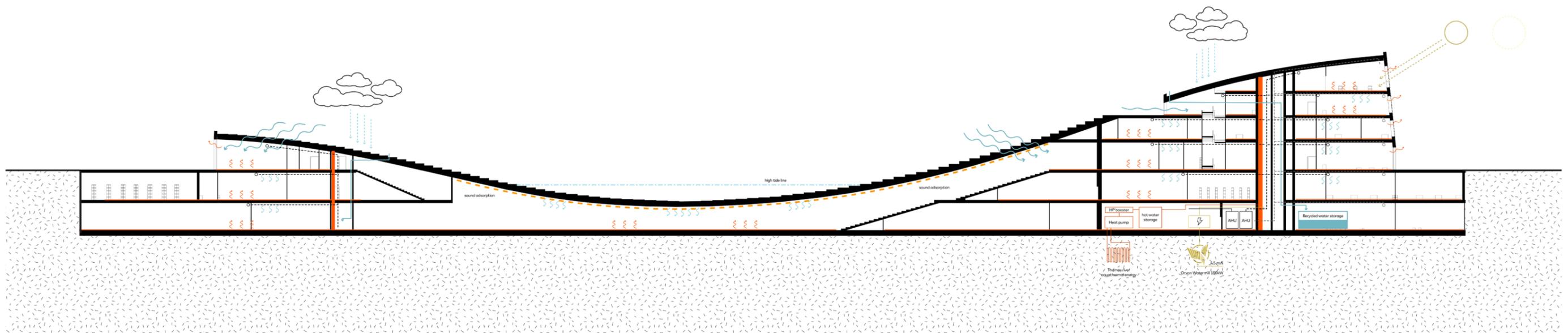
ecology

- **Low impact**
-> Keep and reintegrate excavated ground at local intervention site & built on pillars
- **Oyster/mussle colonies**
-> purifying water, attracting fish and local food source restaurant
- **Create urban riparian spaces**
-> allowing local biodiversity to re-enter, thrive and inhabit space

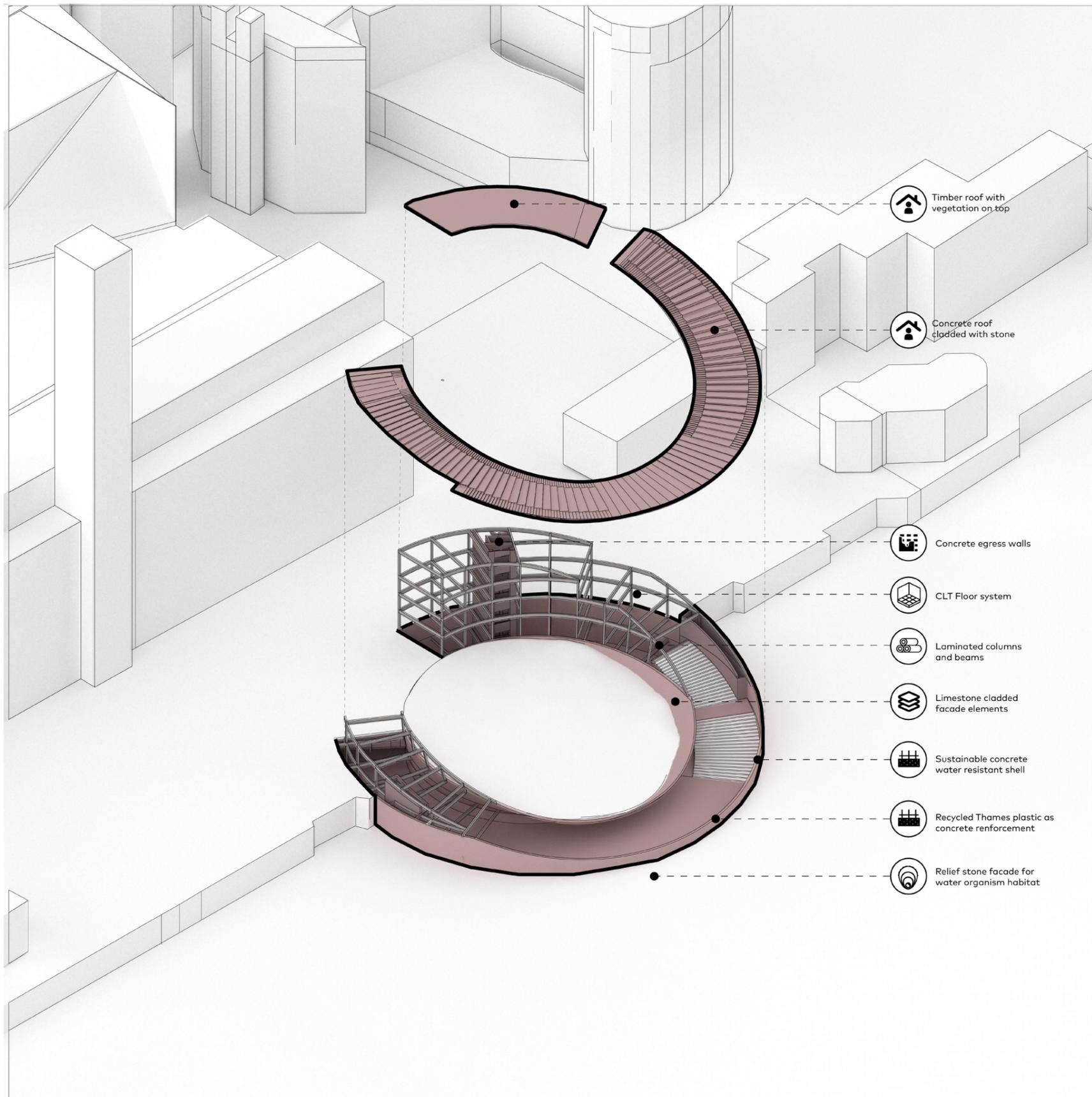


CLIMATE DESIGN

in harmony with the Thames



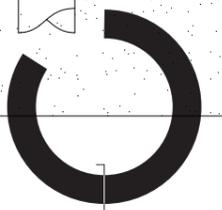
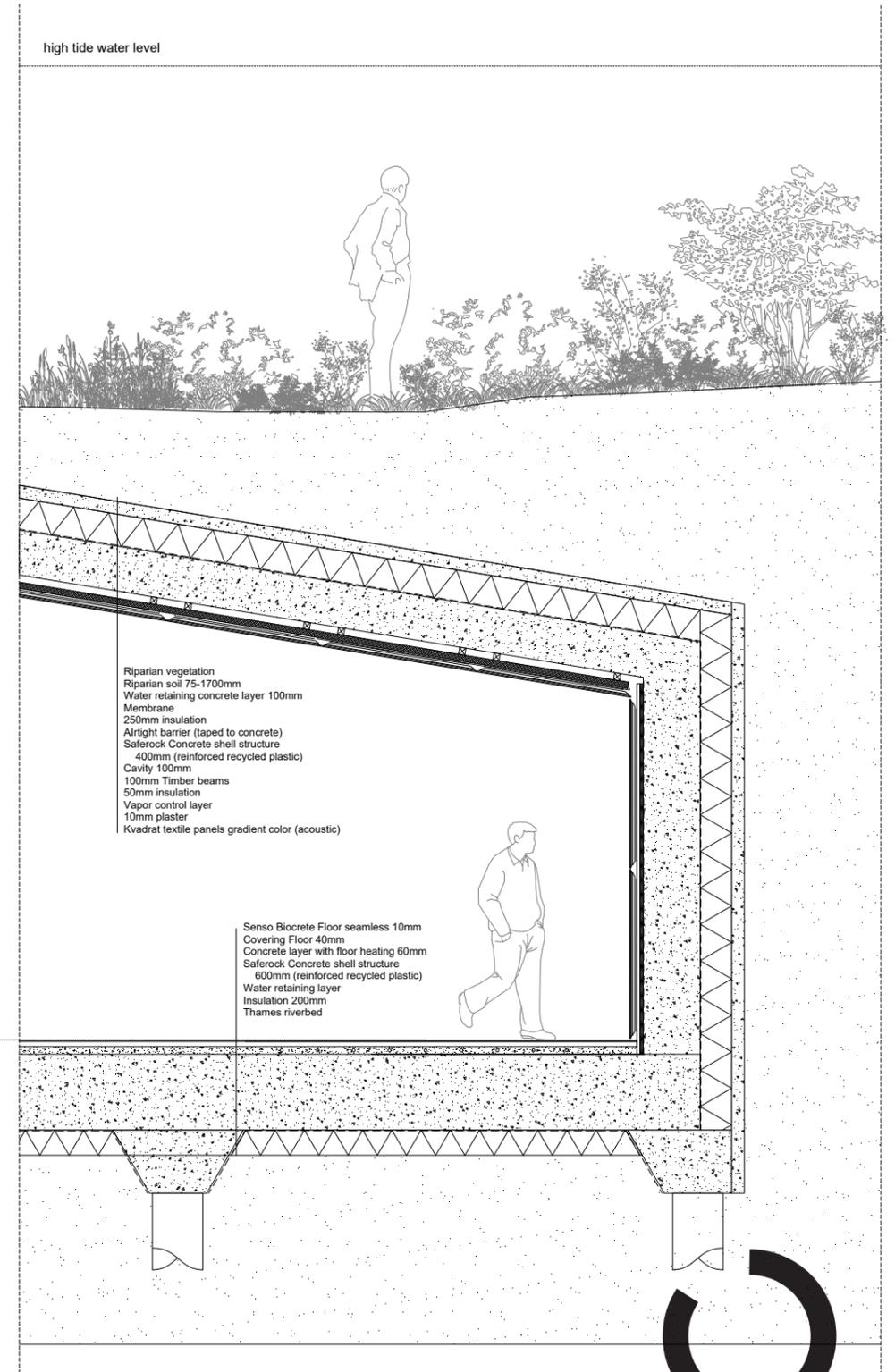
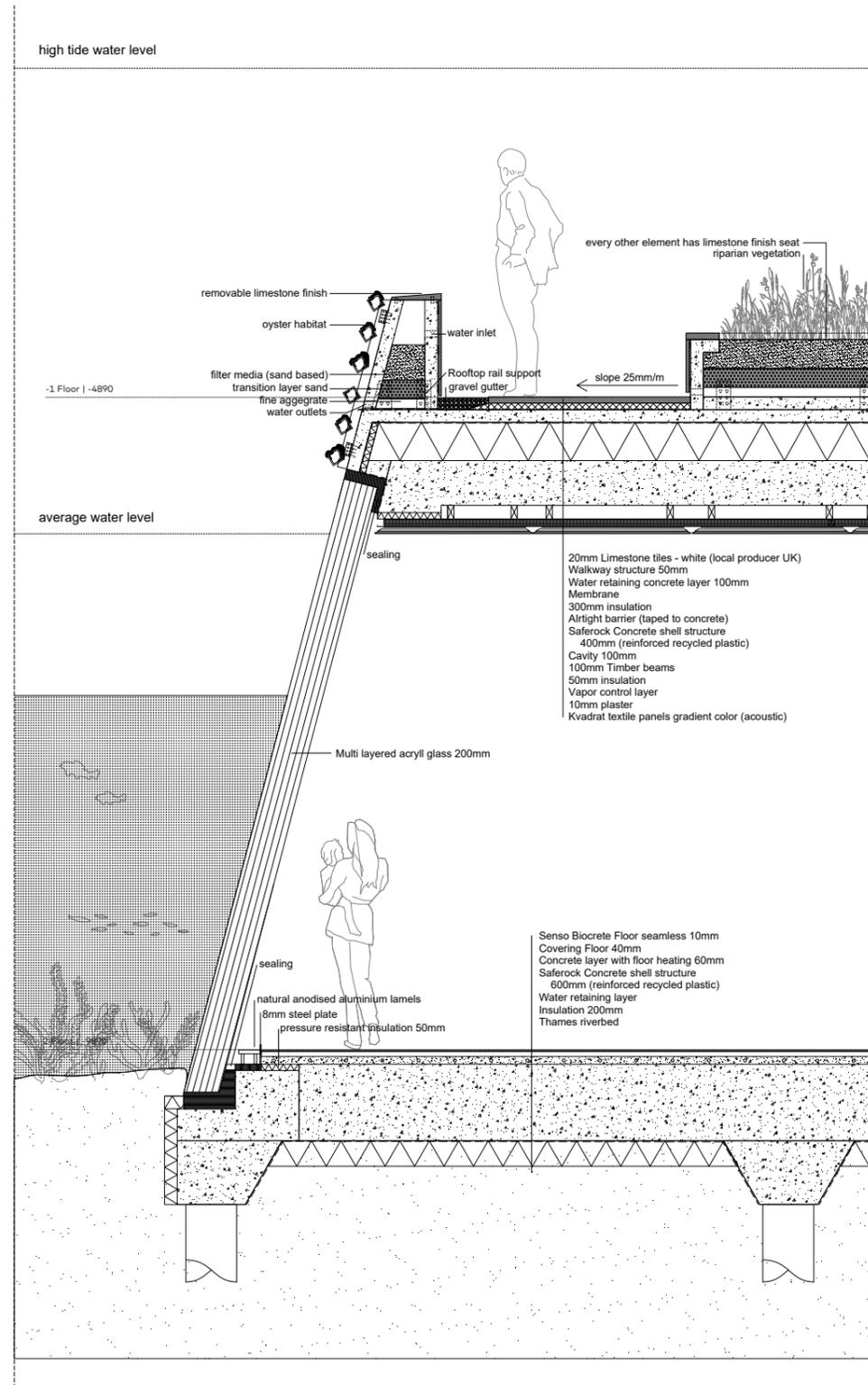
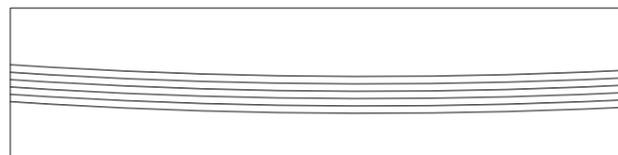
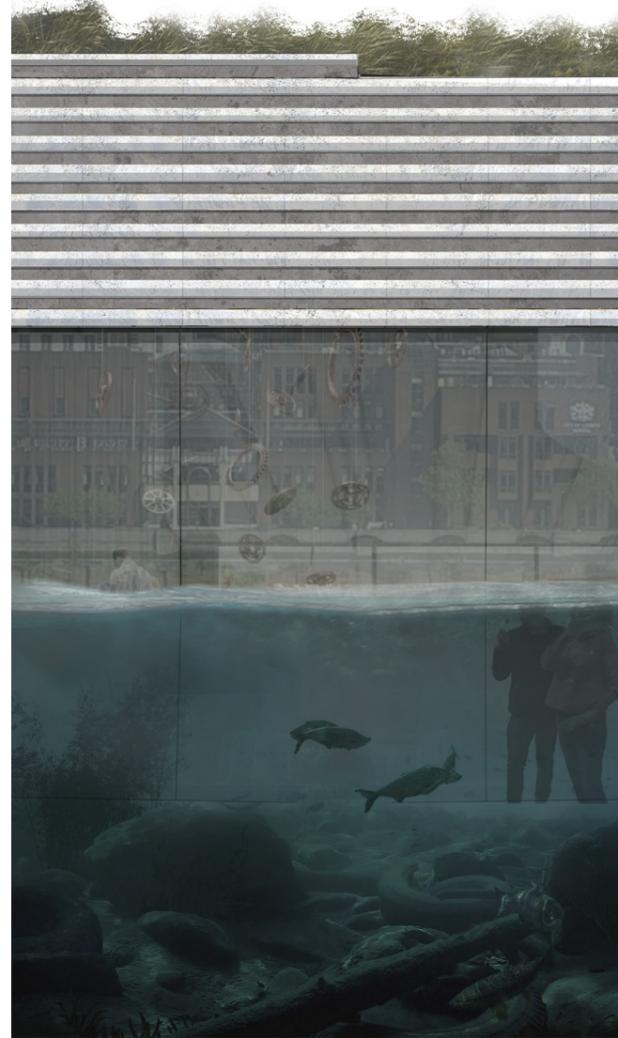
CLIMATE AND VENTILATION | ROLLED OUT SECTION



SYMBIOTIC STRUCTURE

Section 1:20

Underwater observatory | Level -2





KOEN STAM - SYMBIOTIC THAMES



KOEN STAM - SYMBIOTIC THAMES

06/09/2022 1.45 pm - 06/07/2023 11.30 pm