

PILGRIMAGE TO TRANQUILLITY:

An Architectural Journey Toward a Centre for Calmness in Rotterdam South



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AR3RE100 | Resilient Rotterdam Graduation Studio

TU Delft 2024/25

CONTENT

●	MOTIVATION
○	STATEMENT
○	MAIN QUESTION
○	URBAN STRESSORS AND RELXANTS
○	IN THE CONTEXT OF ROTTERDAM SOUTH
○	WHAT ROLE DOES ARCHITECTURE PLAY
○	AREA ANALYSIS
○	USER AND PROGRAMME
○	THE CENTRE AS ORGANISM
○	EXPERIENCE OF CALMNESS
○	THE END



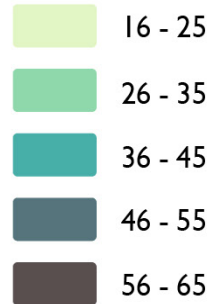
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Stress

Landgeist.com
 @Land_geist
 @Landgeist

% of people that
 experienced stress
 during a lot of the day
 on the day previous
 to the survey



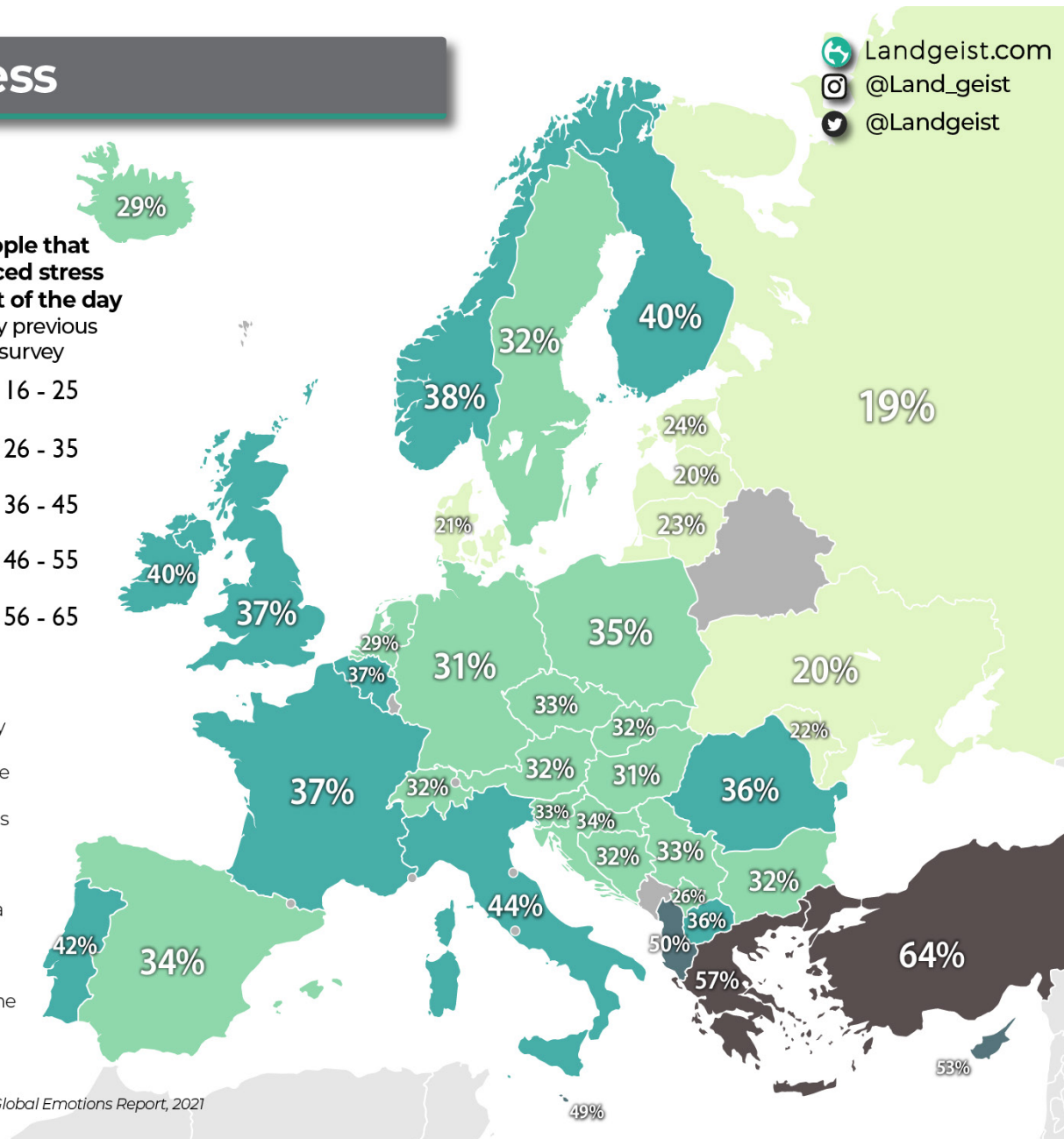
Highest

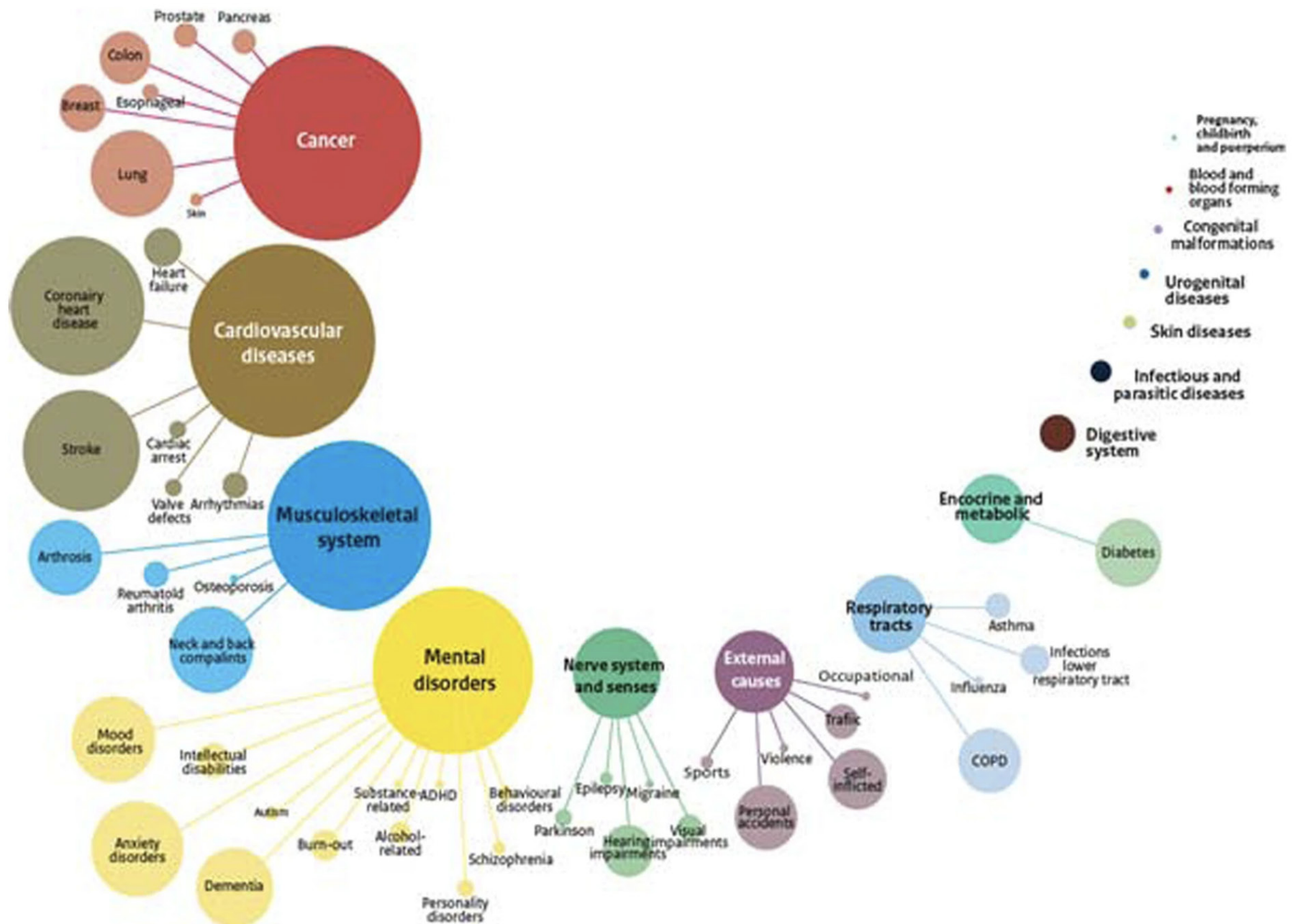


Lowest

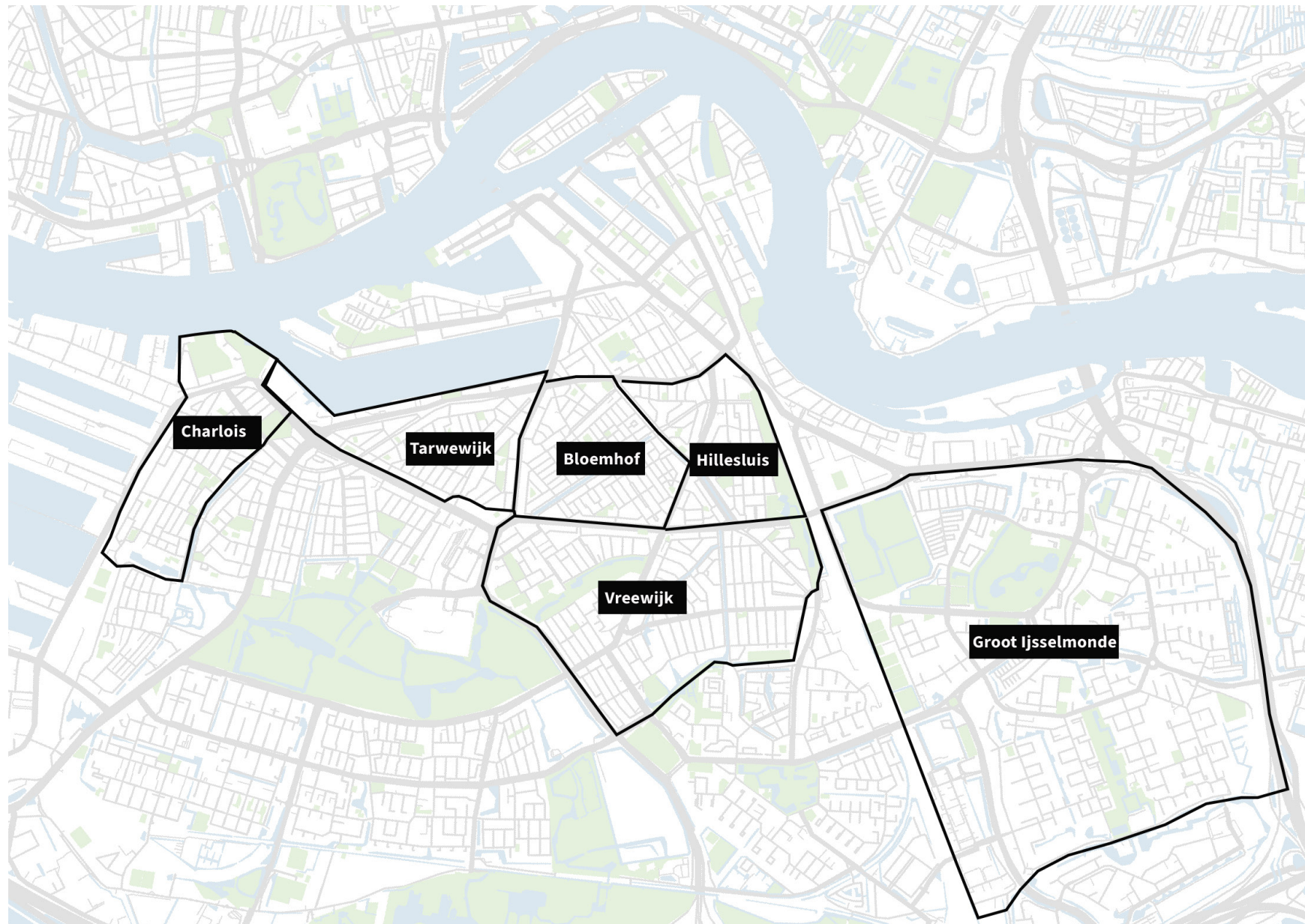


Source: Gallup Global Emotions Report, 2021





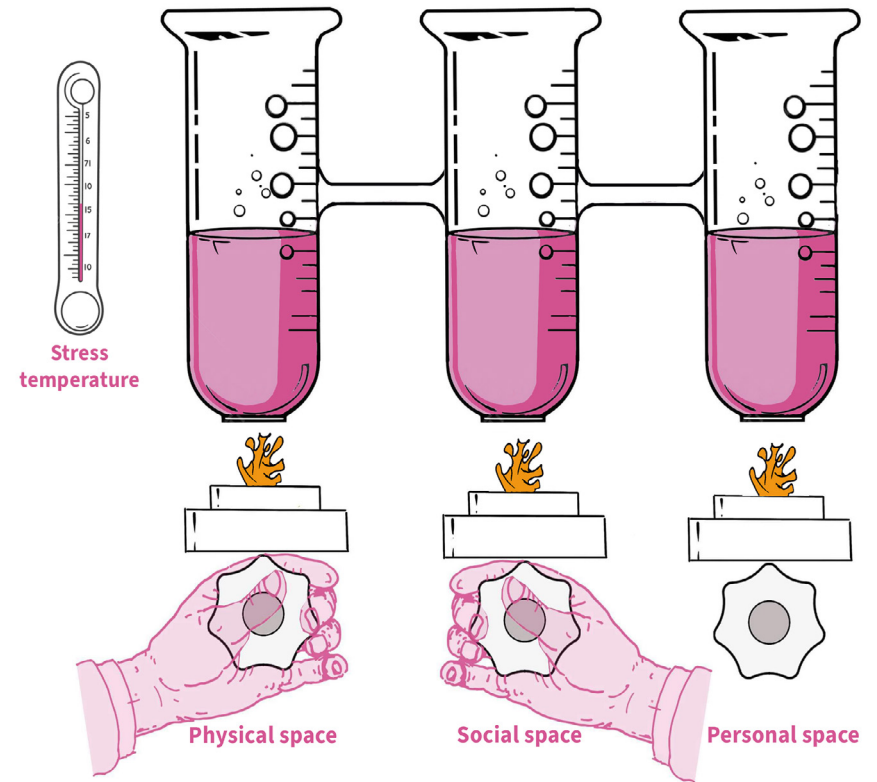
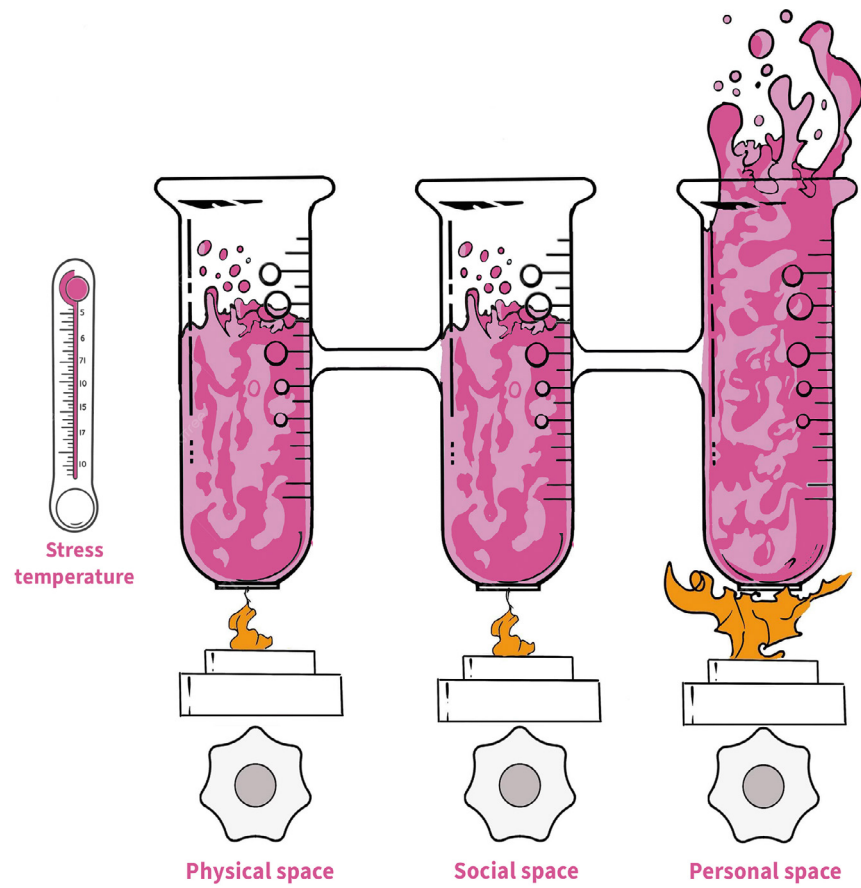
BURDEN OF DUTCH HEALTHCARE SYSTEM



TARGETED FOR DEVELOPMENT
NEIGHBOURHOODS IN ROTTERDAM SOUTH

CONTENT

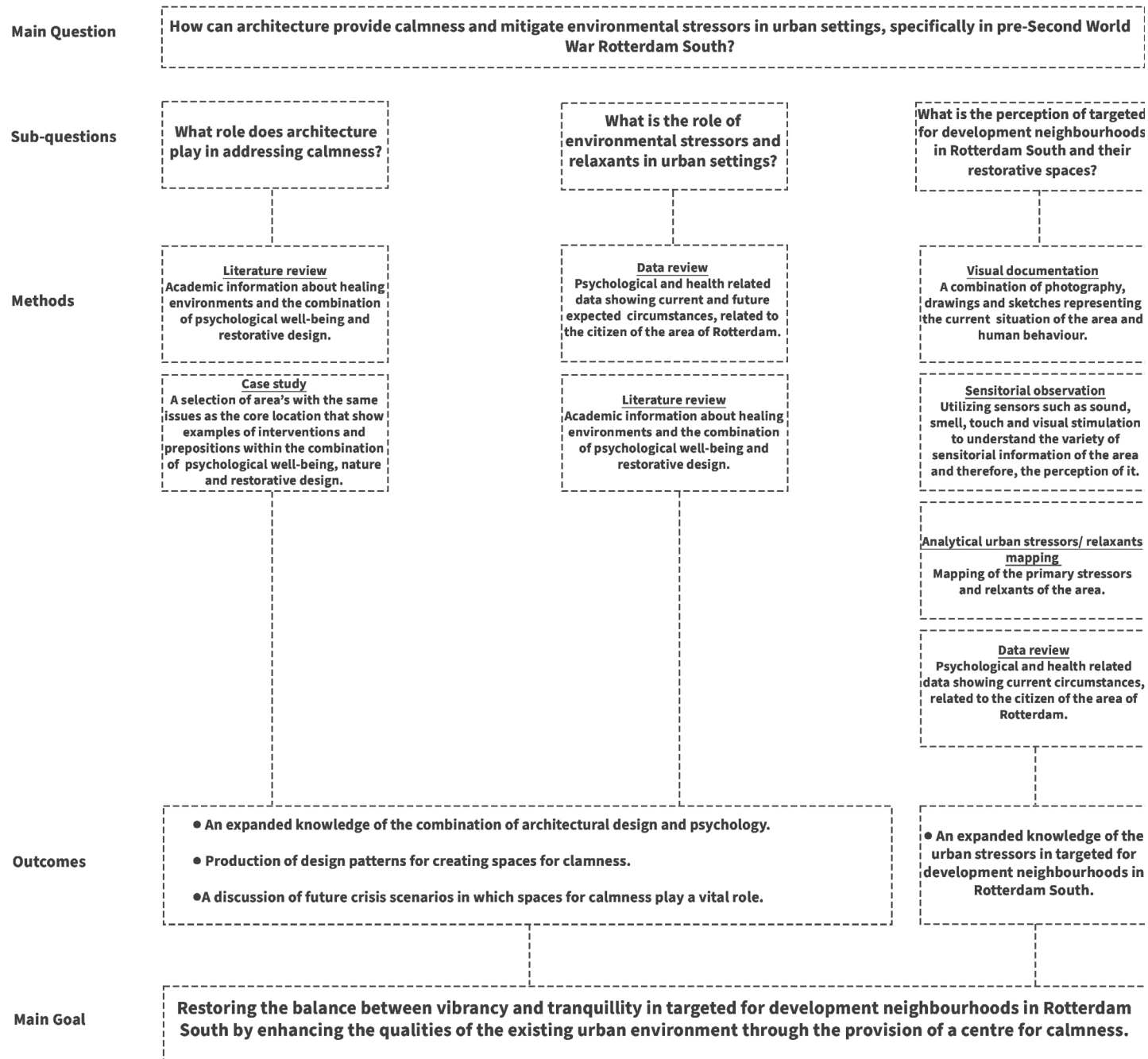
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CONCEPTUAL FRAMEWORK

"How can architecture provide calmness and mitigate environmental stressors in urban settings, specifically in targeted for development neighbourhoods in Rotterdam South?"

MAIN QUESTION



Mental Health Diseases Prevention

Calmness

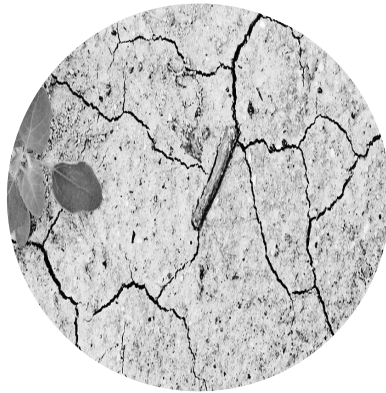
Pilgrimage (the journey) to calmness

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AIR POLLUTION



ISOLATION
FROM NATURE



OVERCROWDING



NOISE
POLLUTION



SOCIAL
INJUSTICE

URBAN STRESSORS



FOREST



PARK



URBAN GREEN



GARDEN

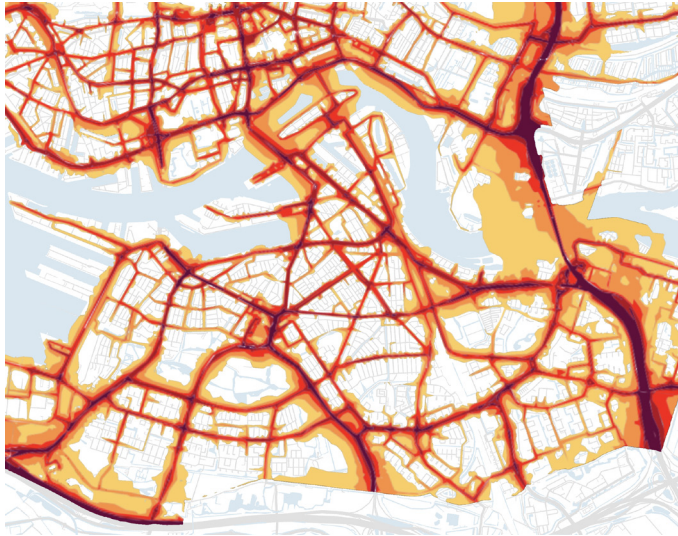


RIVER/CANAL

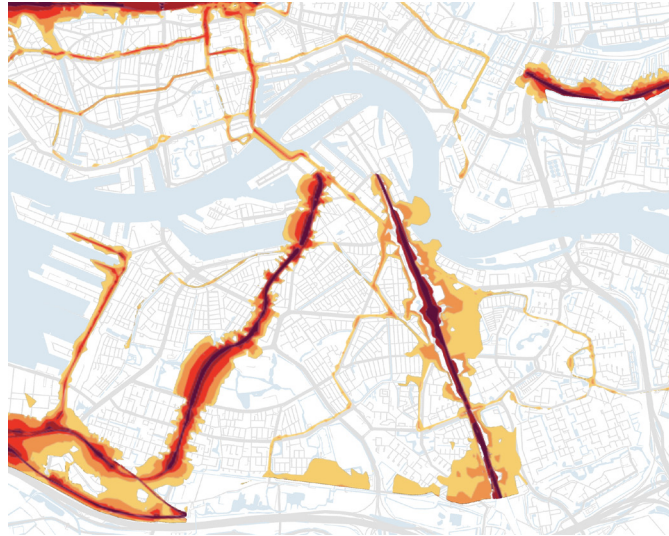
URBAN RELAXANTS

CONTENT

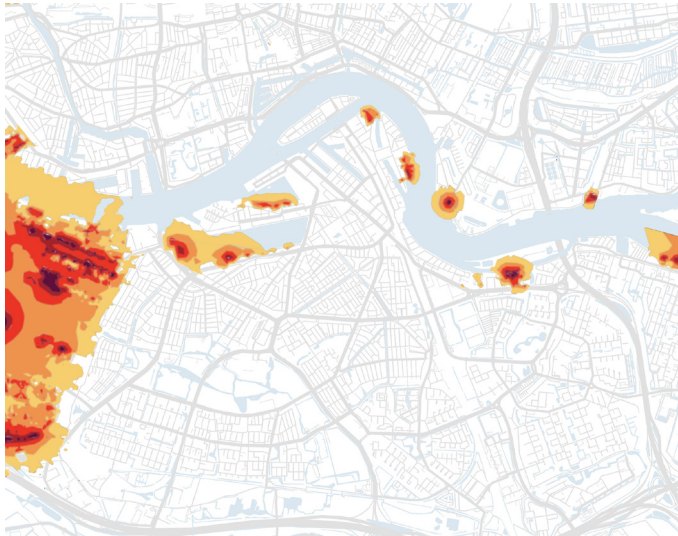
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Traffic Noise Disturbance Map



Railway Noise Disturbance Map



Industry Noise Disturbance Map

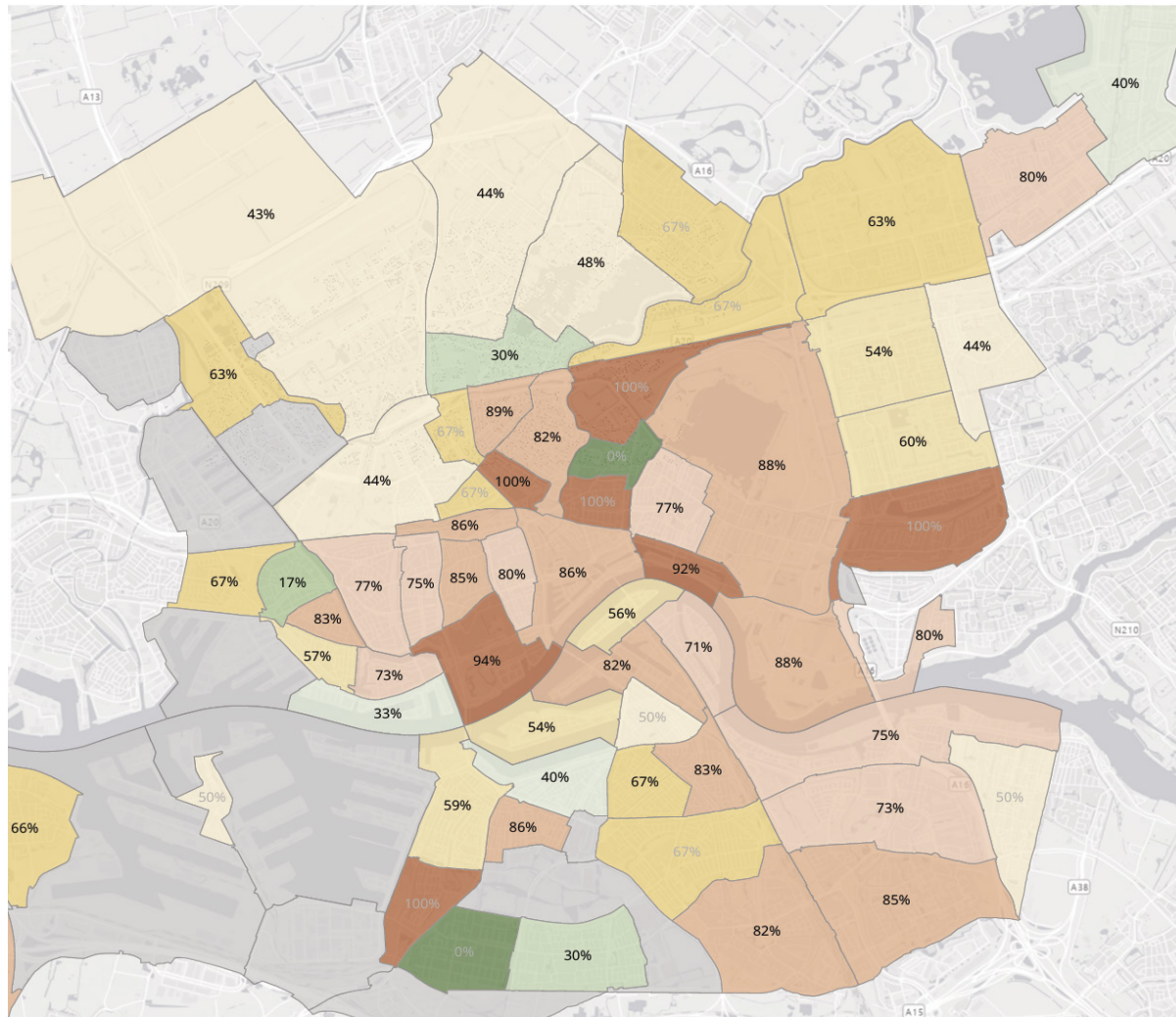


General Noise Disturbance Map

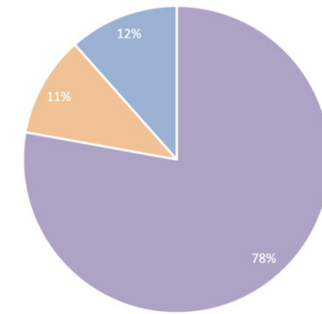
Legend:

- 55-59 dB
- 60-64 dB
- 65-69 dB
- 70-74 dB
- Greater than 75 dB

NOISE AS STRESSOR



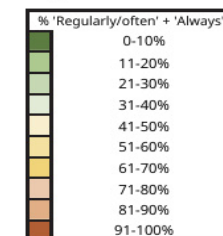
Do you ever experience noise pollution from road traffic in your neighbourhood?



Ja Nee Weet ik niet

Do you think noise pollution affects your health?

Legend

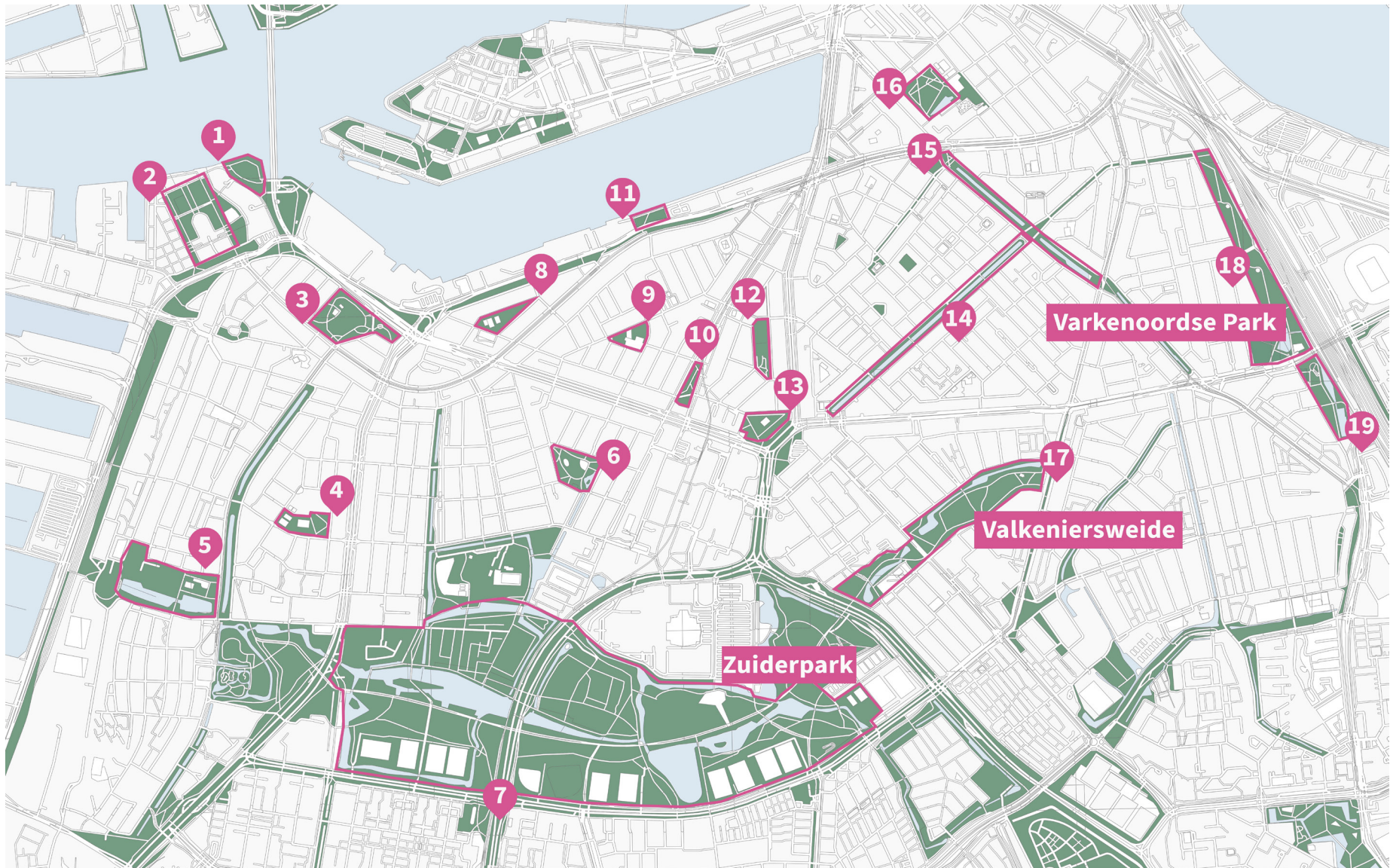


%Neighborhoods with less than five respondents

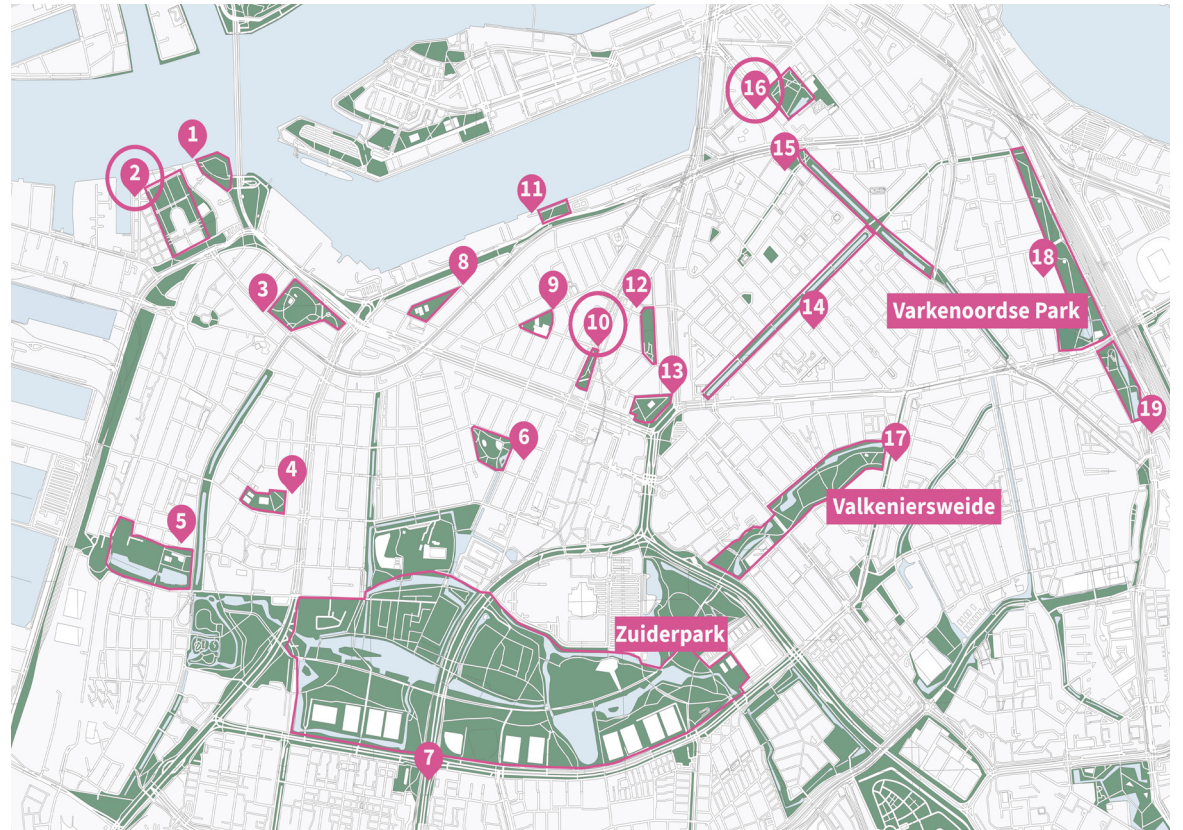
PERCEPTION OF NOISE



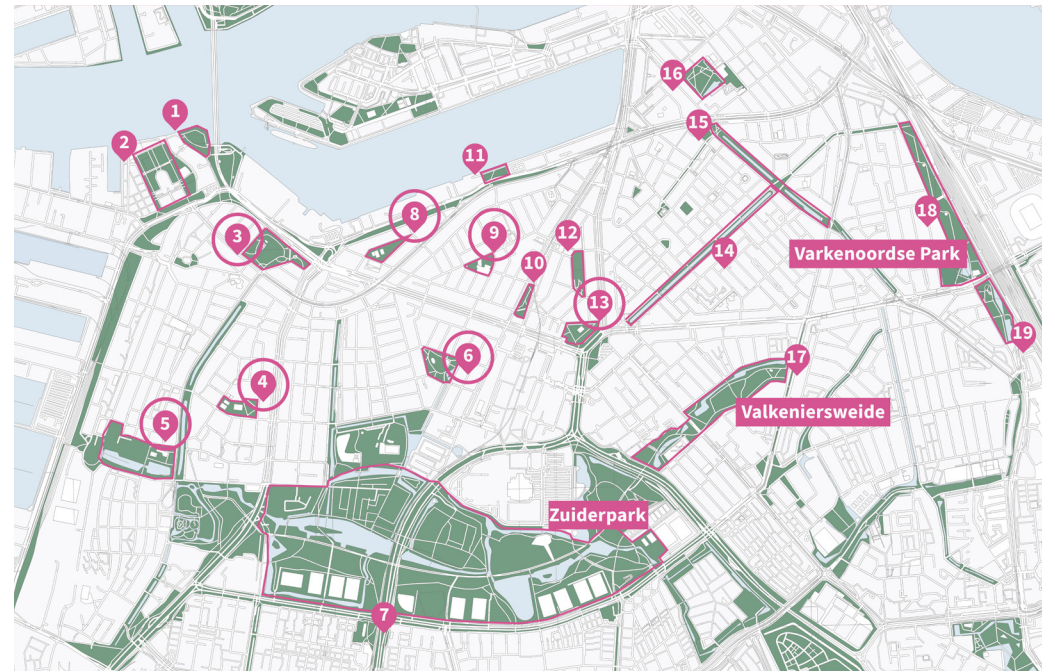
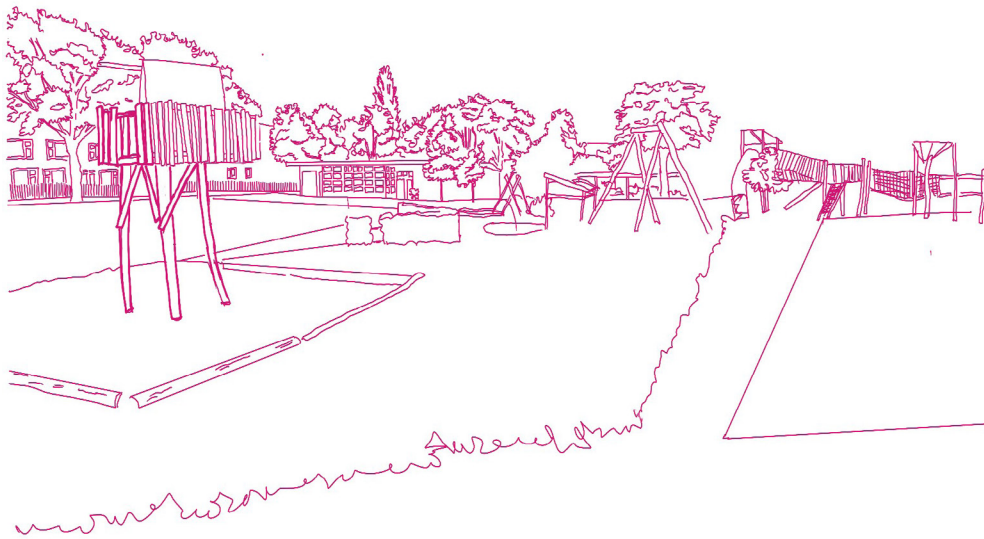
GREEN STRUCTURE AS RELAXANT



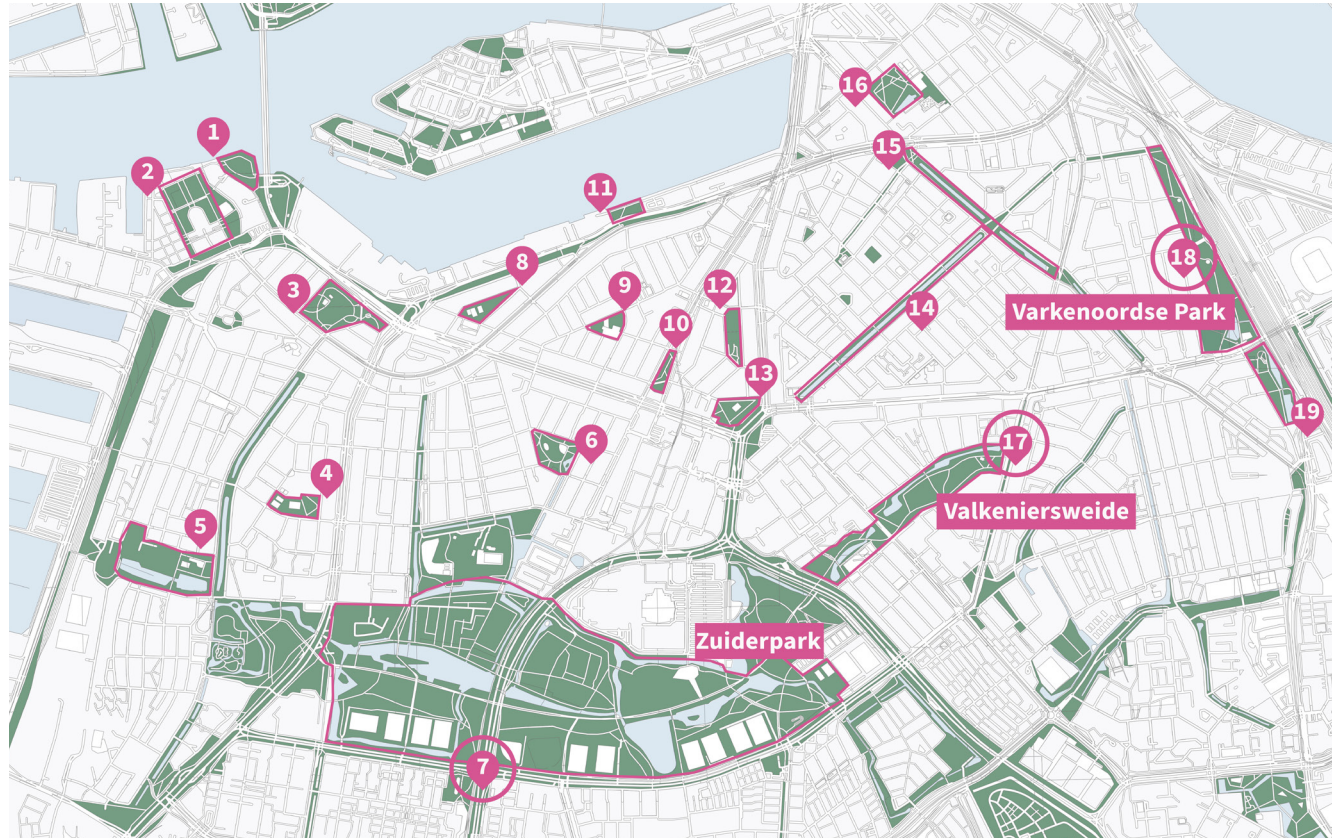
MAP OF GREEN SPACES IN ROTTERDAM SOUTH



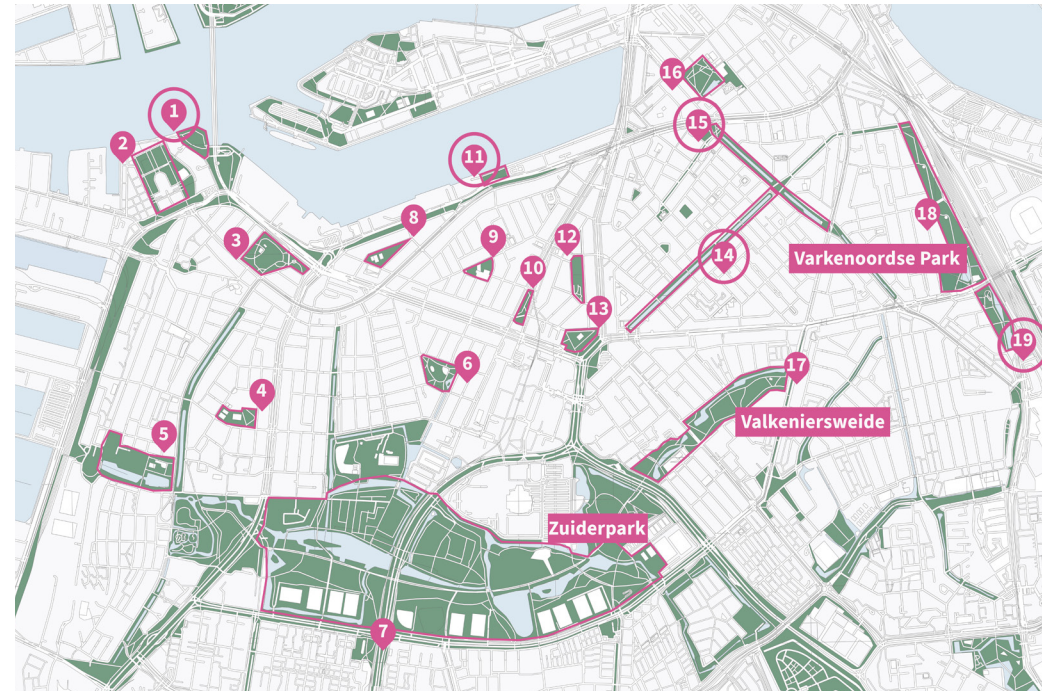
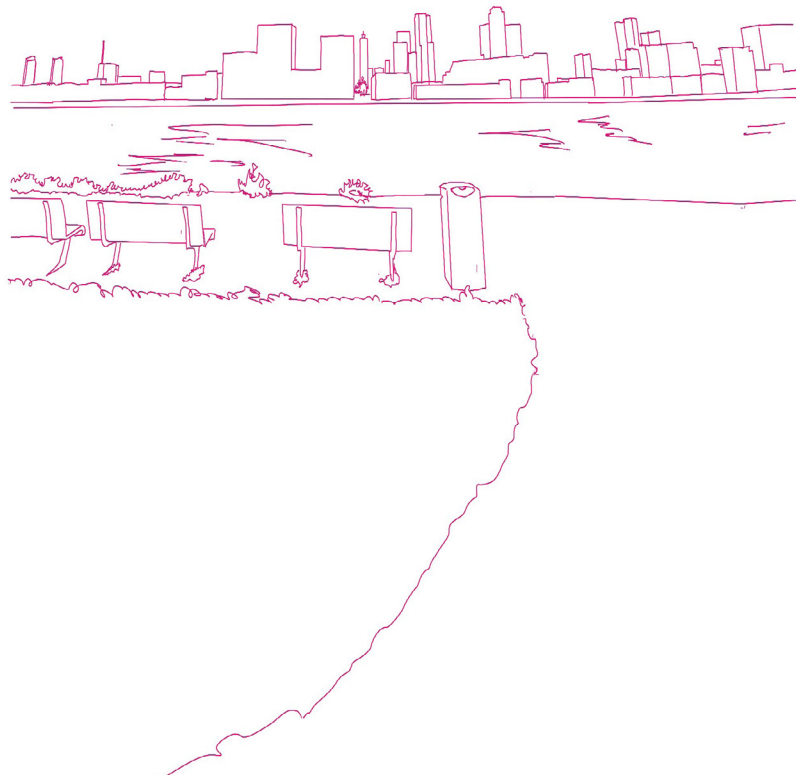
OPEN GREEN FIELDS



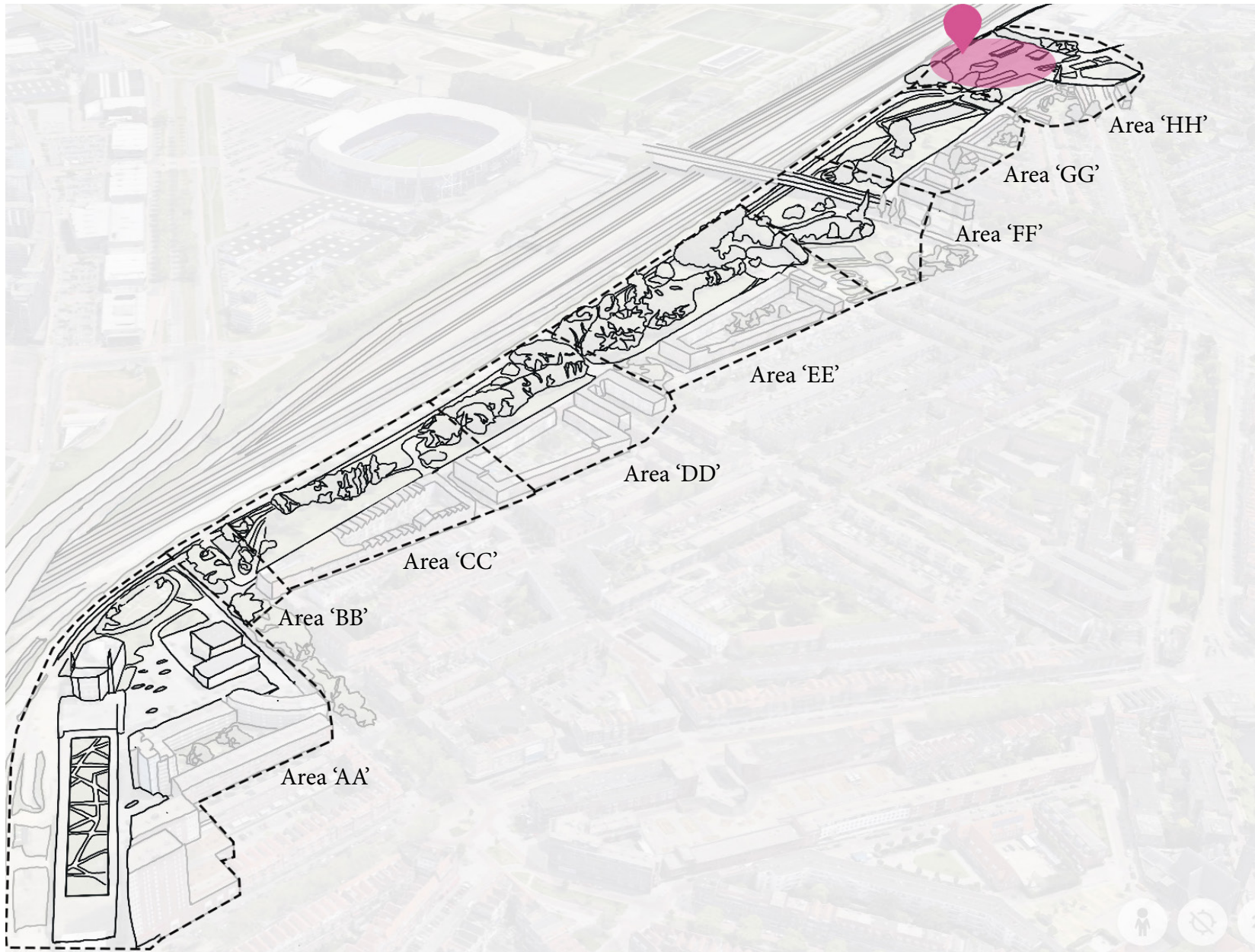
PLAYGROUNDS



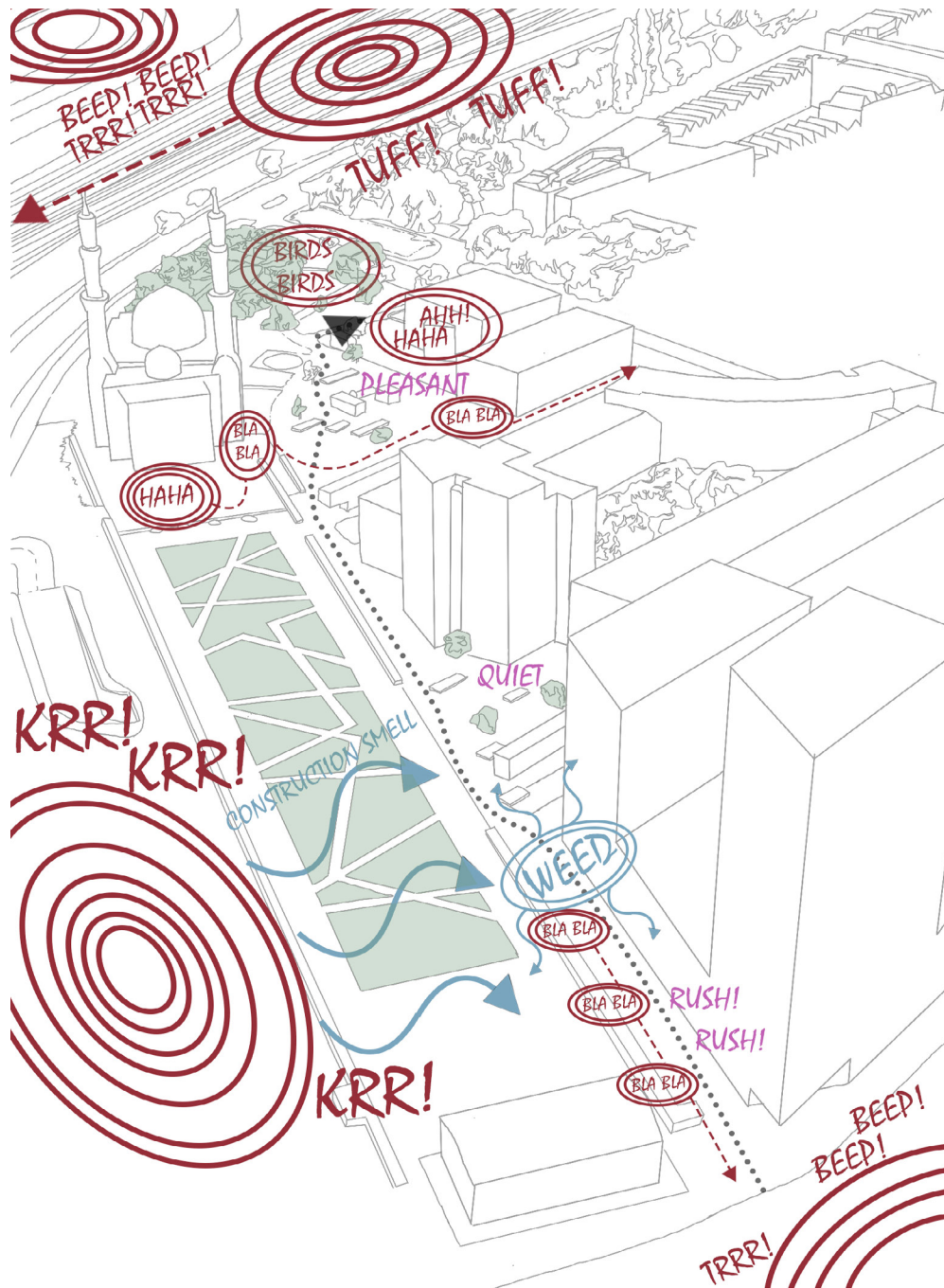
PARKS



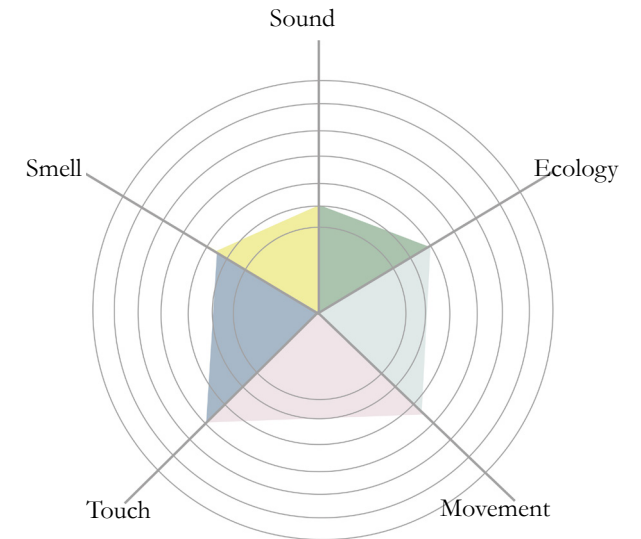
RIVER/ CANALS



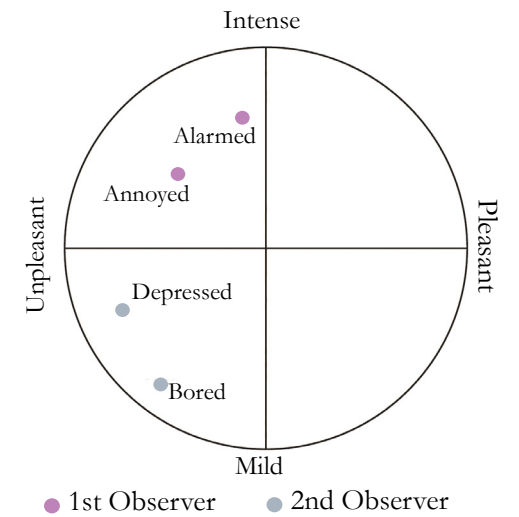
FIELDWORK- SENSITORIAL OBSERVATION



Area 'AA'



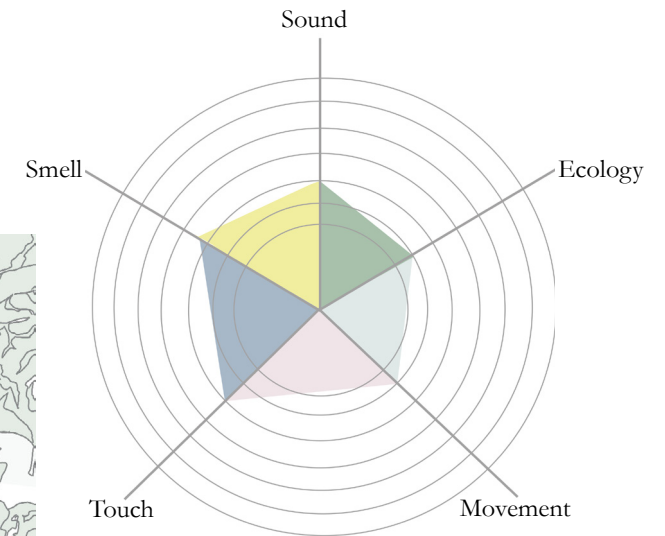
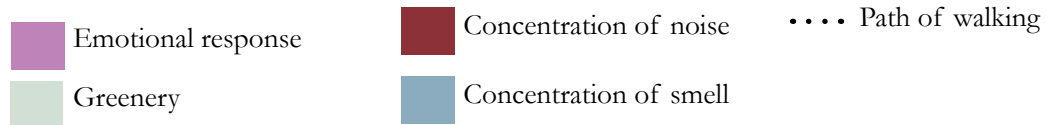
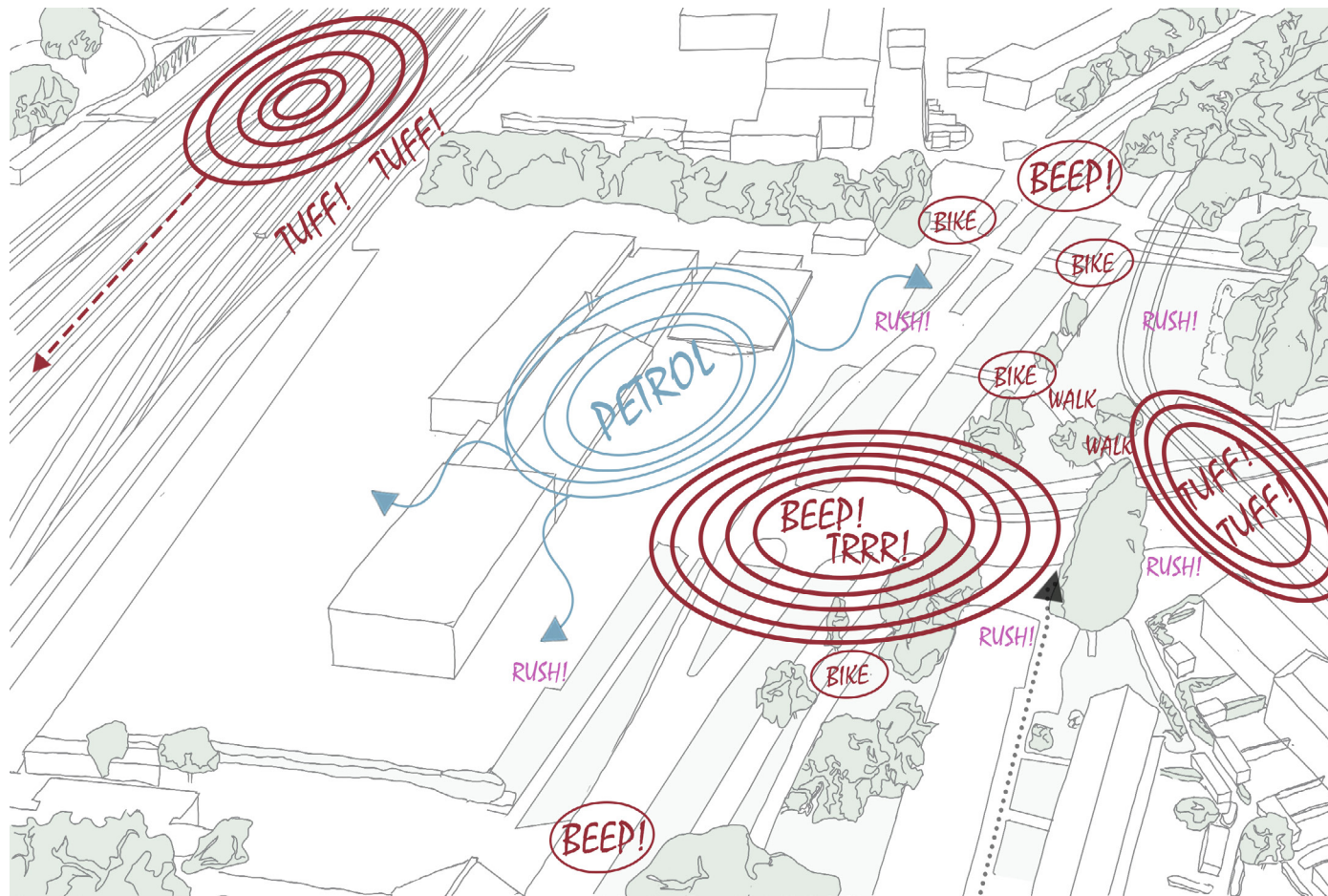
Average score of observers' for area's elements



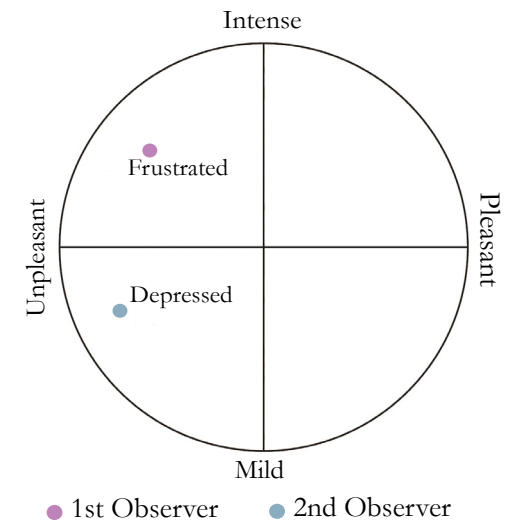
Observers' emotional response to area

- Path of walking
- Concentration of noise
- Concentration of smell
- Emotional response
- Greenery

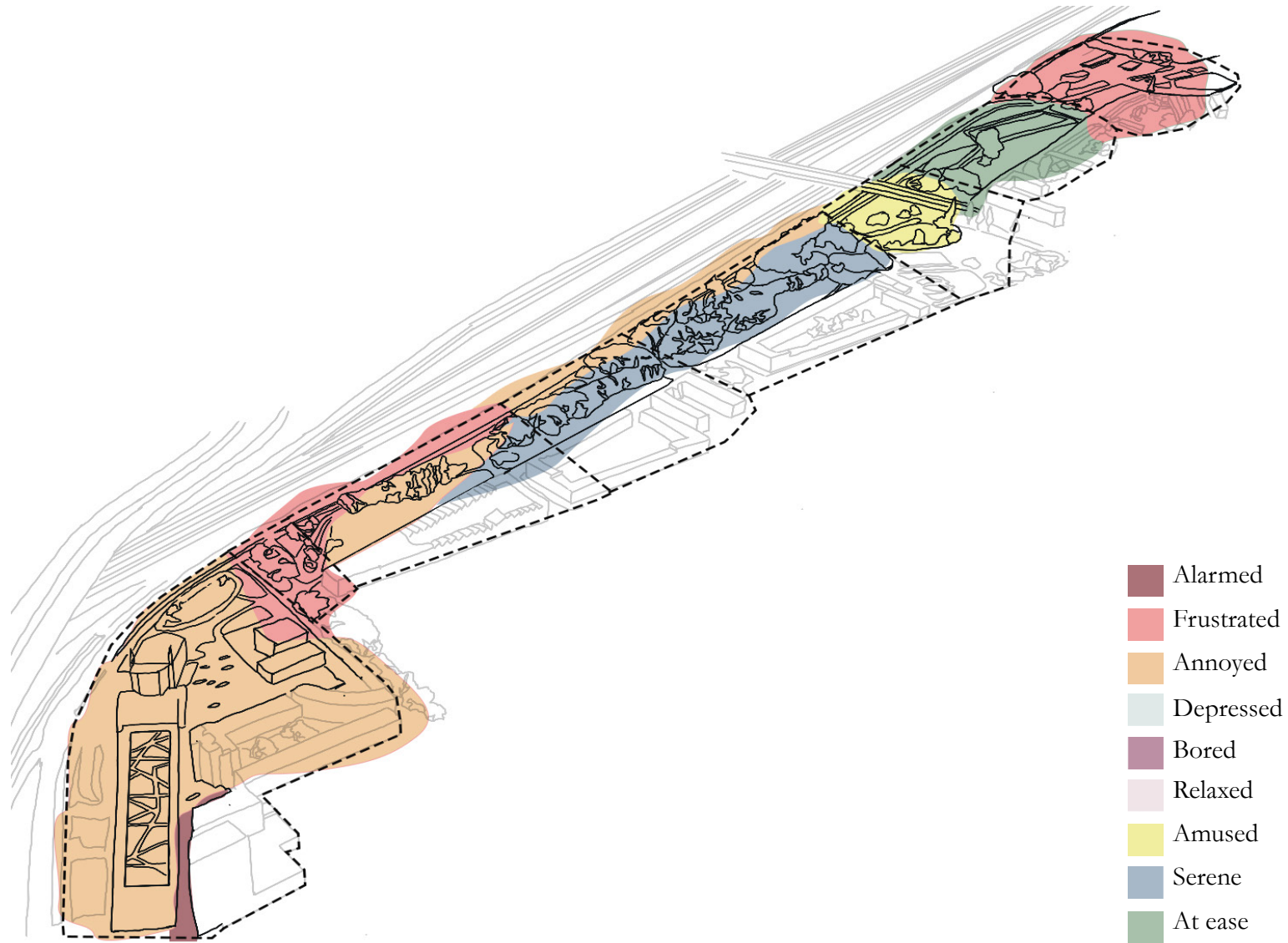
Area 'HH'



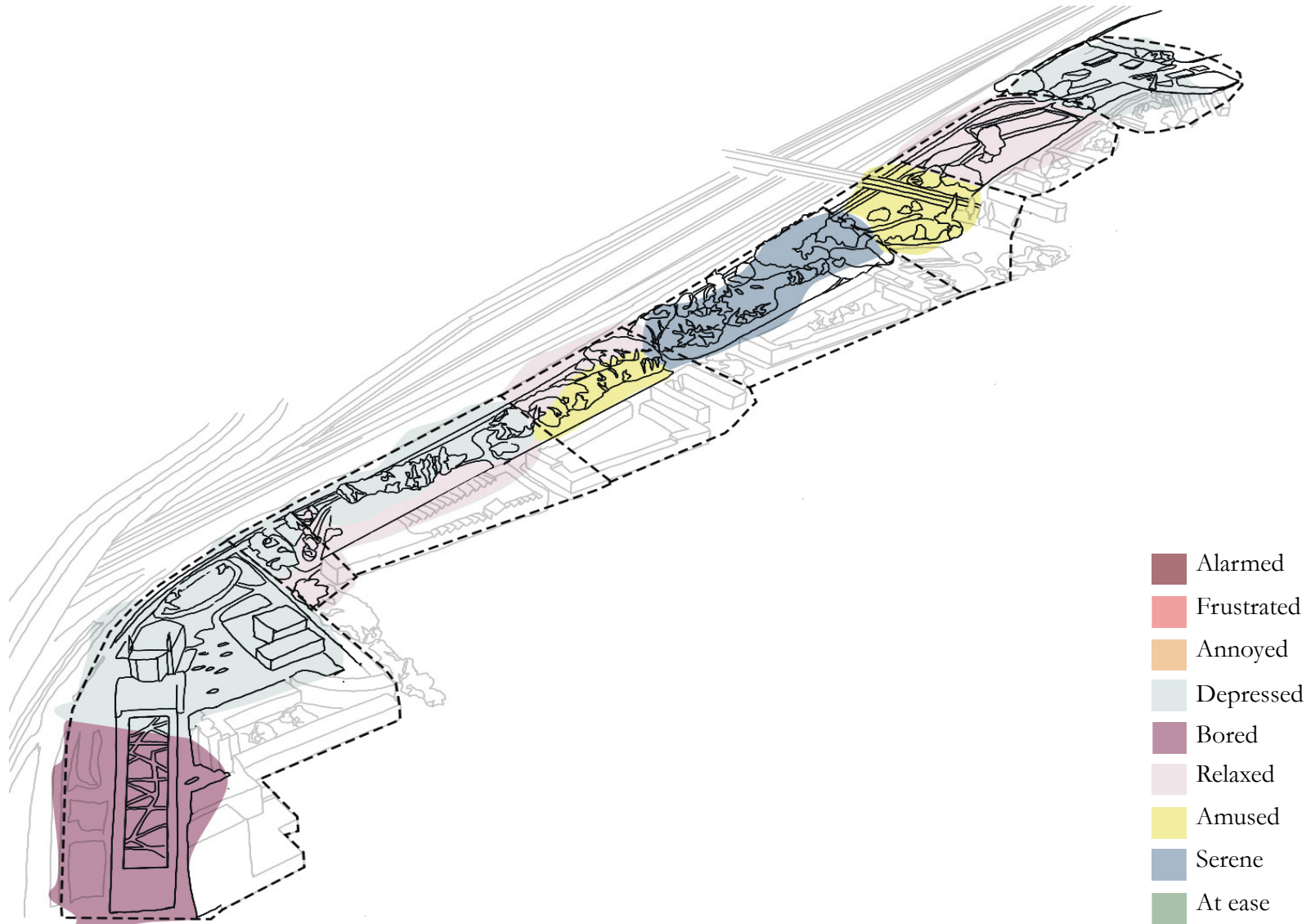
Average score of observers' for area's elements



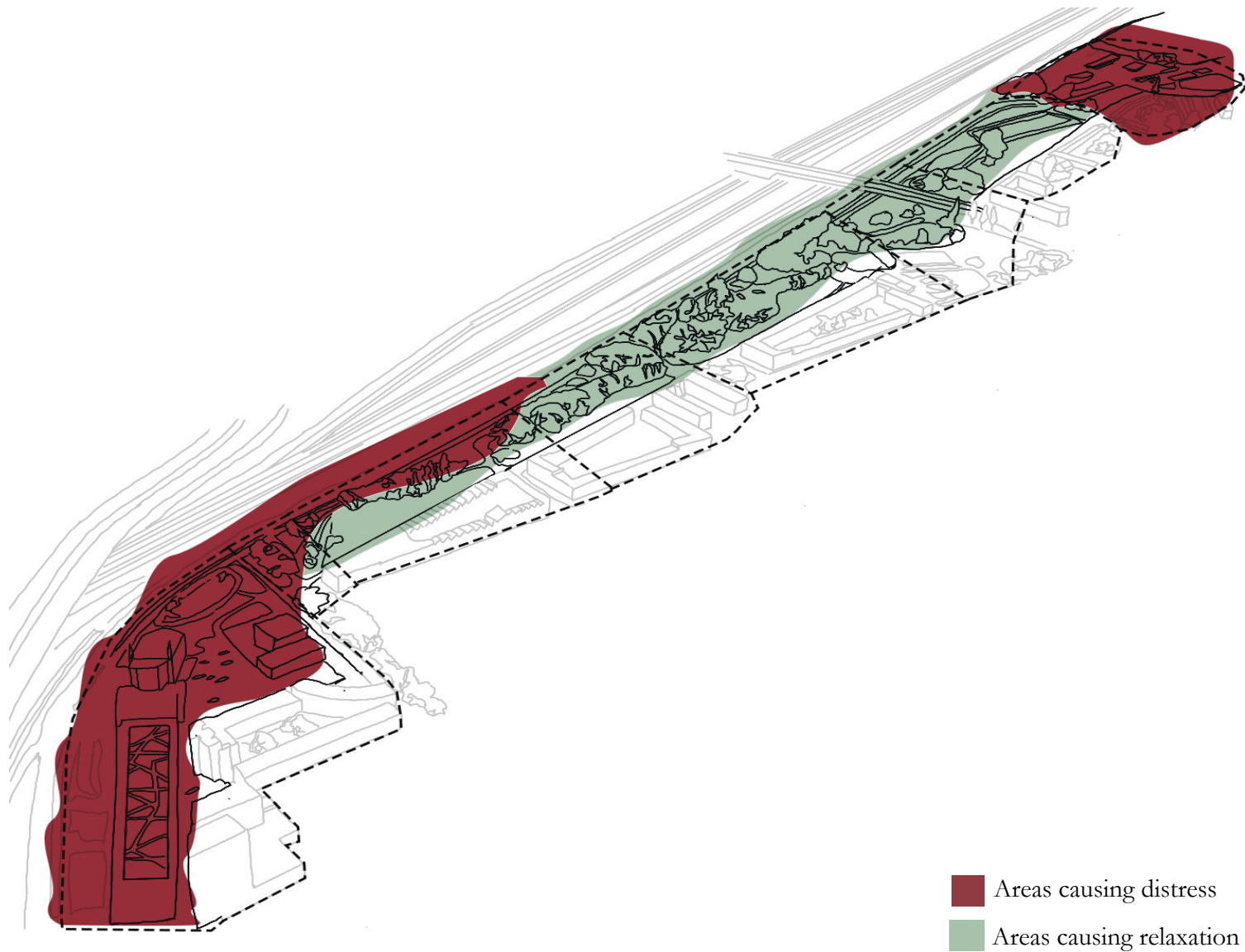
Observers' emotional response to area



EMOTIONAL RESPONSE - 1ST OBSERVER



EMOTIONAL RESPONSE - 2ND OBSERVER



EMOTIONAL RESPONSE - CONCLUSION

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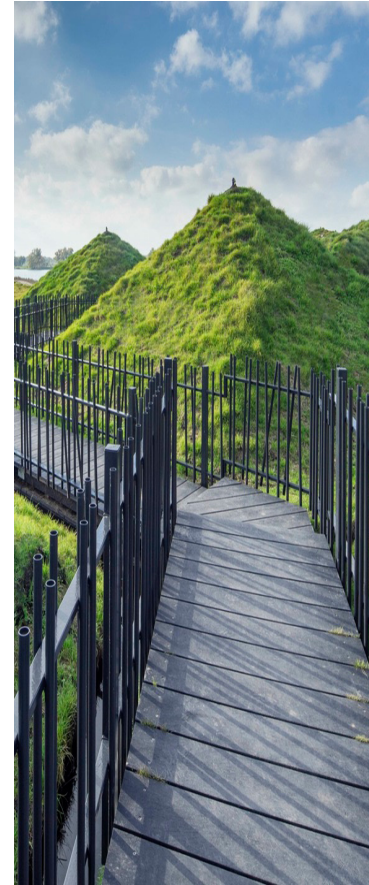
Water



Spiritual

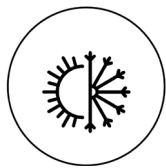


Gardens



Biophilic design

ARCHITECTURAL ELEMENTS AND APPROACH



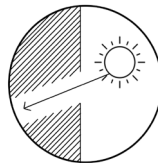
Seasonal change



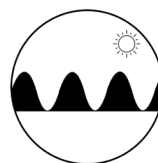
Flow of water



Ritual use of water



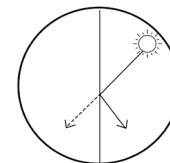
Play of light and shadow



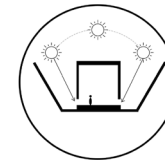
Organic structure



Inclusion of water



Defused light



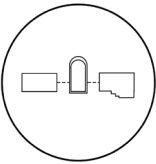
Alternative light directions



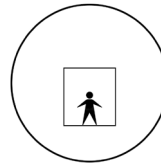
Reconnection with nature



Floating on water



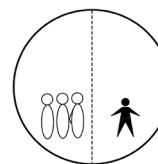
Organisation of variety of facilities



Small intimate scale



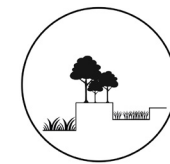
Instinctive use of water



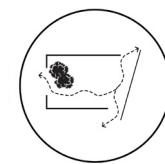
Level of privacy and publicity



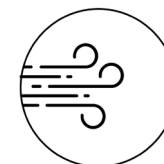
Contemplation



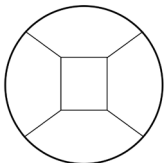
Levels of vegetation



Prospect and refuge



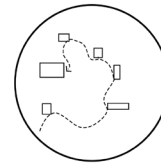
Natural air flow



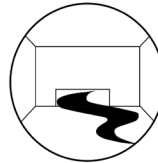
Minimalism



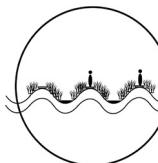
Mass



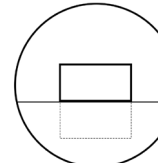
Movement stimulated by light and views



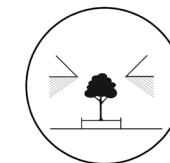
Including natural elements into the design



The roof comes part of the 'new' landscape



Reflection



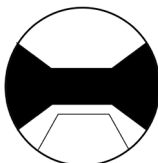
One central element



Including all senses



Textured surfaces



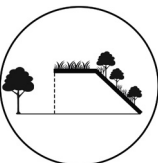
Contrast between built and natural environment



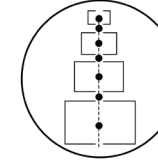
Integration of multiple ecological systems



Cleansing



Integration of the structure in the nature



Sequential movement fostering wonder



Element of significance

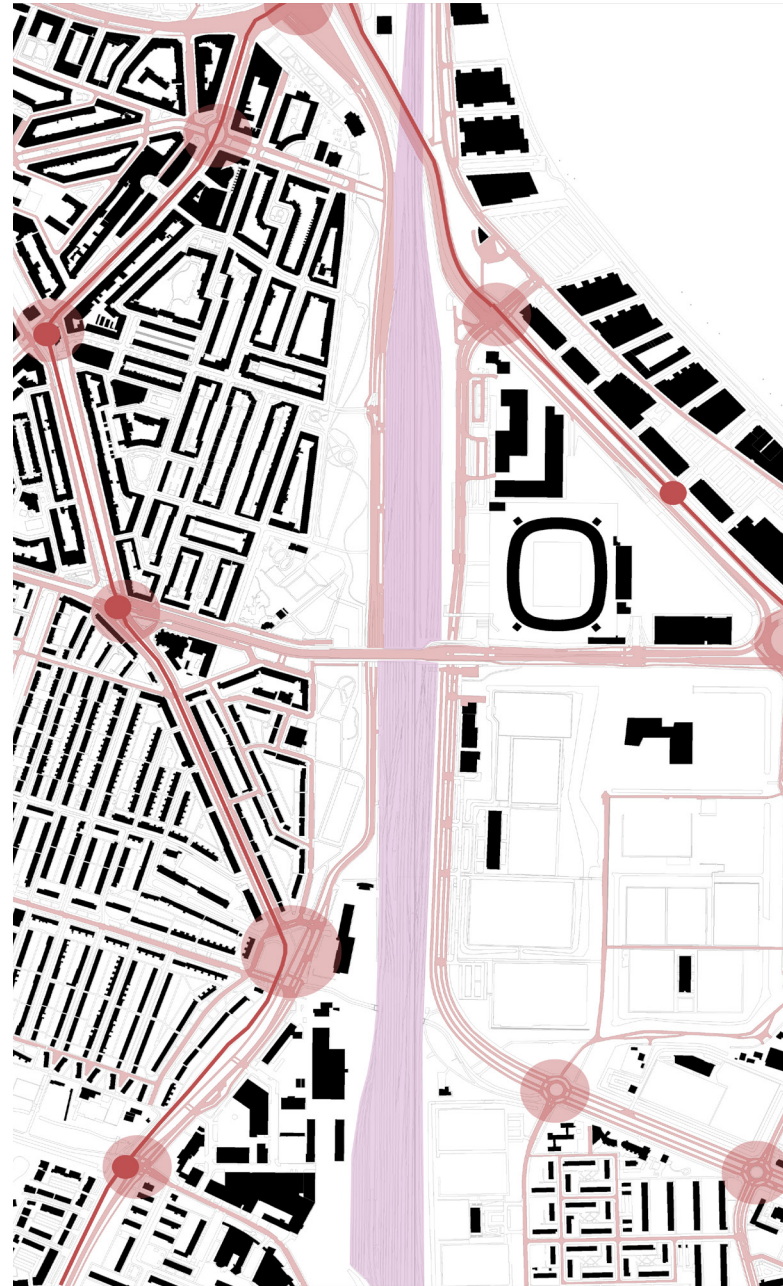
DESIGN PATTERNS

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DESIGN LOCATION



- Tram line
- Rail line
- Roads congestions





TRAFFIC NETWORK



Ledgend:

- Green structure (versatile green)
- Public green spaces
- Blue space (versatile blue)

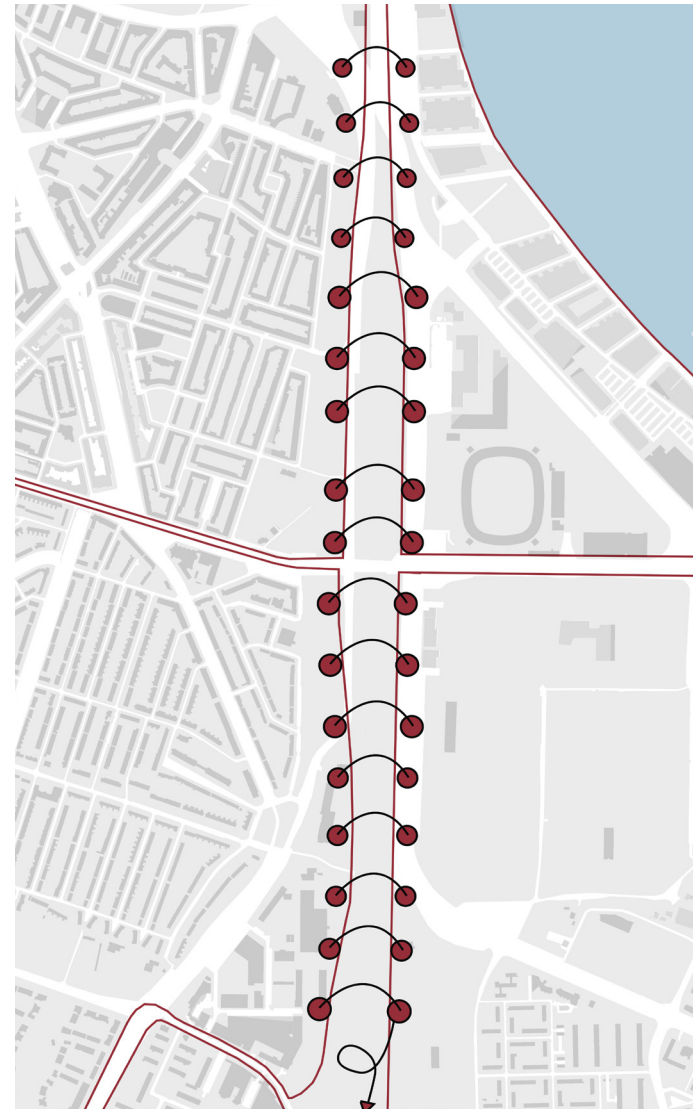
Green initiatives:

-  Place makers: green initiatives with their own place
-  Networks: coalitions of initiatives or places
-  Green Case: institutions with a green place and a green mission
-  Parks: the parks of Rotterdam

GREEN AND BLUE SPACES



Spatial barrier



Re-connecting the neighbourhoods

CONSTRAINS AND OPPORTUNITIES



Nature / infrastructure contrast

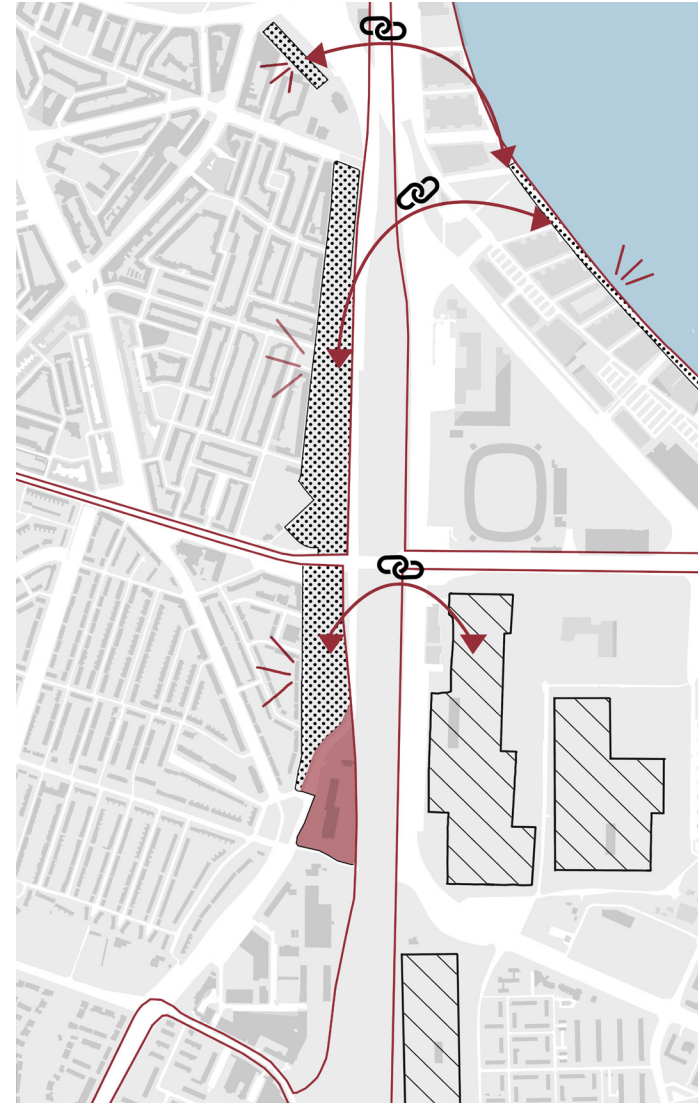


Expand natural green space

CONSTRAINS AND OPPORTUNITIES



Recreational and sport activities



Providing connection between activities

CONSTRAINS AND OPPORTUNITIES



Mental healthcare in Rotterdam



Vreewijk green
neighbourhood initiatives

**Erasmus
University
Rotterdam**



Psychological department in
Erasmus University



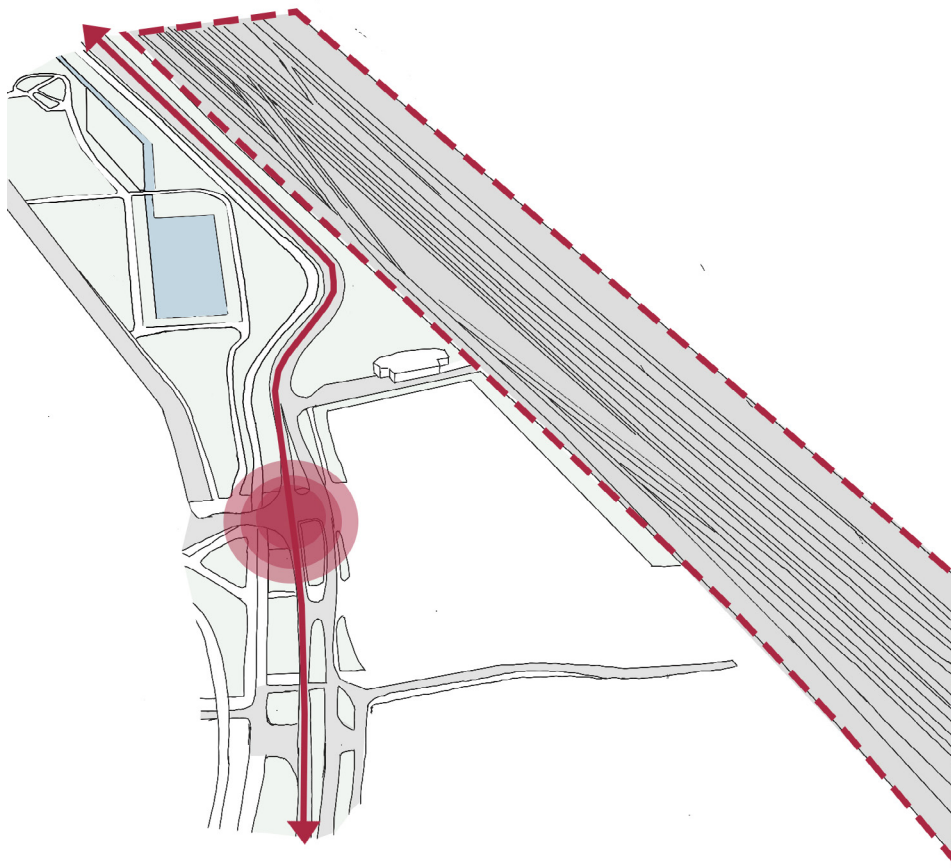
Sport organisation in Isselmonde

COMMISSIONERS

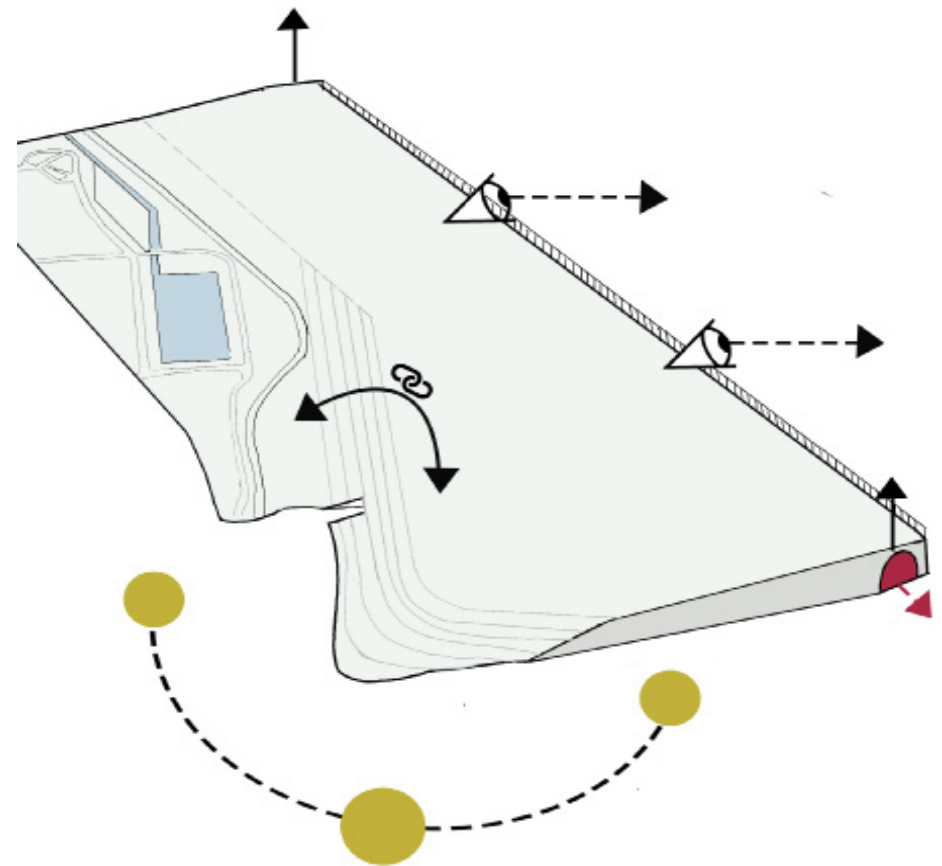


New Feyenoord City Masterplan / LOLA, OMA, EFFEKT/ Urban vision

PROJECTS AROUND THE SITE



Current site condition



Applied approach

SITE APPROACH

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30%

A LOT OF
STRESS

20%

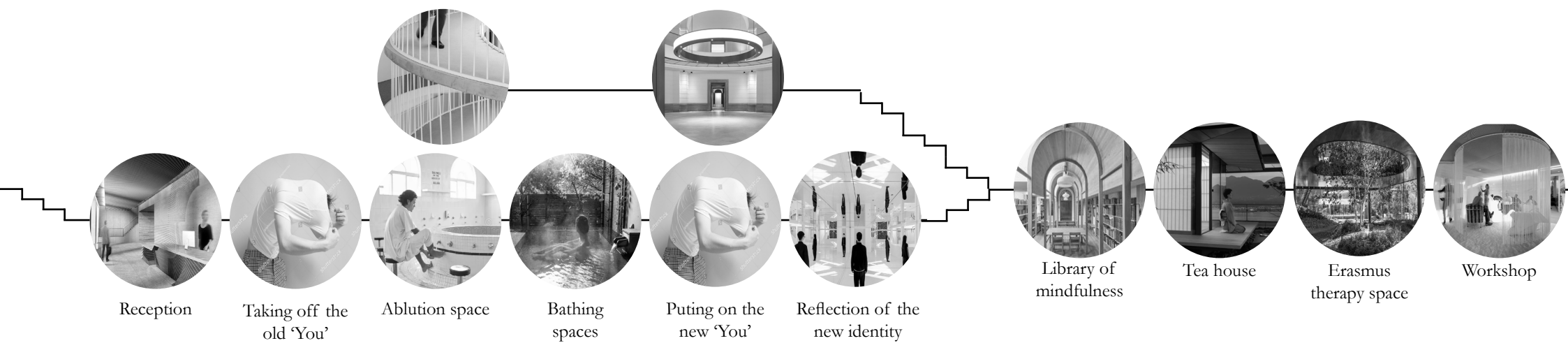
LIMITED BY
SIGHT, HEARING
MOBILITY



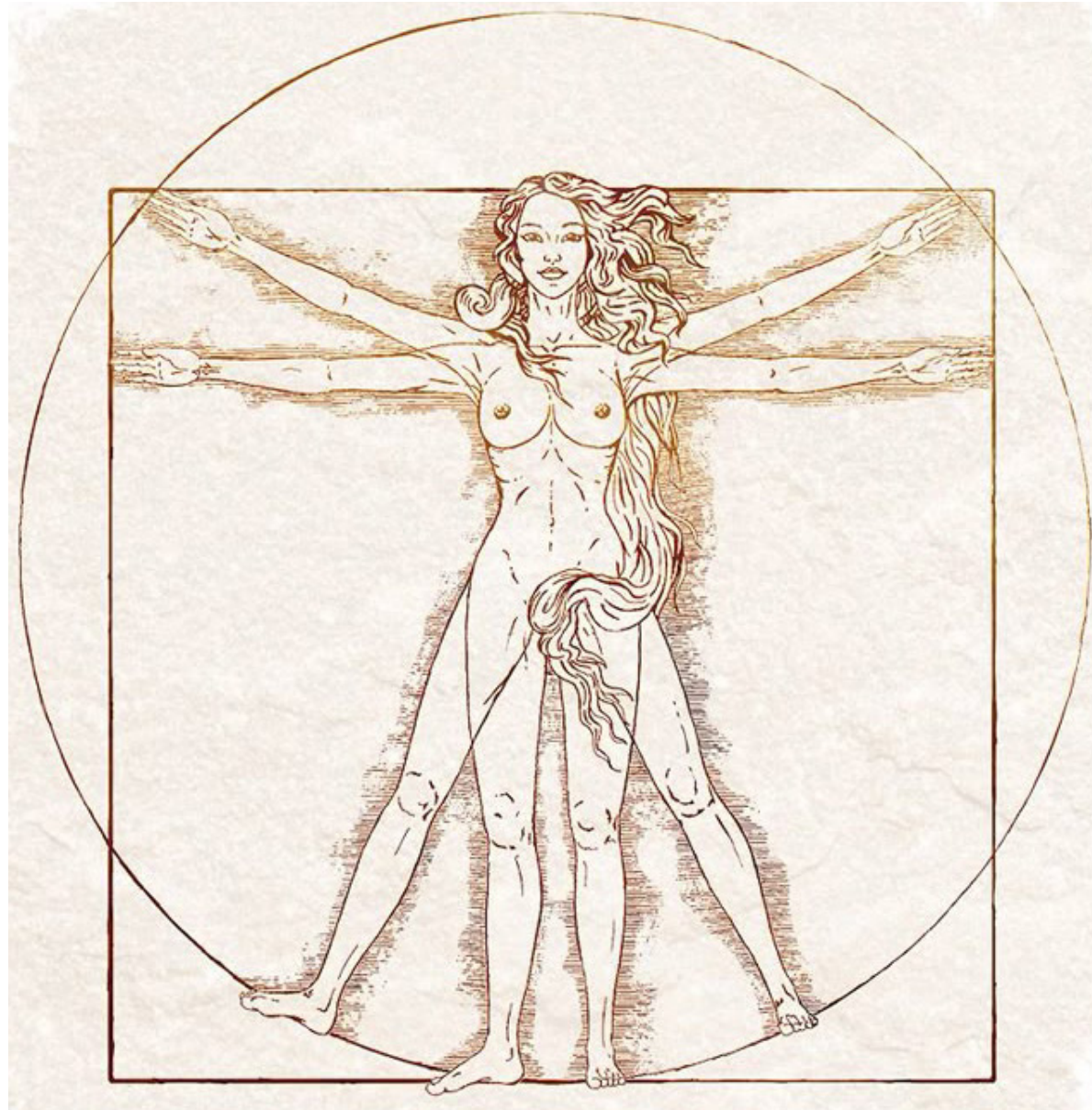
25%

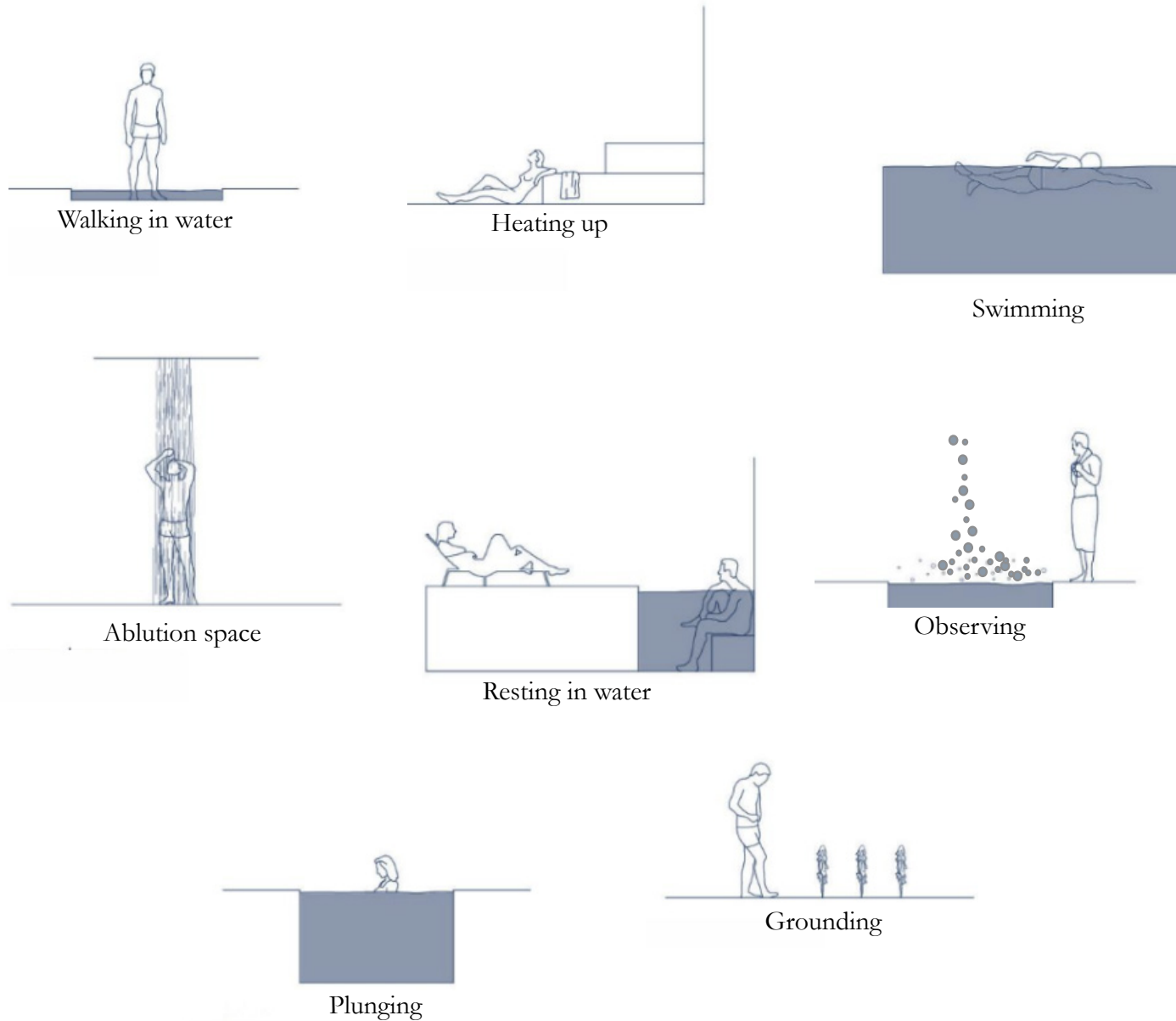
RISK OF
DEPRESSION

FEIJENOORD STATISTICS



PROGRAMME DIAGRAM





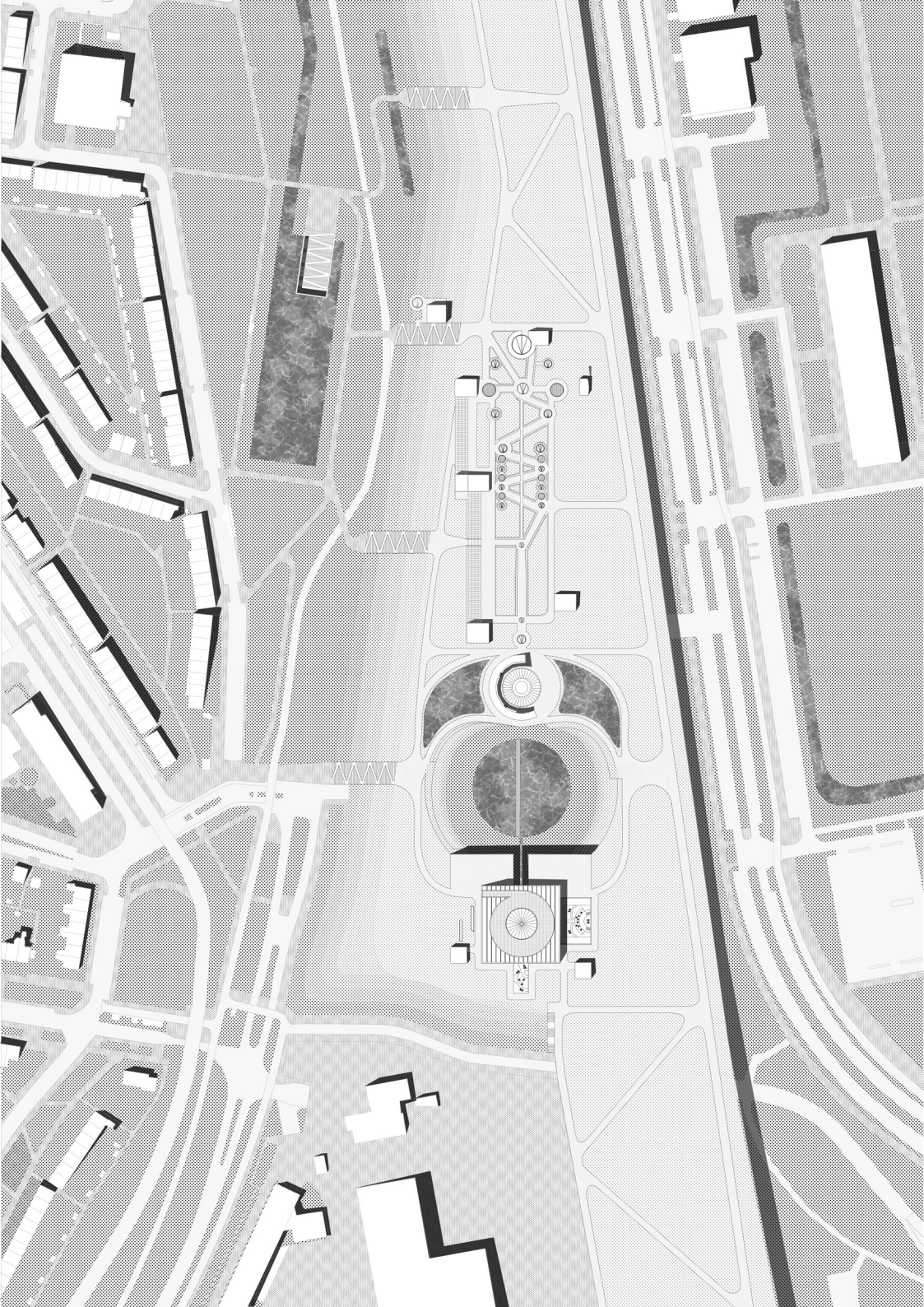
USER EXPERIENCES DIAGRAM

CONTENT

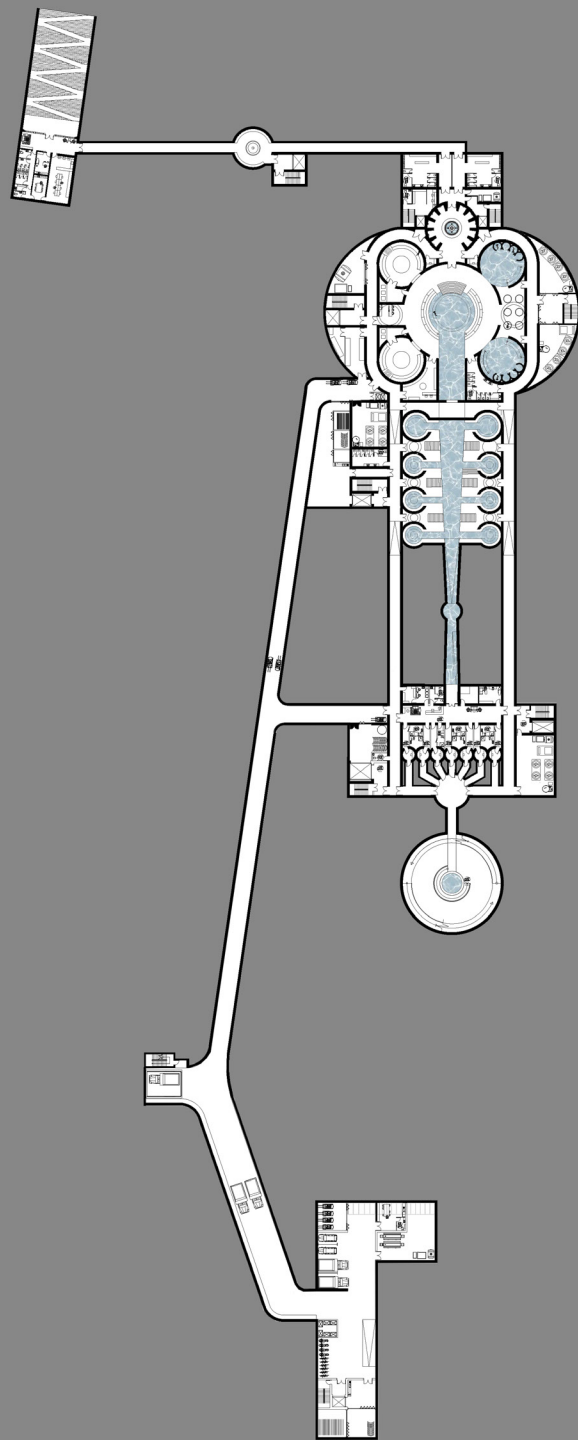
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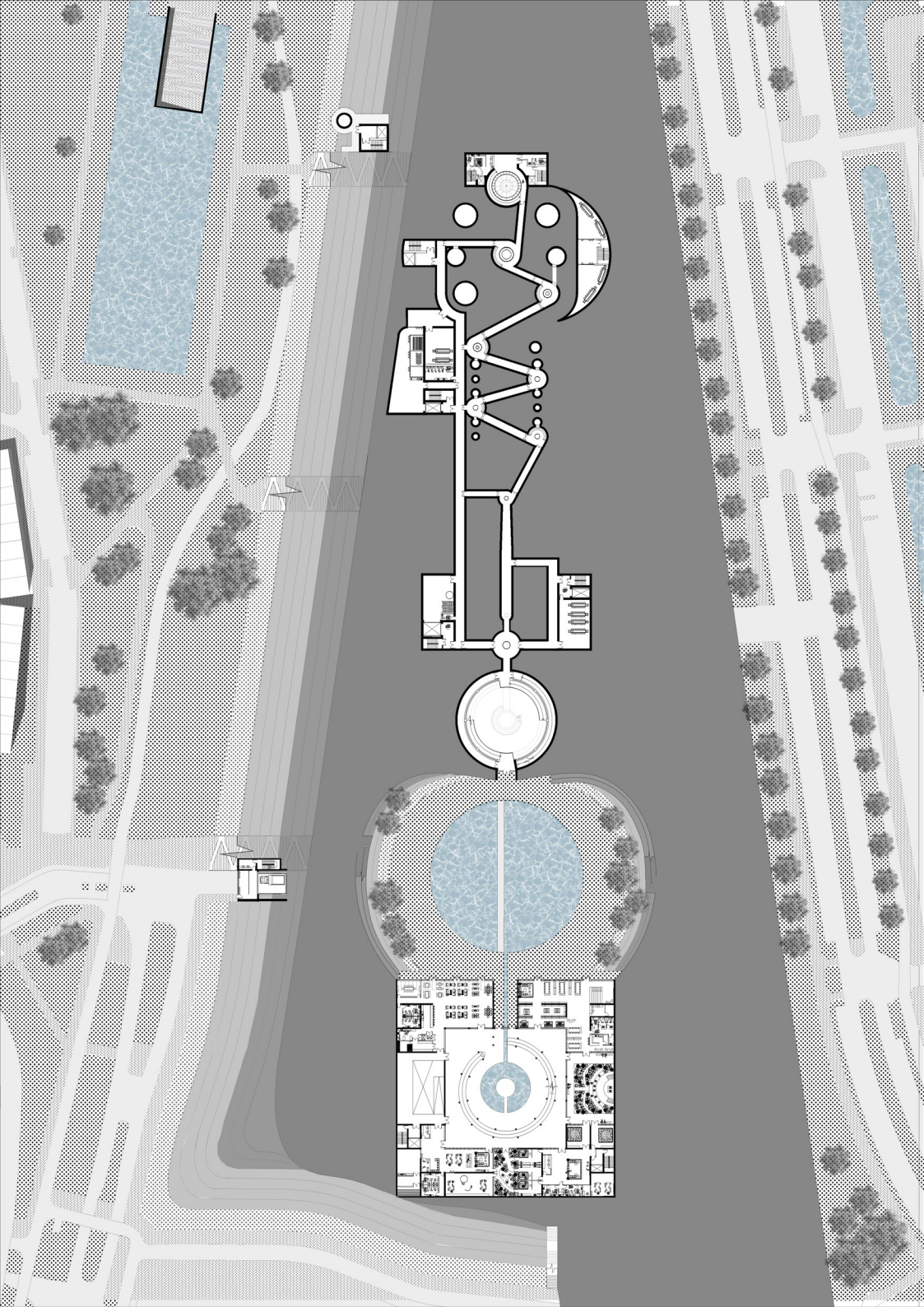
LOCATION PLAN
SCALE 1:2000



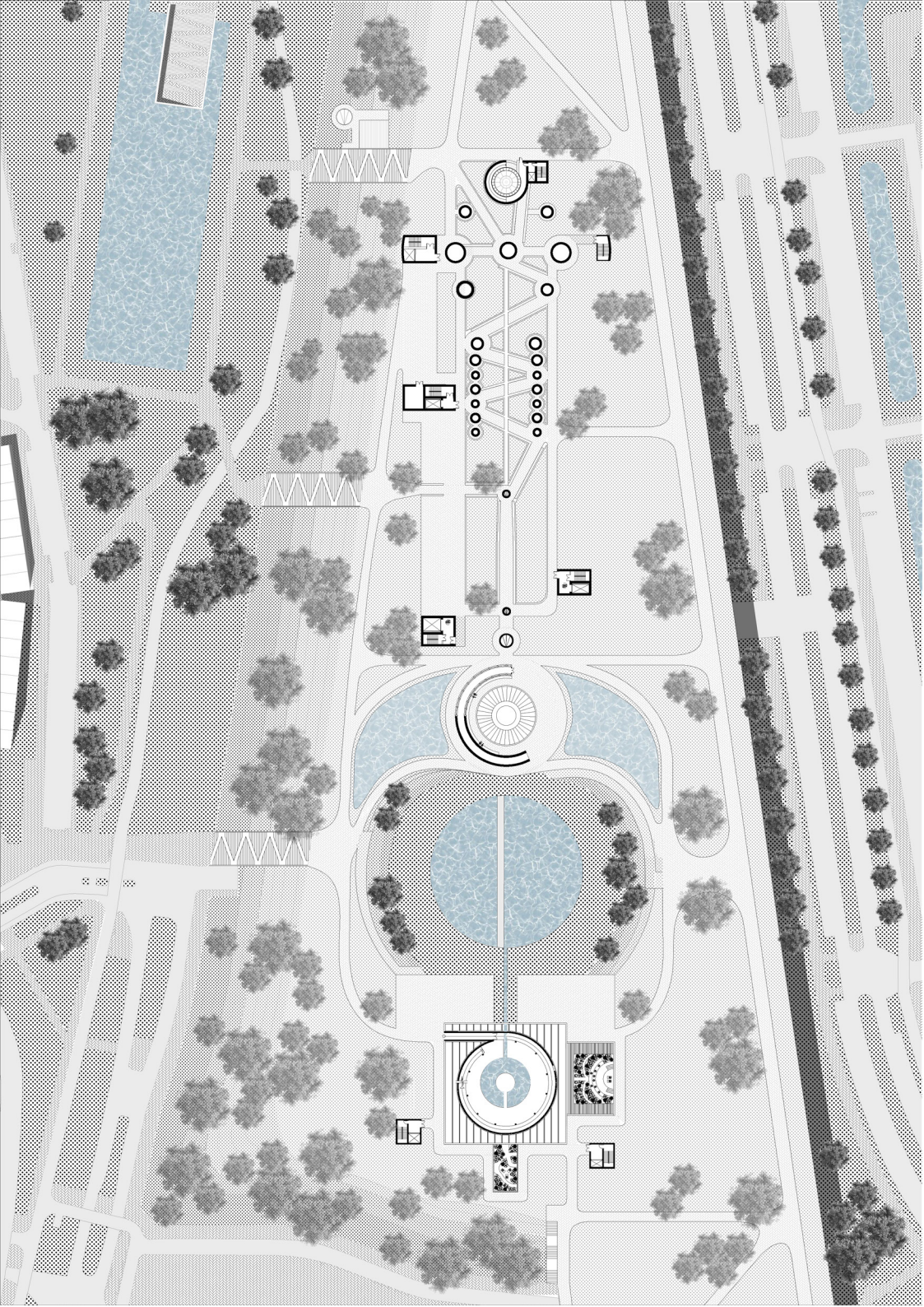
SITE PLAN
SCALE 1:1500



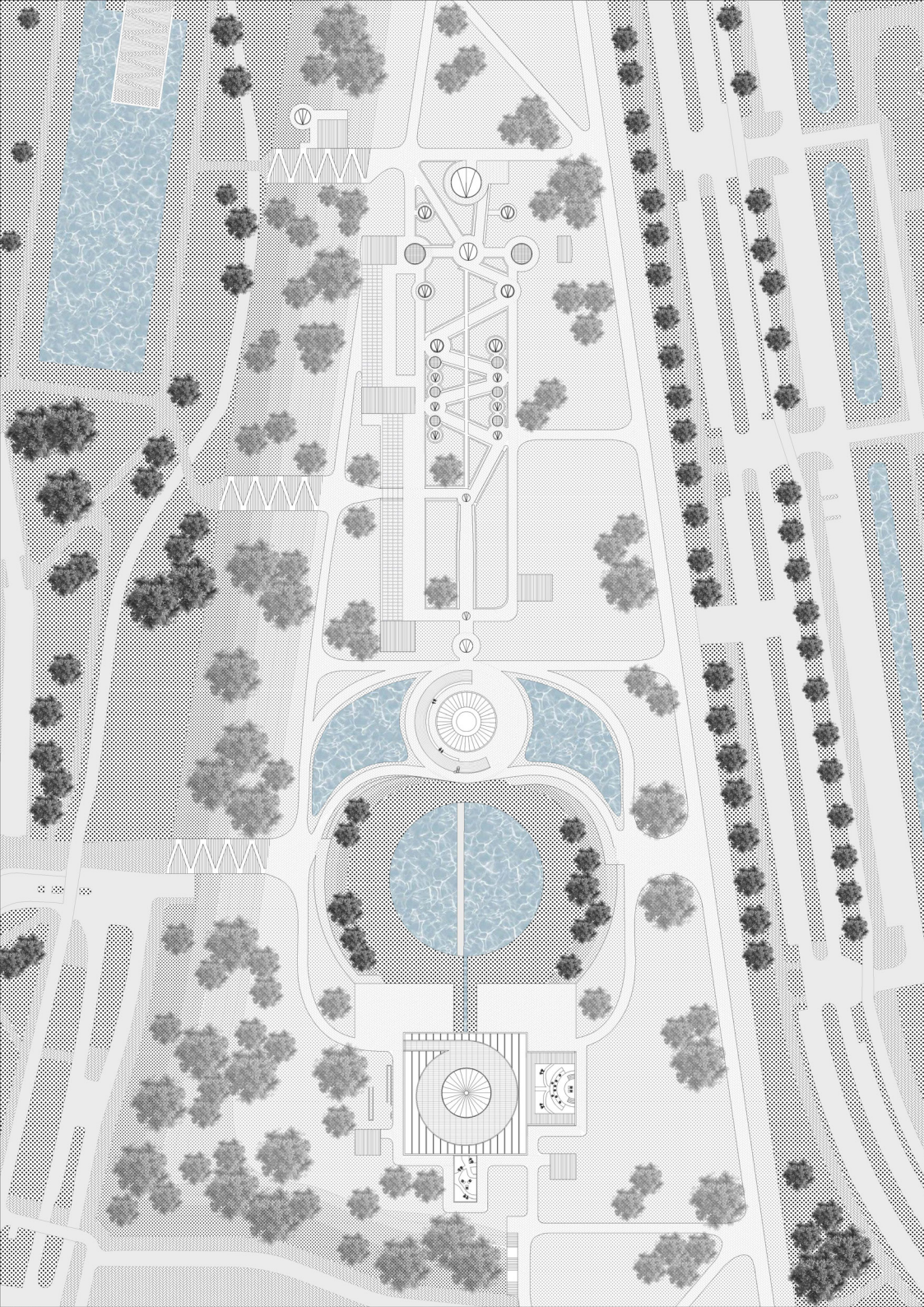
UNDERGROUND LEVEL
SCALE 1:1000



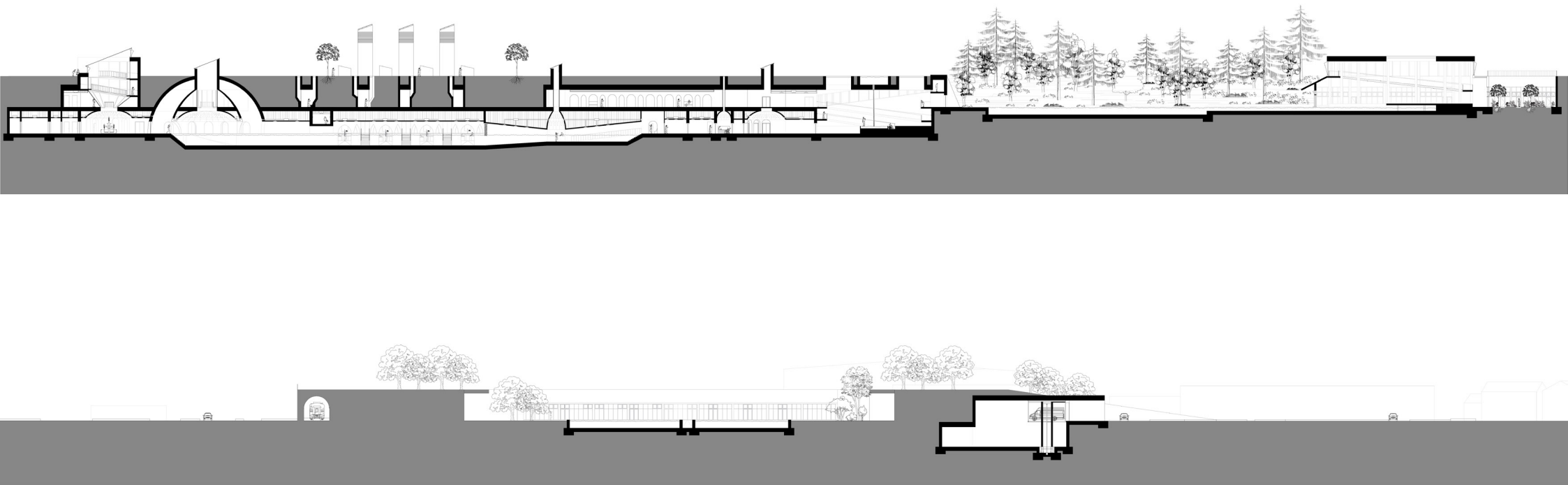
BURIED LEVEL
SCALE 1:1000



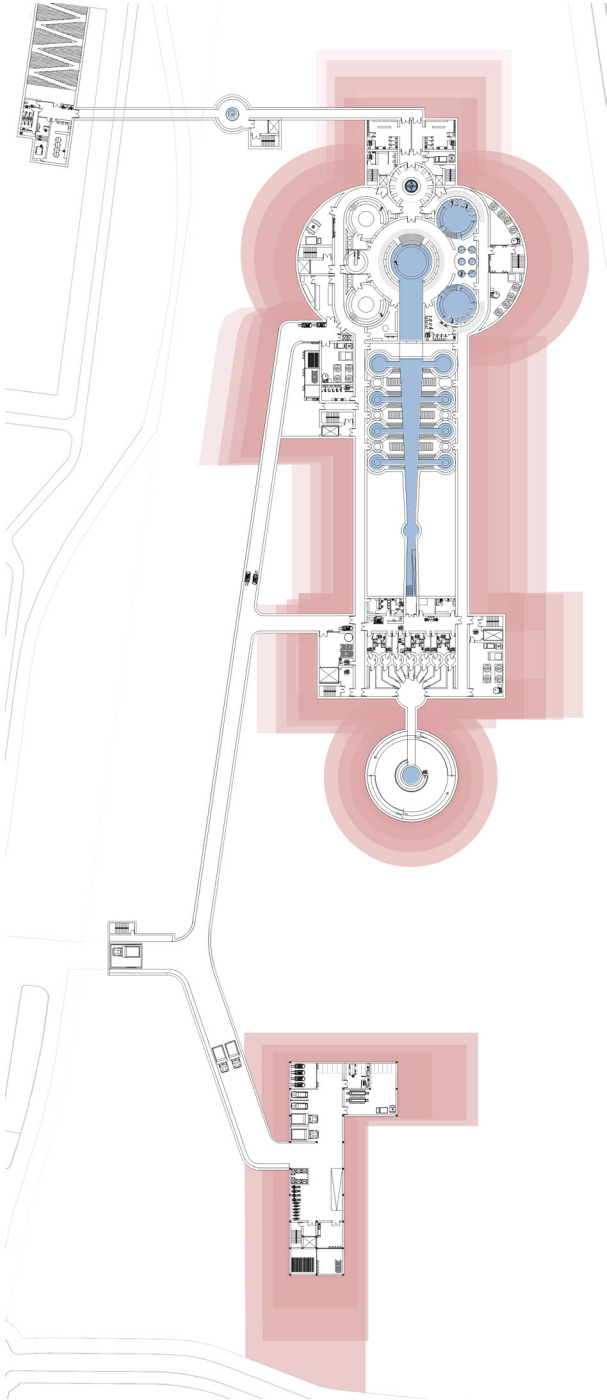
GROUND FLOOR LEVEL
SCALE 1:1000



ROOF LEVEL
SCALE 1:1000

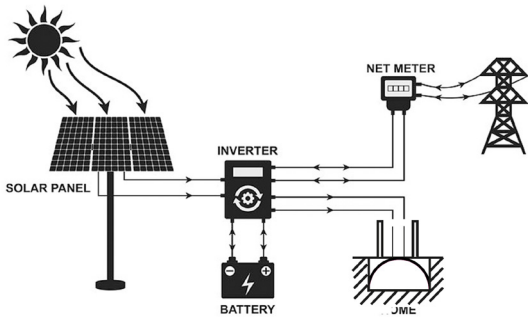
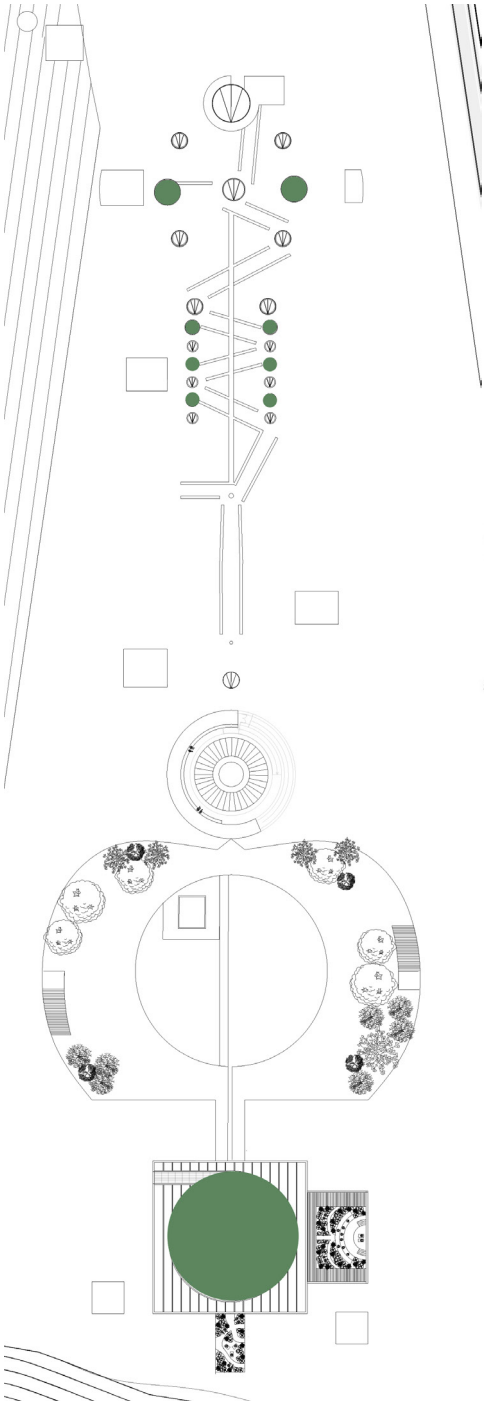


SITE SECTIONS
SCALE 1:1000

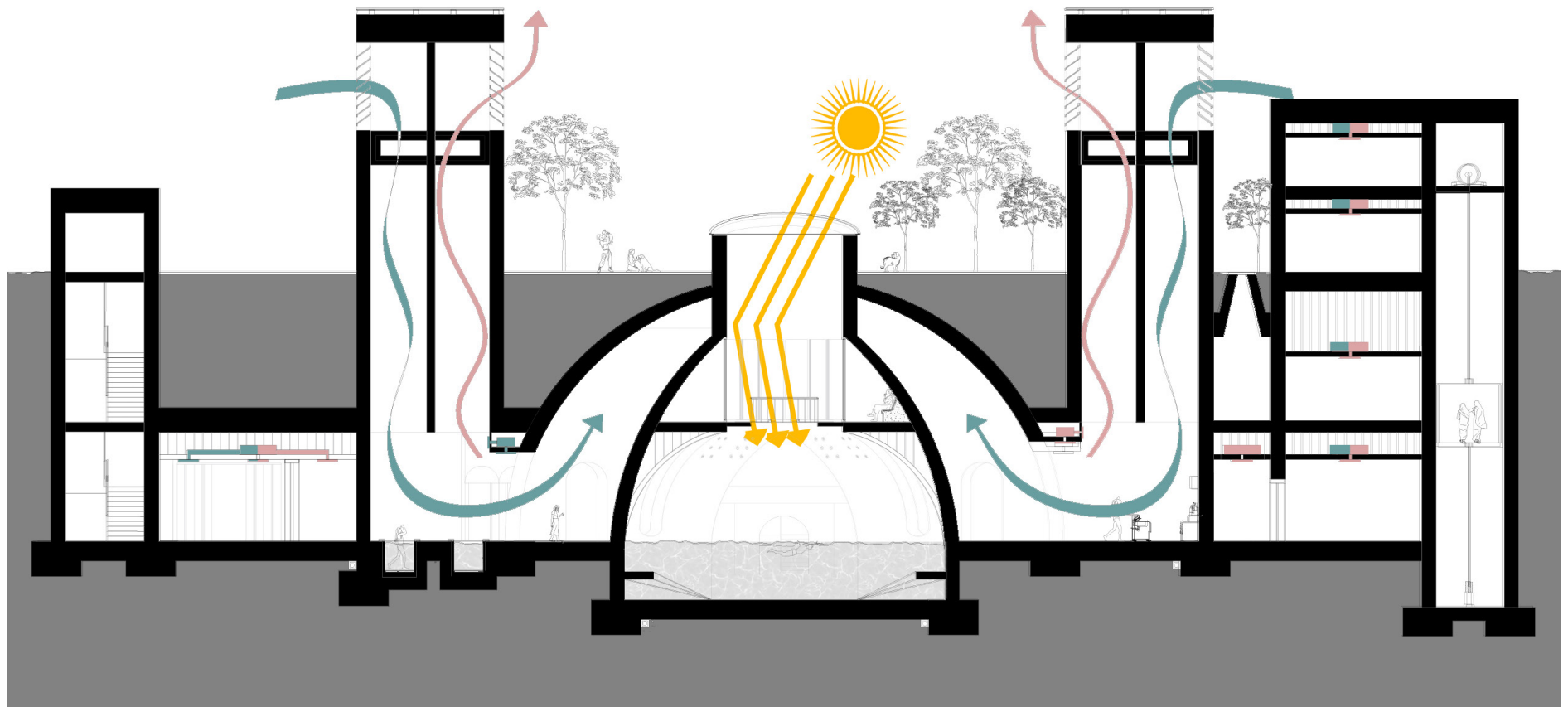


SURROUNDED BY EARTH

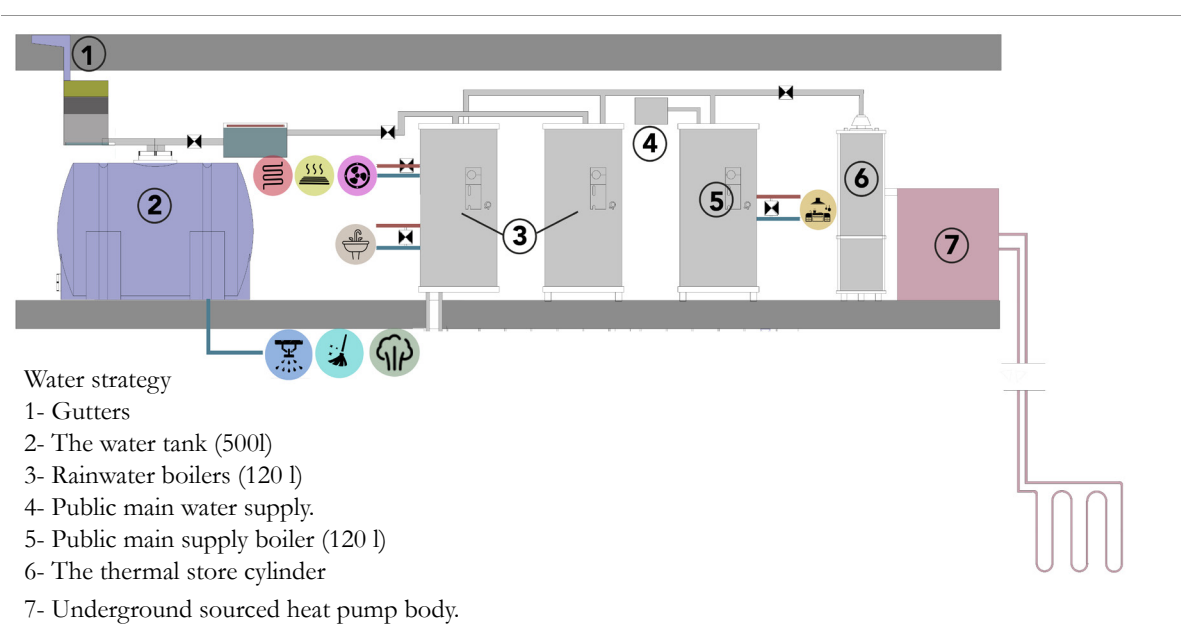
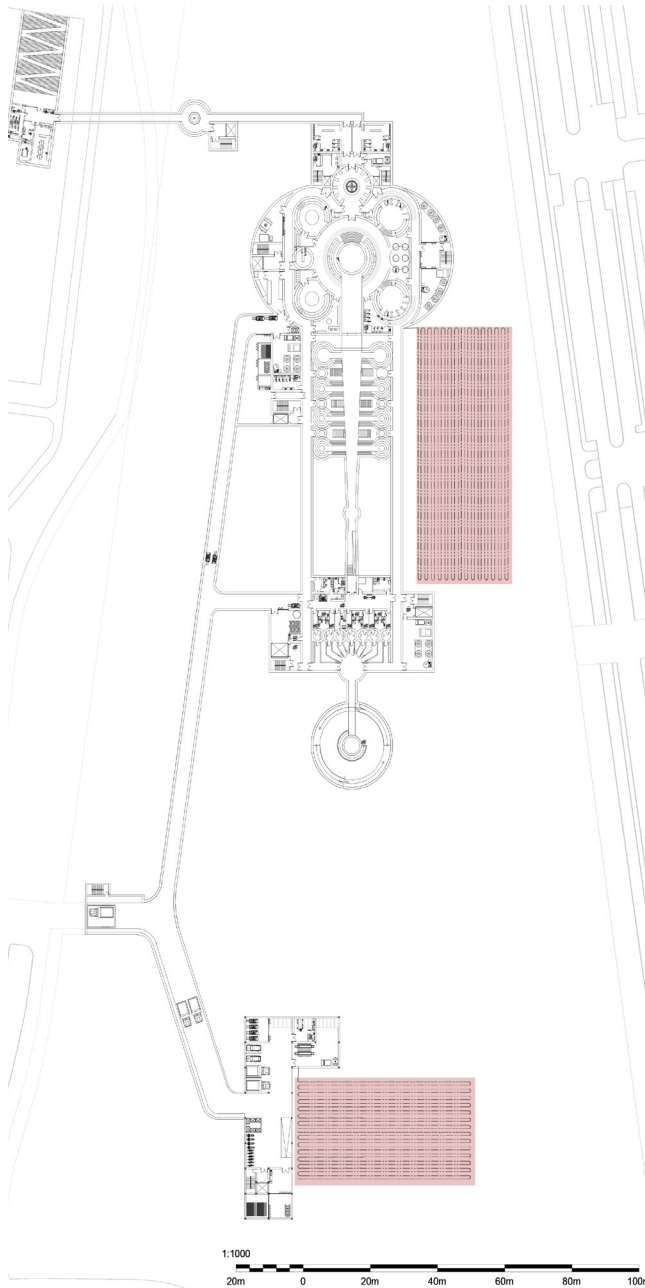
Consistent temperature of 10-
12 degrees all year around



HYBRID SOLAR SYSTEM



VENTILATION STRATEGY



HEATING STRATEGY

CONTENT

○	MOTIVATION
○	STATEMENT
○	MAIN QUESTION
○	URBAN STRESSORS AND RELXANTS
○	IN THE CONTEXT OF ROTTERDAM SOUTH
○	WHAT ROLE DOES ARCHITECTURE PLAY
○	AREA ANALYSIS
○	USER AND PROGRAMME
○	THE CENTRE AS ORGANISM
●	EXPERIENCE OF CALMNESS
○	THE END



Calmness centre user

USERS



ENTRANCE



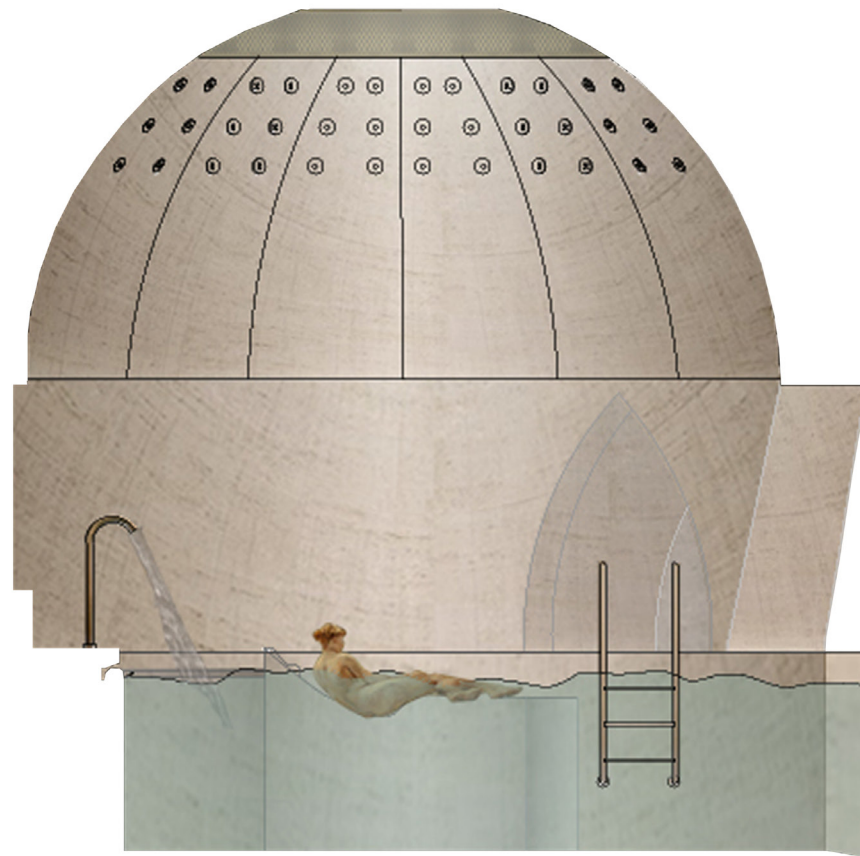
PATIENCE TEMPLE



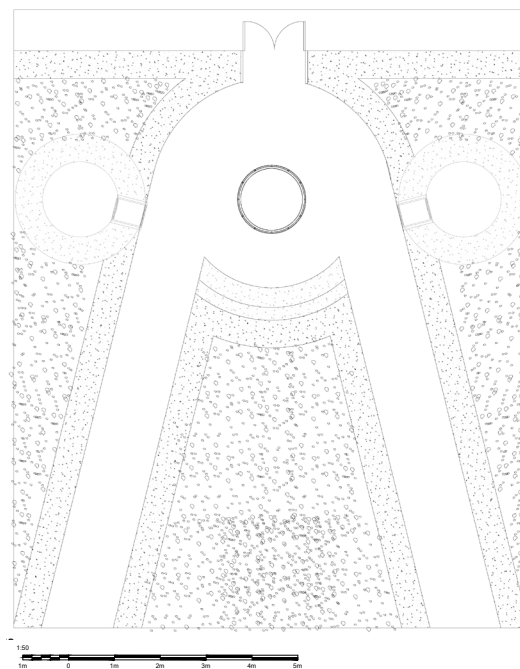
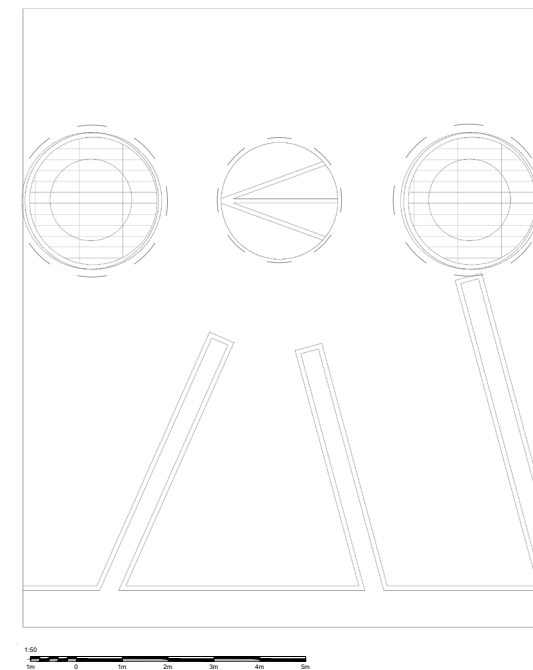
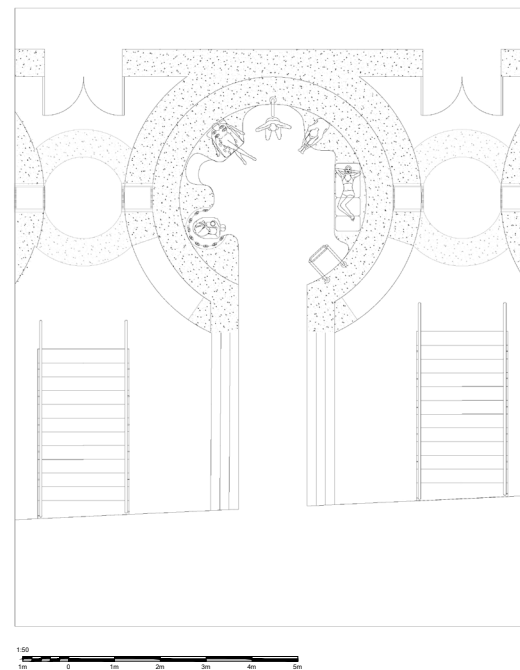
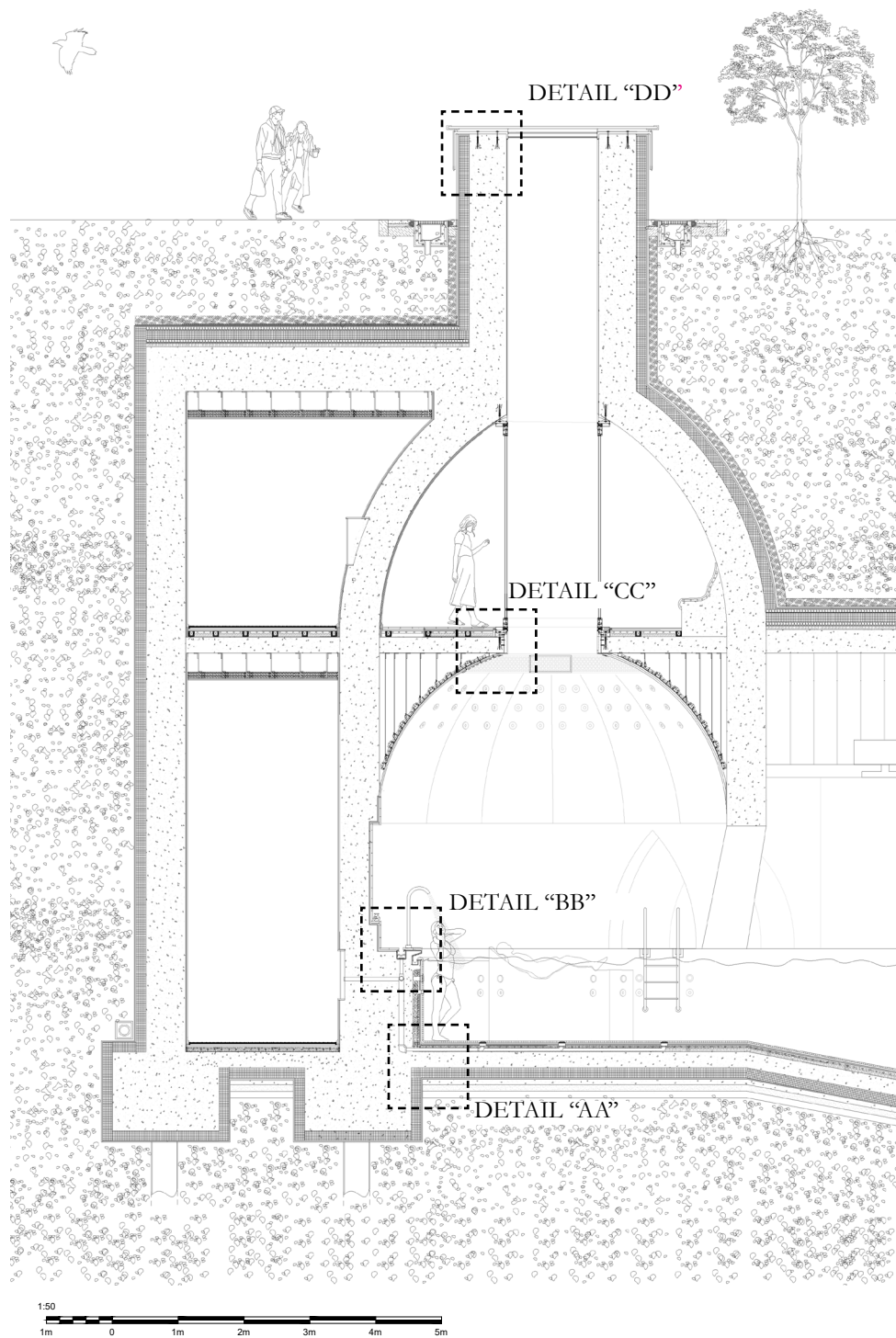
ABLUTION TEMPLE



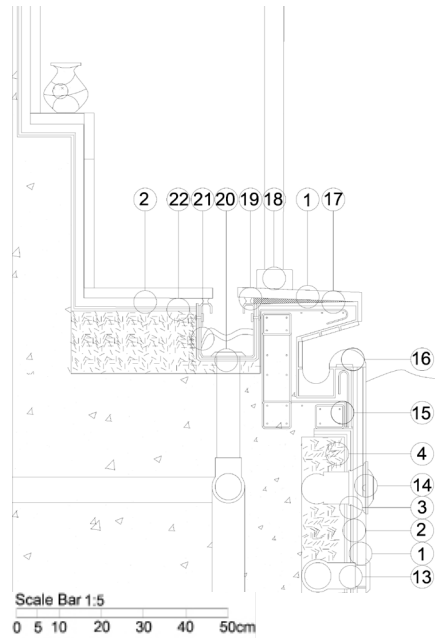
AGORA TEMPLE



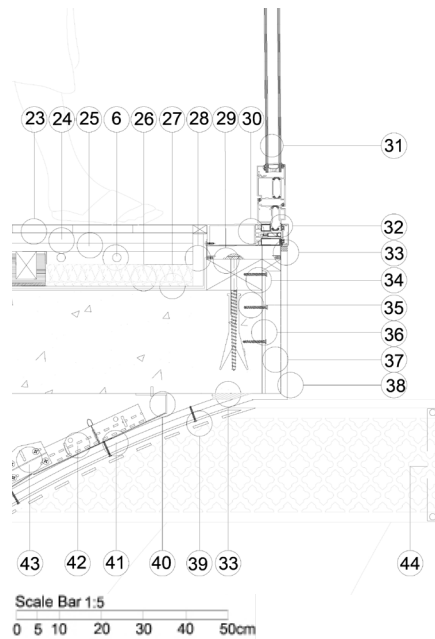
BATHING CARRELS TEMPLE



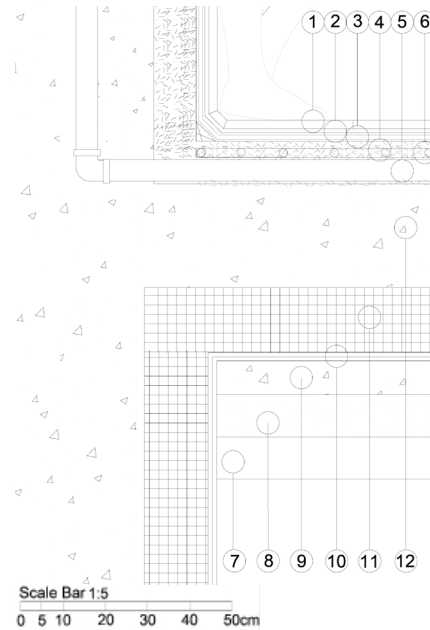
SECTION AND
FLOOR PLANS
SCALE 1:50



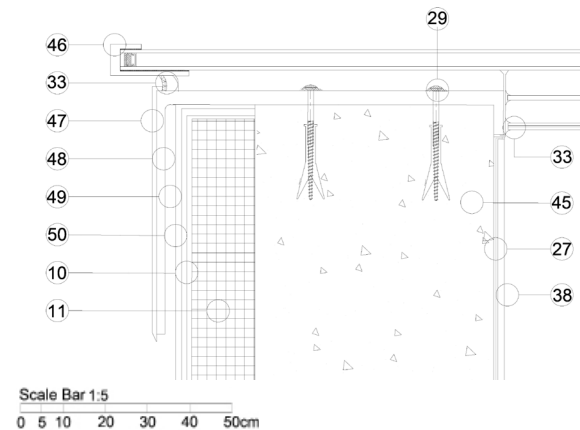
OVERFLOW CHANNEL AND HAND GRIP DETAIL



BATHING CARREL DOME AND GALLERY WINDOW FRAME



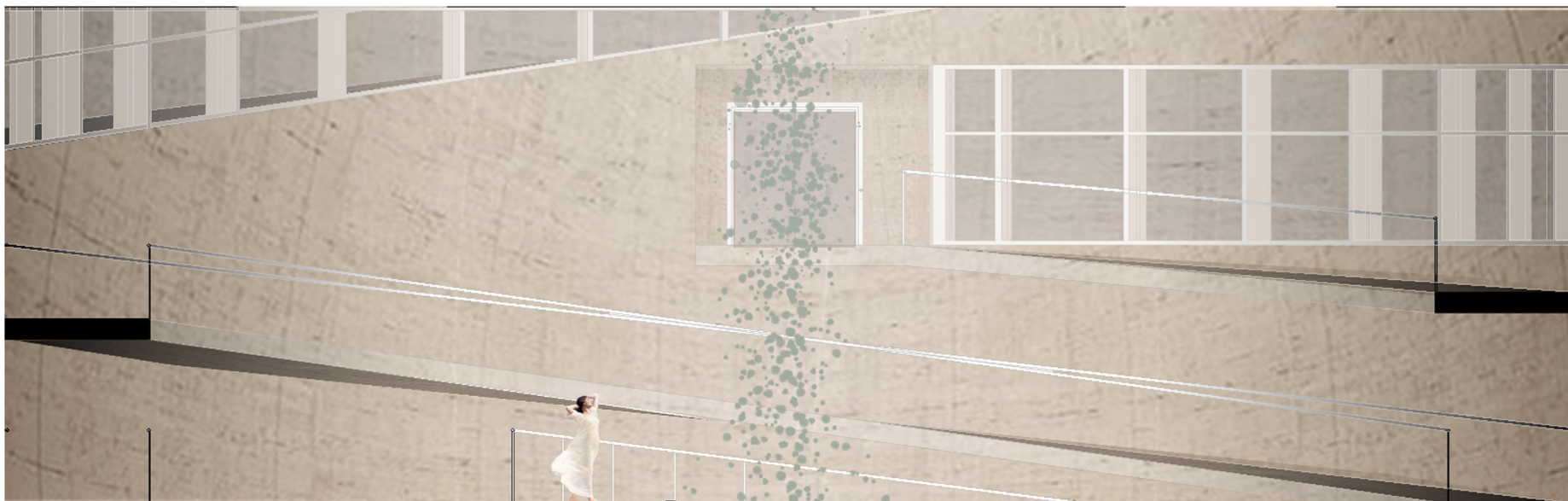
FOUNDATION DETAIL



SKYLIGHT DETAIL

1:5 DETAILS

- 1 CMC400 Luna Tiles 20x300x600mm
- 2 Medium-bed mortar-based tile adhesive 10mm
- 3 2 layers of cementitious waterproofing membrane (e.g.Ardex S 7 Plus)
- 4 Screed with embedded services 100mm
- 5 Water pipe connected to vessel bottom outlet
- 6 Heating pipes
- 7 Elevation of raft foundation 600mm
- 8 Sand 100mm
- 9 Non-structural concrete slab 70mm
- 10 EPDM membrane
- 11 Rigid insulation 150mm
- 12 Concrete slab 200mm
- 13 Water inlet nozzle
- 14 Underwater light
- 15 Concrete reinforcement (to be defined by engineer)
- 16 Prefabricated ceramic pieces
- 17 Leveling compound
- 18 Gooseneck spout elevation profile
- 19 Polyurethane sealant
- 20 Drain taking the excess water to the balance tank
- 21 Stainless steel overflow channel
- 22 Layer of cementitious waterproofing membrane
- 23 Laminate flooring 12x250x140mm
- 24 Chipboard tongue floorboard 22mm
- 25 Gypsum based board 20mm
- 26 Acoustic insulation 50mm
- 27 Vapour control layer
- 28 High performance insulation 20mm (e.g XPS)
- 29 Galvanized steel anchor
- 30 Transom profile
- 31 8mm Tempered Clear Glass
- 32 EPDM Gasket
- 33 Flexible joint sealant
- 34 Support batten 70x130mm
- 35 Concrete floor slab 250mm
- 36 Metal furring (C) channel 45mm
- 37 Rigid insulation 40 mm
- 38 Waterproof plasterboard 15mm
- 39 Ventilation cover design (fake)
- 40 Suspension hanger
- 41 2 Layers of waterproof plasterboard 15mm
- 42 Main bar
- 43 Cross runner positioned at 250mm
- 44 Ventilation shaft position
- 45 Concrete parapet wall 600mm
- 46 Skylight glazing clips
- 47 Metal flashing
- 48 Steel C- channel connecting glazing to the structure
- 49 Ventilation gap
- 50 Cellular PVC protection board 20mm



AGORA TEMPLE



NATURE TEMPLE



THE THERAPY TEMPLE



GALLERY TEMPLE



GALLERY TEMPLE



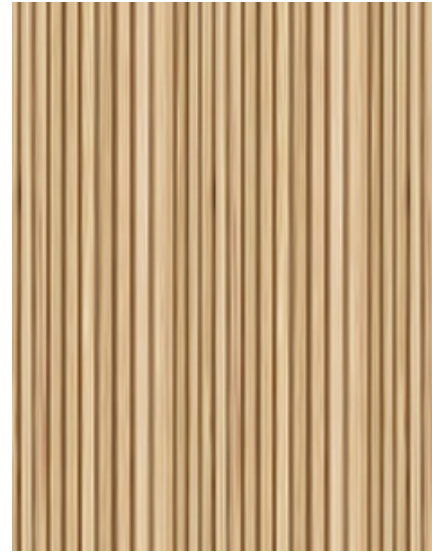
GALLERY TEMPLE



Tadelakt Moroccan Plaster



Manzoni Stone Beige Travertine
Porcelain Wall or Floor Tile 600 x
600mm



Oak wood



Brick walls and flooring

MATERIALS



Calmness centre user



Neighbourhood folk



USERS





Calmness centre user



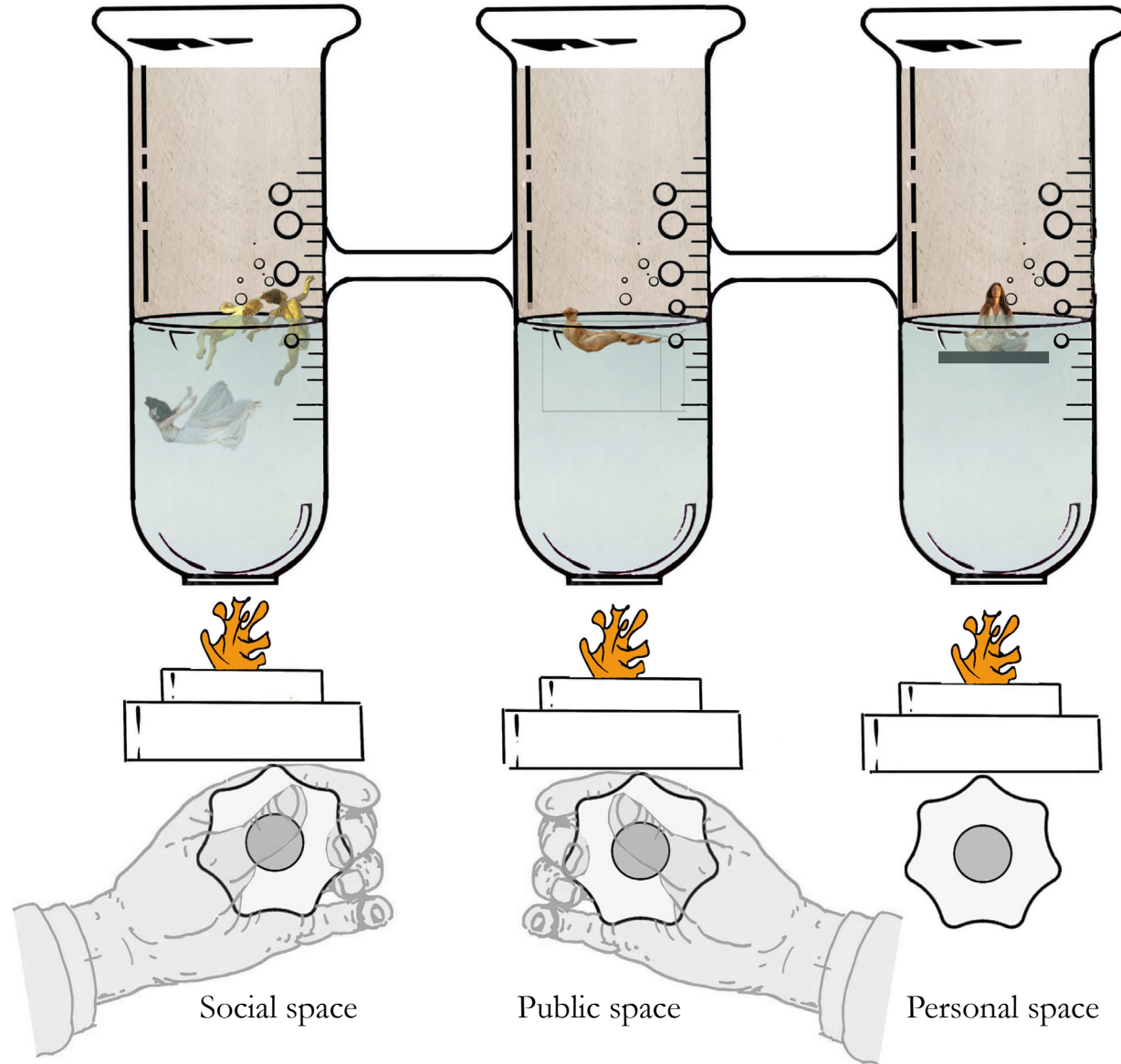
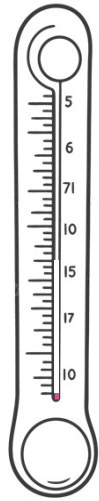
Neighbourhood folk



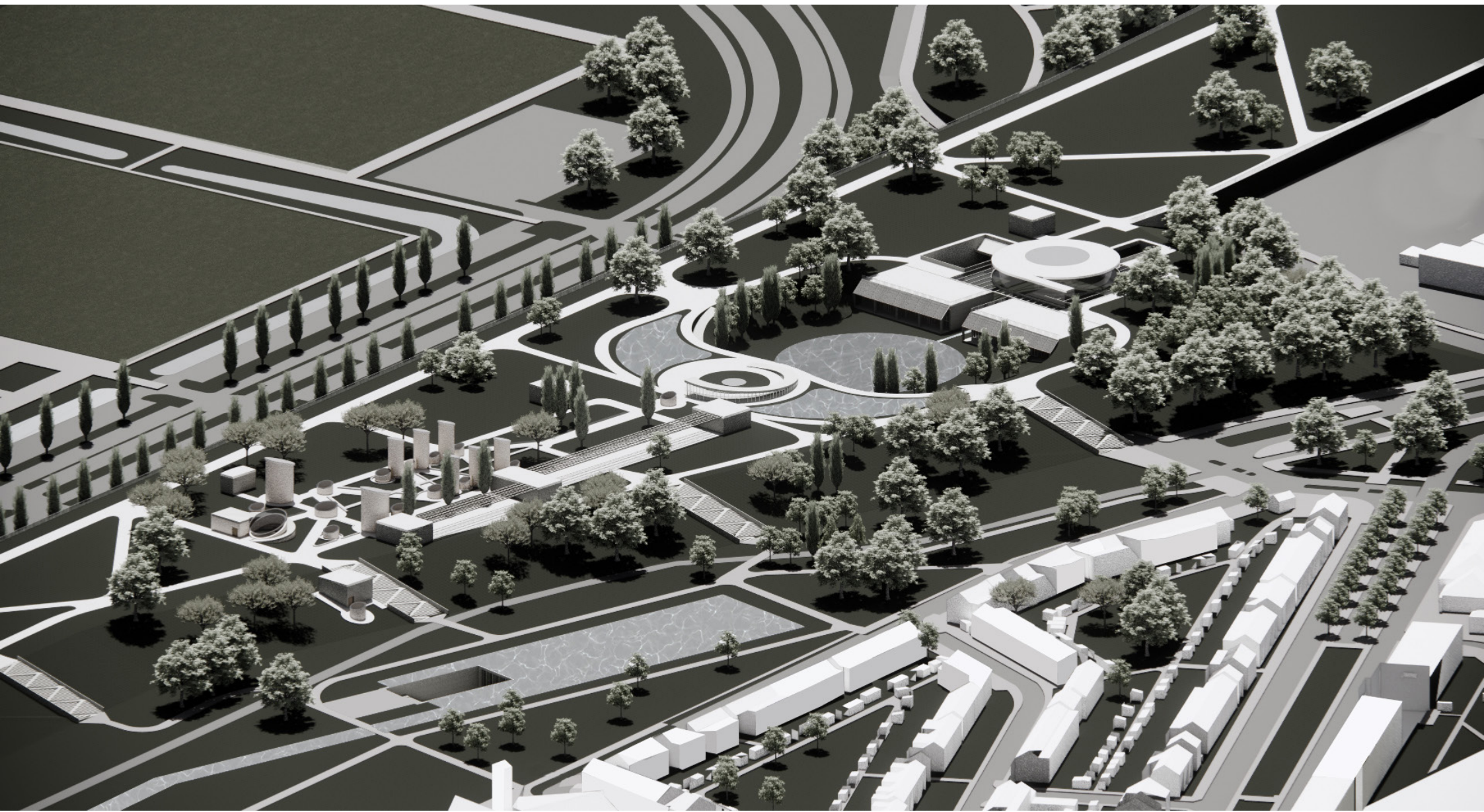
Natuurlijk vreewijk

USERS





CONCLUSION



THANK YOU