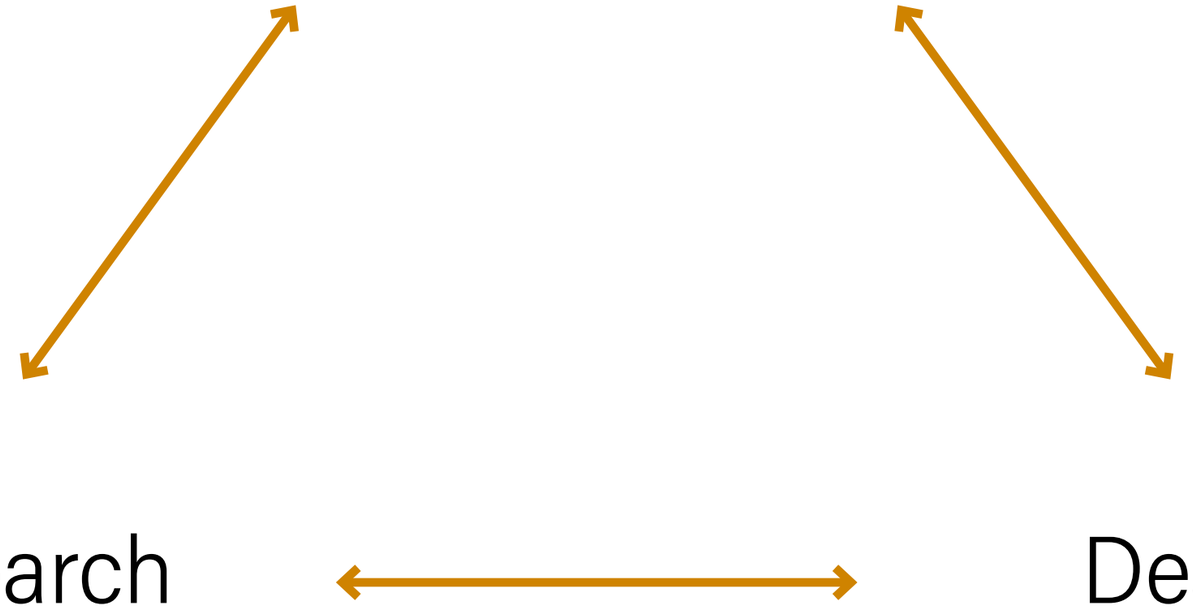
Tides of change

Reviving maritime heritage for a water-connected future

Roos Boerma 4856538

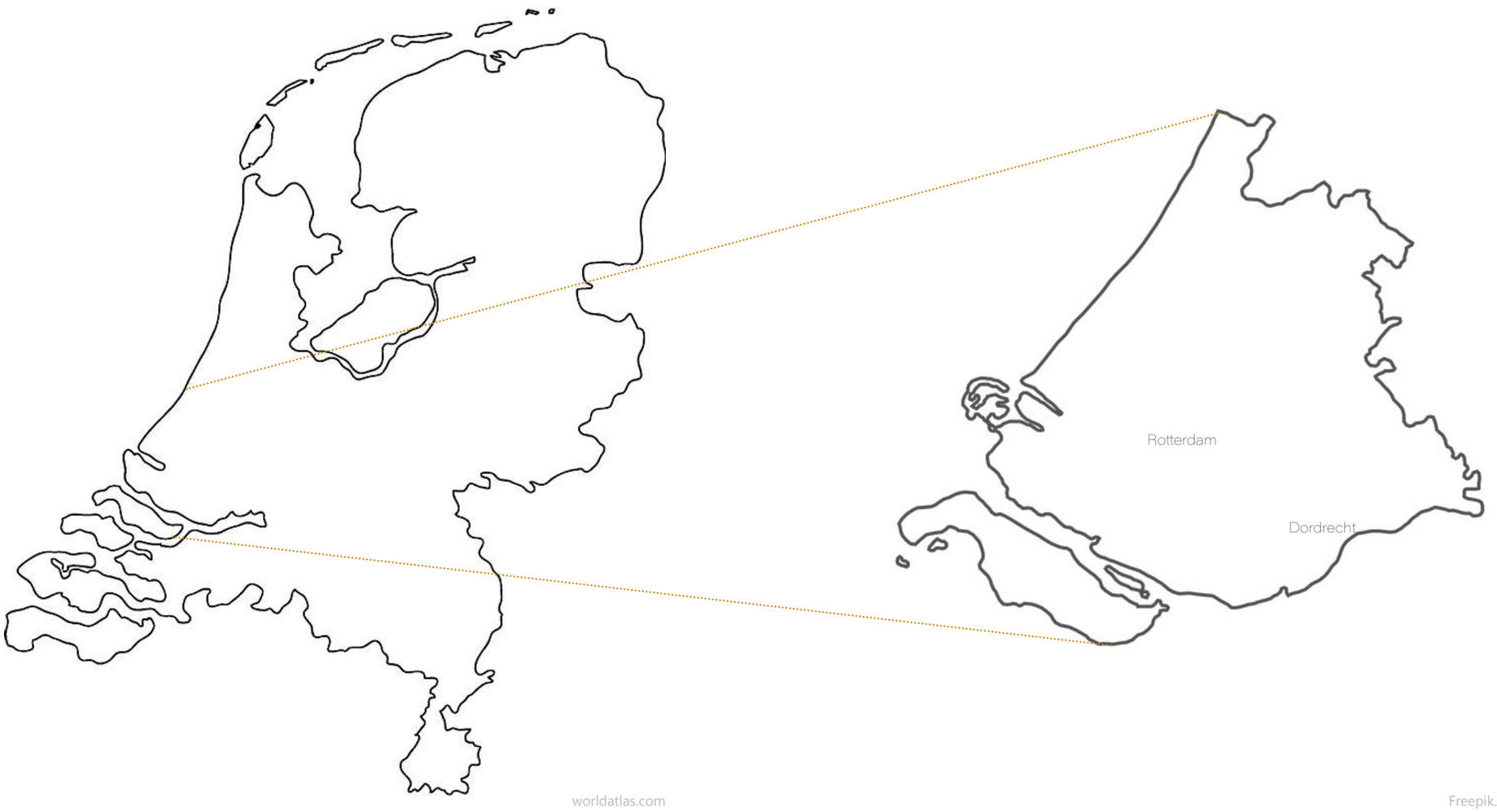
Analysis



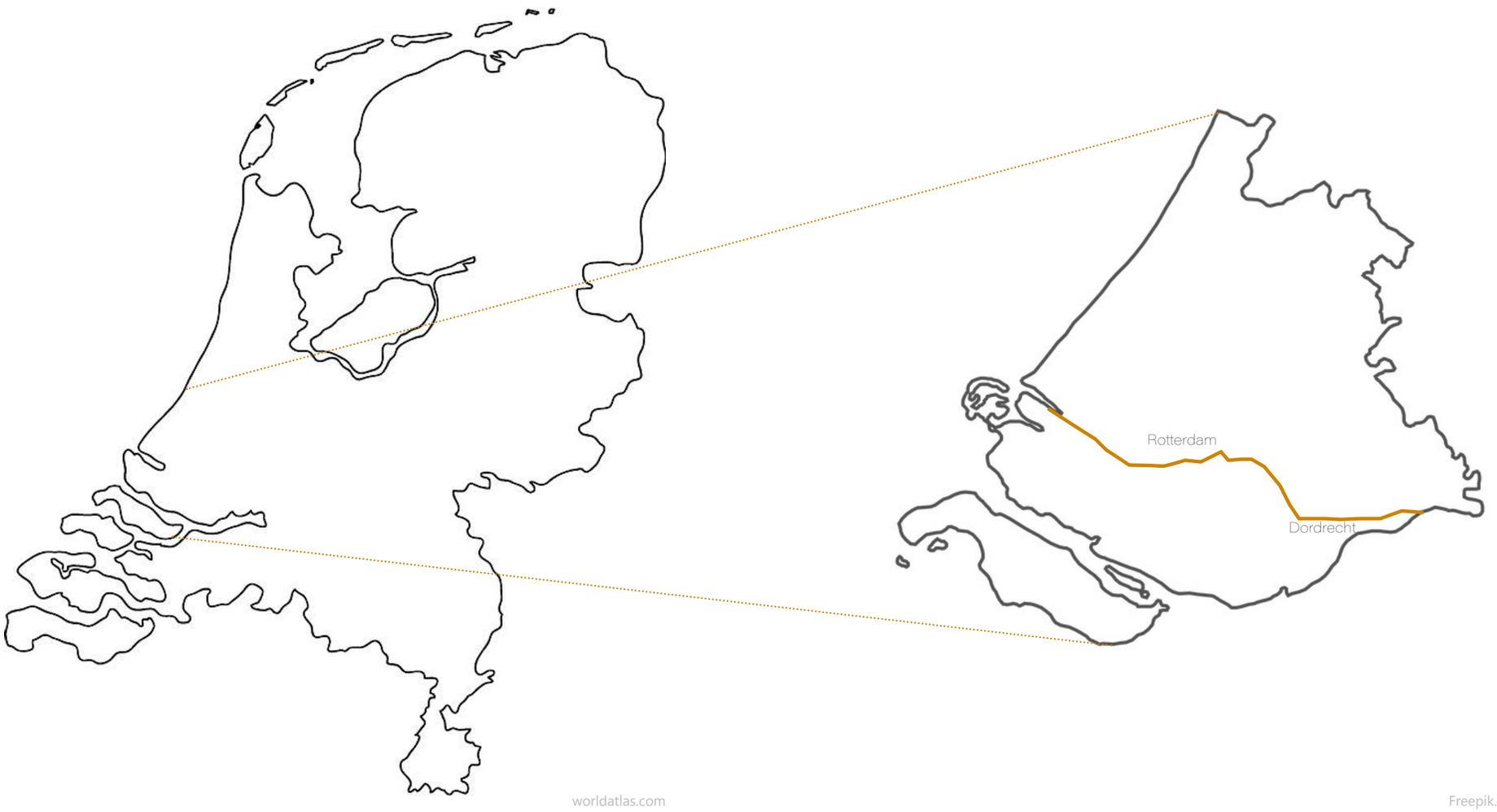
Analysis → Research → Design

Analysis → Research → Design

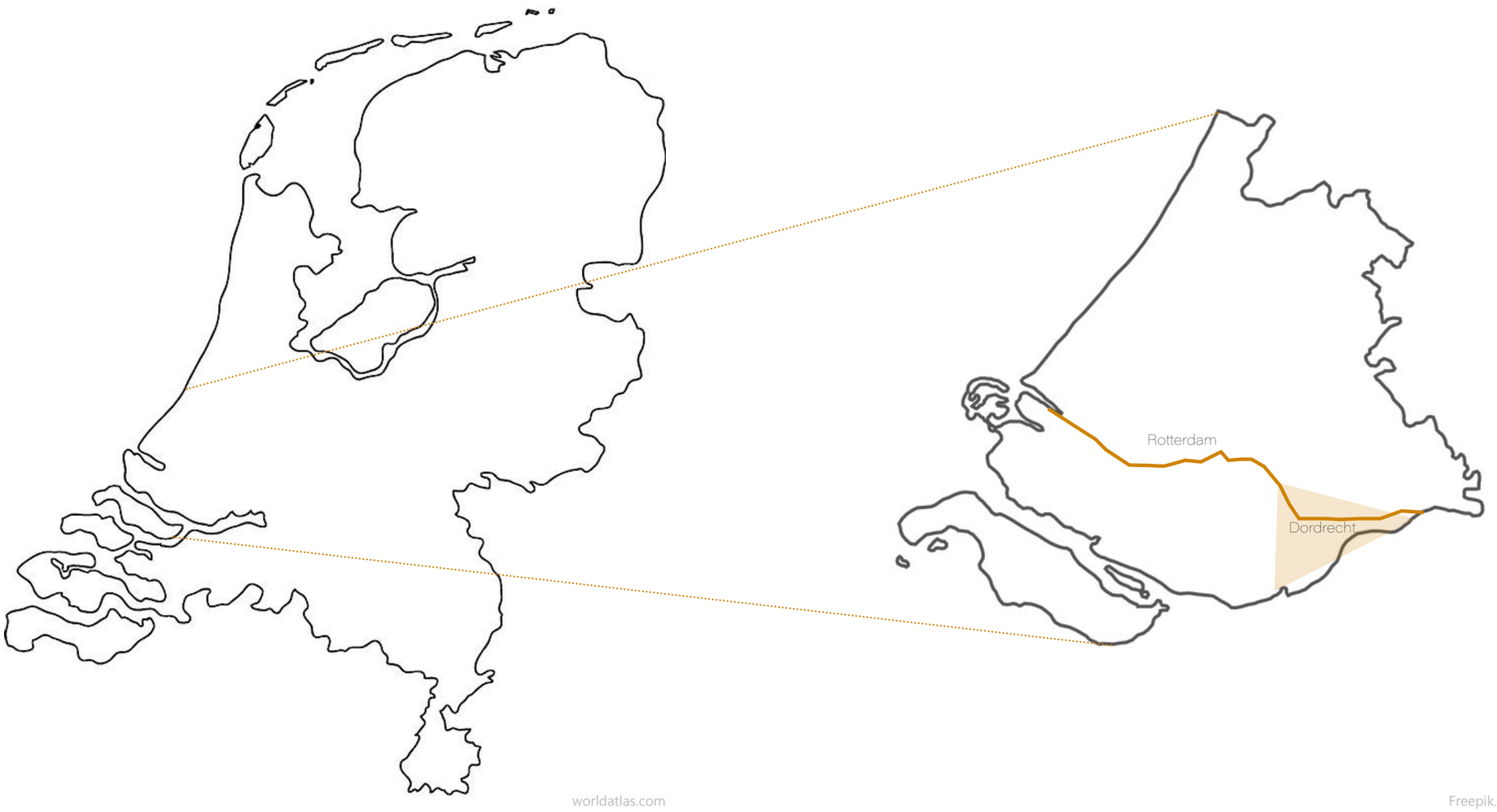
Analysis | Research | Design
Introduction of the Waterdriehoek



Analysis | Research | Design
Introduction of the Waterdriehoek



Analysis | Research | Design
Introduction of the Waterdriehoek

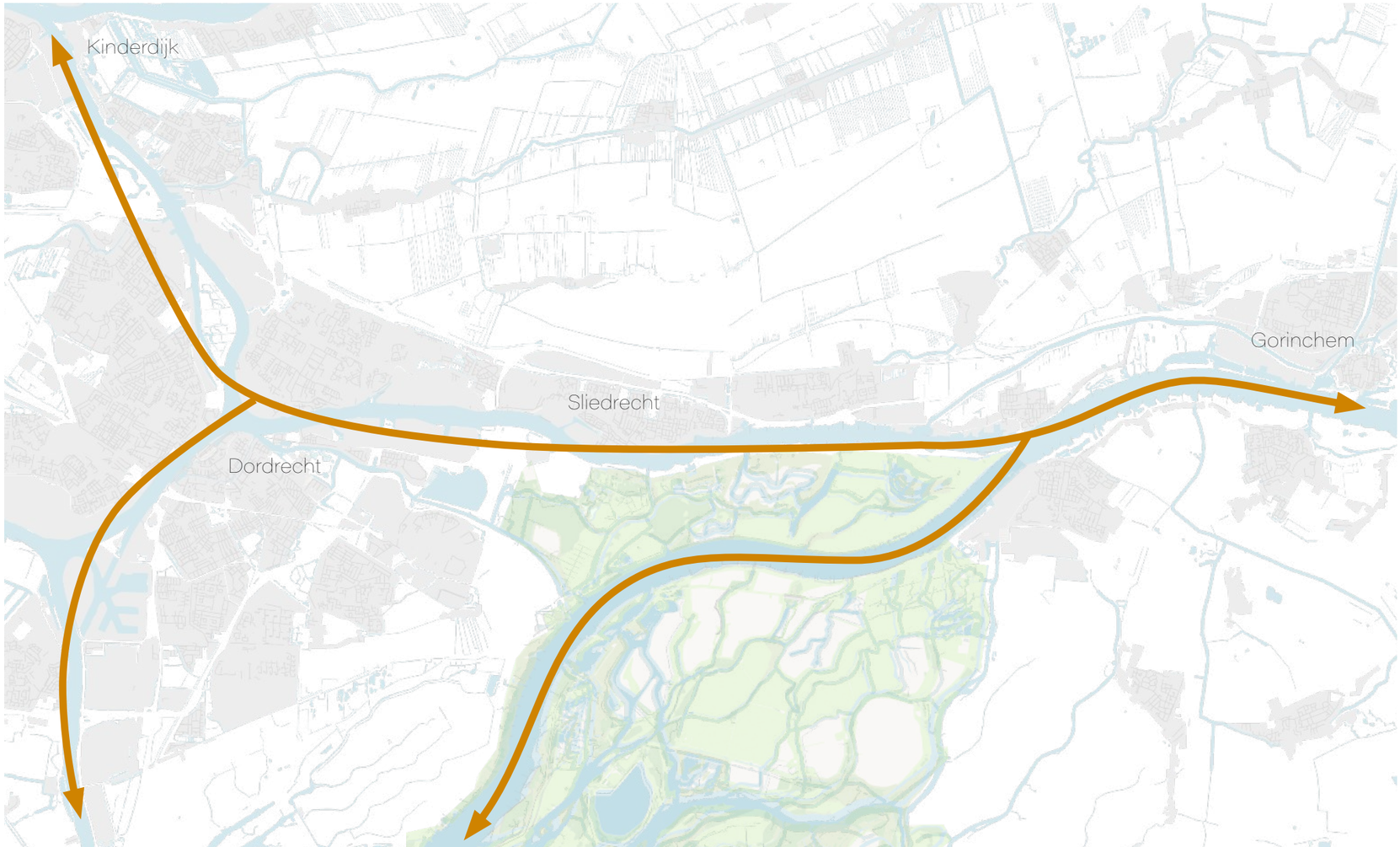


Analysis | Research | Design
Introduction of the Waterdriehoek

Openstreetmap - own edit

N

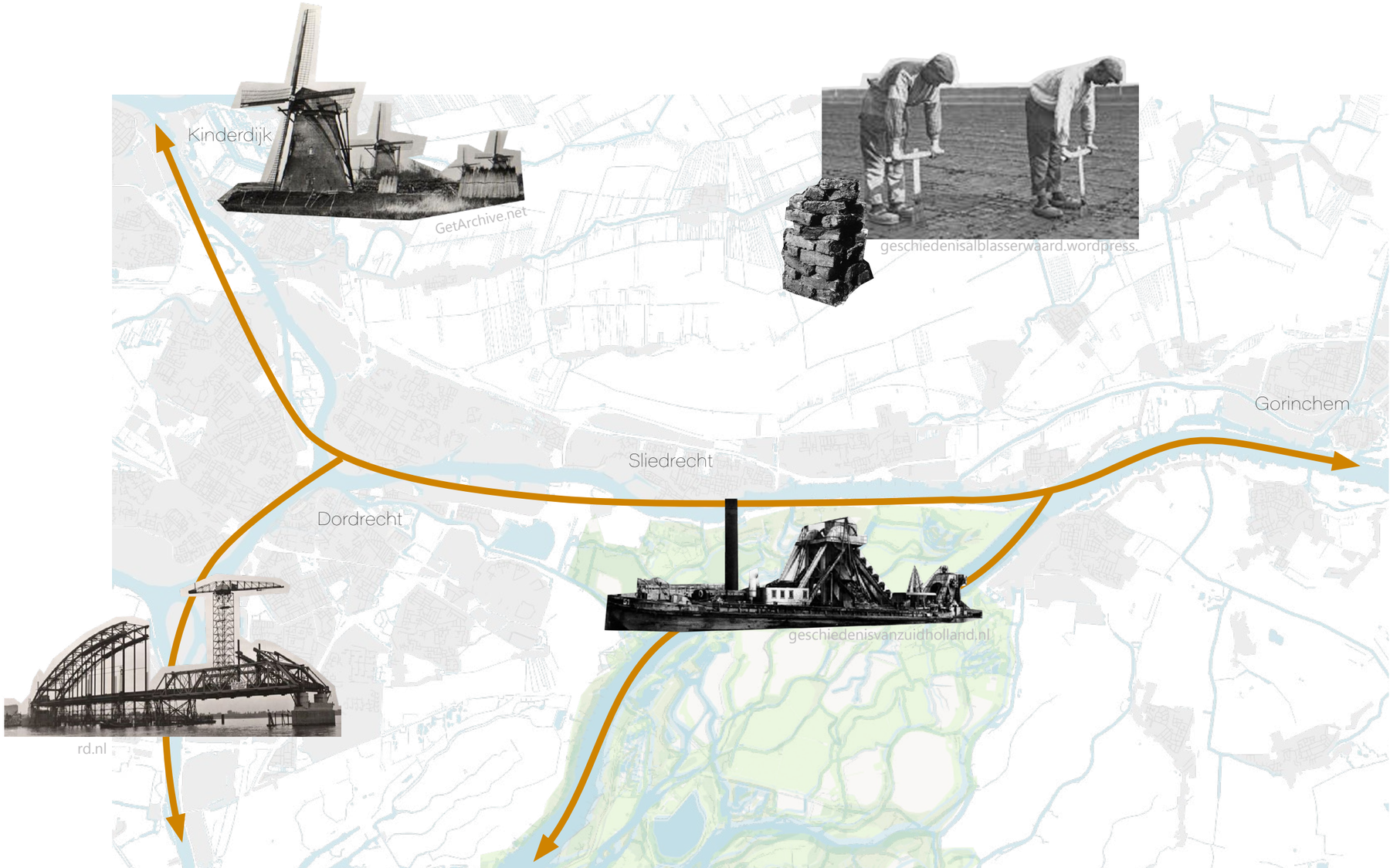
Analysis | Research | Design
Introduction of the Waterdriehoek



Openstreetmap - own edit

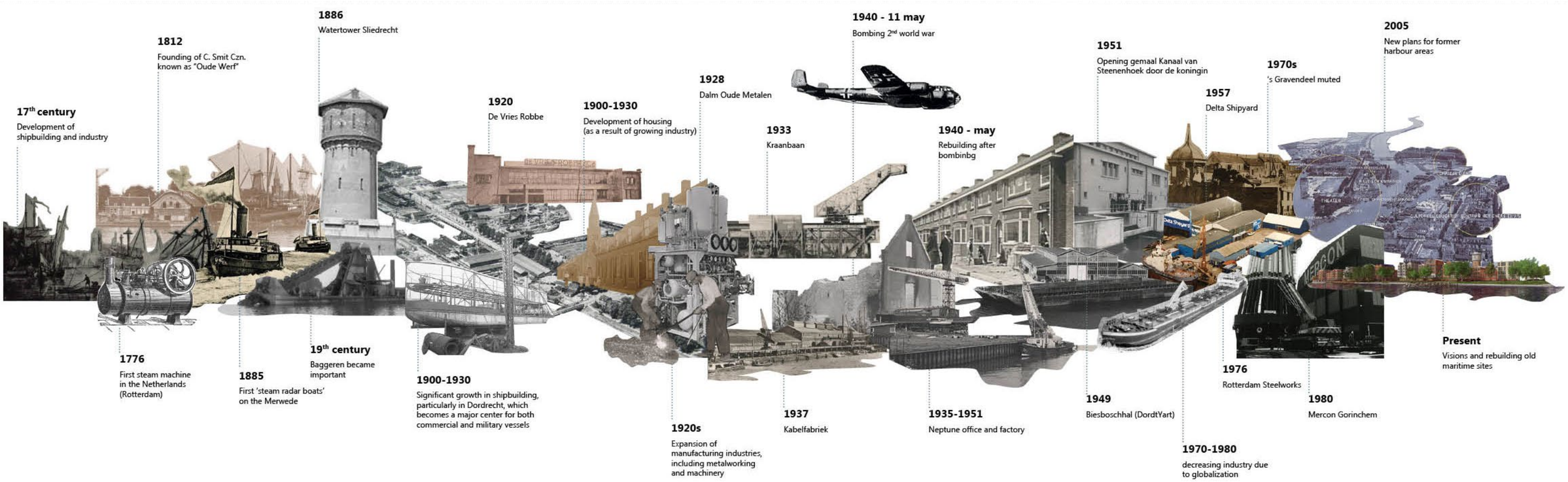
N

Analysis | Research | Design
Introduction of the Waterdriehoek



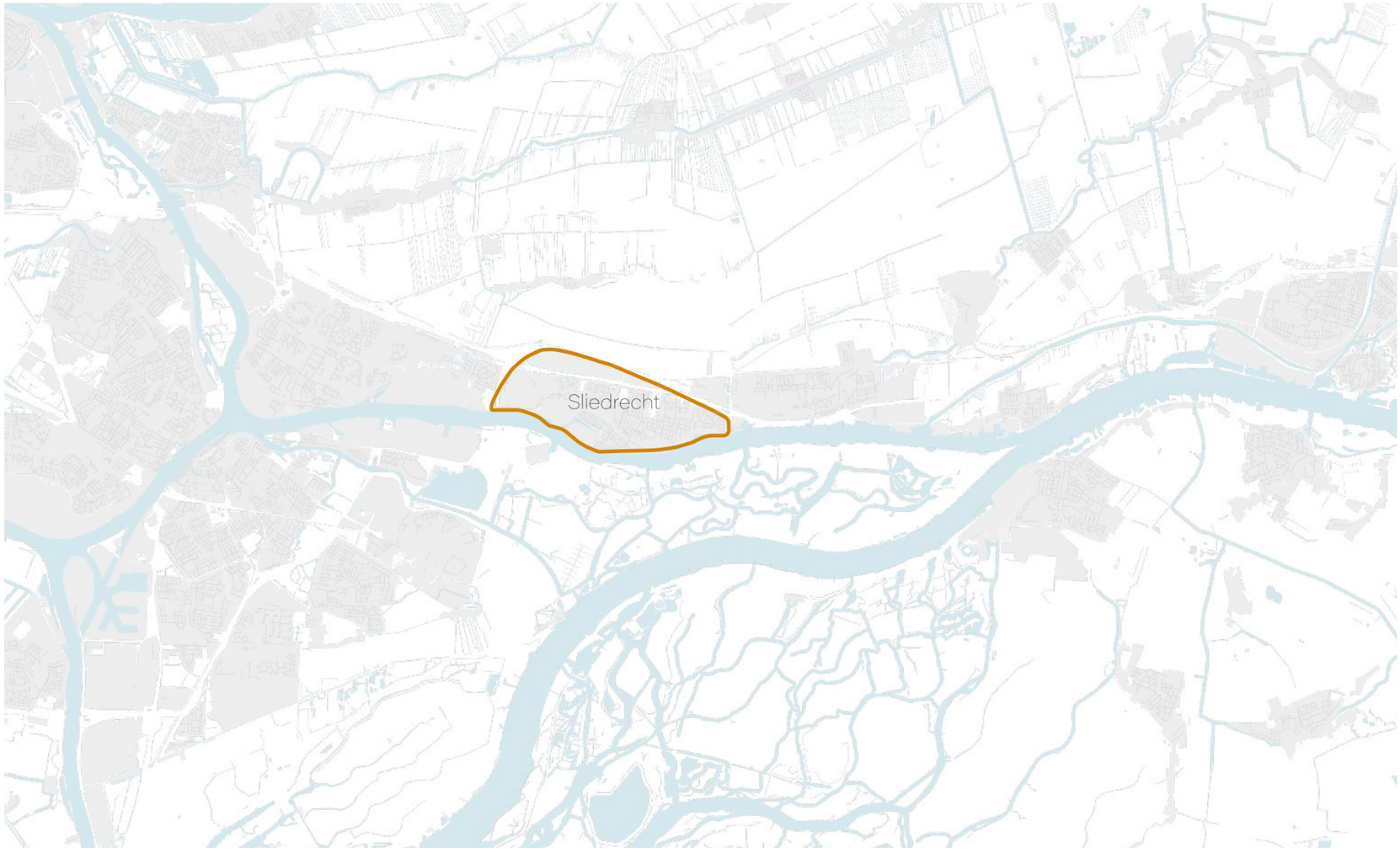
Openstreetmap - own edit

Analysis | Research | Design
Introduction of the Waterdriehoek



studio group work

Analysis | Research | Design
Project focus



Openstreetmap - own edit

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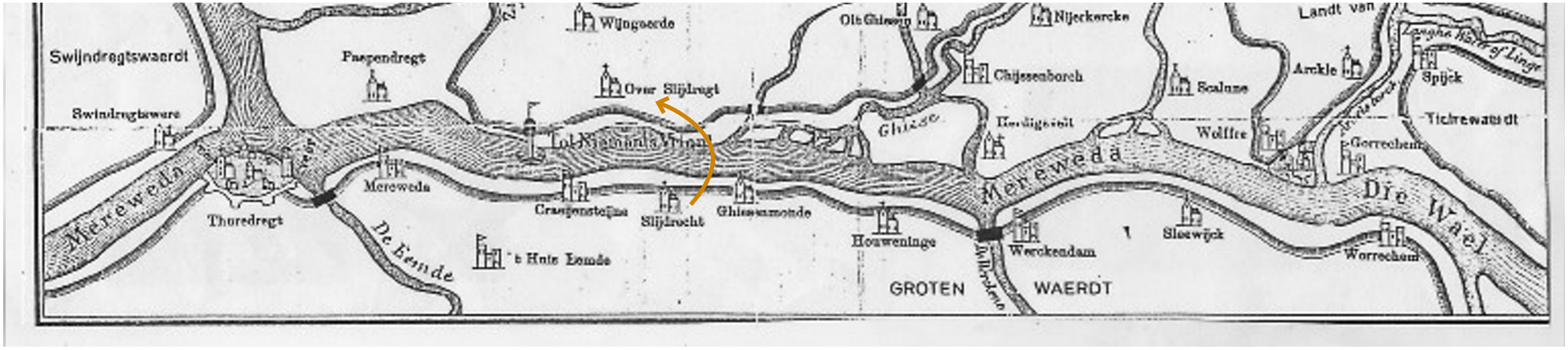
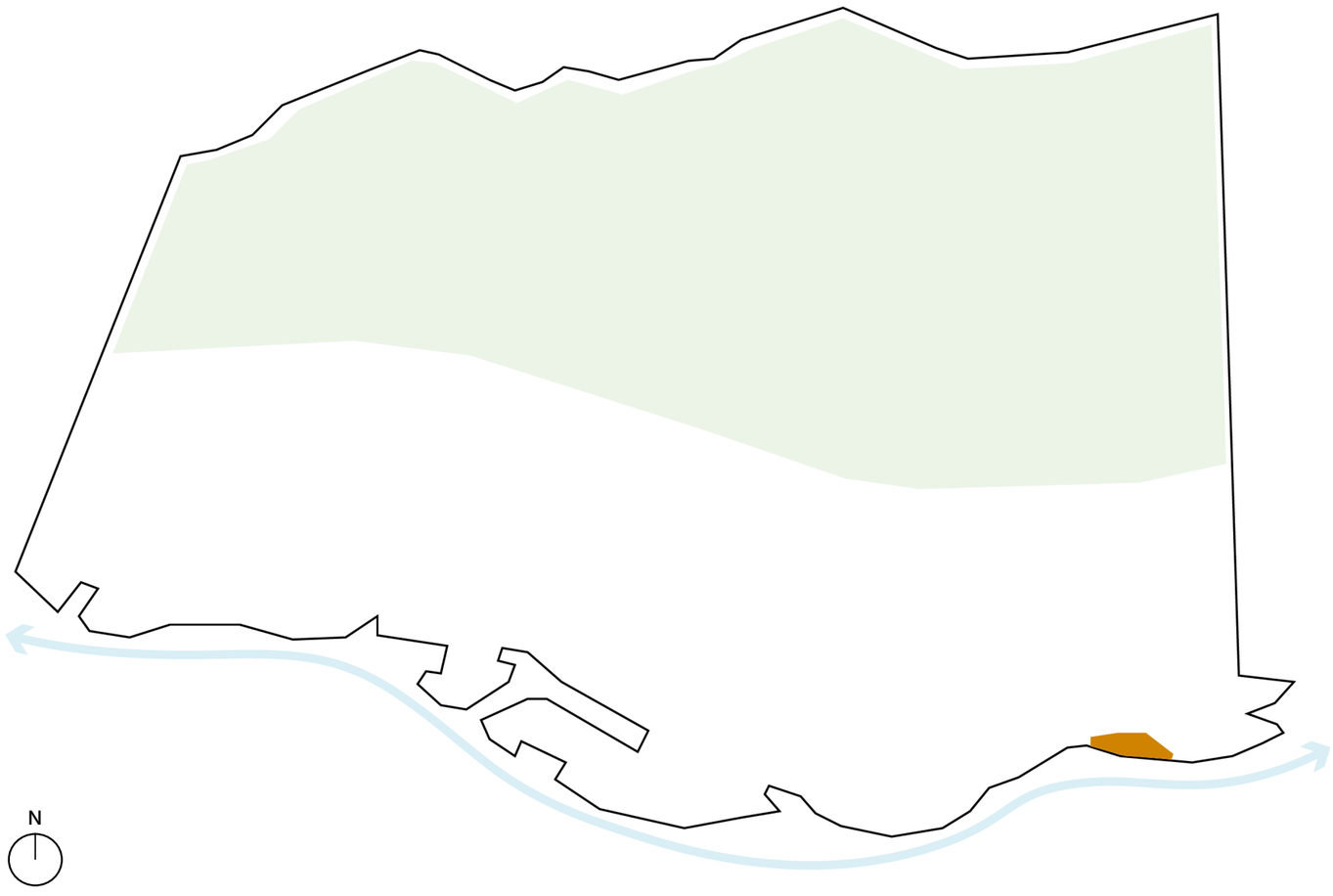
Analysis | Research | Design
Project focus



Sliedrecht 24 - own edit

Analysis | Research | Design
Sliedrecht

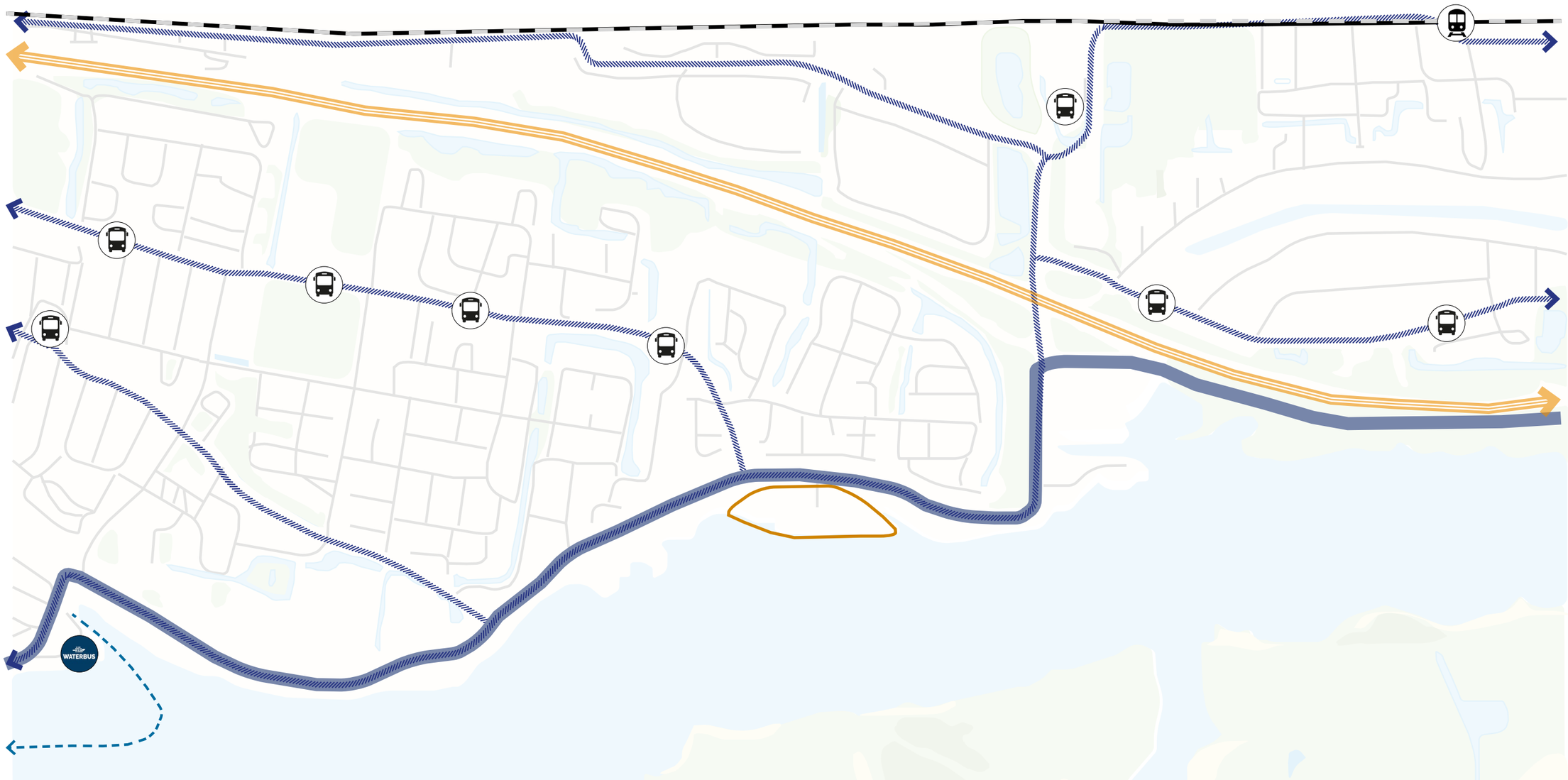


Analysis | Research | Design
Project site

Openstreetmap - own edit

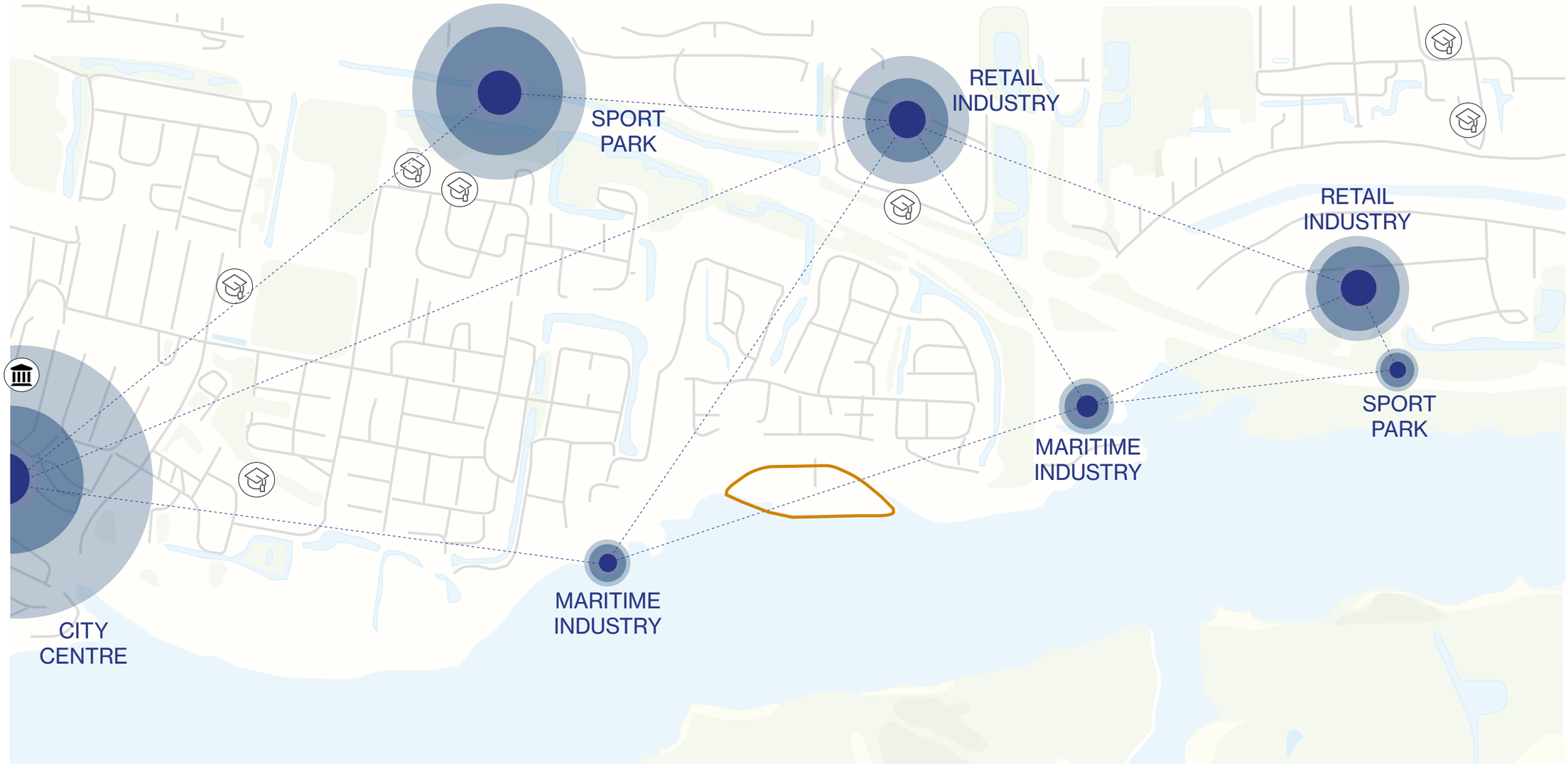
N

Analysis | Research | Design
Project site - routing



Openstreetmap - own edit

Analysis | Research | Design
Project site - activity hubs

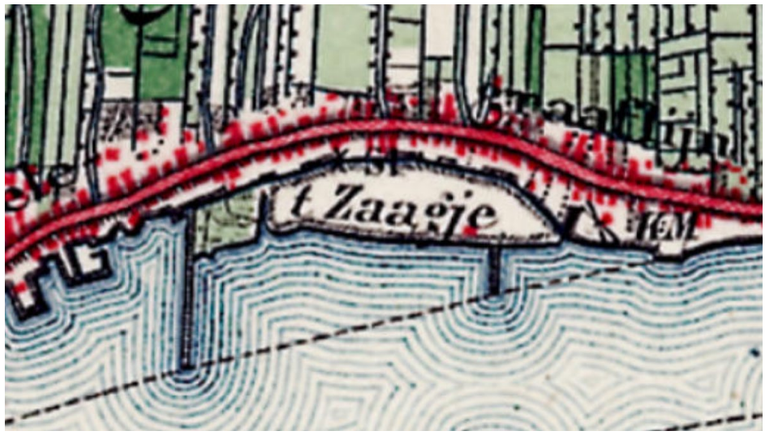


Analysis | Research | Design

Project site - evolution

1850

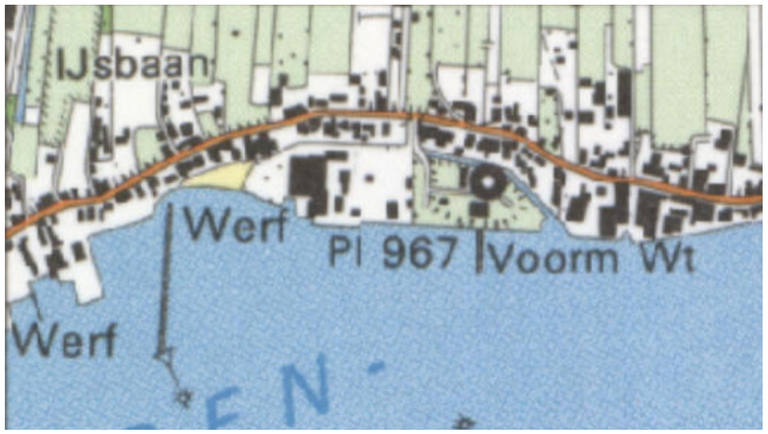
1880



1935

1970

1990



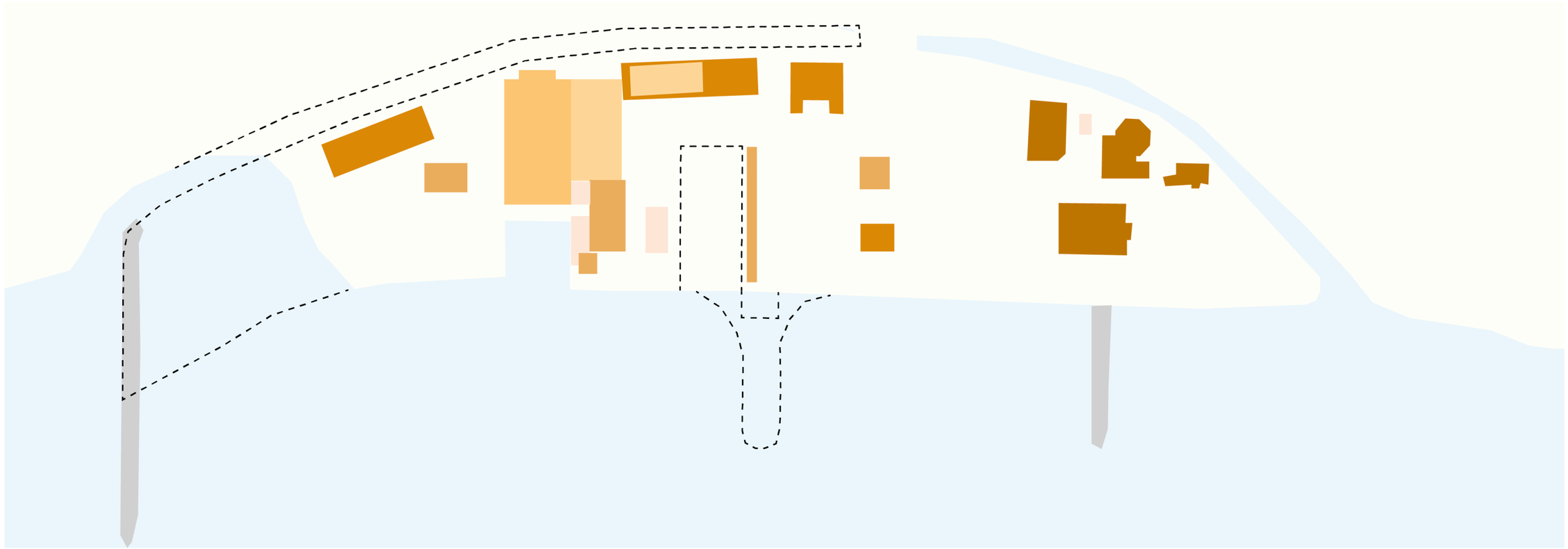
2023

Topotijdreis.nl

N

Analysis | Research | Design

Project site - years of construction



own image

Analysis | Research | Design
Watertower

Historie Sliedrecht - Werkzaamheden bij de watertoren - around 1890

Historie Sliedrecht - 006-136 - Wijk A - Watertoren 1918

Source Unknown - Overview of the watertower and service buildings

Analysis | Research | Design
Delta Shipyard

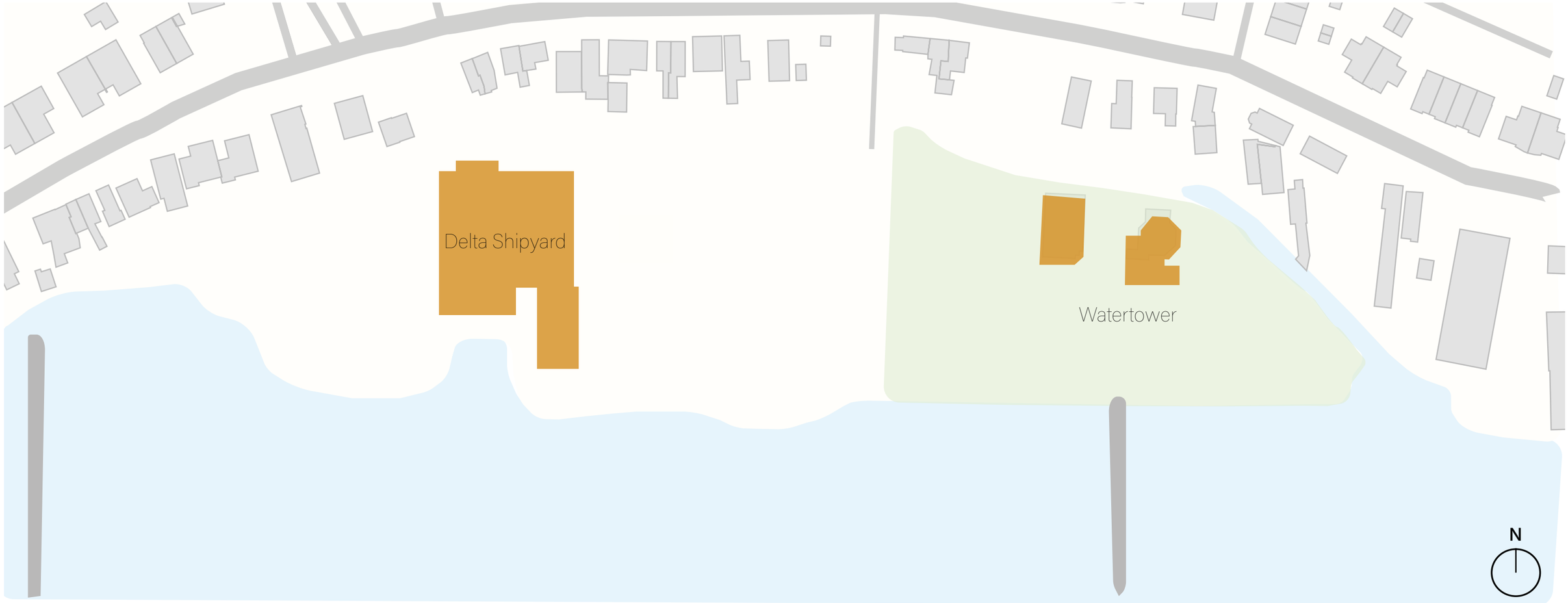
Historie Sliedrecht - 006-173a - Scheepswerf van Bennekom - around 1955

Historie Sliedrecht - 006-174 - Wijk A - Scheepswerf van Bennekum- around 1965

Source unknown - old primary shipyard building - around 1970

Historie Sliedrecht - 006-116 - Wijk A - Scheepswerf - around 1990

Analysis | Research | Design
Current situation



Analysis | Research | Design
Current situation





own photos

Analysis | Research | Design
Current proposed plan

West 8

Analysis | Research | Design
Current proposed plan

"Manhattan aan de Merwede"

- Steiger voor in- en uitstappen pleziervaart
- Boothelling
- Boulevard langs de rivier

- **Aanwezigheid van de rivier.** Sliedrecht ligt direct aan de Beneden Merwede. Waterrecreatie is een populaire vrijetijdsactiviteit. Dit kan worden benut door langs de

- De respondenten noemen de rivier sowieso vaak als tip of wens om meer mee te doen op het gebied van recreatie: als een plek om zwemgelegenheid te creëren, als een locatie voor meer horeca, als een locatie voor fietspaden- en routes en wandelmogelijkheden.

er is de **beleefbaarheid nu minimaal**. Er zijn

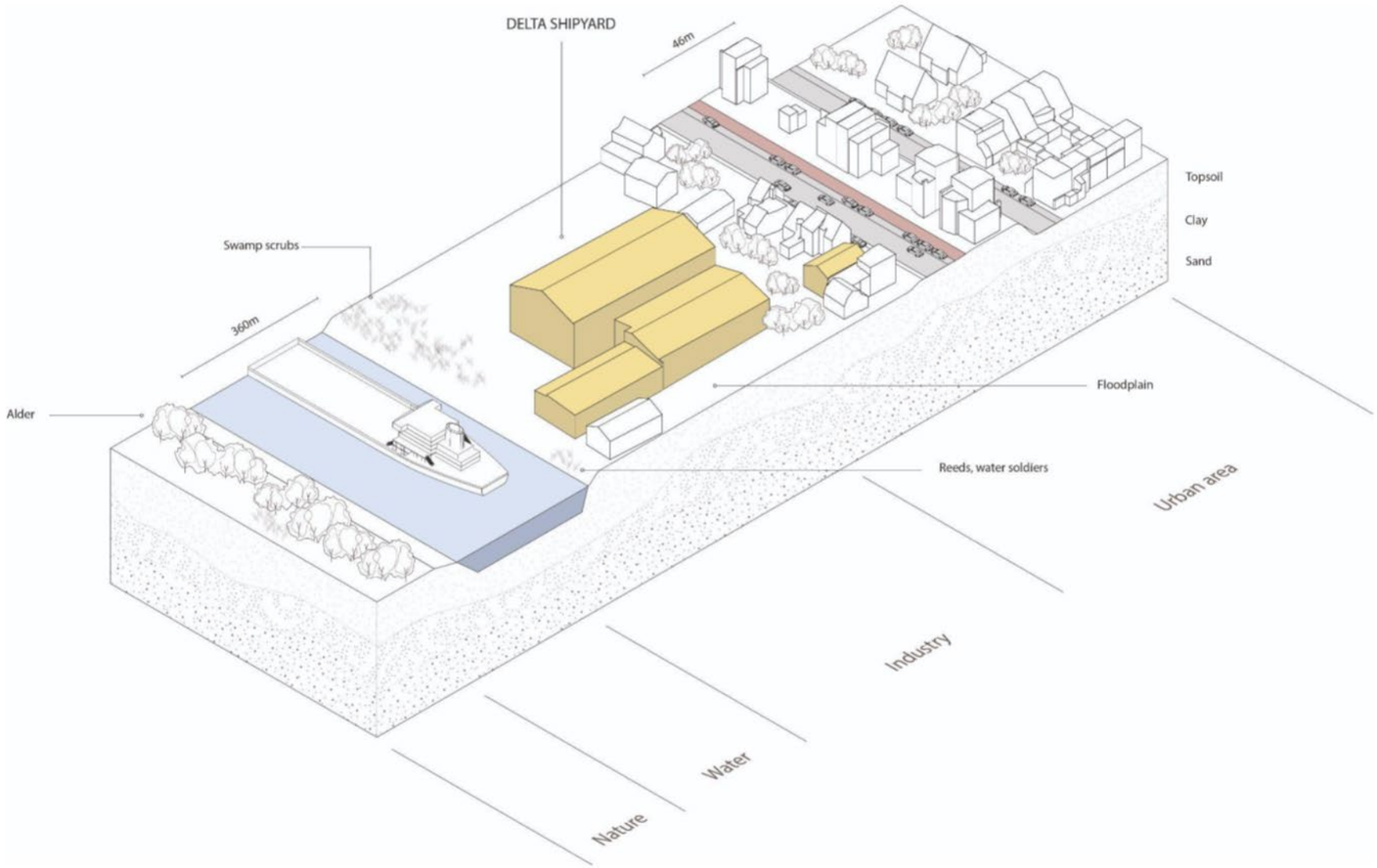
- Zorg dat de rivier ook echt bij het dorp hoort: zorg dat bewoners hiervan kunnen genieten (strandje, bankjes, bereikbaar)

- Verschuiving van bezit naar gebruik en beleven. Opkomst van 'deelconcepten'. **Behoefte aan en vraag naar beleefbaarheid neemt toe** o.a. van de openbare ruimte, maar ook van erfgoed, natuur etc.

Raad Sliedrecht - Visie recreatie Gemeente Sliedrecht 2020

Analysis → Research → Design

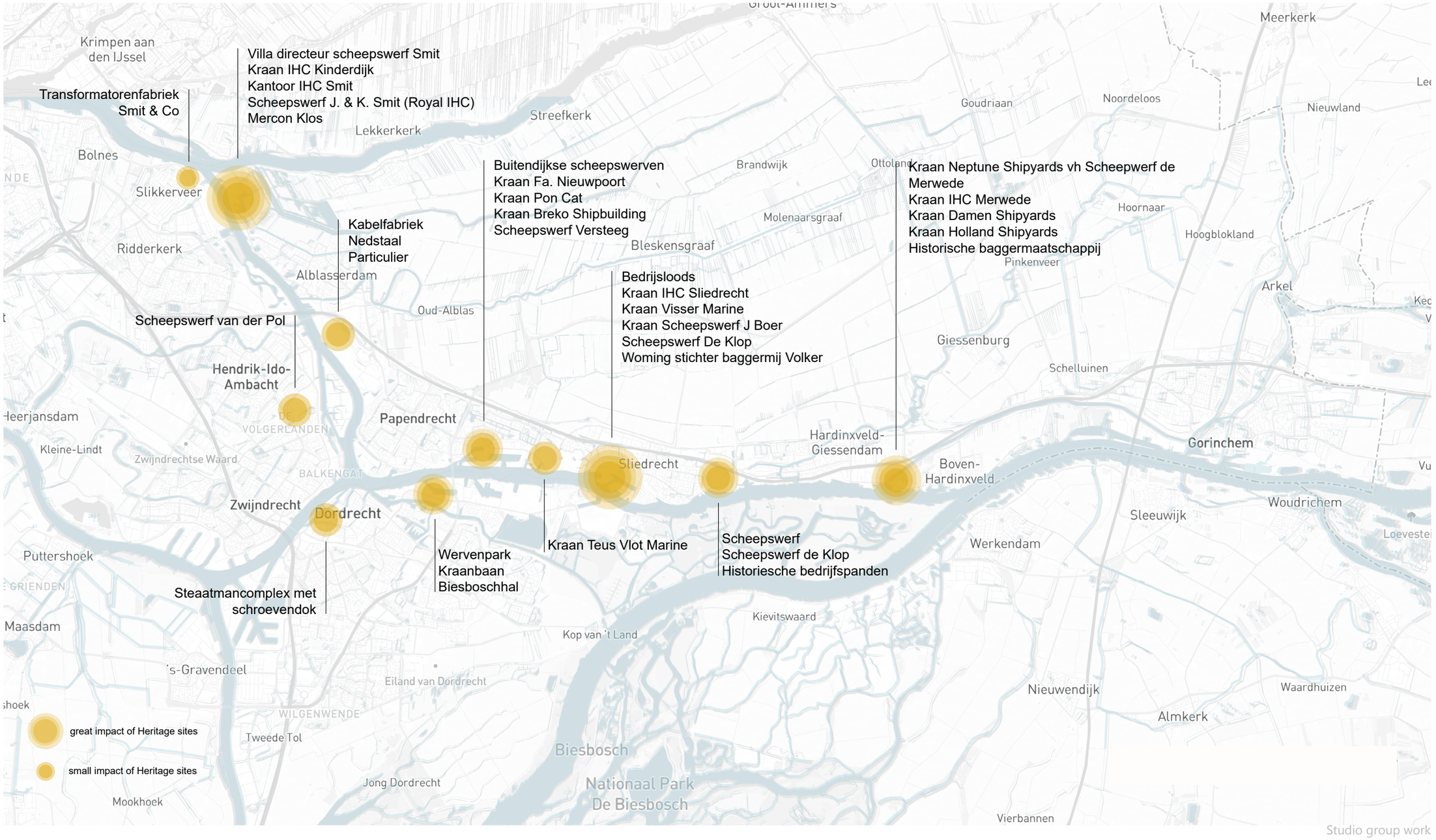
Analysis | Research | Design
Outerdike situation Delta



Studio group work

Analysis | **Research** | Design

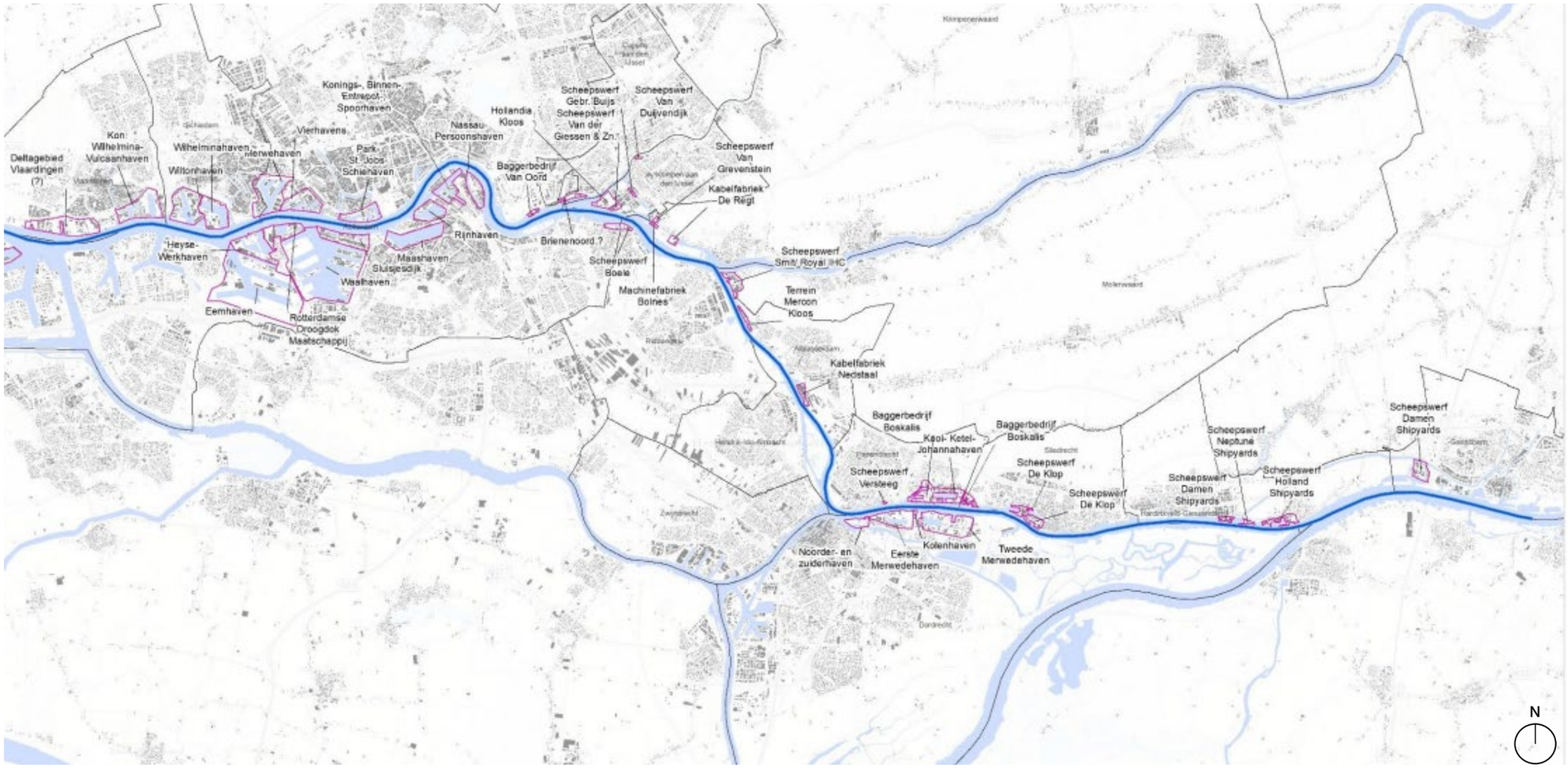
Maritime heritage - Waterdriehoek region



Studio group work

Analysis | **Research** | Design

Maritime heritage - Maritime Industries Line

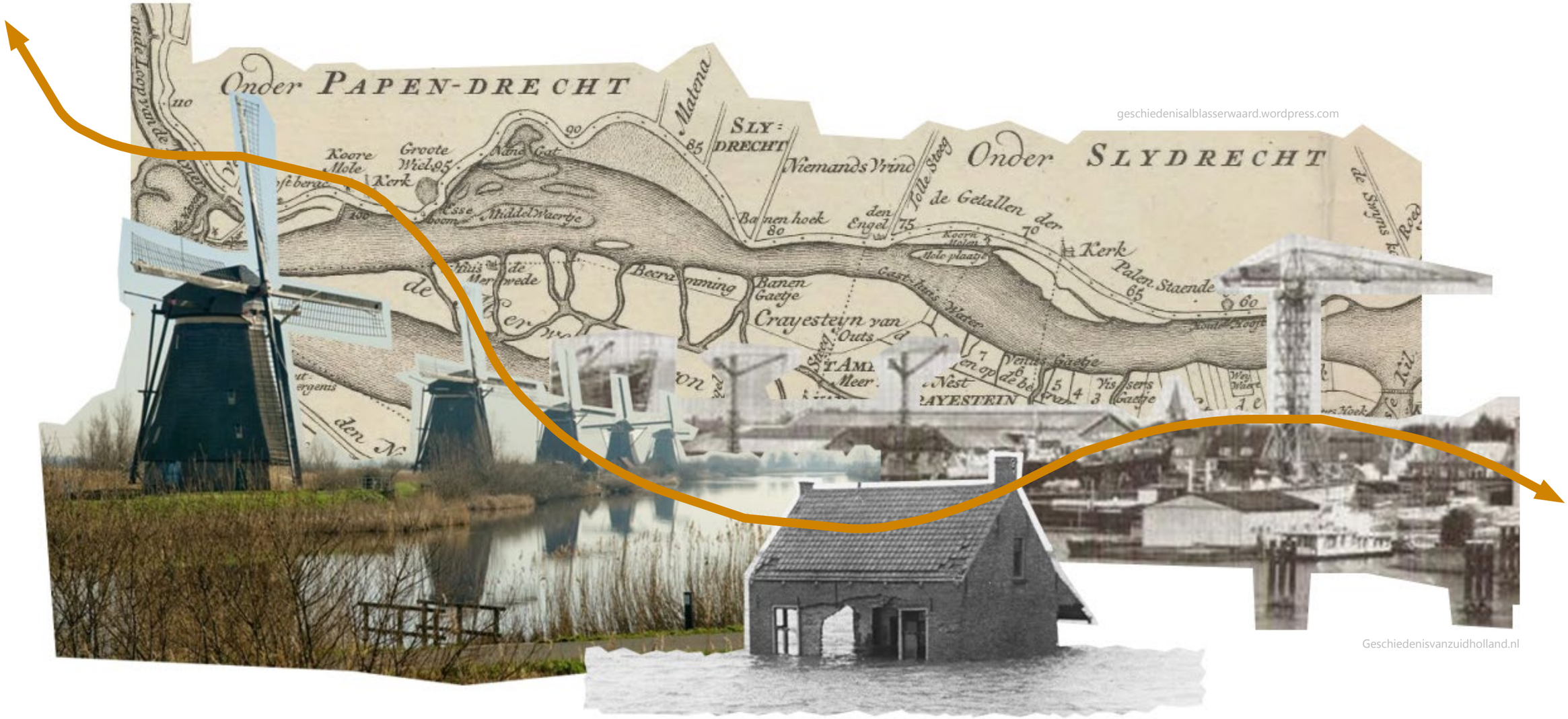


Herrijking Erfgoedlijn Waterdriehoek - Arcadis 2024

- Erfgoedlijn Maritiem Erfgoed
- Maritiem Industrieel Erfgoed ensemble
- Gemeentegrenzen
- Gebouwen
- Water

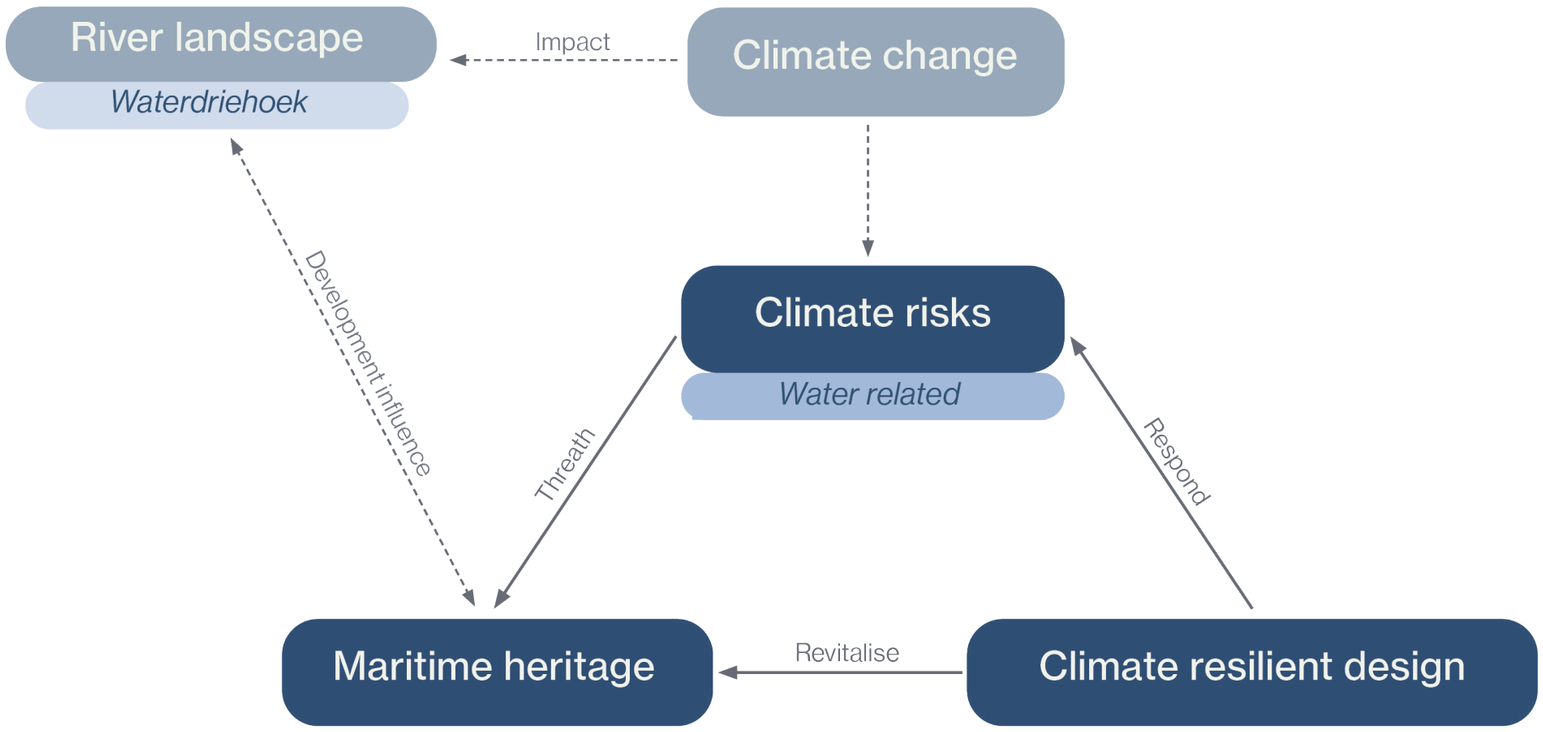
Analysis | **Research** | Design

Personal interest



Analysis | Research | Design

Research topic



own image

Analysis | **Research** | Design

Research questions

Main question

> *How can **insights** from the historical landscape and architectural strategies in the Waterdriehoek inform the design of **flood-resilient** buildings in the **maritime heritage context** of this delta?*

Sub questions

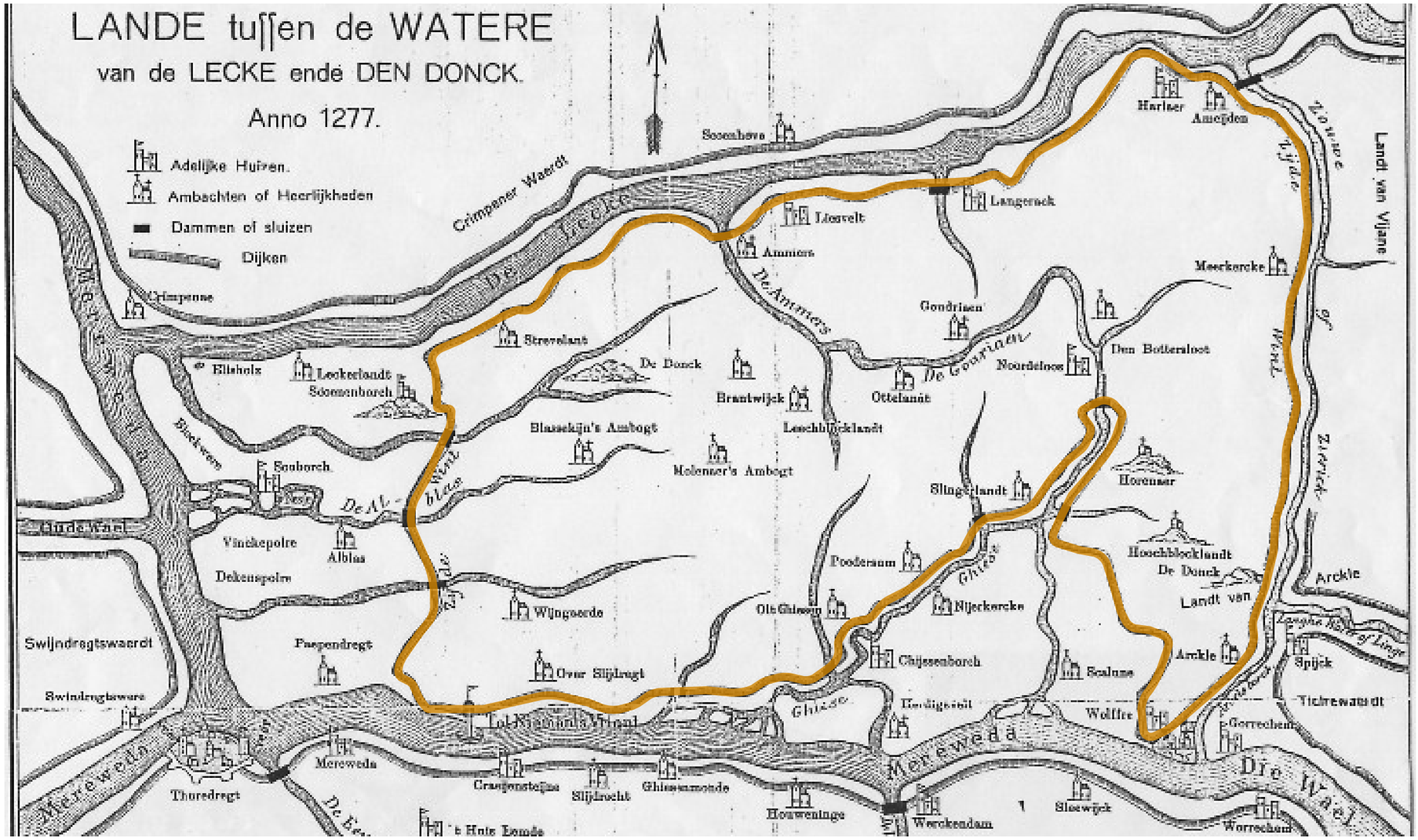
1. What key historical transformations in the Waterdriehoek's landscape were driven by climate and water management?

2. What lessons can be drawn from historical architectural adaptations in the Watedriehoek to address water-related risks?

3. How can these historical measures be combined with contemporary approaches to design flood- resilient buidlings in the Waterdriehoek?

Analysis | **Research** | Design

Research findings



Dyke ring Alblasserwaard anno 1277 (Sliedrecht24, 2024))

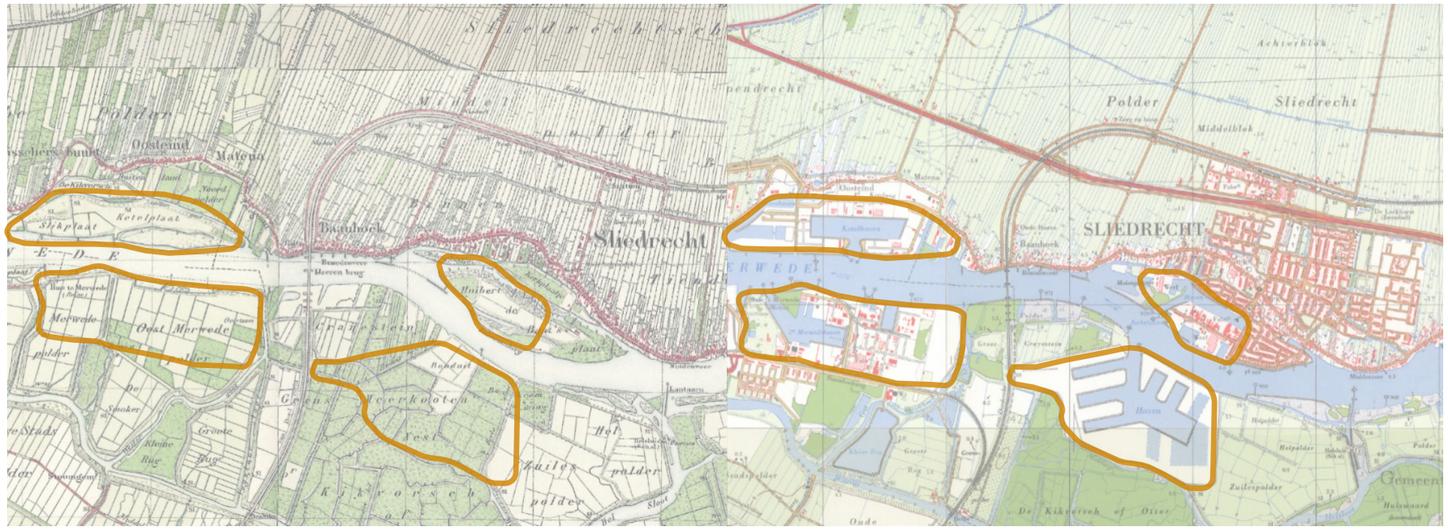
Analysis | **Research** | Design

Research findings

Dordrecht surrounded by water after the St. Elisabethsflood (P. Sluyter, 1560.)

Analysis | **Research** | Design

Research findings



Integration of **harbours** into the urban fabric of Sliedrecht in 1935 and 1969 (Left: Topotijdreis, 1935. Right: Topotijdreis, 1969).

The skyline of Alblasserdam halfway the 20th century (J. Kramer, n.d.)

Analysis | **Research** | Design

Research findings

Houses at the Korte Engelenburgkade are built to flood only at the basements (Reizen langs rivieren, n.d.)

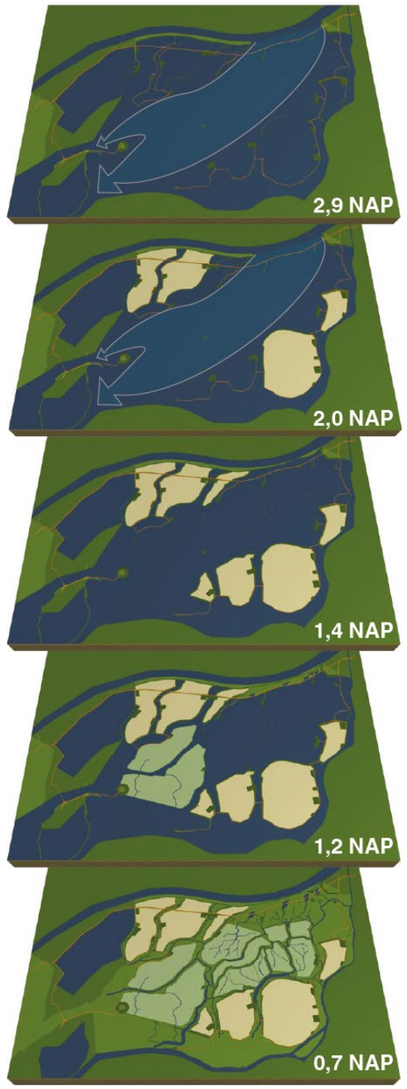
Example of a barn with a **stone foundation** and wooden walls (Rijksdienst voor het Cultureel Erfgoed, 1976)

Barn in Alblasserdam with a highered **flooddoor** (VVV Alblasserwaard, n.d.)

Analysis | **Research** | Design

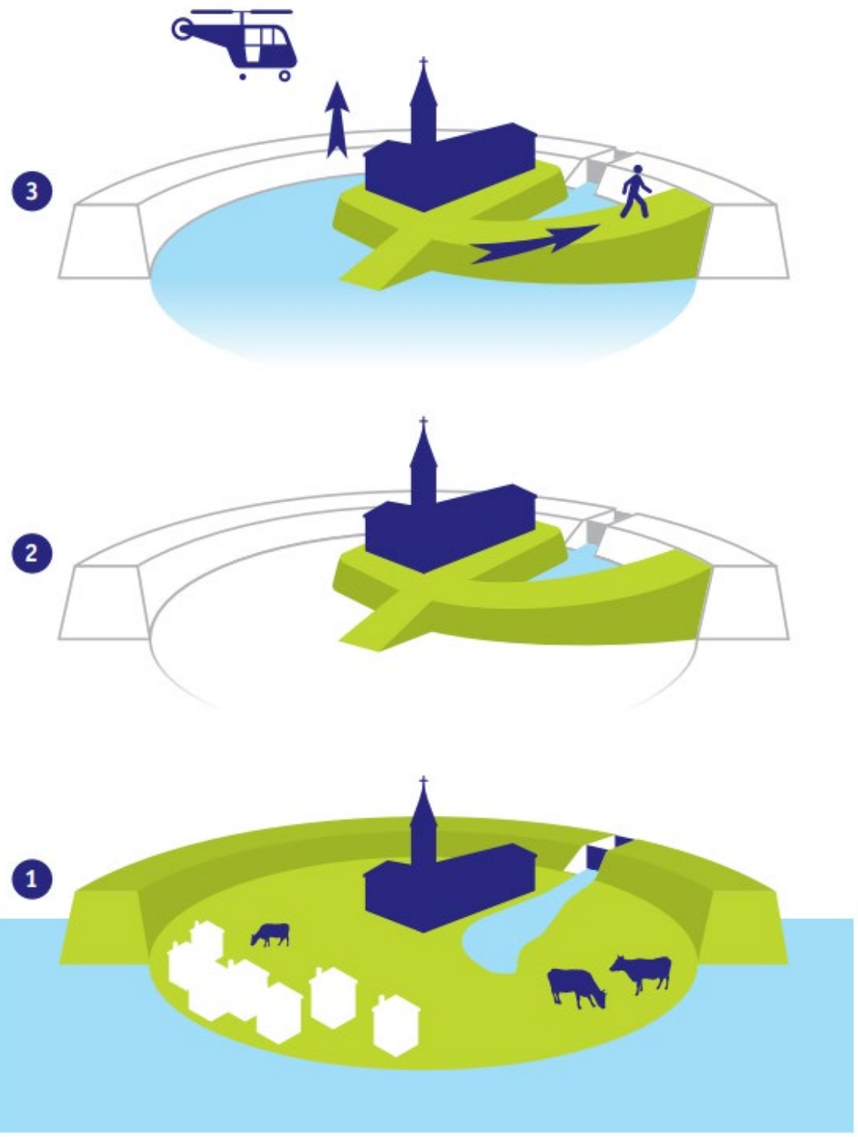
Research findings

'Ontpoldering' of the Noordwaard project (West8, 2015)



Analysis | Research | Design

Research findings



Multi-layered safety principle (Pötz & STOWA, 2014)

Analysis | Research | Design

Relation research - design

Research question

How can insights from the historical landscape and architectural strategies in the Waterdriehoek inform the design of flood-resilient buildings in the maritime heritage context of this delta?

Design question

How can the Watertower terrain be made flood-resilient in its transformation from maritime heritage to a new purpose?

Analysis | **Research** | Design

Value assessment

	age value	historical value	art value	commemorative value	use value	newness value	rarity value	nostalgic value
surrounding				Watertower is an industrial landmark for Sliedrecht	Location close to Sliedrecht city centre and unique location next to the river		Big empty outerdijke area	Locals see watertower from distance which remembers them of the past
story		Watertower and shipyard marks innovation in water related management		Watertower terrain tells the story of the maritime background of Sliedrecht	Showing the typical history of Sliedrecht			Shipyard remembers locals of flourishing times of Sliedrecht
site	Gantel water on the site Trees	Strong historical relation with the river that slowly disappears		Terrain is an iconic place for Sliedrecht Typical Dutch Uiterwaarde	A lot of green and close access to the water		Lot of open space	Gantel was used as a recreative and functional water for the inhabitants
structure	The structure of Delta is rusted and damaged in some areas				Structure of watertower tells about the former use of the tower			
space plan					Large open space plan in Delta Shipyard available for re-use			
skin	The facades and roofs of both of the buildings are in big decay or demolished. Lot of rust and vegetation		Characteristic blue sliding doors Characteristic brick pattern in Watertower facades	Decayed walls reminds of the shift in maritime industry and water management	Big doors are iconic and can be re-used		Very old watertower that is still standing	
service	Old crane rails are still there, rusted and overgrown with vegetation Loopkatkraan				Slope with rails tells about the maritime use of the Delta building			
stuff								
social				Working atmosphere on Delta Shipyard wharf and close relation with water				

high value

medium value

low valuee

values Delta

values Watertower

values terrain

Analysis | Research | Design

Value assessment

Values terrain

- Iconic Dutch **'uiterwaarde'**
- Strong historical relation with the river that slowly disappears
- **Gantel** water on the site
- A lot of green and close access to the water

- Gantel was used recreational and functional by the inhabitants
- **Unique location** close to Sliedrecht city centre and next to the river
- Old trees
- Lots of open space
- Terrain tells the story of the maritime background of Sliedrecht

Values Watertower

- Very **old watertower** that is still standing
- Characteristic brick pattern in Watertower facades
- Watertower is an industrial **landmark** for Sliedrecht
- Locals see watertower from distance which remembers them of the past

- Watertower and shipyard marks **innovation in water related management**

Values Delta shipyard

- Big doors are iconic and can be re-used
- Shipwarf showing the **typical history** of Sliedrecht
- 'Loopkatkraan' is still there

- Shipyard remembers locals of flourishing times of Sliedrecht
- **Working atmosphere** on Delta Shipyard wharf and **close relation with water**
- Large open space plan available for re-use
- Old crane rails are still there
- **Characteristic** doors

Analysis | Research | Design
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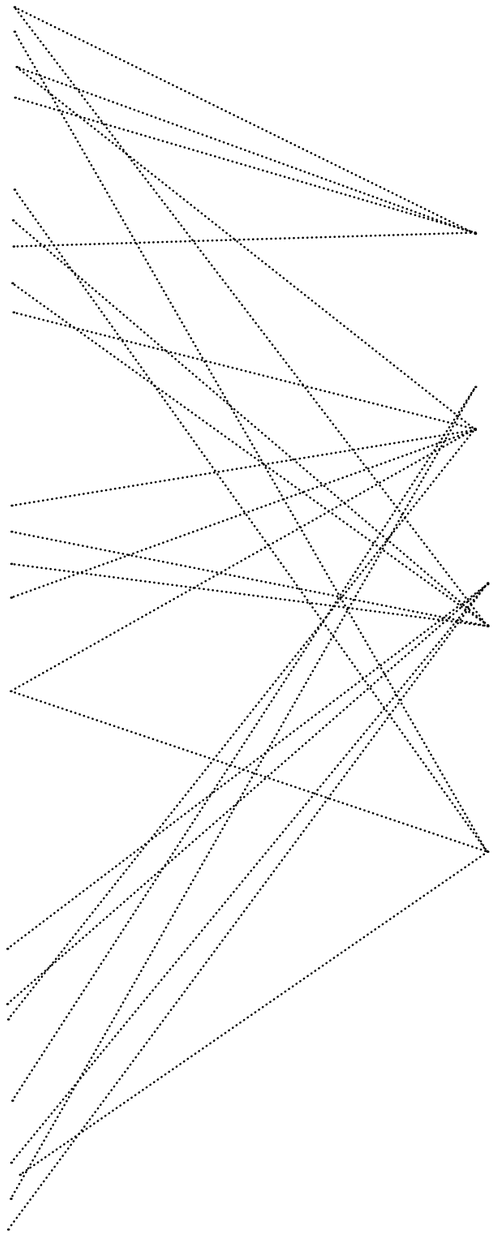


NATURE

HISTORY

OWN CHARACTER

CONNECTION WITH WATER

Analysis | **Research** | Design

Defined value - nature

protecting the floodplain as much as possible

preservation of nature and room for the river

green spaces as connectors within the community

Analysis | **Research** | Design

Defined value - history

Watertower as historical icon of Sliedrecht

Delta wharf recalls the maritime past of Sliedrecht

bringing back historical Gantel

Analysis | **Research** | Design

Defined value - own character

reference to old stoepwoningen with pitched roofs, use of brick and timber

co-living shared spaces

extra space for small bussinesses and startups

creating a small village between Sliedrecht centre and the Merwede river

Analysis | **Research** | Design

Defined value - water connection

Deltawharf with a new water related function

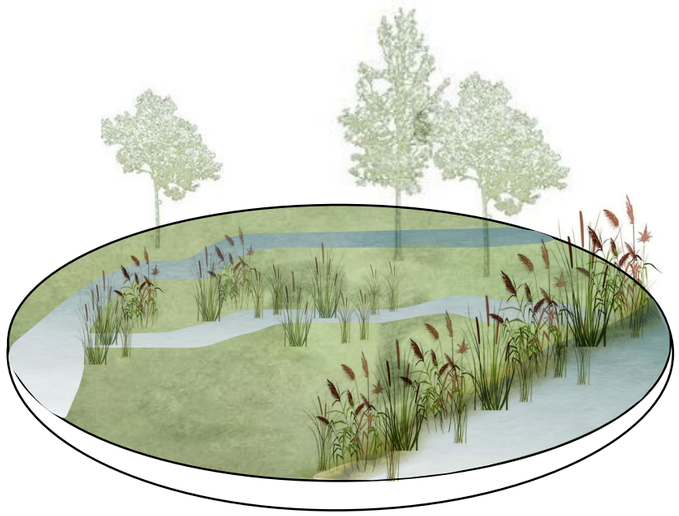
restoring the old connection with the river by increasing water related activities

making the water accessible for Sliedrechters

Analysis | **Research** | Design

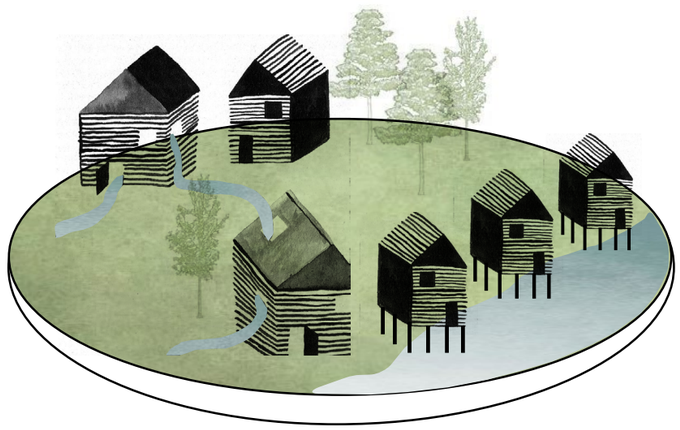
Research outcomes linked with values

SPACE FOR WATER



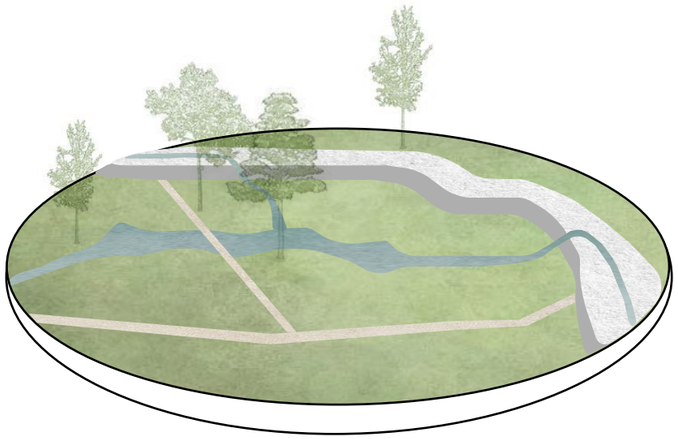
- bringing back Gantel
- soft embankments
- blue green strips
- respecting floodplain character

RESILIENT BUILDINGS



- room for river between buildings
- houses on poles
- water resistant base with light construction

STREETSCAPE



- elevating main roads
- water drainage in roads to green strips
- limiting hard surfaces

Analysis → Research → Design

Analysis | Research | **Design**

Masterplan - 1:1000

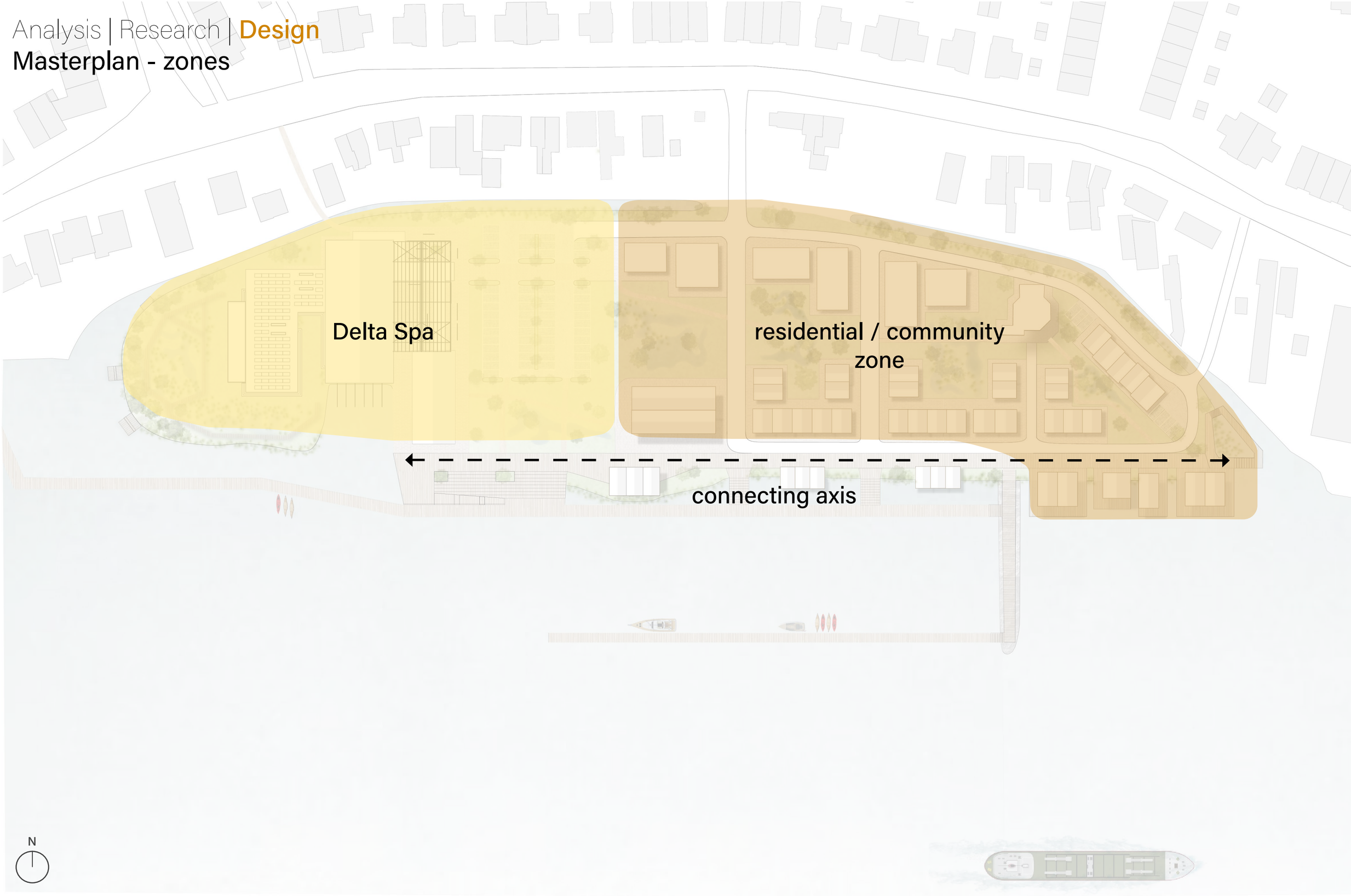
Analysis | Research | **Design**

Masterplan - architectural impression

N

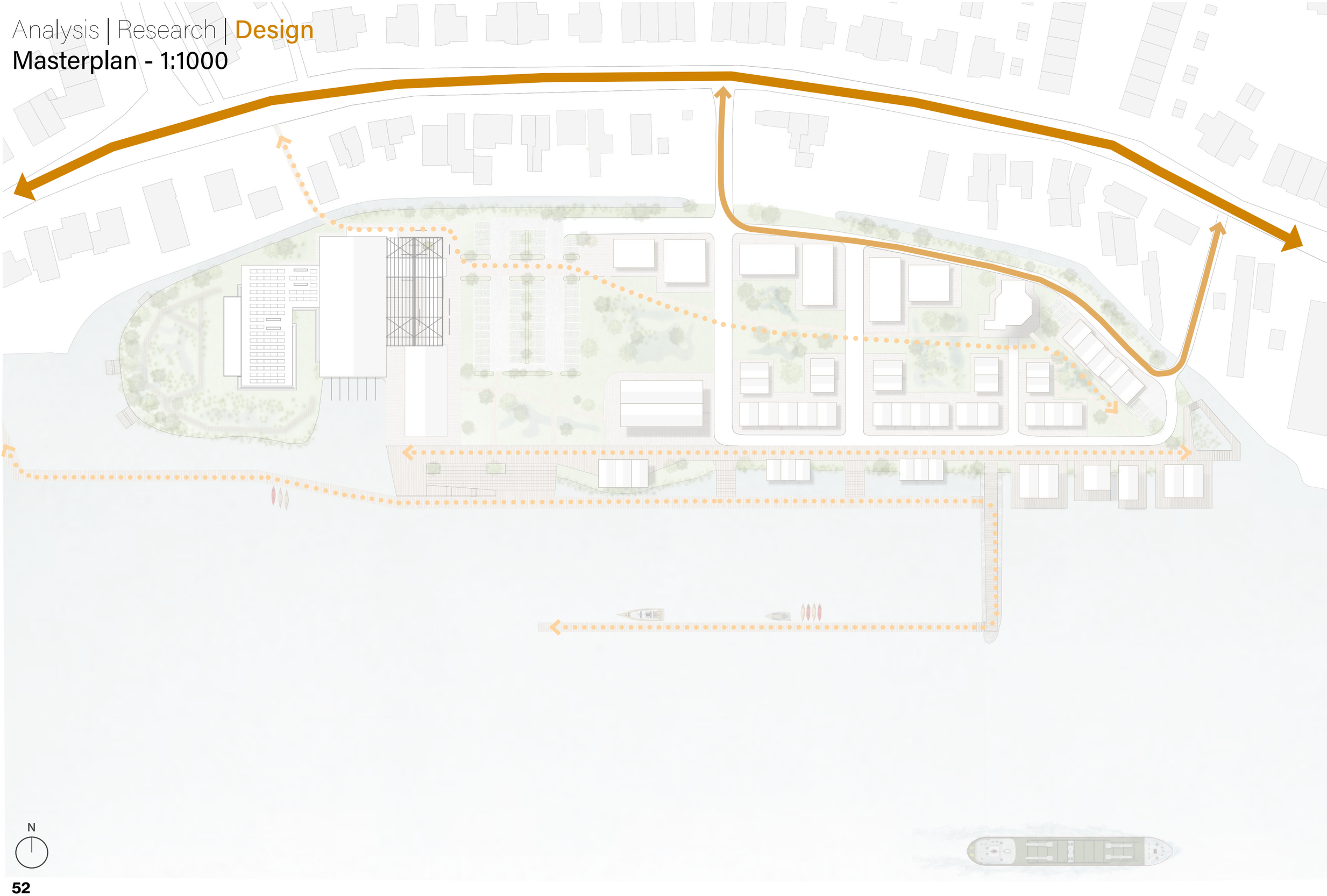
Analysis | Research | **Design**

Masterplan - zones



Analysis | Research | **Design**

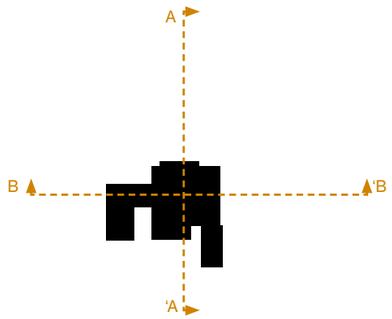
Masterplan - 1:1000

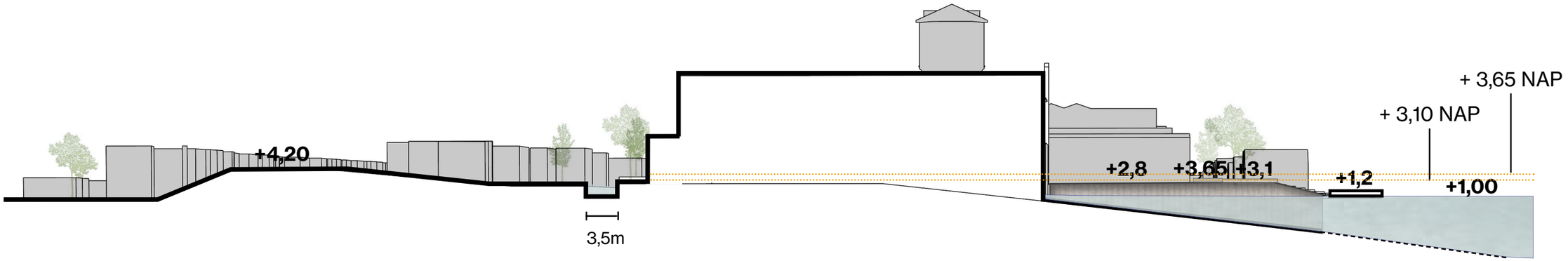


Analysis | Research | **Design**

Masterplan - Cross sections

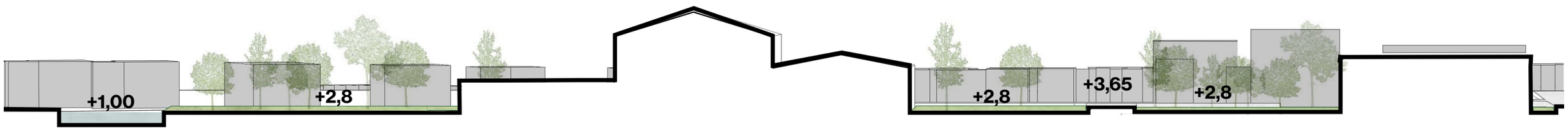
Maximum high water = + 3,10 NAP
Predicted water level raise = + 0,55 m = + 3,65 NAP





A

'A



B

'B

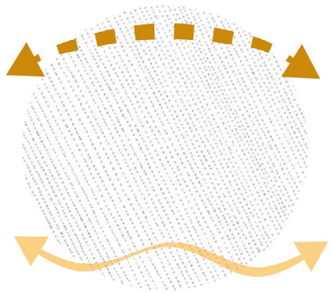
Analysis | Research | **Design**

Current situation

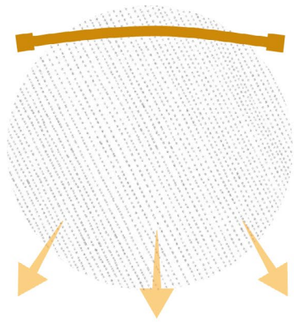


own photos

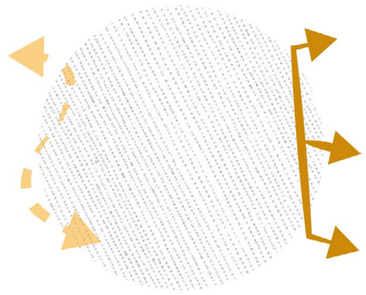
Analysis | Research | Design
Design strategy



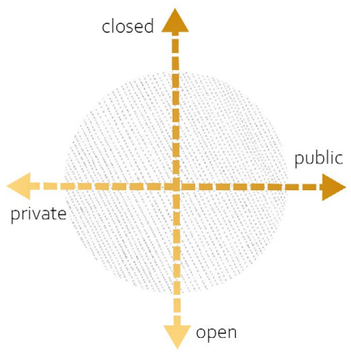
borders
dike // river



privacy
closed // open



zones
green // urban

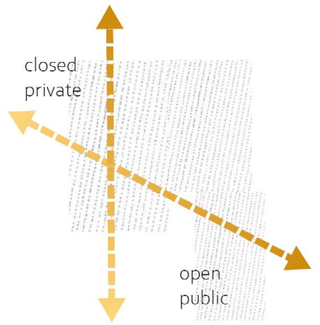


positioning axis

+

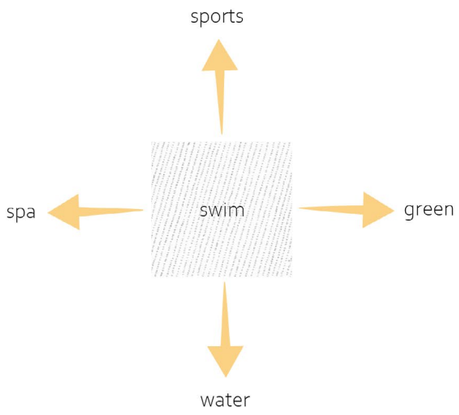
form building

>

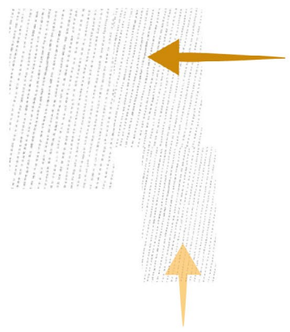


design strategy

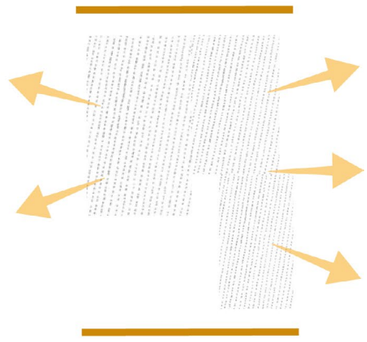
Analysis | Research | Design
Design principles



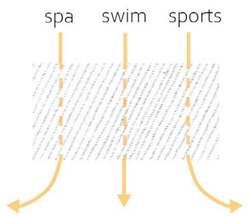
grouping
swimming pool functions
as centre of the complex



main entrance
most public //
well connected side

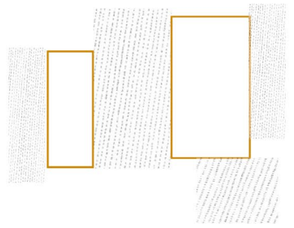


boundaries
limitations and options
for extensions



filterzone
entering functions only
via changing rooms

routing
functions well connected
cafe separate



zoning
creating courtyards for extra
outside connection and daylight

Analysis | Research | **Design**

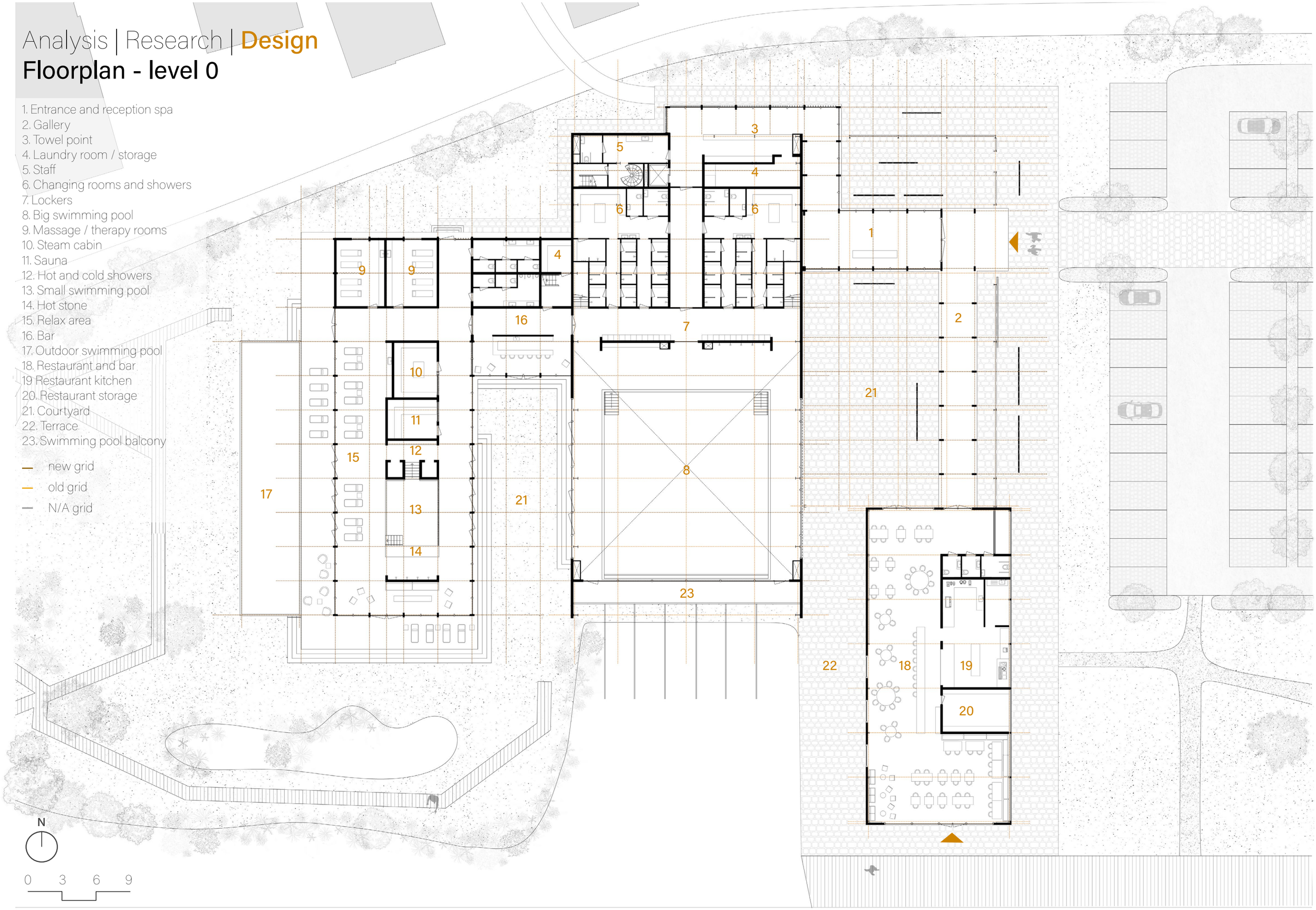
Delta Shipyard - 1:500

Analysis | Research | **Design**

Floorplan - level 0

1. Entrance and reception spa
2. Gallery
3. Towel point
4. Laundry room / storage
5. Staff
6. Changing rooms and showers
7. Lockers
8. Big swimming pool
9. Massage / therapy rooms
10. Steam cabin
11. Sauna
12. Hot and cold showers
13. Small swimming pool
14. Hot stone
15. Relax area
16. Bar
17. Outdoor swimming pool
18. Restaurant and bar
19 Restaurant kitchen
20. Restaurant storage
21. Courtyard
22. Terrace
23. Swimming pool balcony

— new grid
— old grid
— N/A grid



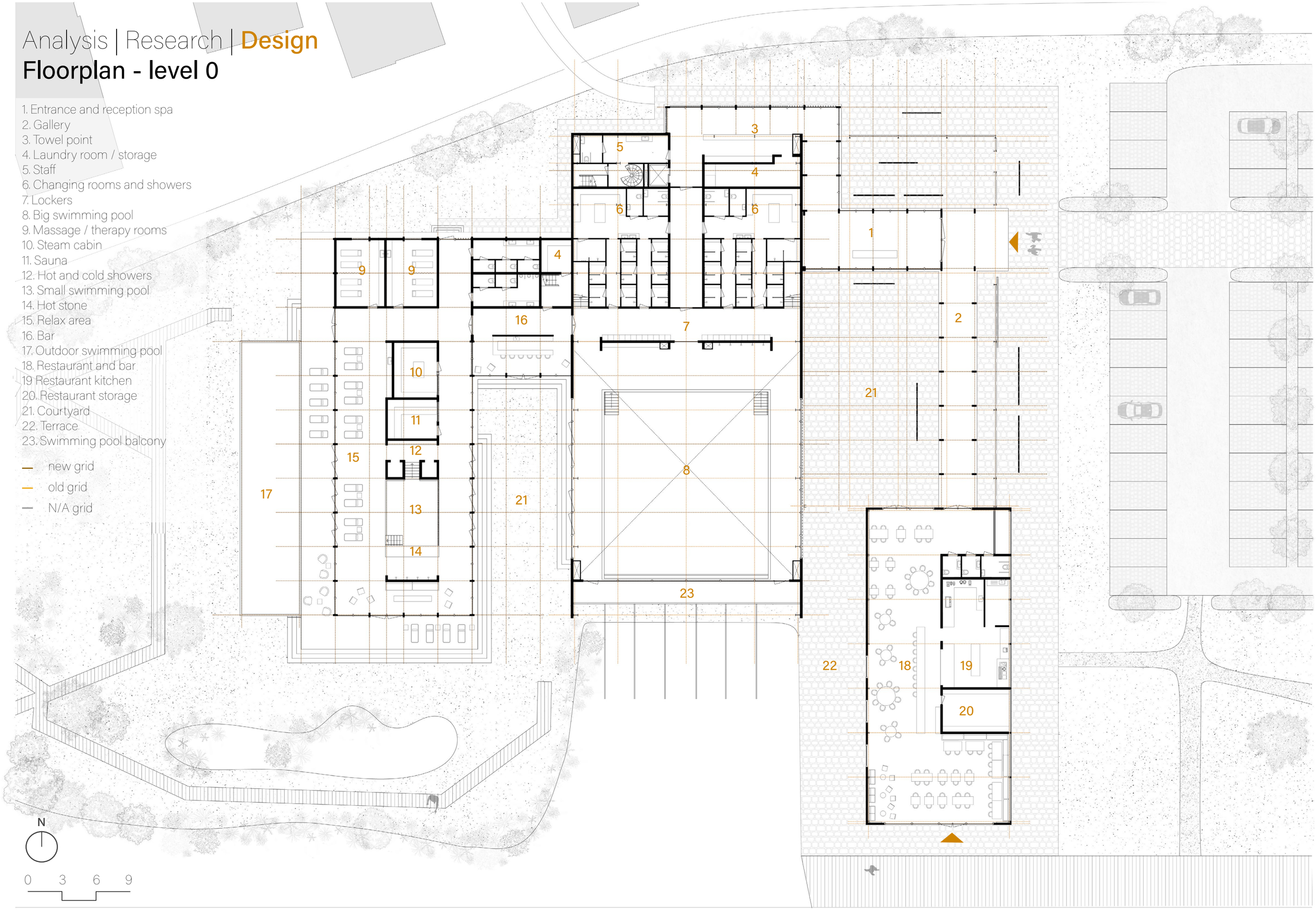

Shipyard

Analysis | Research | **Design**

Floorplan - level 0

1. Entrance and reception spa
2. Gallery
3. Towel point
4. Laundry room / storage
5. Staff
6. Changing rooms and showers
7. Lockers
8. Big swimming pool
9. Massage / therapy rooms
10. Steam cabin
11. Sauna
12. Hot and cold showers
13. Small swimming pool
14. Hot stone
15. Relax area
16. Bar
17. Outdoor swimming pool
18. Restaurant and bar
19 Restaurant kitchen
20. Restaurant storage
21. Courtyard
22. Terrace
23. Swimming pool balcony

— new grid
— old grid
— N/A grid



Analysis | Research | **Design**

Floorplan - level 0

1. Entrance and reception spa
2. Gallery
3. Towel point
4. Laundry room / storage
5. Staff
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7. Lockers
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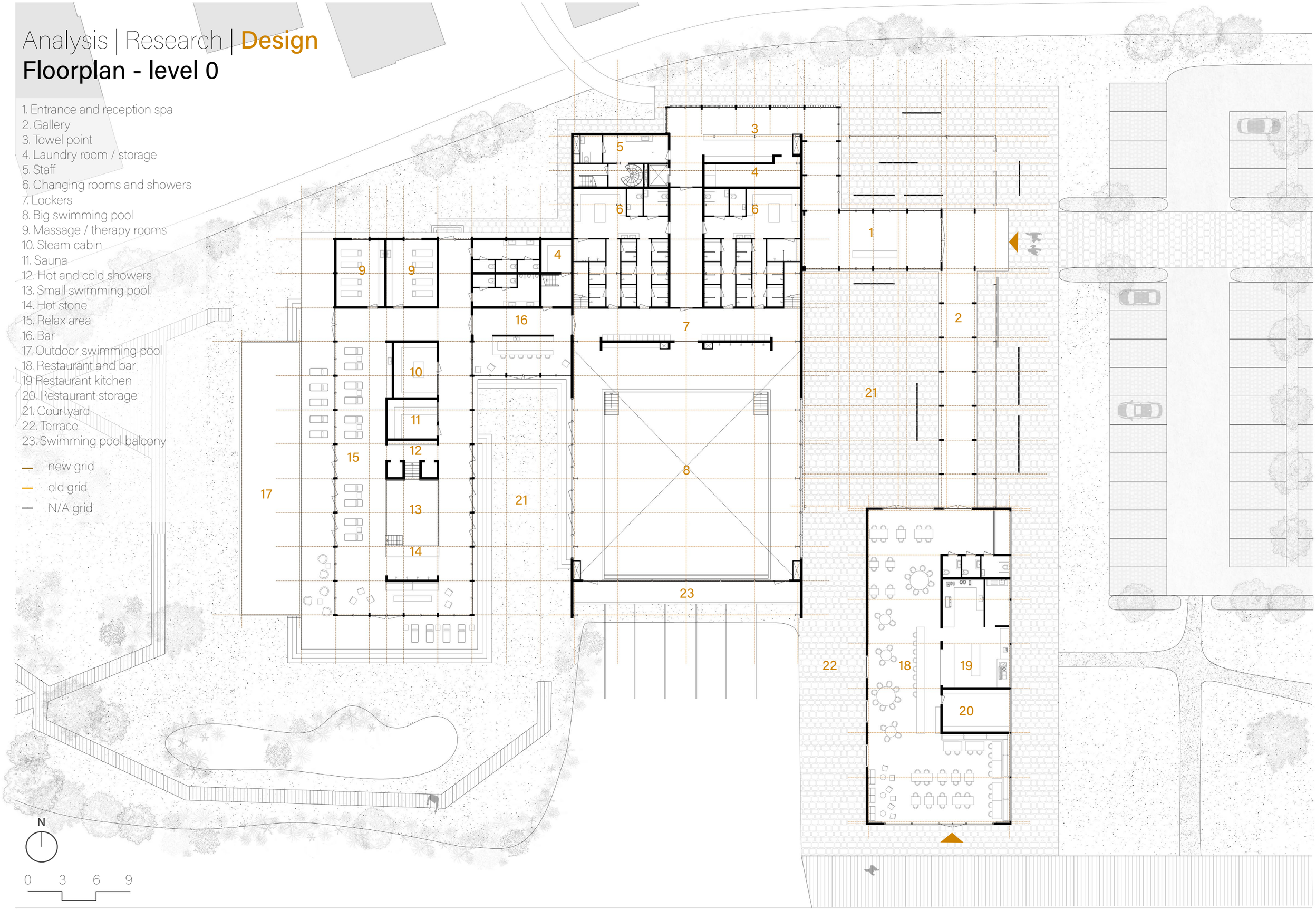
17. Outdoor swimming pool
18. Restaurant and bar
19 Restaurant kitchen
20. Restaurant storage
21. Courtyard
22. Terrace
23. Swimming pool balcony

— new grid
— old grid
— N/A grid



Analysis | Research | **Design**

Floorplan - level 0

1. Entrance and reception spa
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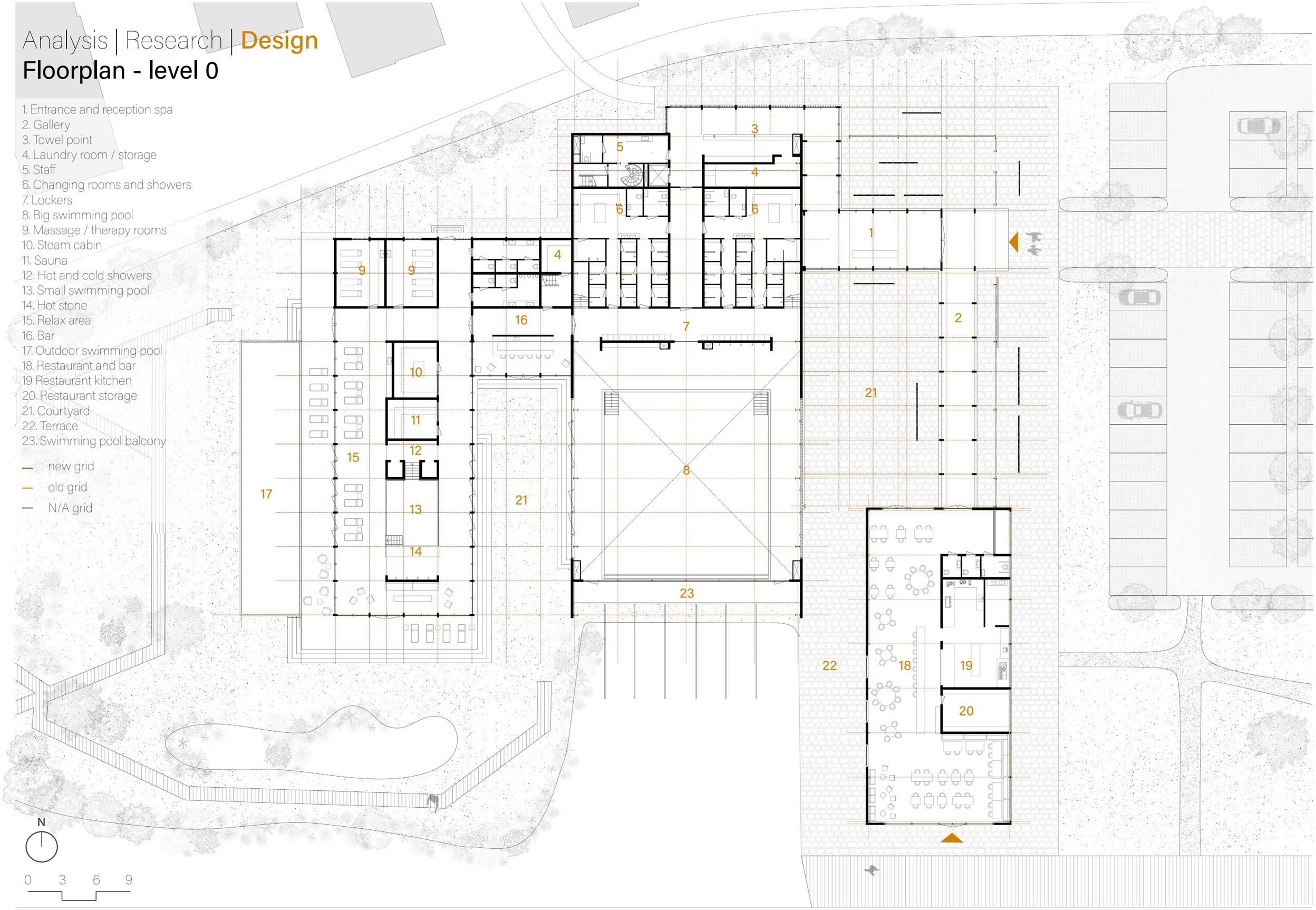
17. Outdoor swimming pool
18. Restaurant and bar
19 Restaurant kitchen
20. Restaurant storage
21. Courtyard
22. Terrace
23. Swimming pool balcony

— new grid
— old grid
— N/A grid



Analysis | Research | **Design**

Floorplan - level 0

1. Entrance and reception spa
2. Gallery
3. Towel point
4. Laundry room / storage
5. Staff
6. Changing rooms and showers
7. Lockers
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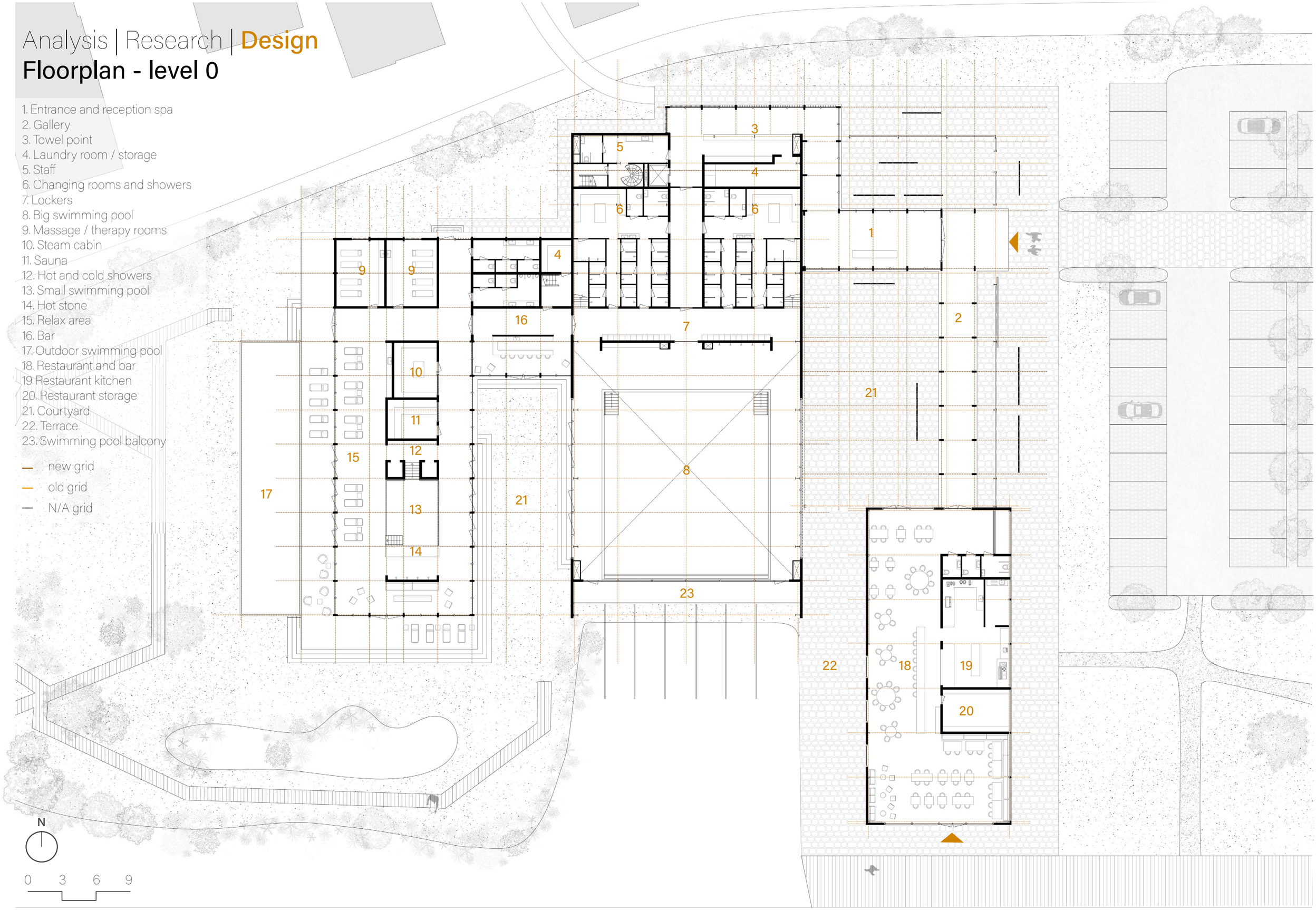
18. Restaurant and bar
19 Restaurant kitchen
20. Restaurant storage
21. Courtyard
22. Terrace
23. Swimming pool balcony

— new grid
— old grid
— N/A grid



Analysis | Research | **Design**

Floorplan - level 0

1. Entrance and reception spa
2. Gallery
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4. Laundry room / storage
5. Staff
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7. Lockers
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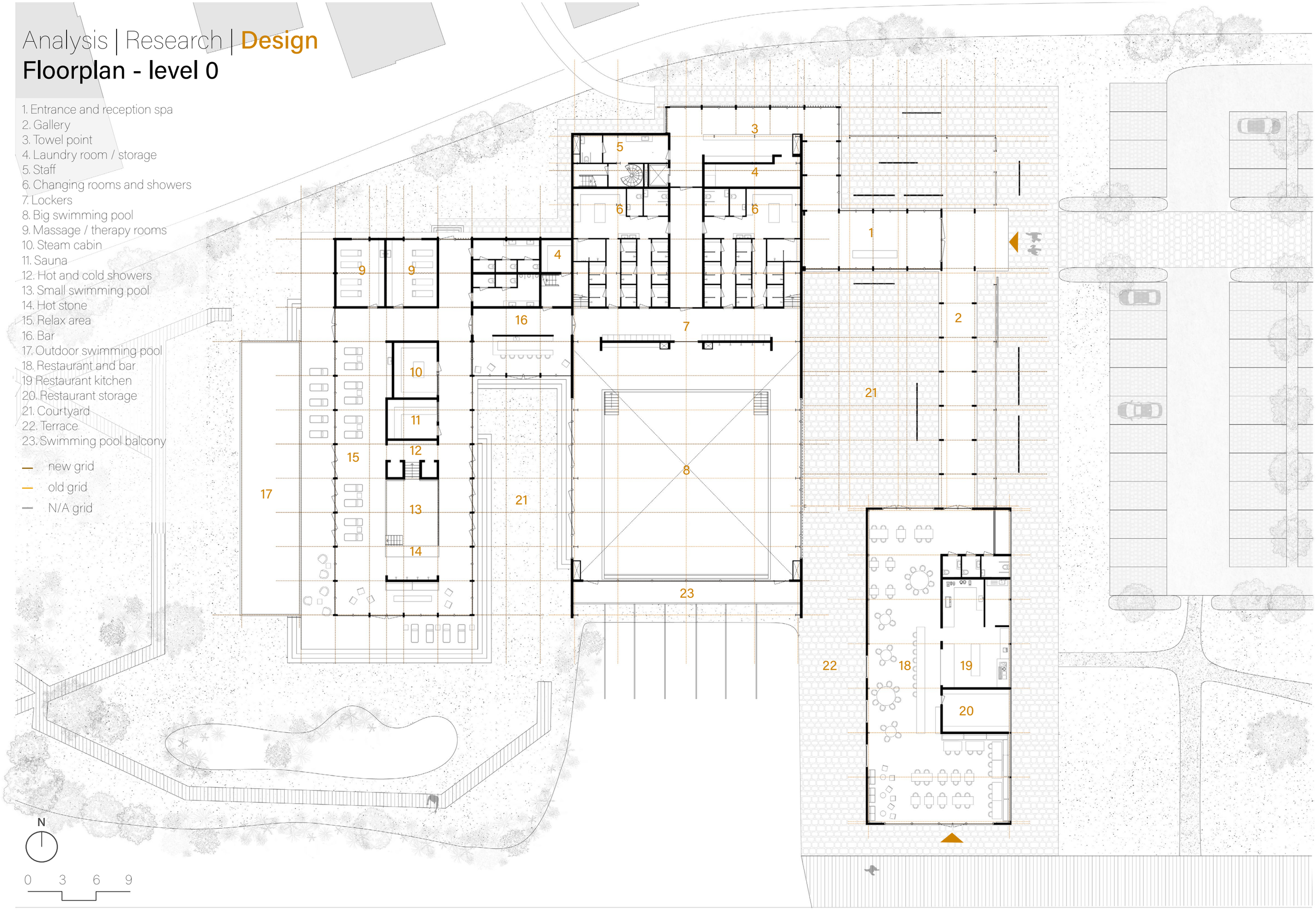
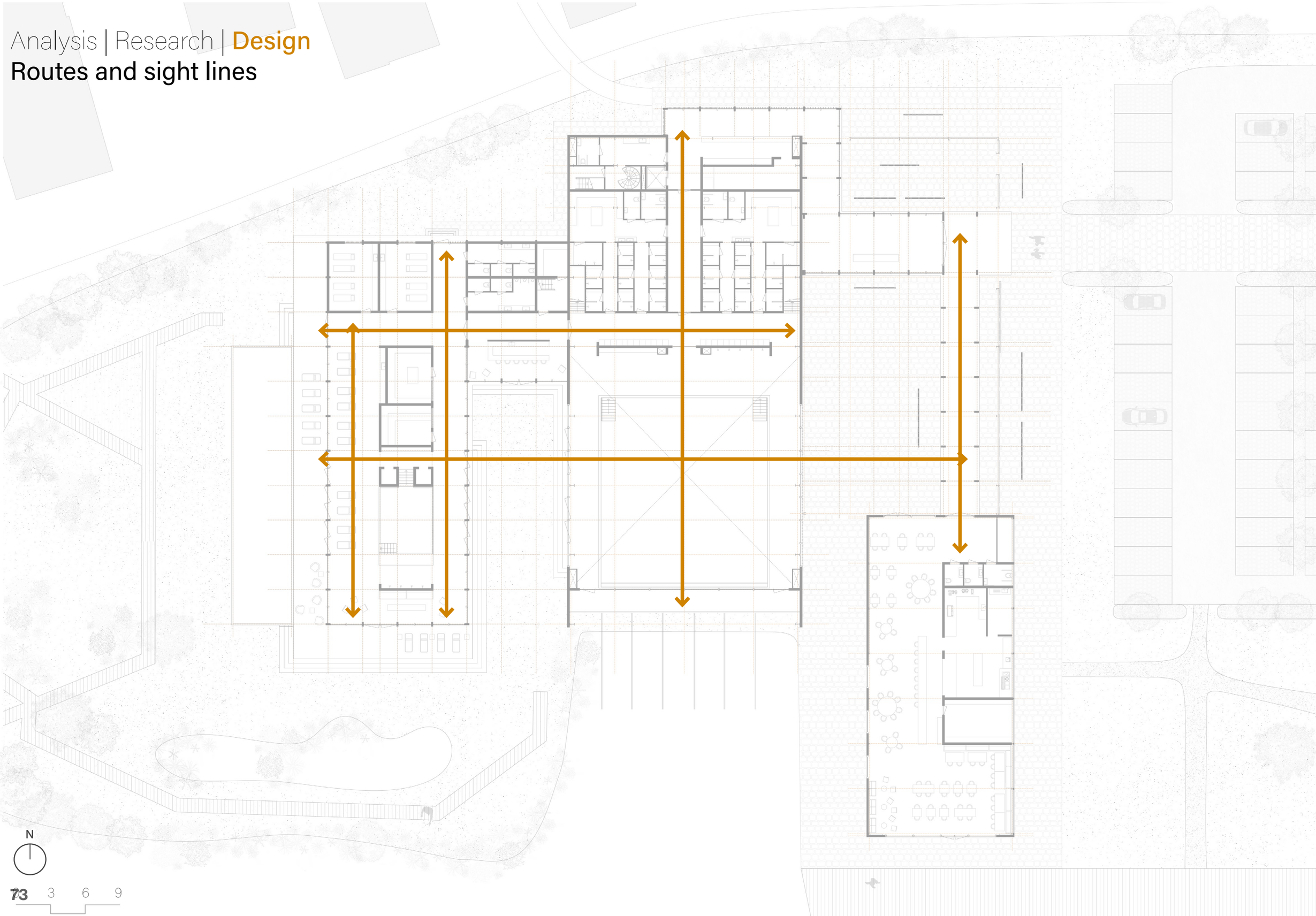
16. Bar
17. Outdoor swimming pool
18. Restaurant and bar
19 Restaurant kitchen
20. Restaurant storage
21. Courtyard
22. Terrace
23. Swimming pool balcony

— new grid
— old grid
— N/A grid



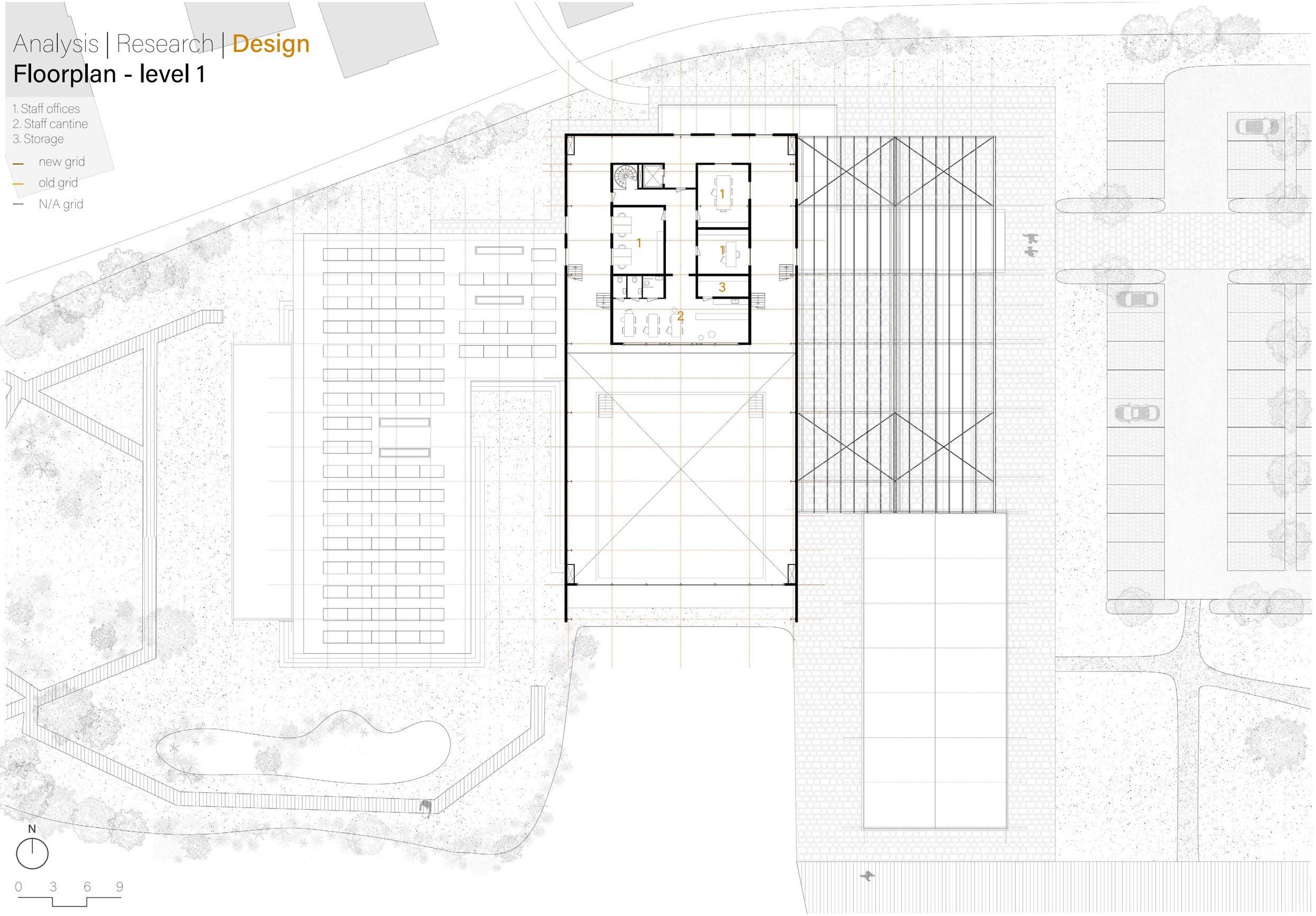
Analysis | Research | Design
Routes and sight lines



Floorplan - level 1

1. Staff offices
2. Staff cantine
3. Storage

— new grid
— old grid
— N/A grid

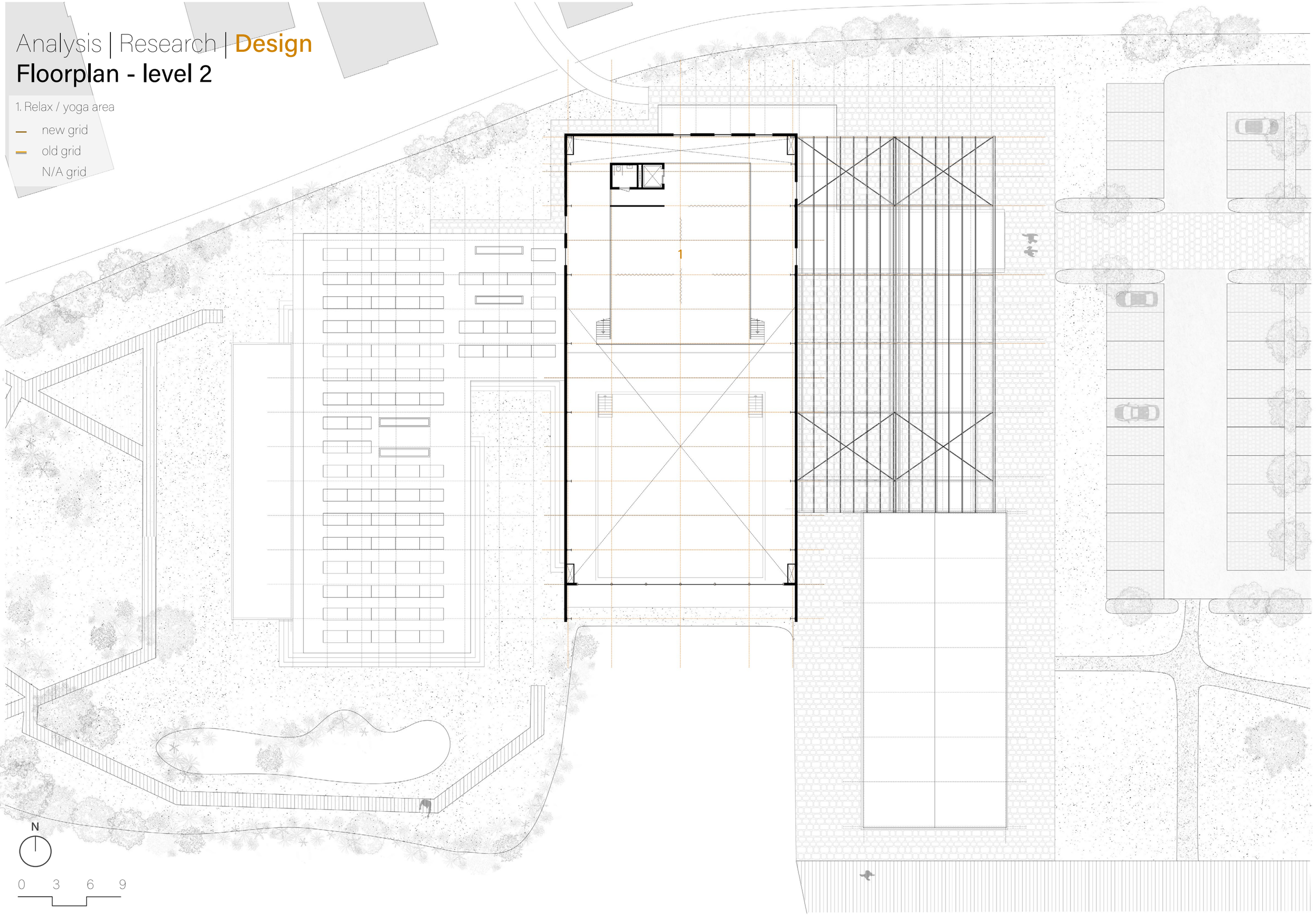


Analysis | Research | **Design**

Floorplan - level 2

1. Relax / yoga area

- new grid
- old grid
- N/A grid



Analysis | Research | **Design**

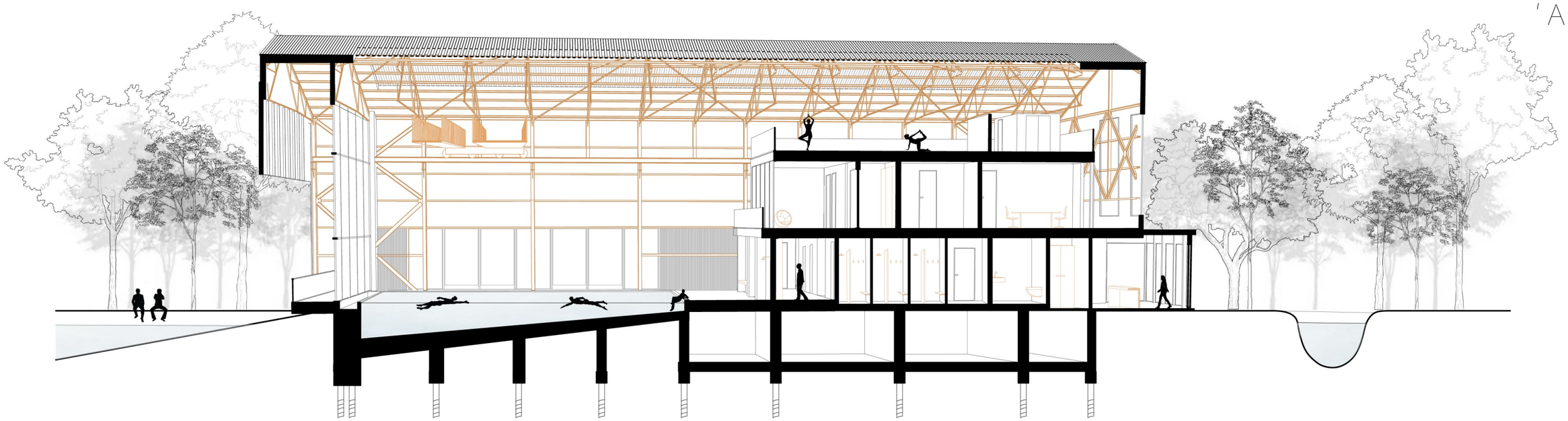
Delta Shipyard - 1:500


Delta

Analysis | Research | Design

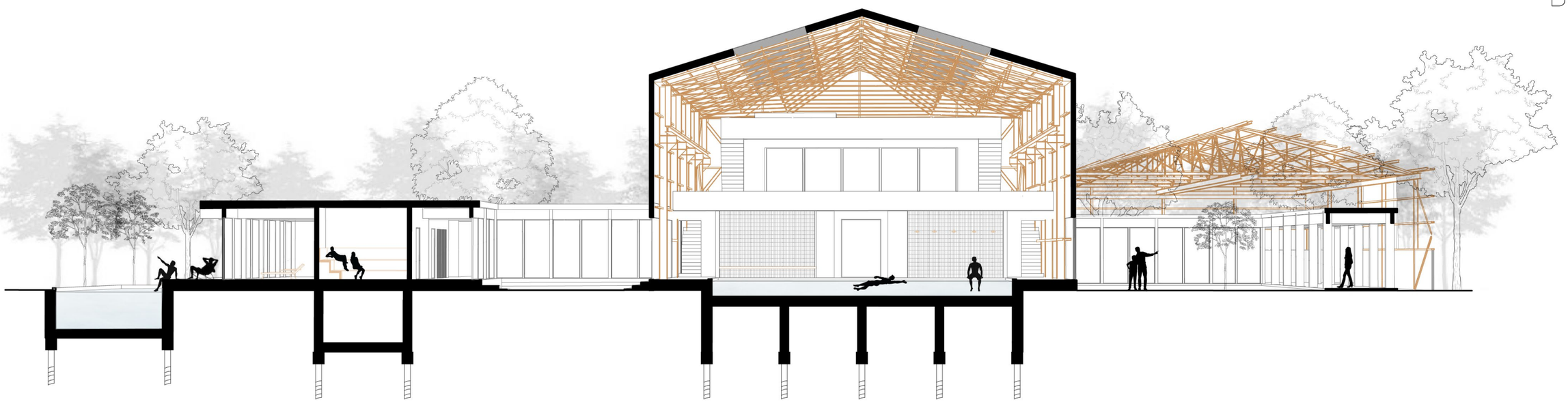
Cross sections - 1:200

A



'A

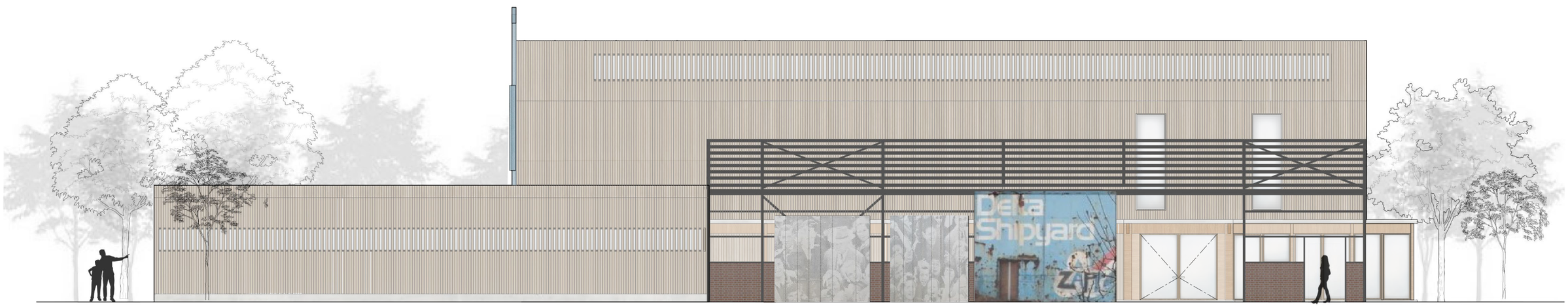
B



'B

Analysis | Research | Design
Elevations - 1:200

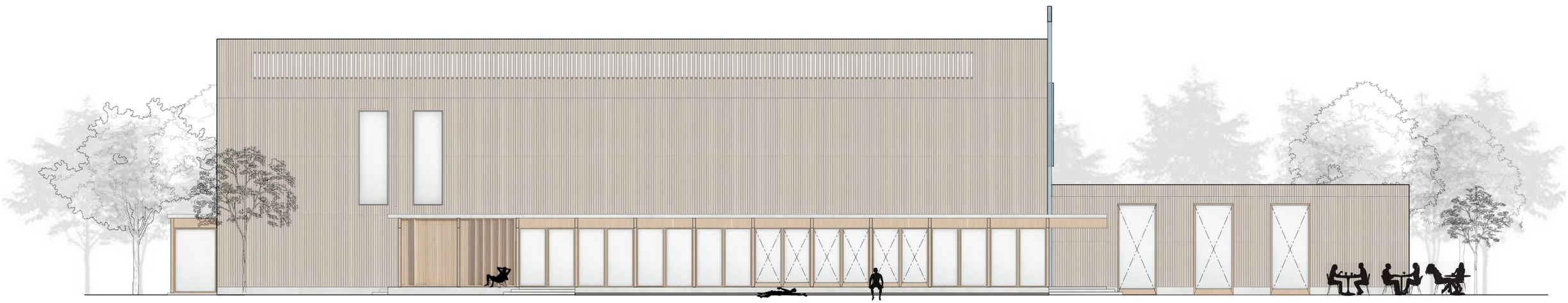
East elevation



North elevation

Analysis | Research | Design
Elevations - 1:200

West elevation



South elevation

Analysis | Research | Design
Material collage

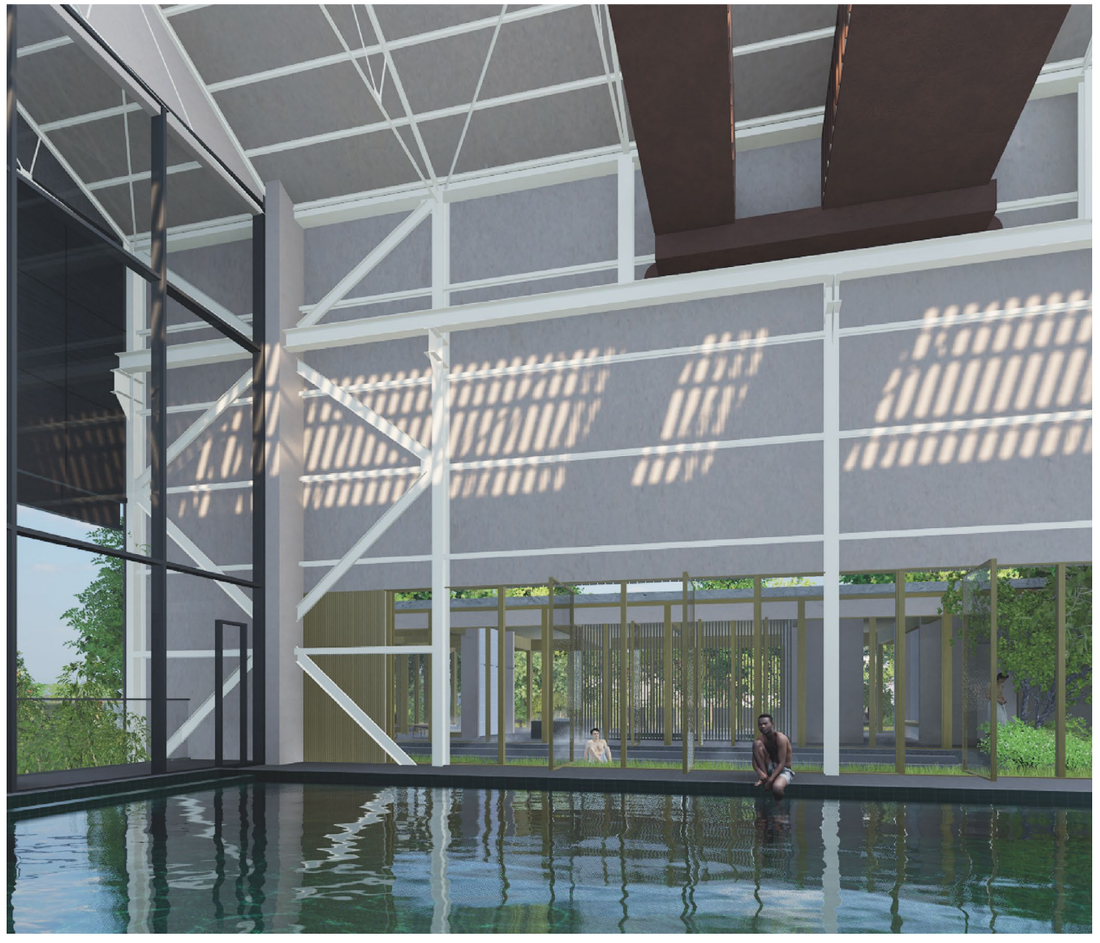
exterior



interior

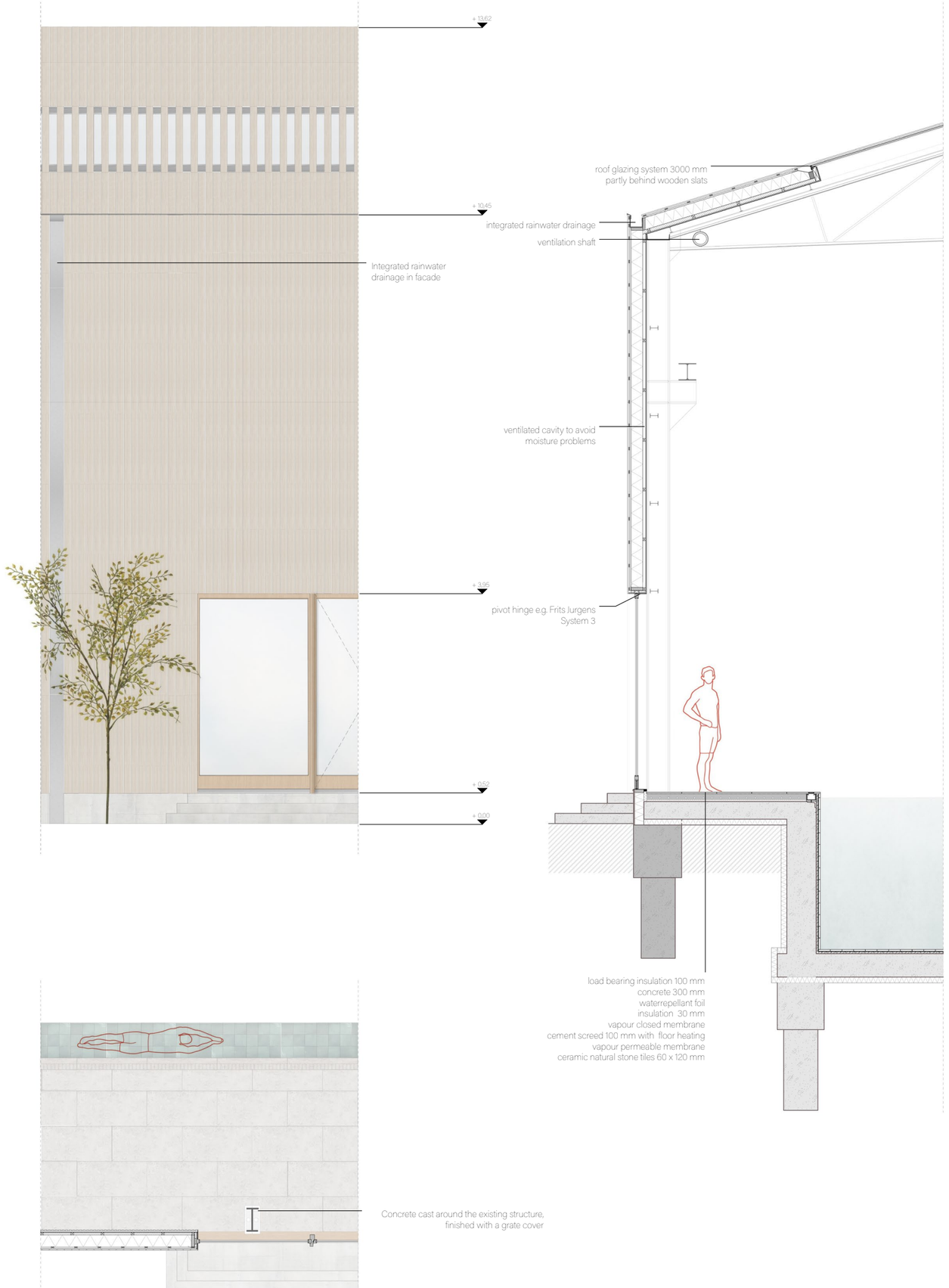




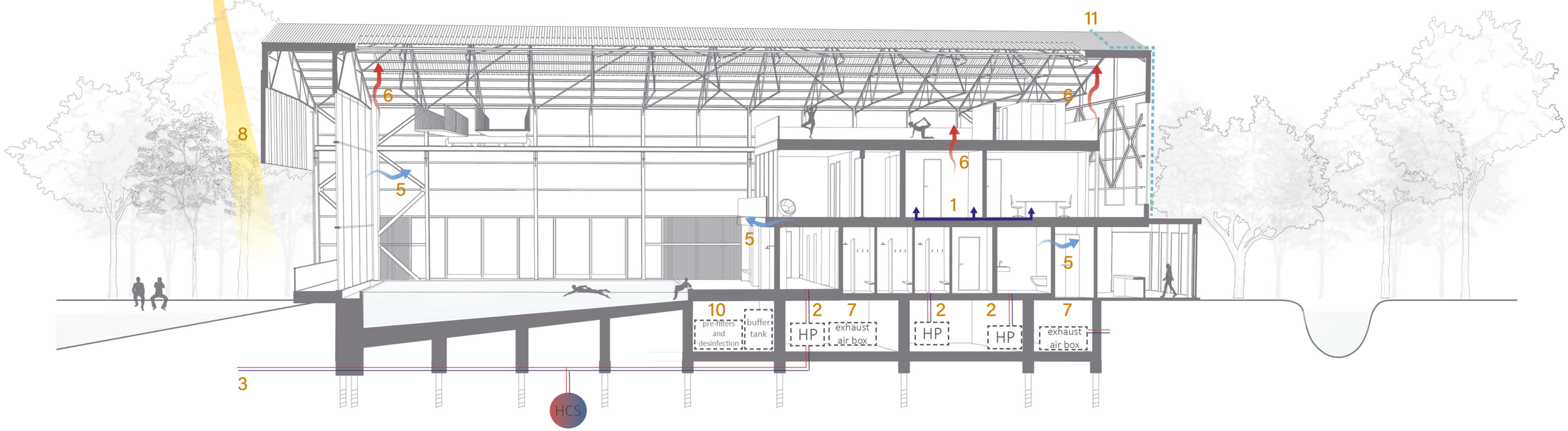
Analysis | Research | **Design**

Facade fragment



Analysis | Research | Design

Summer situation



1 floor cooling

2 water - water heatpump for swimming pool water, shower water, cooling the buildings

3 aquathermal energy system, heat-cold storage is connected to the river

4 pv(t) panels for electricity and warm water

5 inlet fresh and cool air through walls

6 outlet saturated air through roof

7 air handling unit with heat recovery

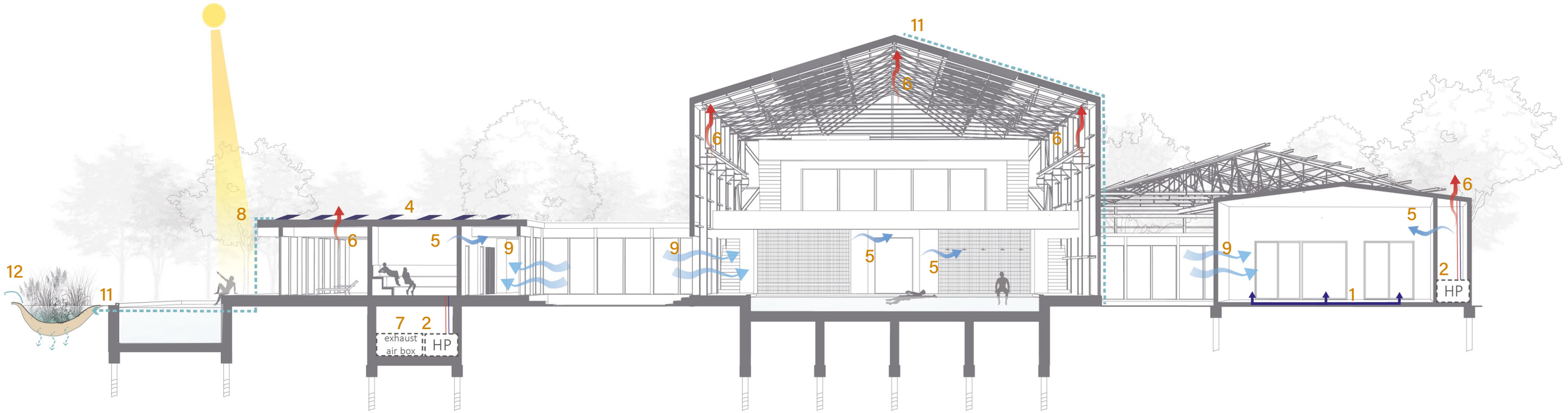
8 overhang protects again sunheat

9 opening doors and windows for natural ventilation

10 pool water filtering systems

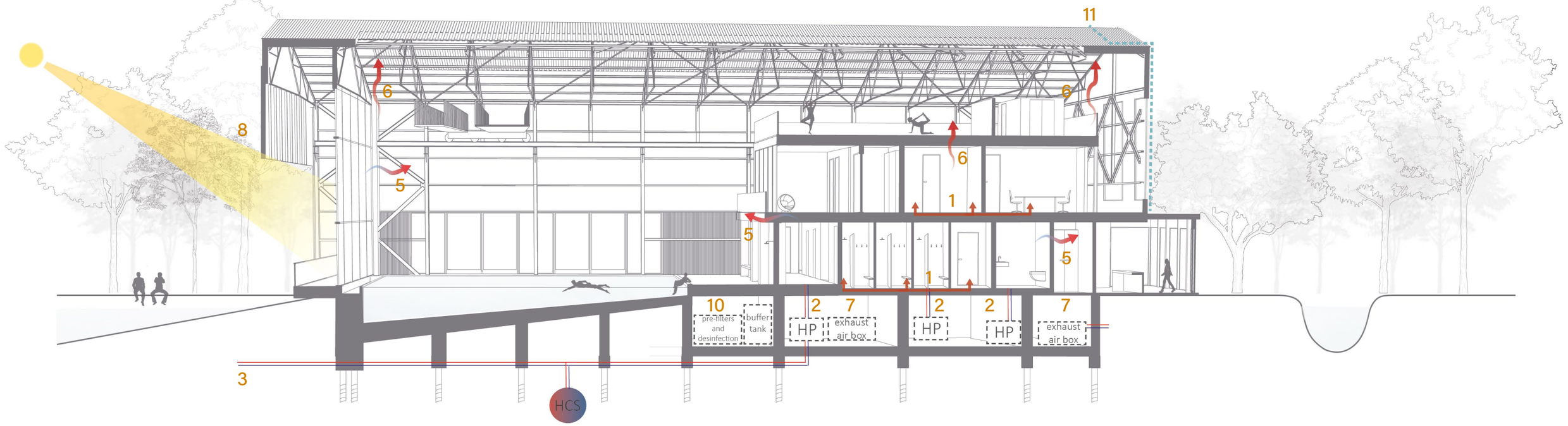
11 rain water collection for toilet use

12 constructed wetlands for natural water filtering and delayed water infiltration



Analysis | Research | Design

Winter situation



1 low temperature floor heating

2 water - water heatpump for swimming pool water, shower water, cooling the buildings

3 aquathermal energy system, heat-cold storage is connected to the river

4 pv(t) panels for electricity and warm water

5 inlet fresh and warm air through walls

6 outlet saturated air through roof

7 air handling unit with heat recovery

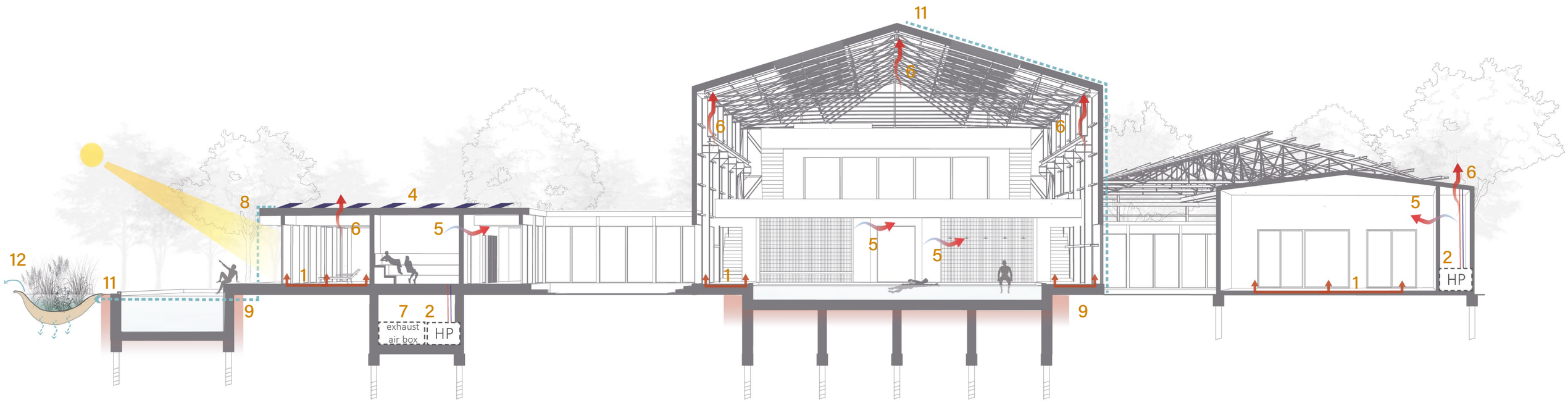
8 low winter suns warms the building

9 swimming pool buried in the ground limits heat loss

10 pool water filtering systems

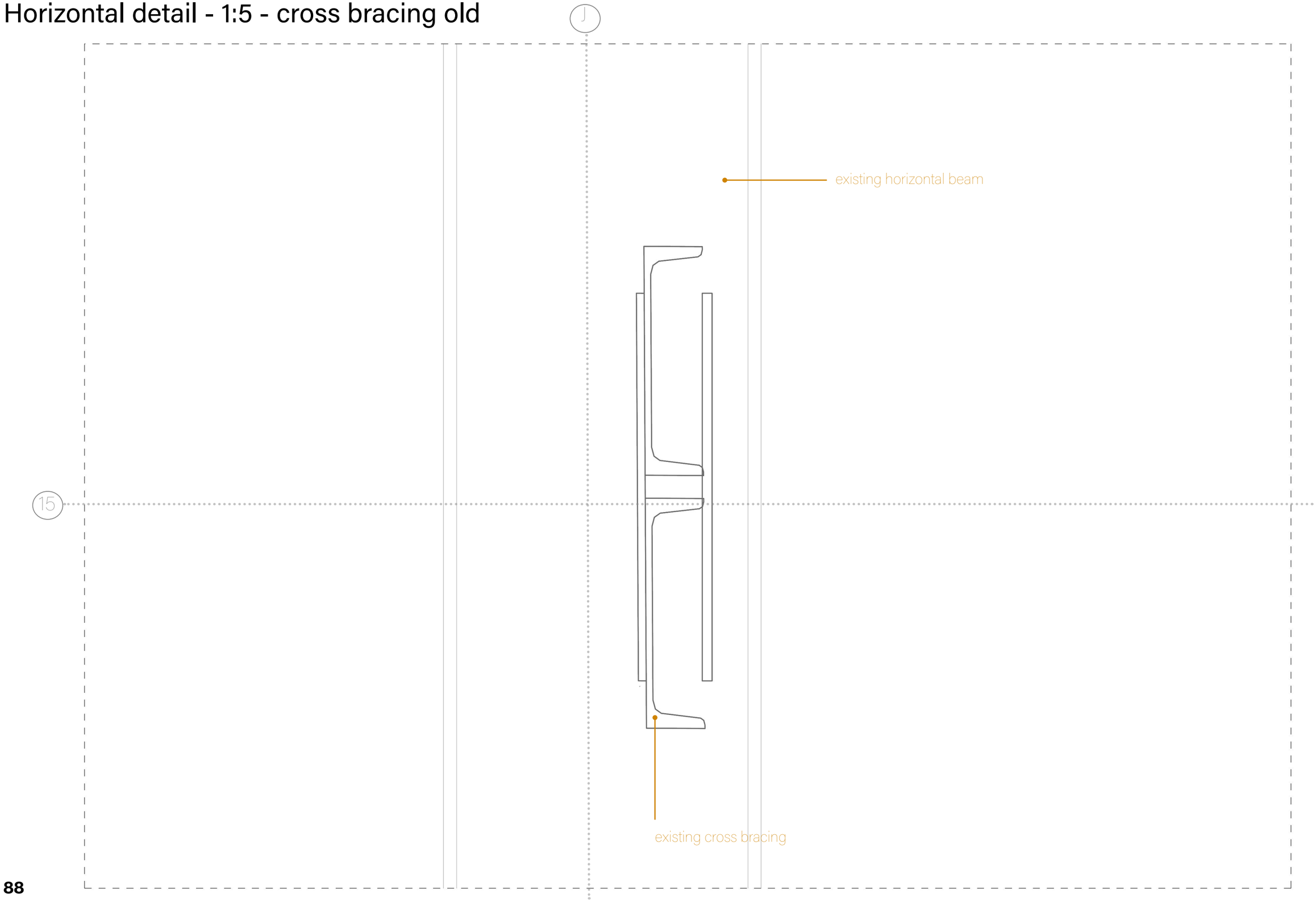
11 rain water collection for toilet use

12 constructed wetlands for natural water filtering and delayed water infiltration



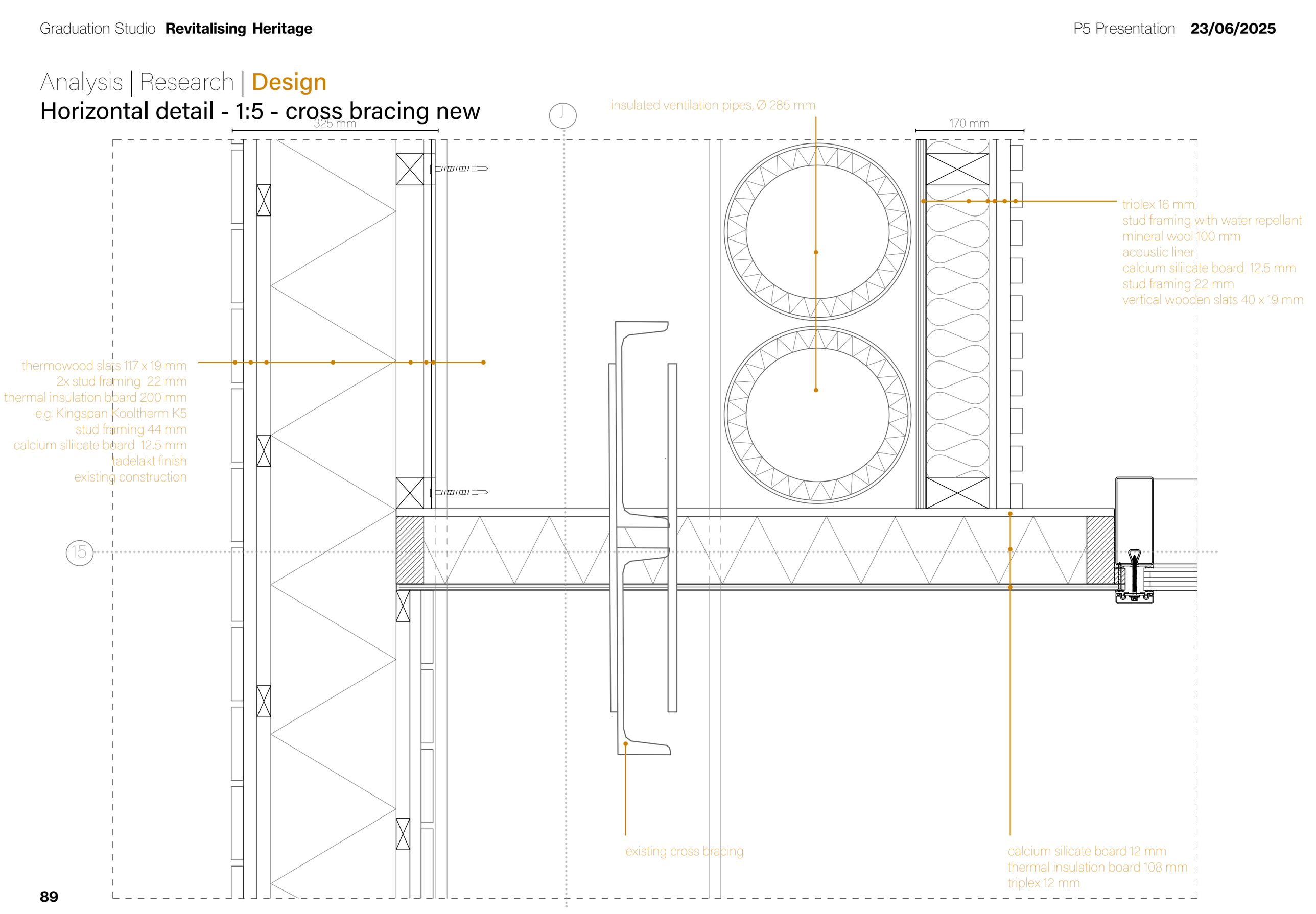
Analysis | Research | **Design**

Horizontal detail - 1:5 - cross bracing old



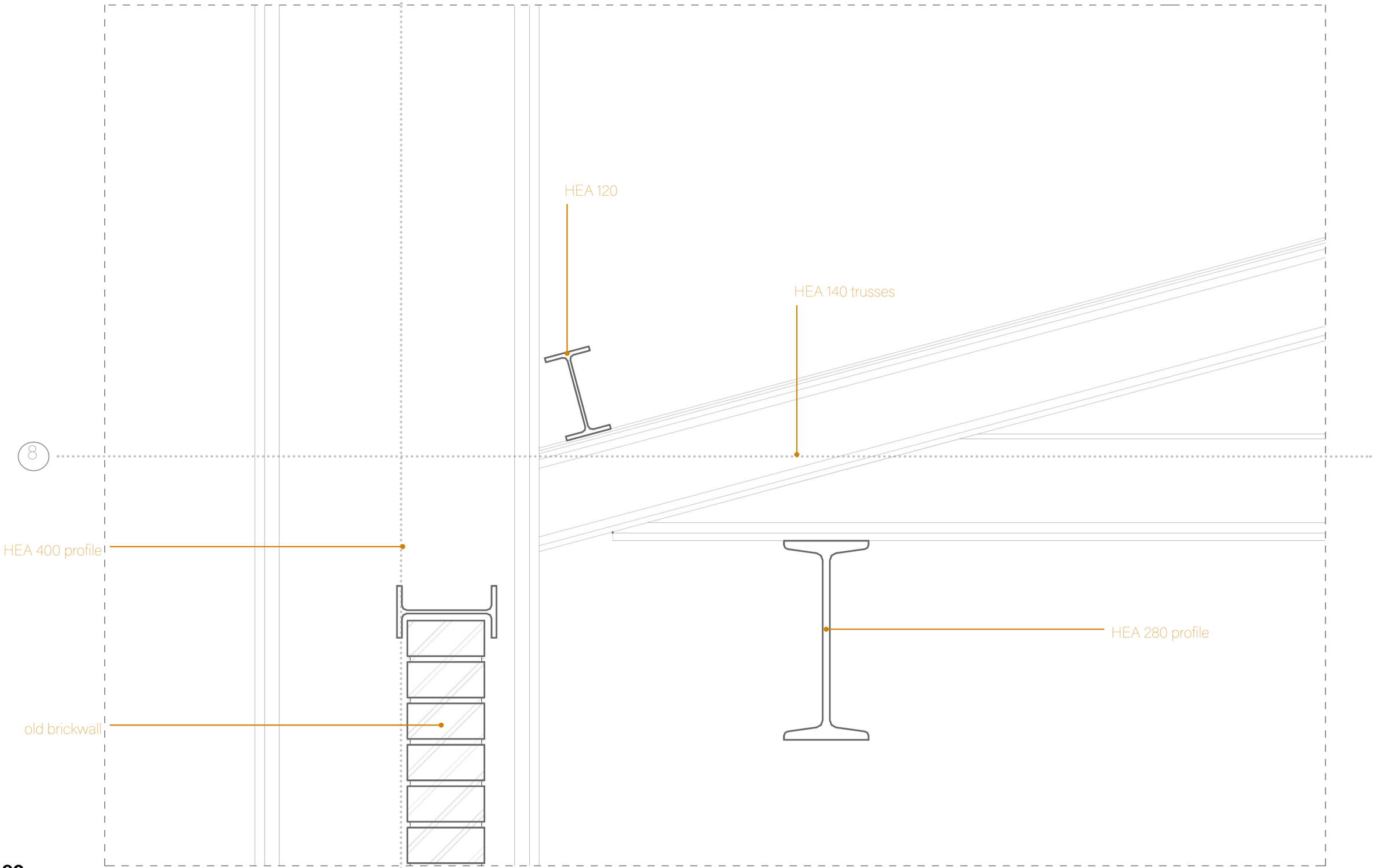
Analysis | Research | **Design**

Horizontal detail - 1:5 - cross bracing new



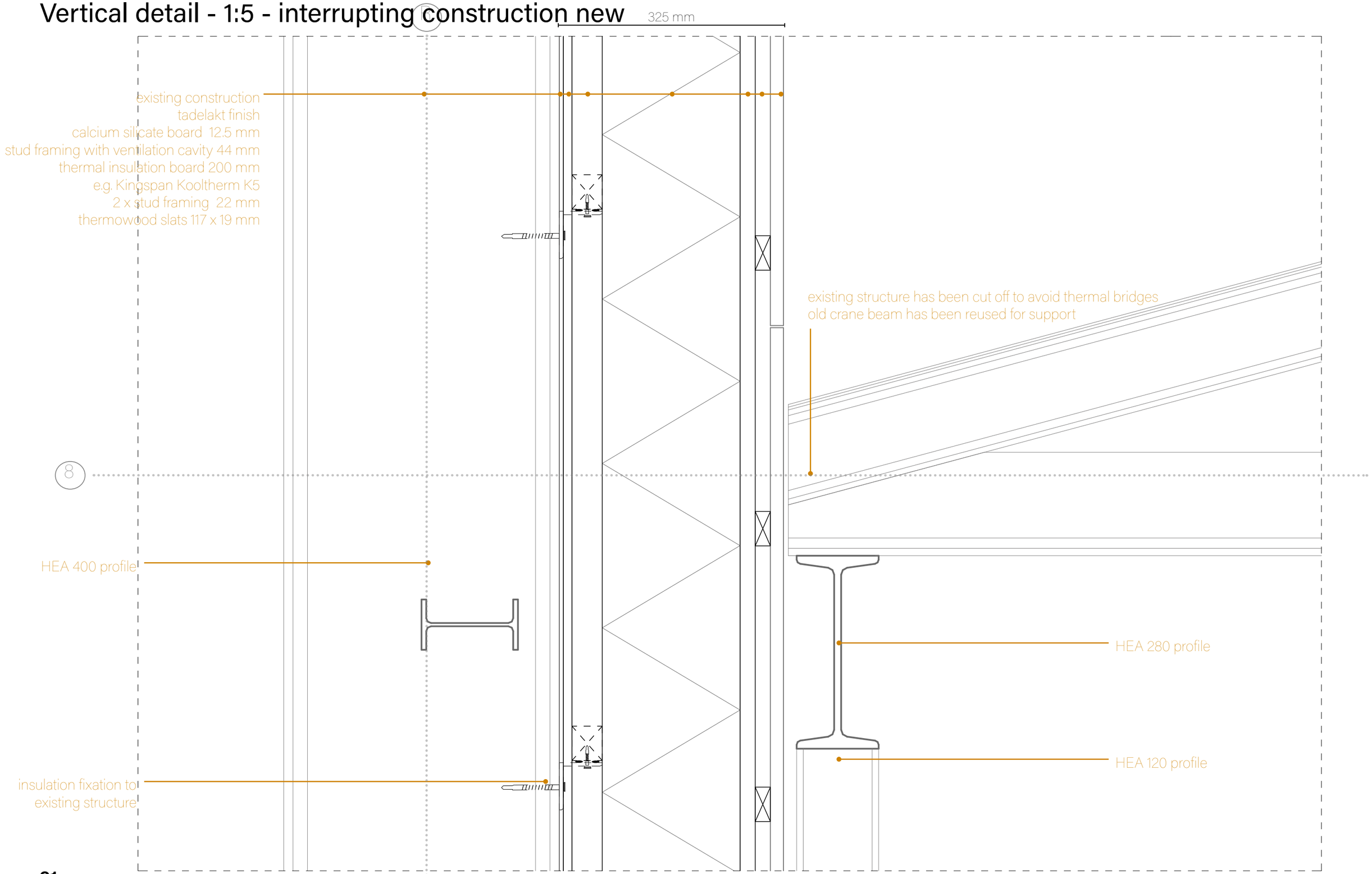
Analysis | Research | **Design**

Vertical detail - 1:5 - interrupting construction old



Analysis | Research | **Design**

Vertical detail - 1:5 - interrupting construction new

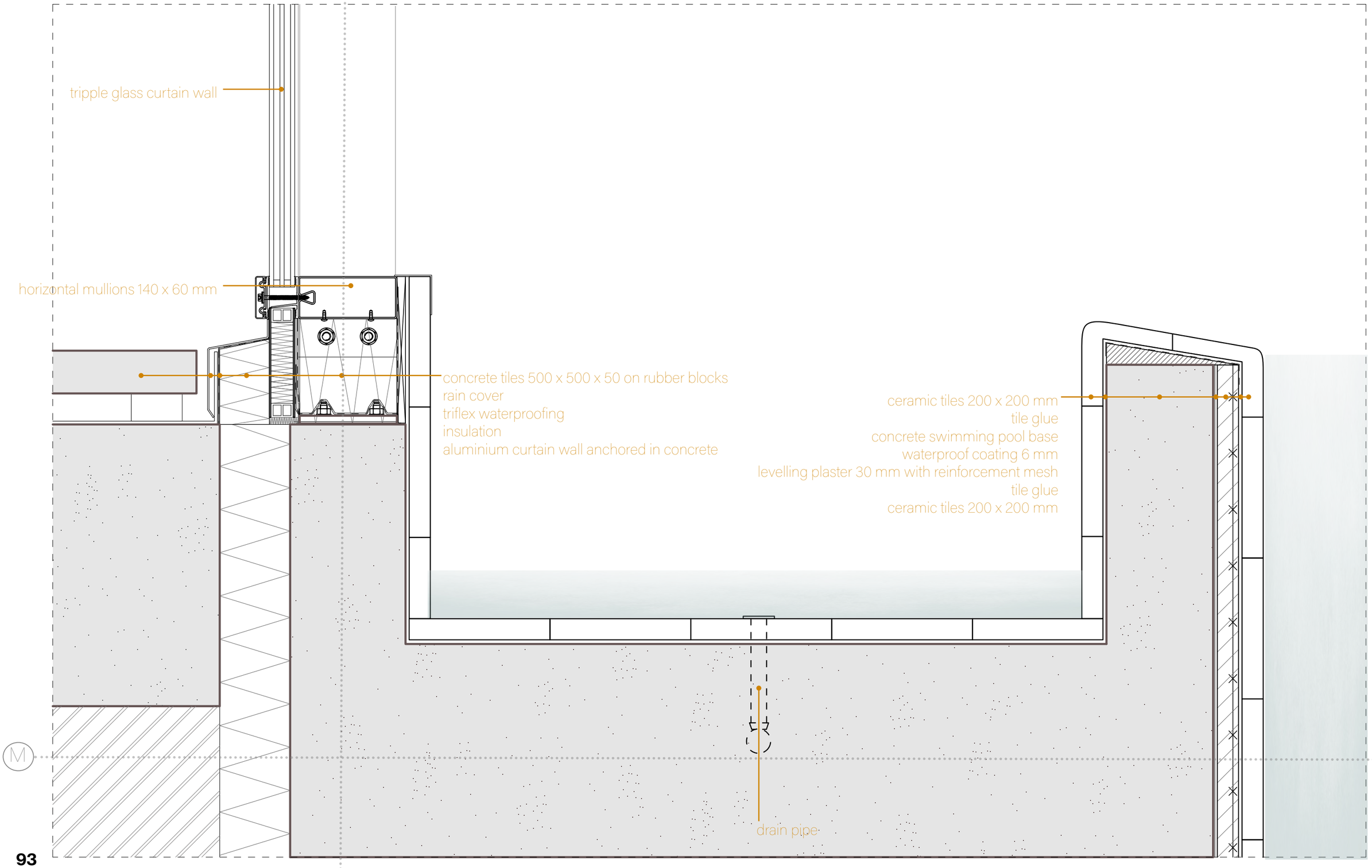


Analysis | Research | **Design**

Vertical detail - 1:5 - infinity edge old

Analysis | Research | **Design**

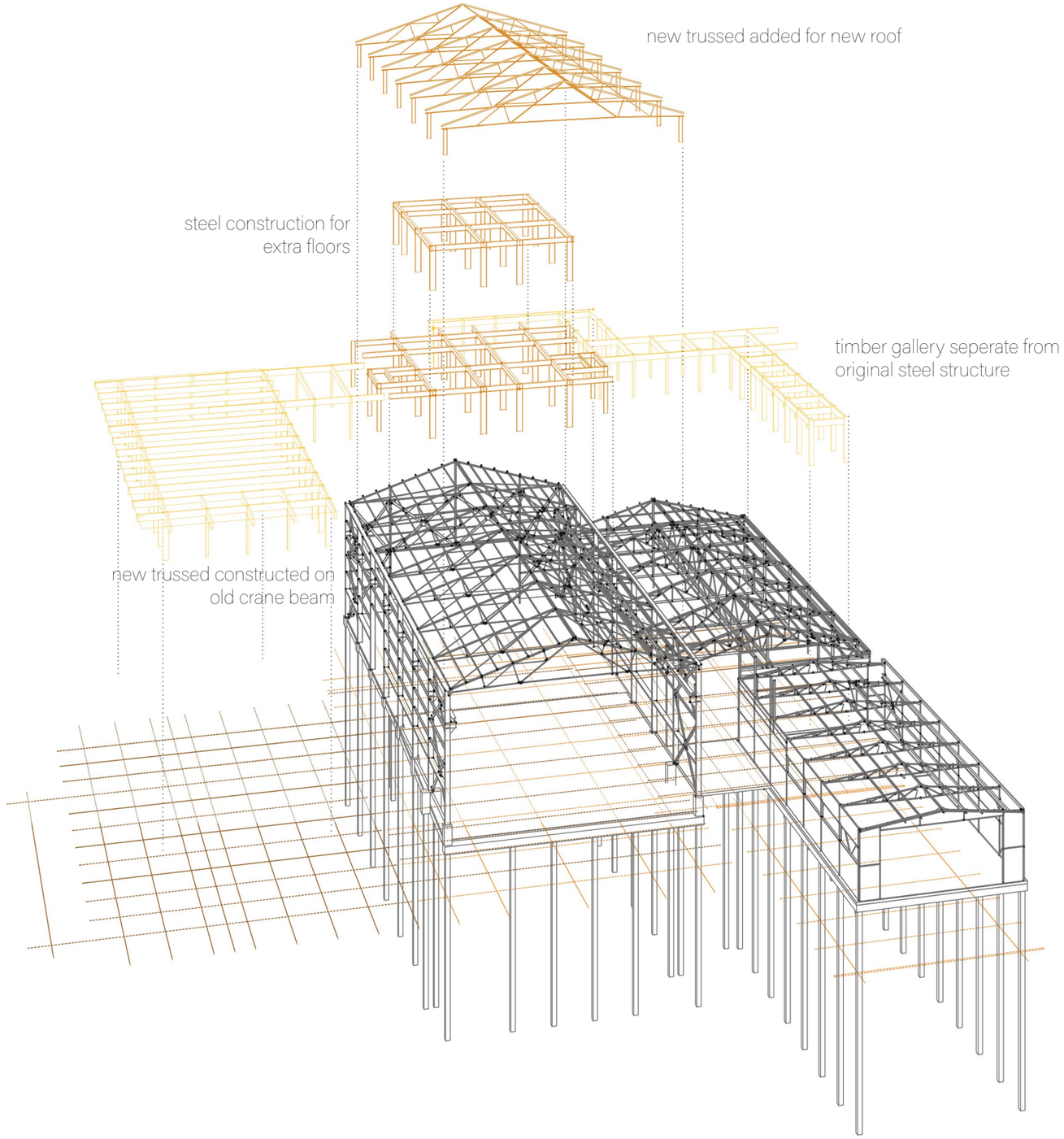
Vertical detail - 1:5 - infinity edge new

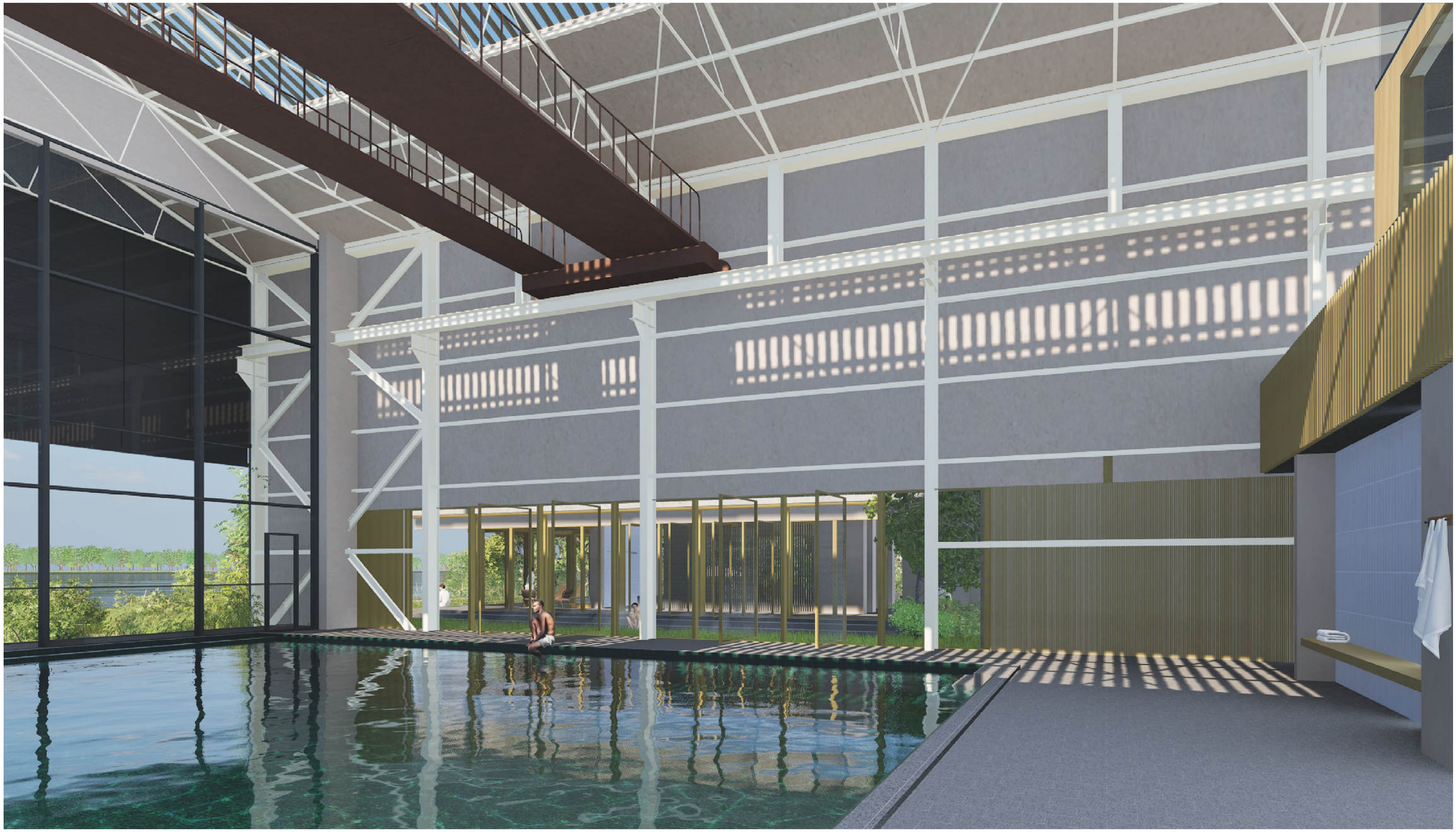


Analysis | Research | Design
Construction

new grid
old grid

original steel structure
new steel structure
new timber structure



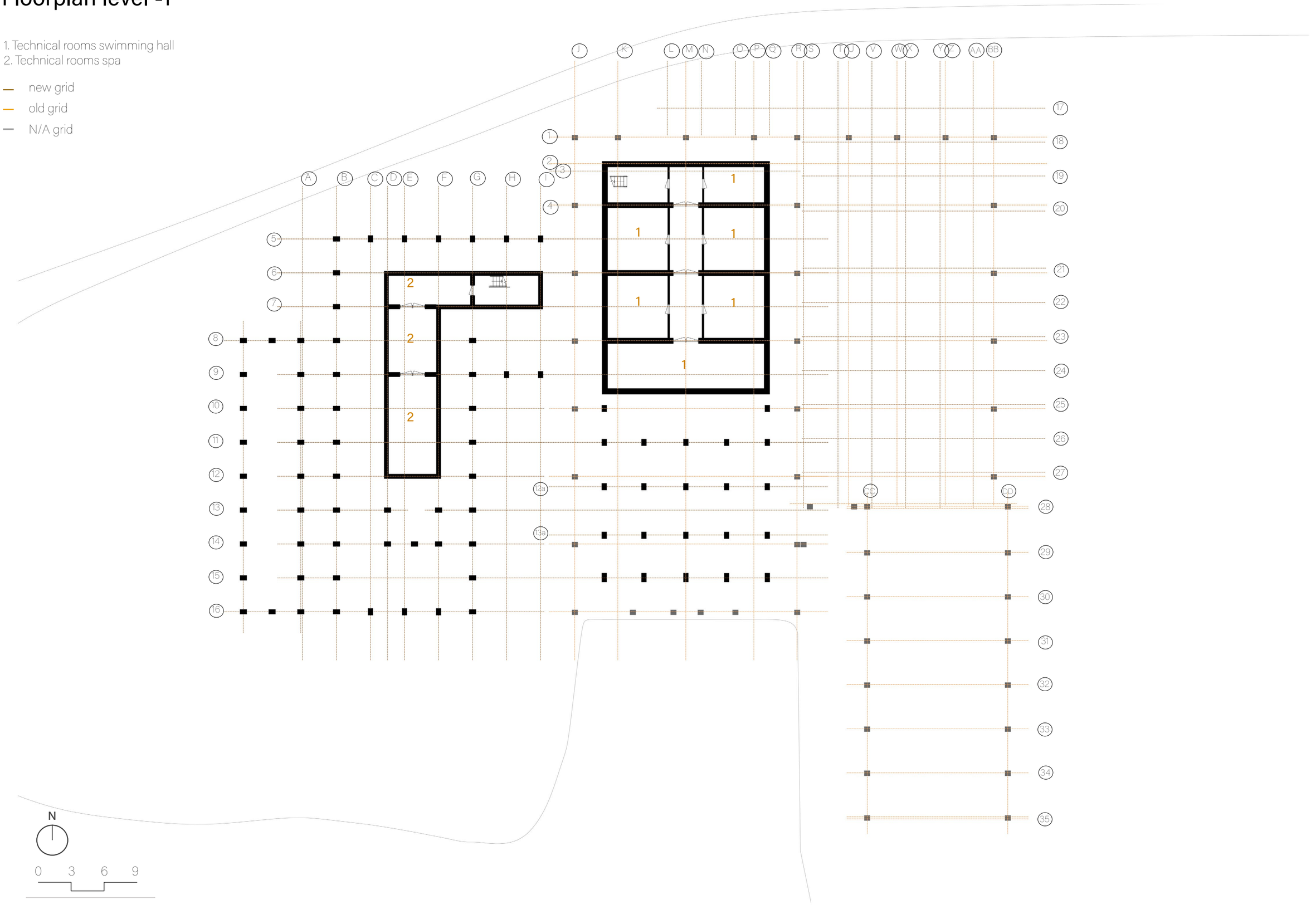


Thank you for listening!

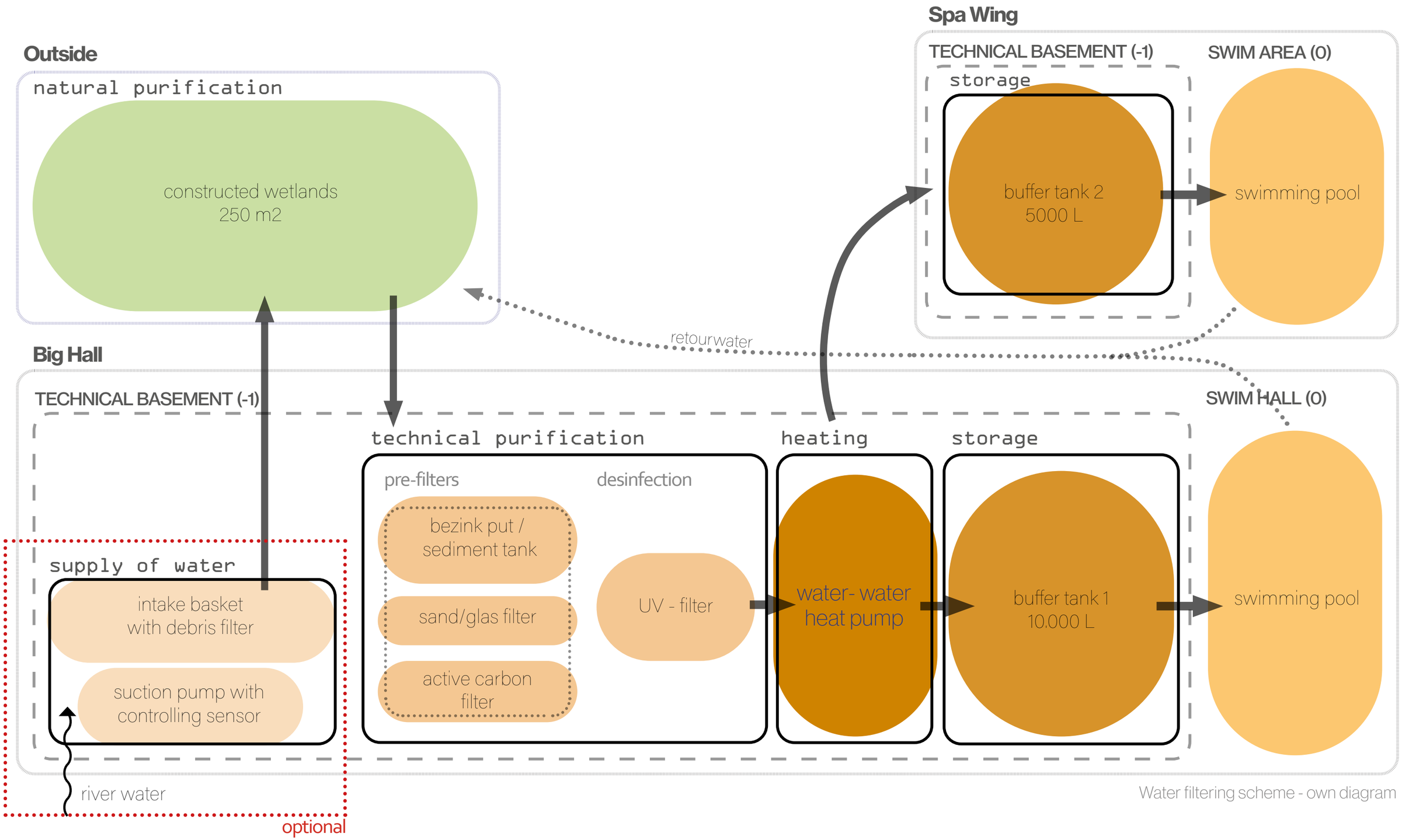
Floorplan level -1

1. Technical rooms swimming hall
2. Technical rooms spa

— new grid
— old grid
— N/A grid



Water filtering scheme



Water filtering scheme - own diagram