

MIT OpenCourseWare  
<http://ocw.mit.edu>

11.307 Beijing Urban Design Studio  
Summer 2008

For information about citing these materials or our Terms of Use, visit: <http://ocw.mit.edu/terms>.



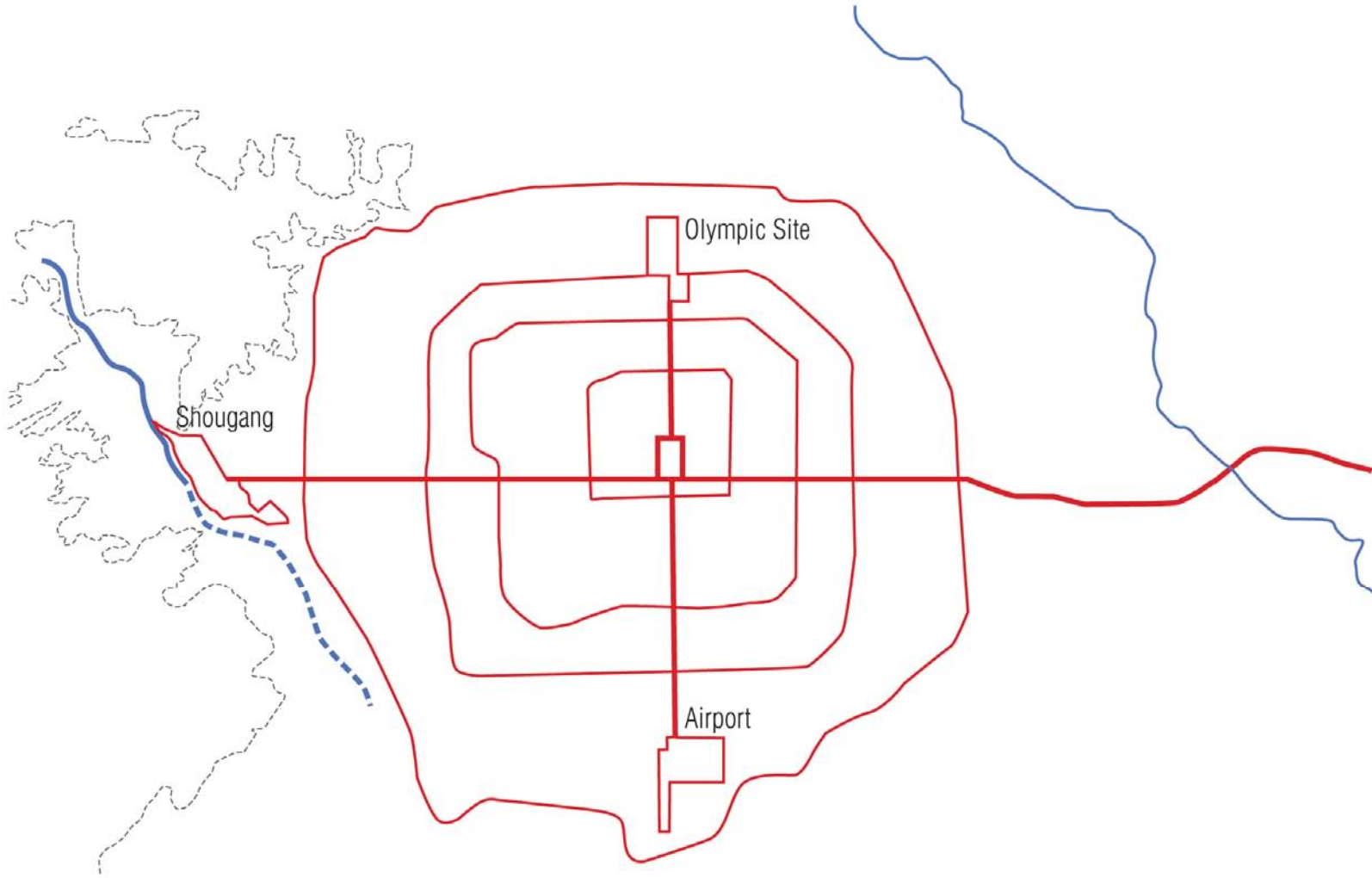
## **Big Lakes Site: Post-Industrial Gateway**

**Li Ye  
Zhai Wensi  
Josh Fiala  
Christine Outram  
Claire Abrahamse**

# Context + Framework

---

Big Lakes Site



## Beijing Urban Structure

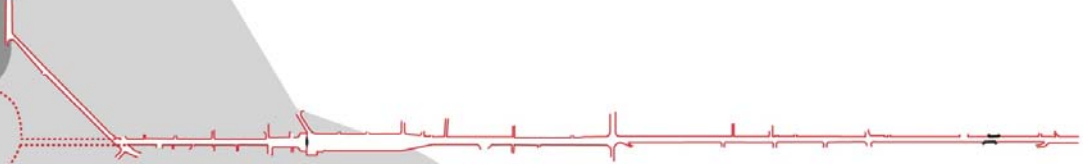
- North/South axis is already terminated with the Olympic site in the North and an airport in the South
- Eastern axis meanders after the fifth ring road
- River and mountains form natural finishing point for Eastern boundary – site could become new bookend

# The Gateway Site

Entire Site

Selected Site

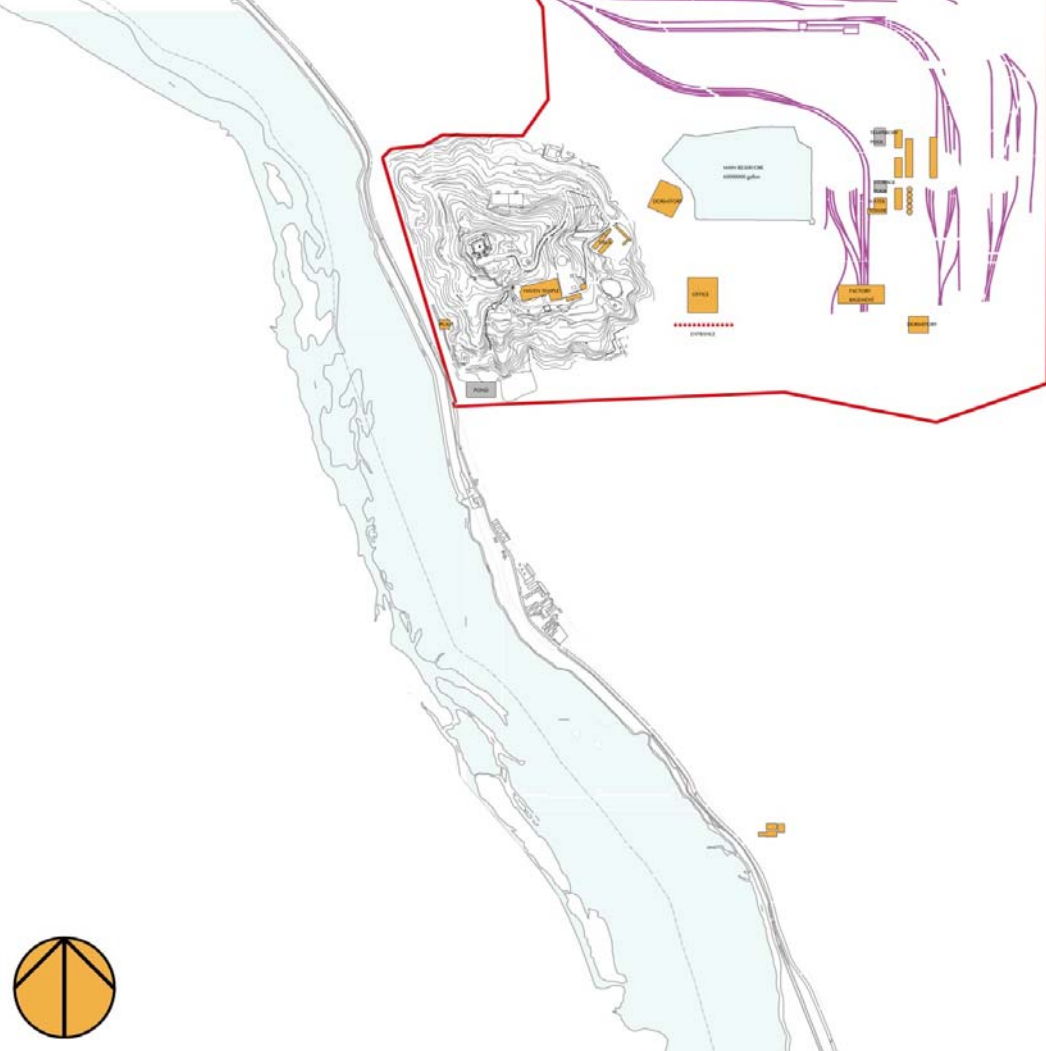
Big Lakes Site



# **Site History and Development**

---

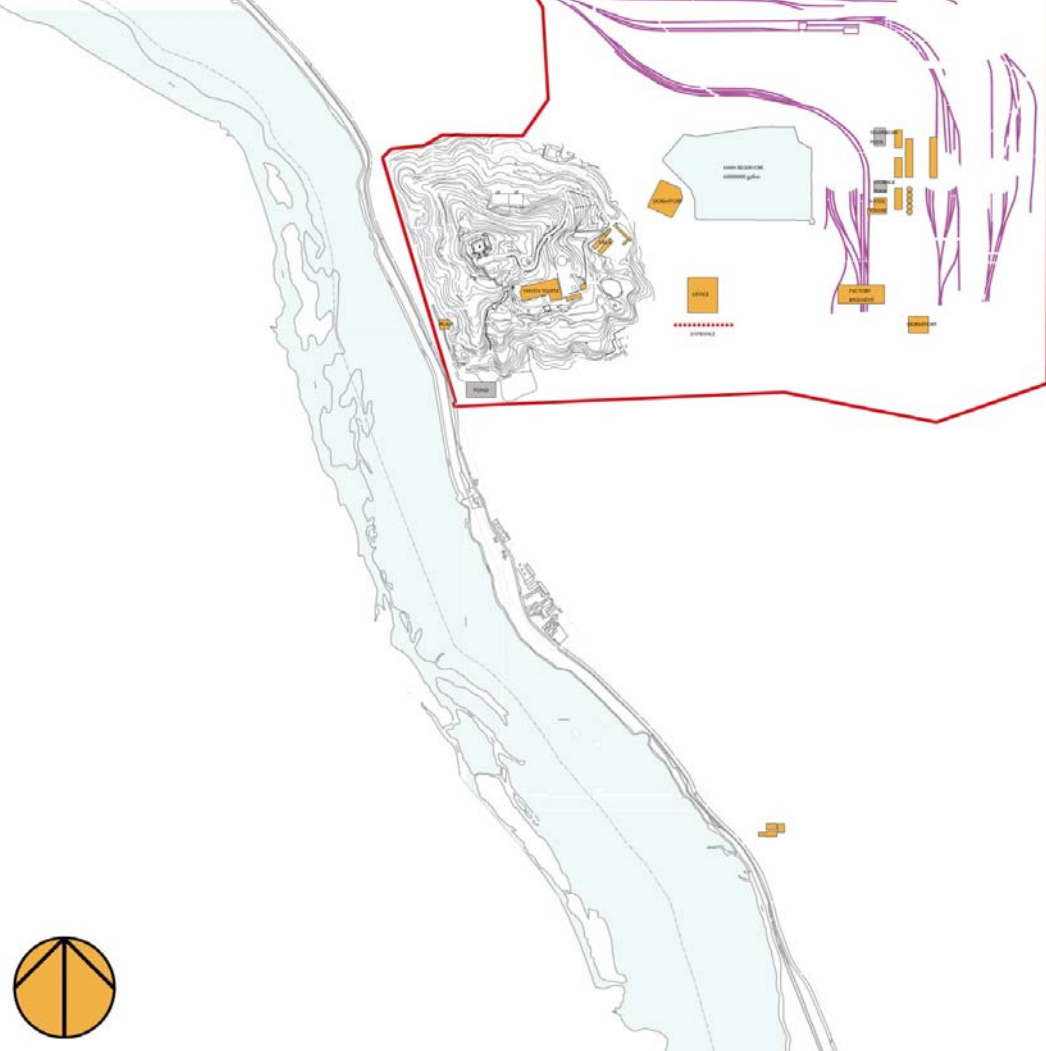
**Big Lakes Site**



## HISTORY TRACE 1919-1937

- 1919 Establishment
- 1919-1928 Government & Merchant cooperated Longyan mine Corporation
- 1923 suspended production with 80-90% accomplishment
- 1928-1937 nationalized by Kuomintang government
- Almost in stagnancy over half of the time and developed slowly
  
- Area occupied : 2,200 acres (1,466,666m<sup>2</sup>)
- Railway



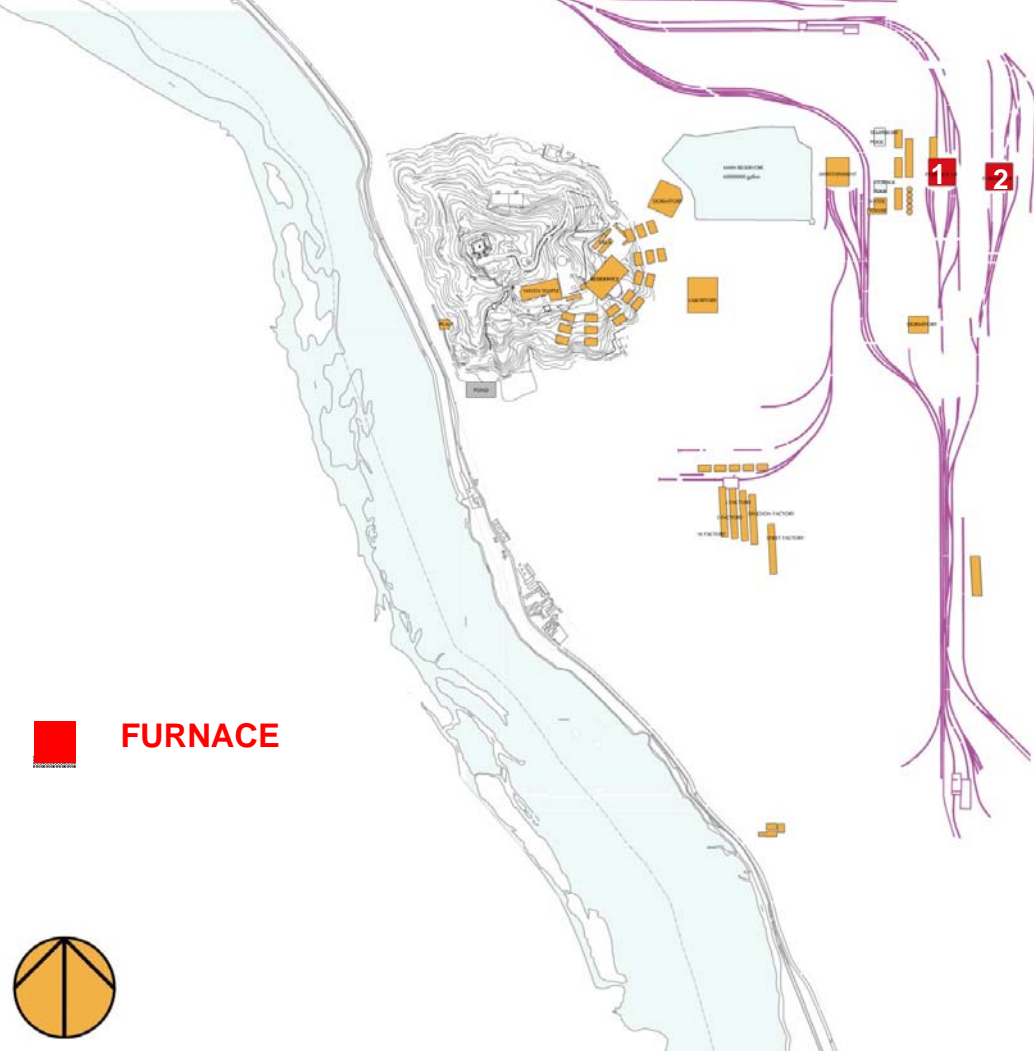


## HISTORY TRACE 1919-1937

Antique buildings:

- The HEAVEN temple
  - BIXIAYUANJUN temple
  - Historic well
- 
- The main reservoir (capacity of 60,000,000 gallons)
  - Plants & Workshops
  - Offices & Laboratories
  - Pumps(by the side of Yongding river)
- 
- Few workers dormitory
  - The American engineer's villa on Shijing mountain (Exhibition Hall)





## HISTORY TRACE 1937-1945

- 1937-1945 took over by Japanese corporation and was under army control
- The Japanese plan and developed the plant for the war use

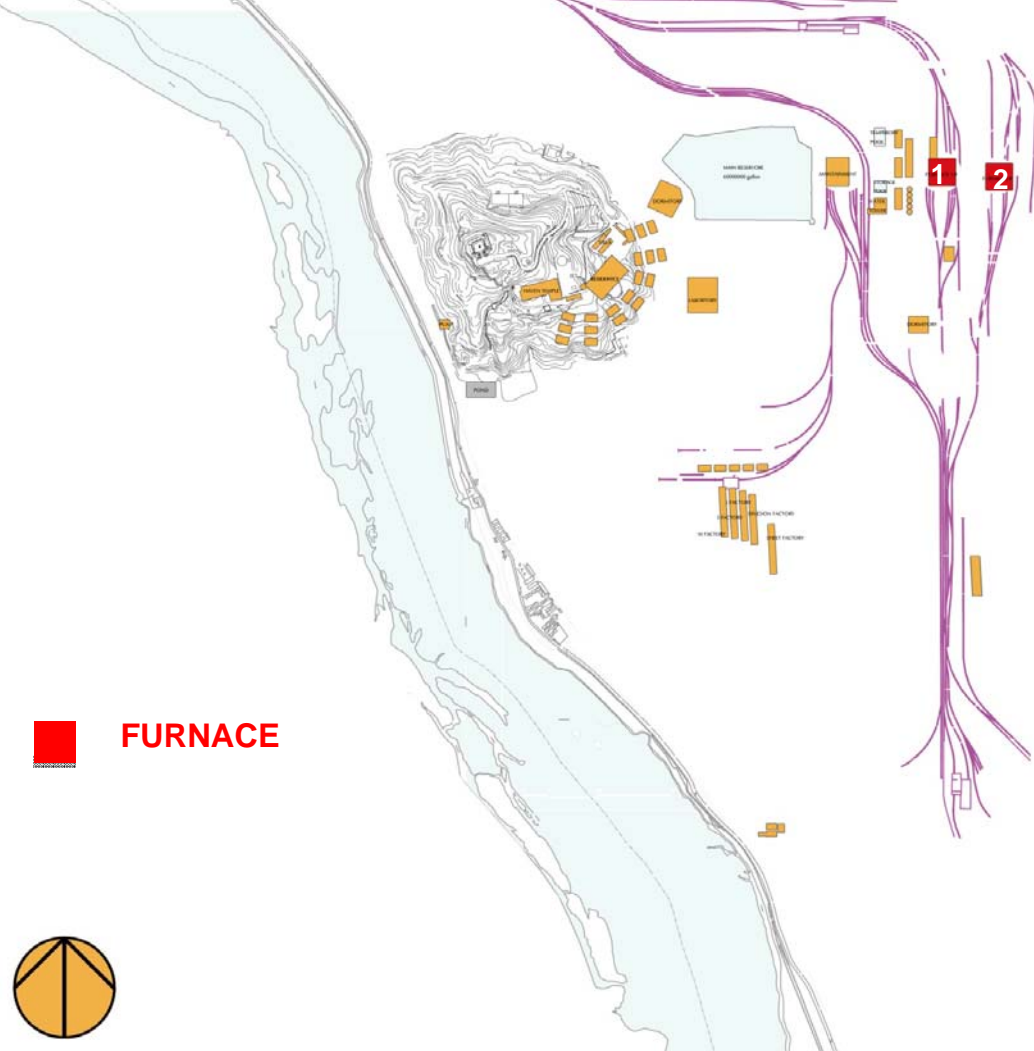
Imported out-of-date equipments from Japan

### •Furnaces 1# & 2#

- Coke ovens
- Electricity equipments

•Built offices, dormitories and bathing house

•Improved the electrical equipment for living



## HISTORY TRACE 1945-1949

1945-1949 took over by  
Kuomintang government

Almost in stagnancy except  
few maintenance

## HISTORY TRACE 1949-1958

- 1949 LIBERATION & FOUNDING OF PRC
- Took over by Chinese government

- Expansion of the area occupied
- Maintenance, Recovery & Transformation of equipments

- 1# Reservoir (the small lake)
- 2# & 3# Reservoir & Recycle Pool used for cooling the furnaces (Qunming Lake)

- Steel Plant



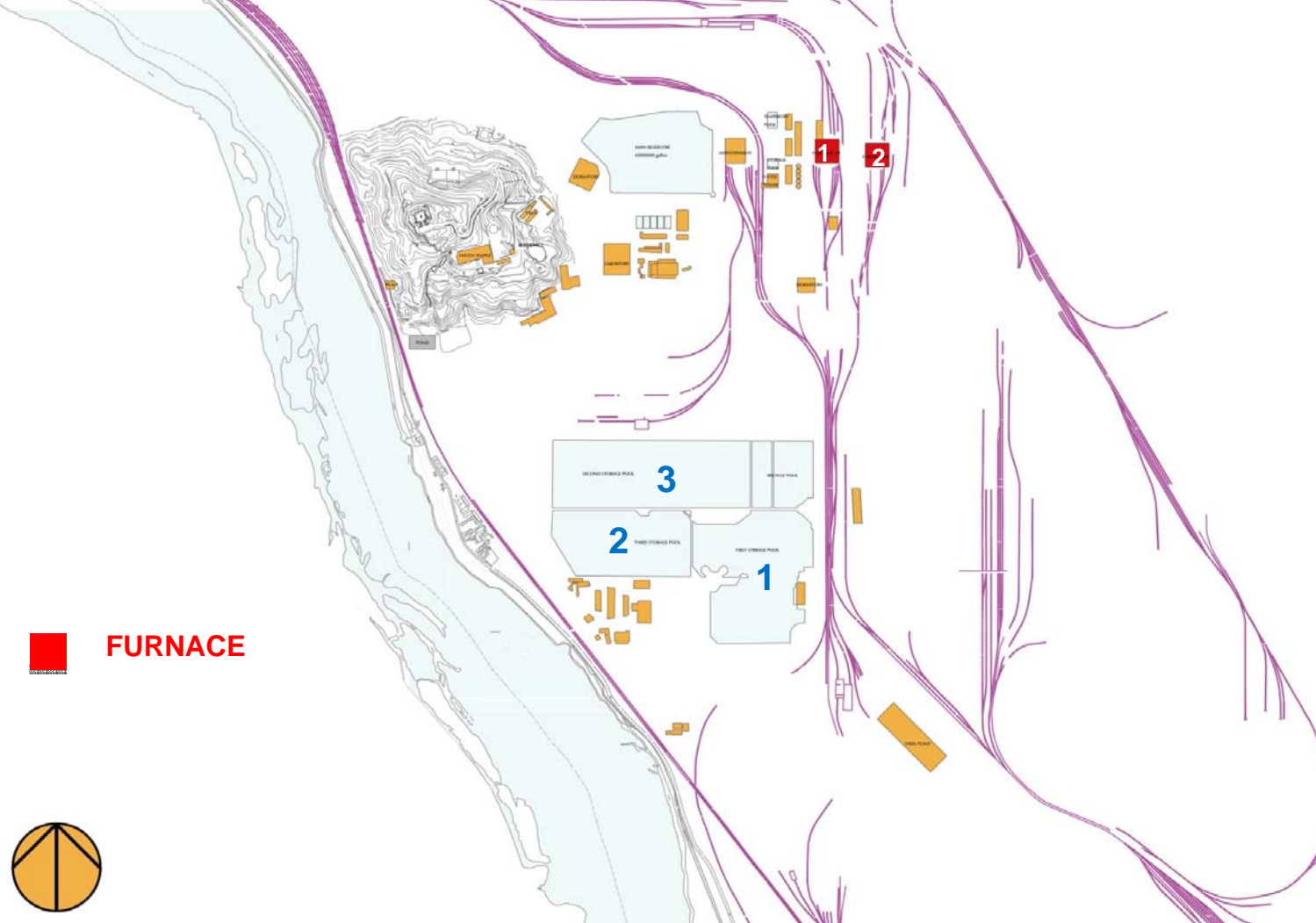
**FURNACE**



## HISTORY TRACE 1970s

- Oxygen Plant
- Honglou Hotel
- Transformation of the big Reservoir (Qunming lake)
- Pumps for Qunming lake

 FURNACE




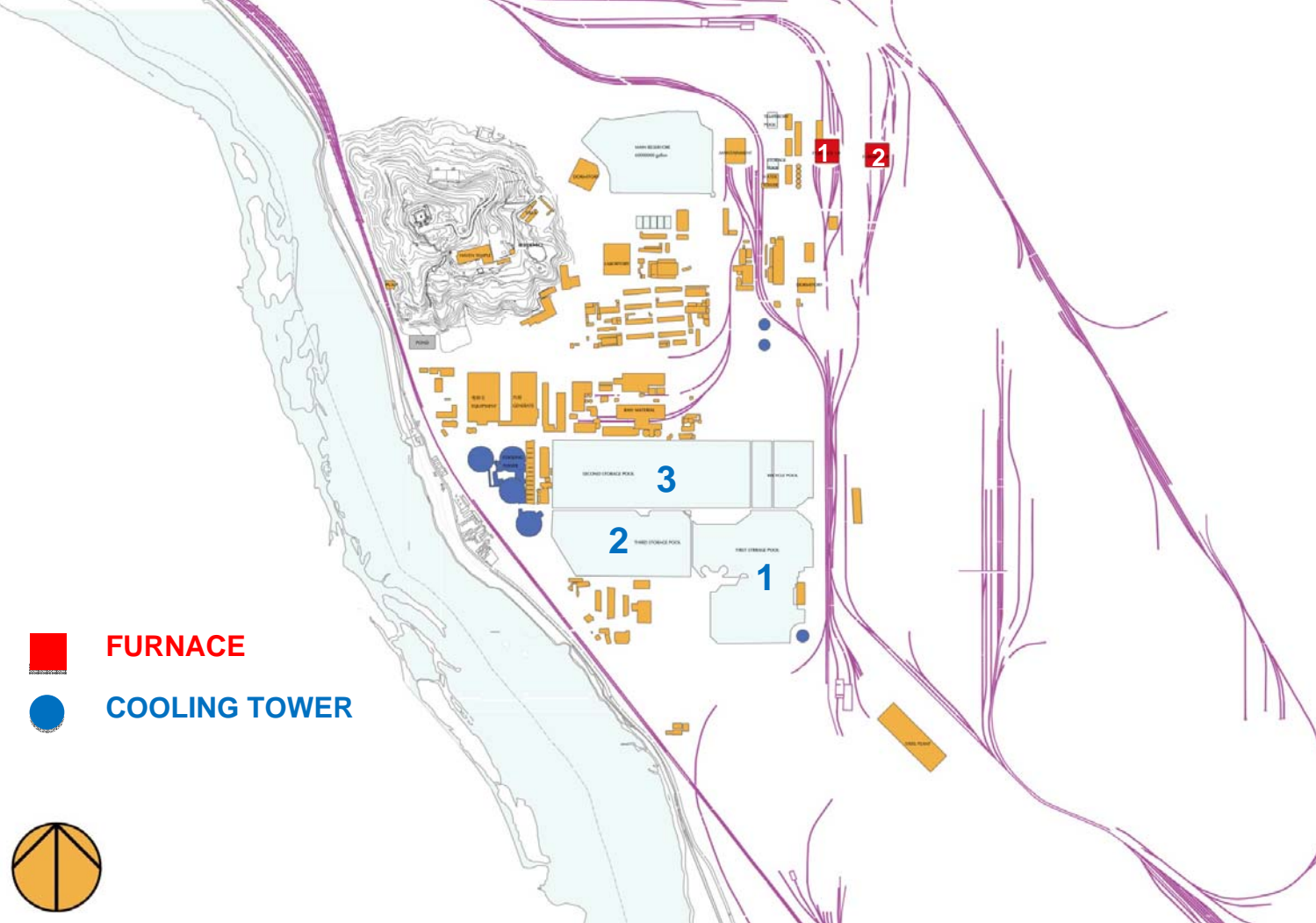
## HISTORY TRACE 1980s

- Electricity Plant & the Cooling Towers

- Cooling towers for the Electricity Power Plant
- Raw Material

- Workers' Dormitories

 **FURNACE**  
 **COOLING TOWER**

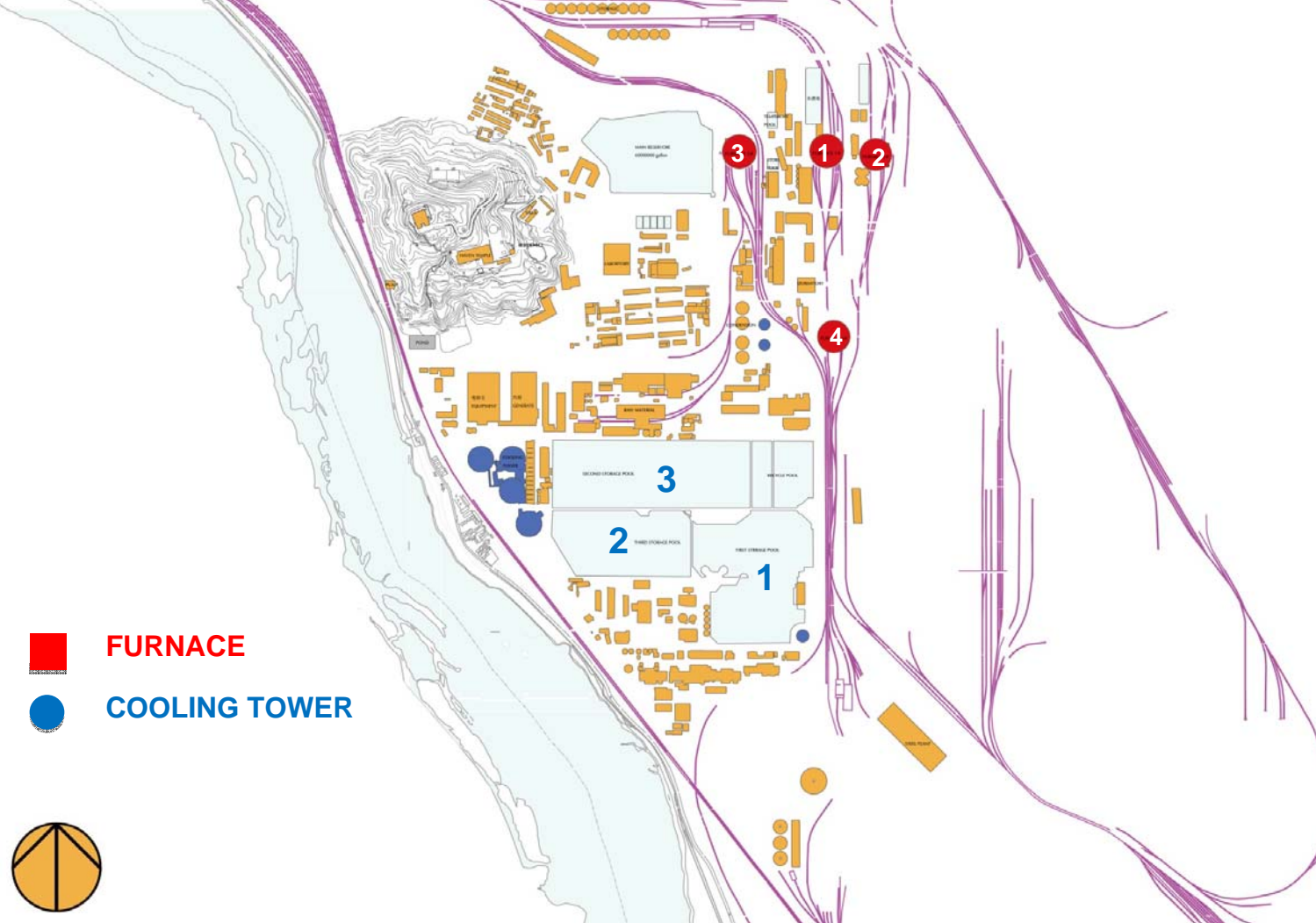


## HISTORY TRACE 1990s

- Update Furnaces 1# & 2# on the same sites
- New Furnaces 3# & 4#
- Condensation Towers
- Dross Pools
- Storages
- Extension of the Oxygen Plant


Training School

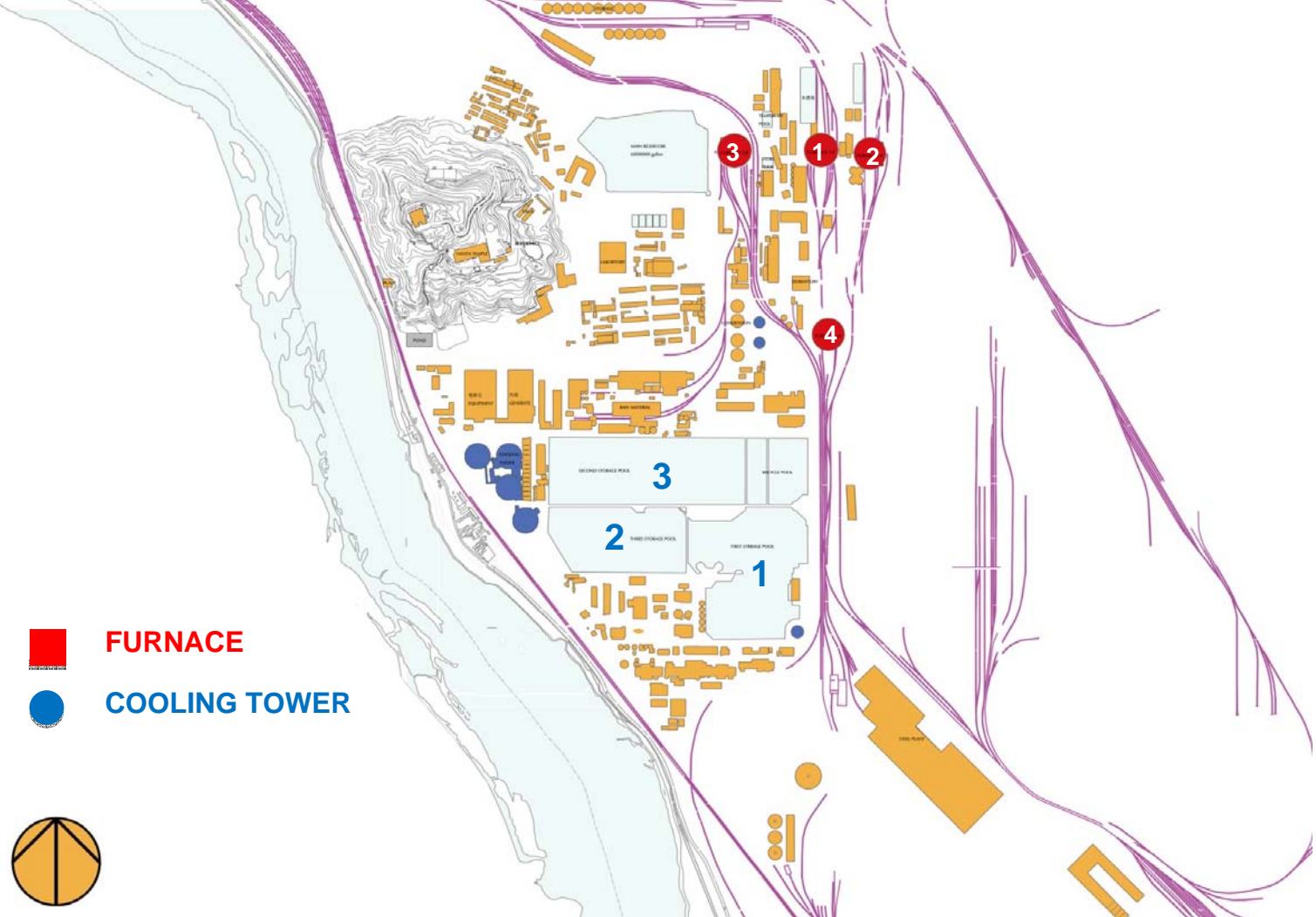
 **FURNACE**  
 **COOLING TOWER**



## HISTORY TRACE 2000s

- Extension of the STEEL PLANT
- Developed along the railway

-  FURNACE
-  COOLING TOWER



# **System Architecture**

---

**Big Lakes Site**





Cooling lake  
(now defunct)

Ore

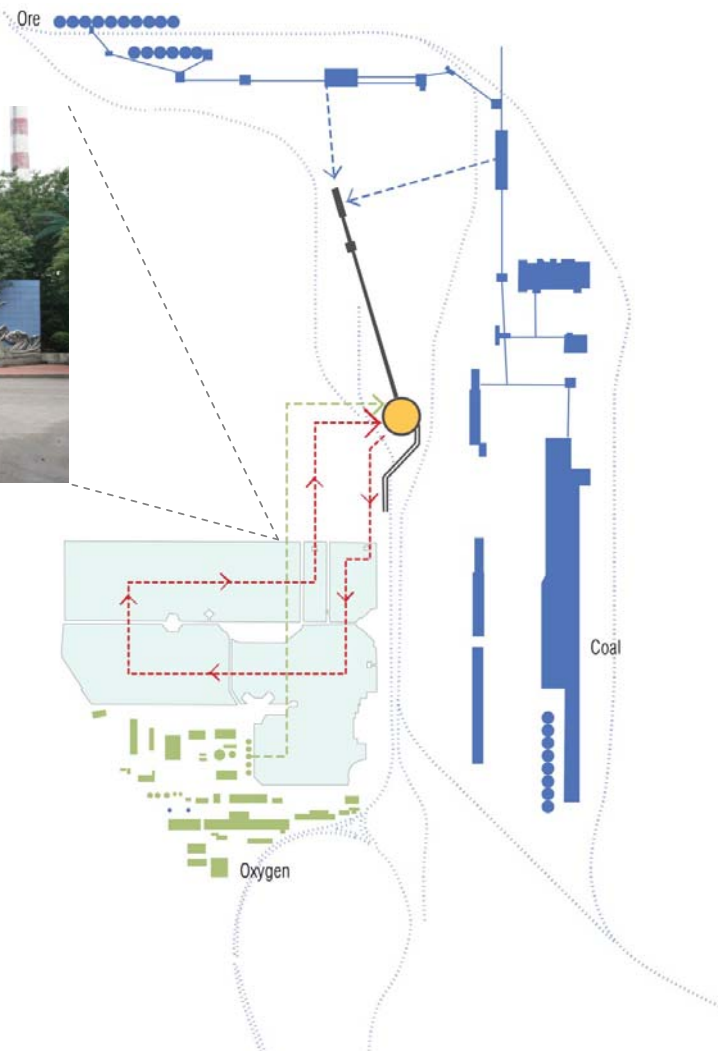
Coal

Oxygen

## System Architecture

- Raw Materials
- Cooling Lakes
- Oxygen Plant
- Power Plant
- Furnaces
- Rail Lines

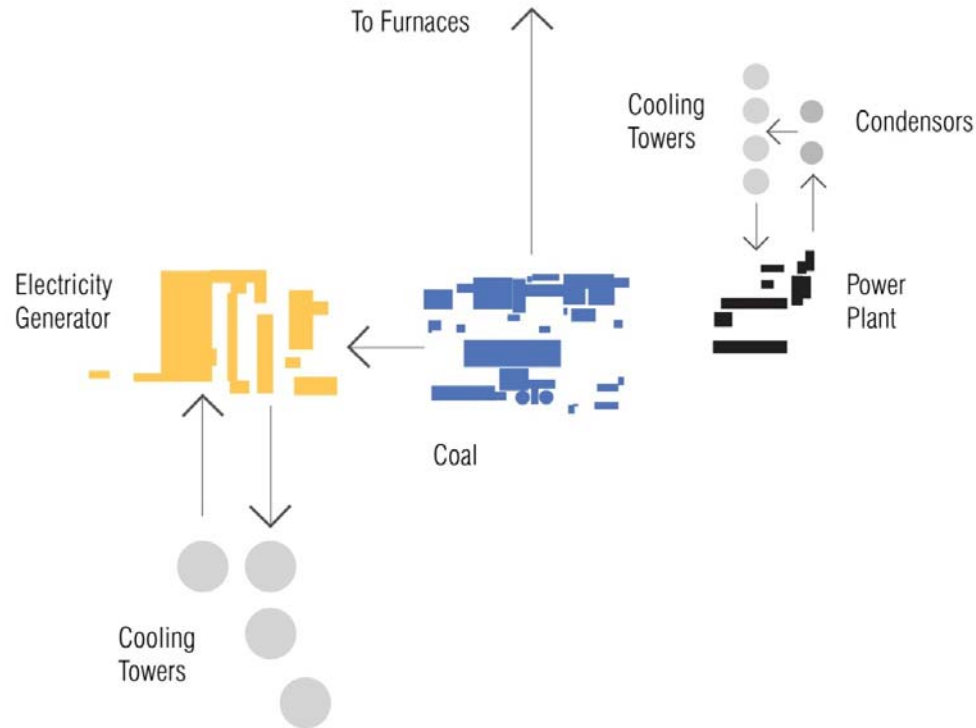
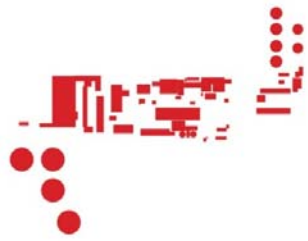
- Two separate processes:
  - Steel making
  - Power generation



- Raw Materials
- Cooling Lakes
- Oxygen Plant
- Power Plant
- Furnaces
- Rail Lines

## System Architecture: Steel System

- The oxygen plant is located away from the furnace to reduce mass explosions. It can be assumed that O<sub>2</sub> is pumped beneath the lakes and then above ground to the furnaces
- Processed coal and ore are transported above ground and by rail to the furnace ramp
- Hot water flows from lake to lake until it is cool



## System Architecture: Power System

- This power plant also requires raw materials: train lines running between this area and the furnaces suggest that it is also used for the furnaces
- Condensers and cooling towers are a much more effective way of cooling the water used in the power generating process

# **Civic Structure**

---

**Big Lakes Site**



### Civic Structure - Axes + Transport

- Site is bounded by its rail lines
- Two main entry points
- Main car access becomes visual link to pavilion on the mountain – this link could be visually strengthened



## Civic Structure – built forms

- Raw material production of ore and coal forms hard-line boundaries to the site on the north and east.
- Currently inaccessible, the oxygen plant still has a strong major spine
- Movement through the site encompasses both lakes

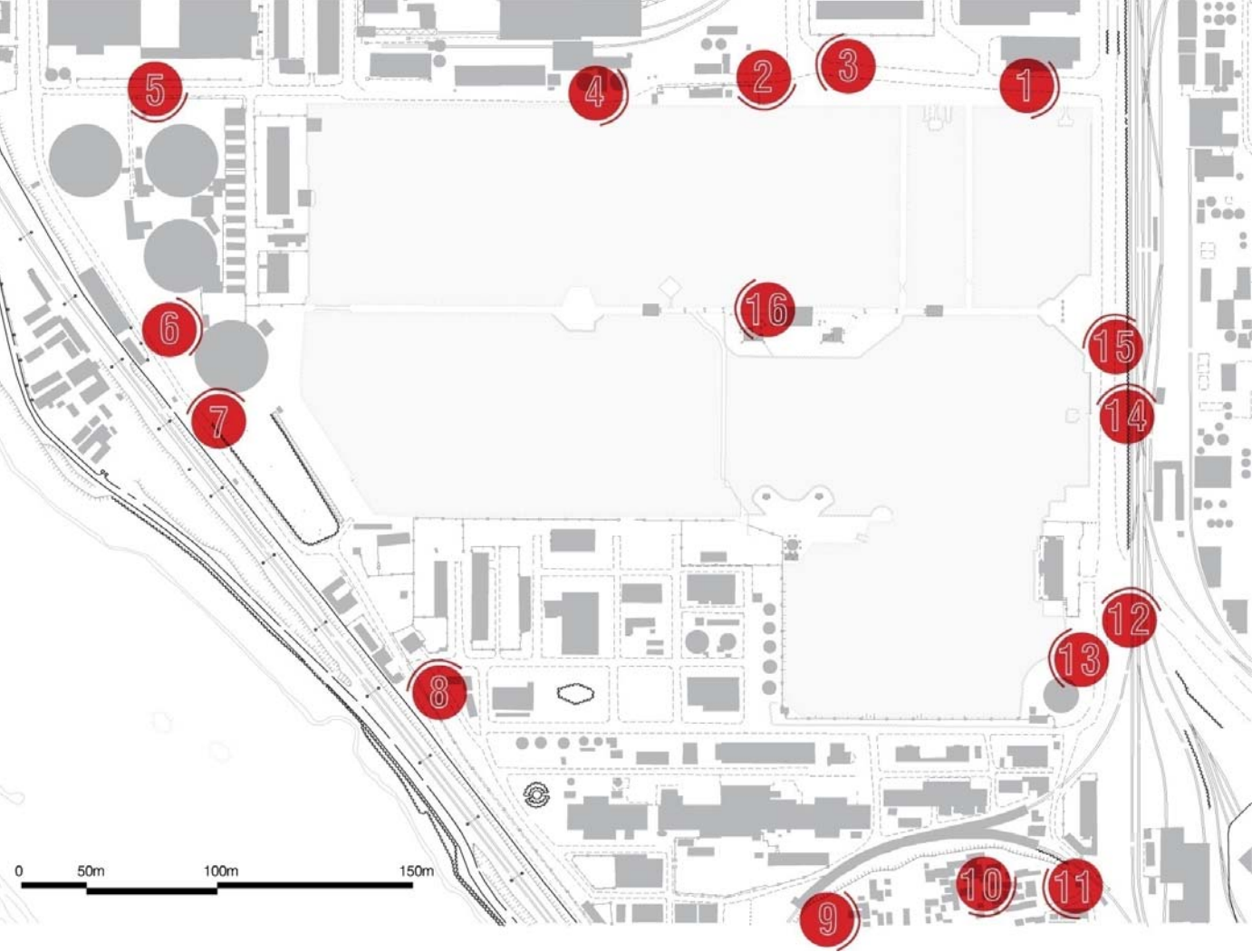
# **Big Lakes Site**

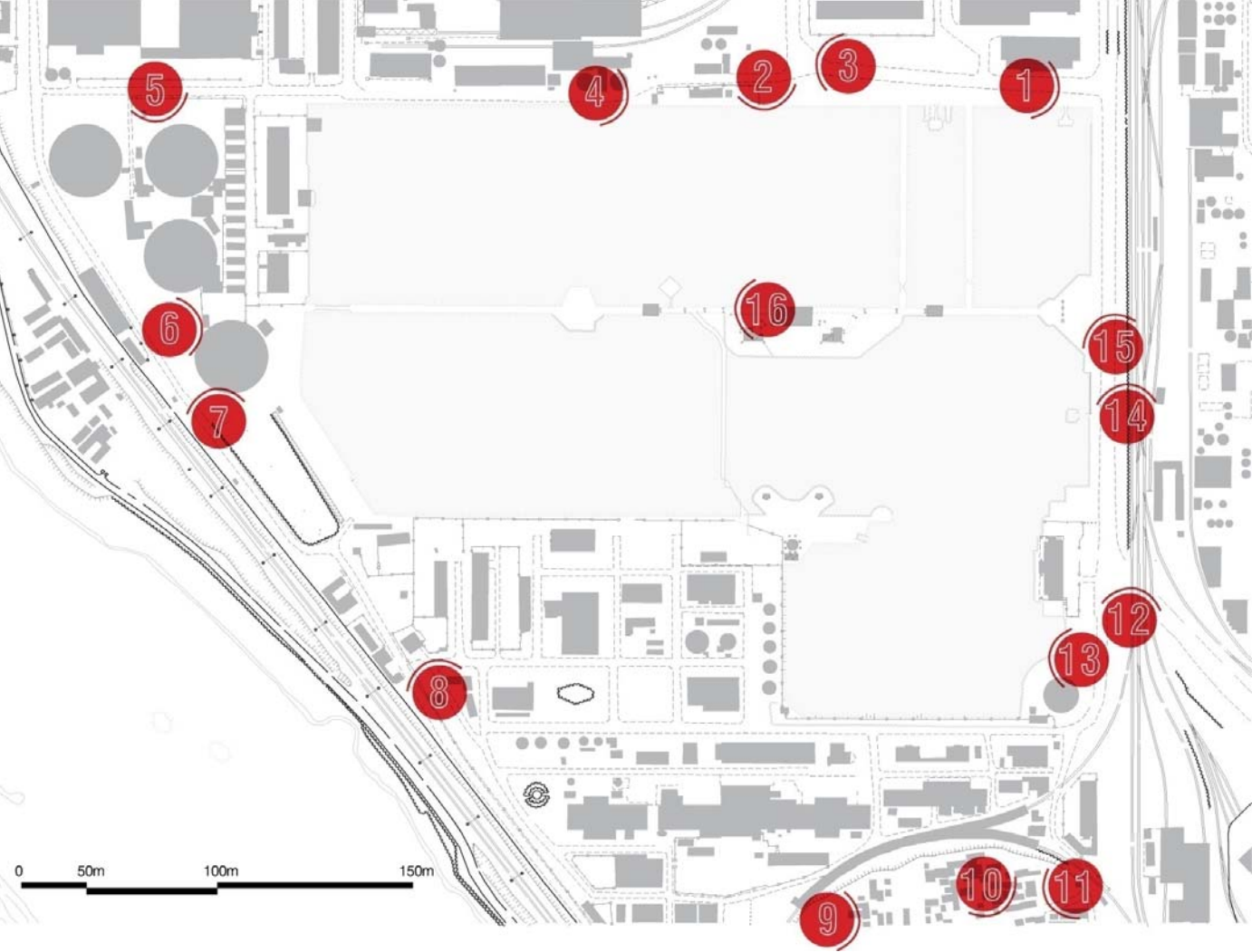
---

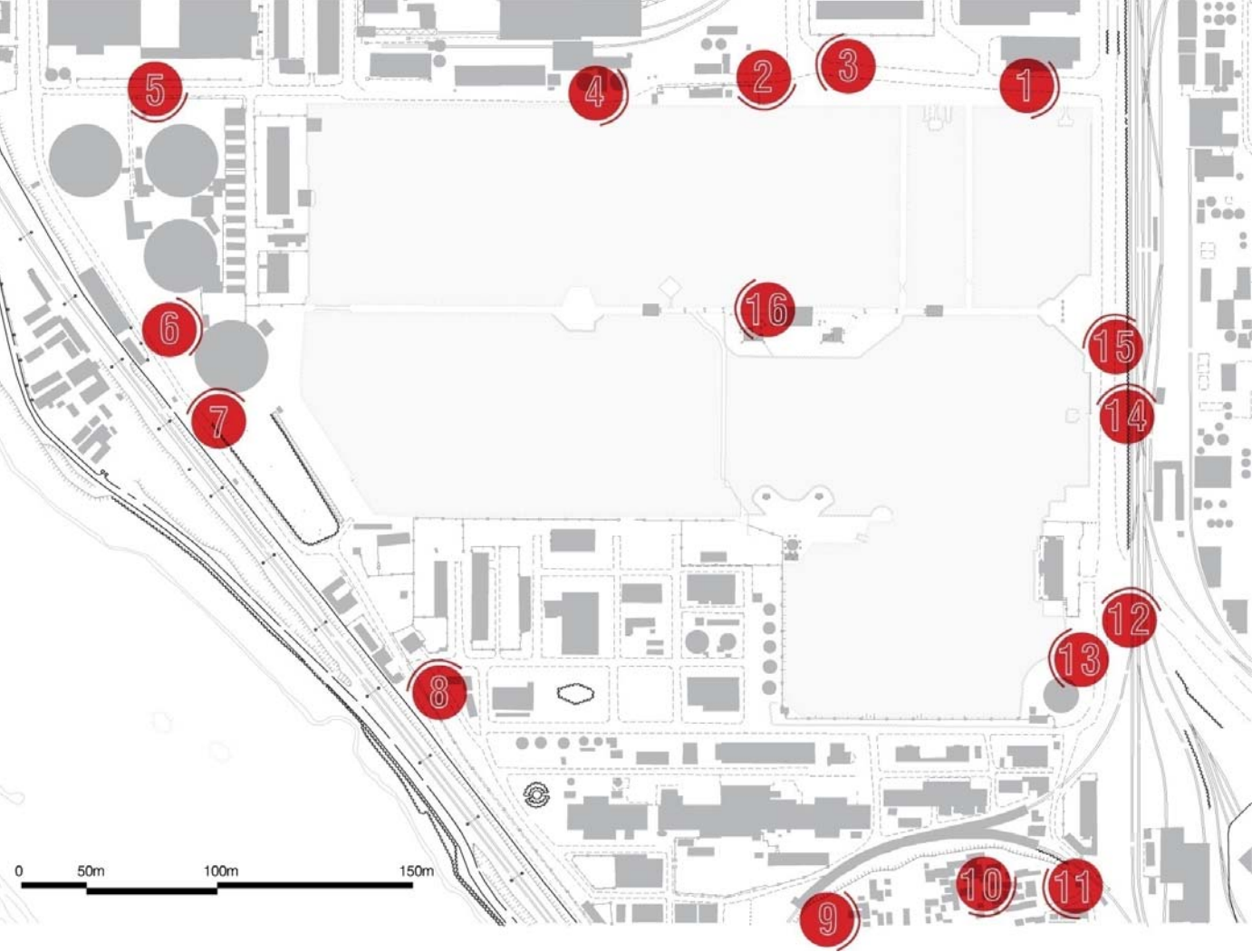


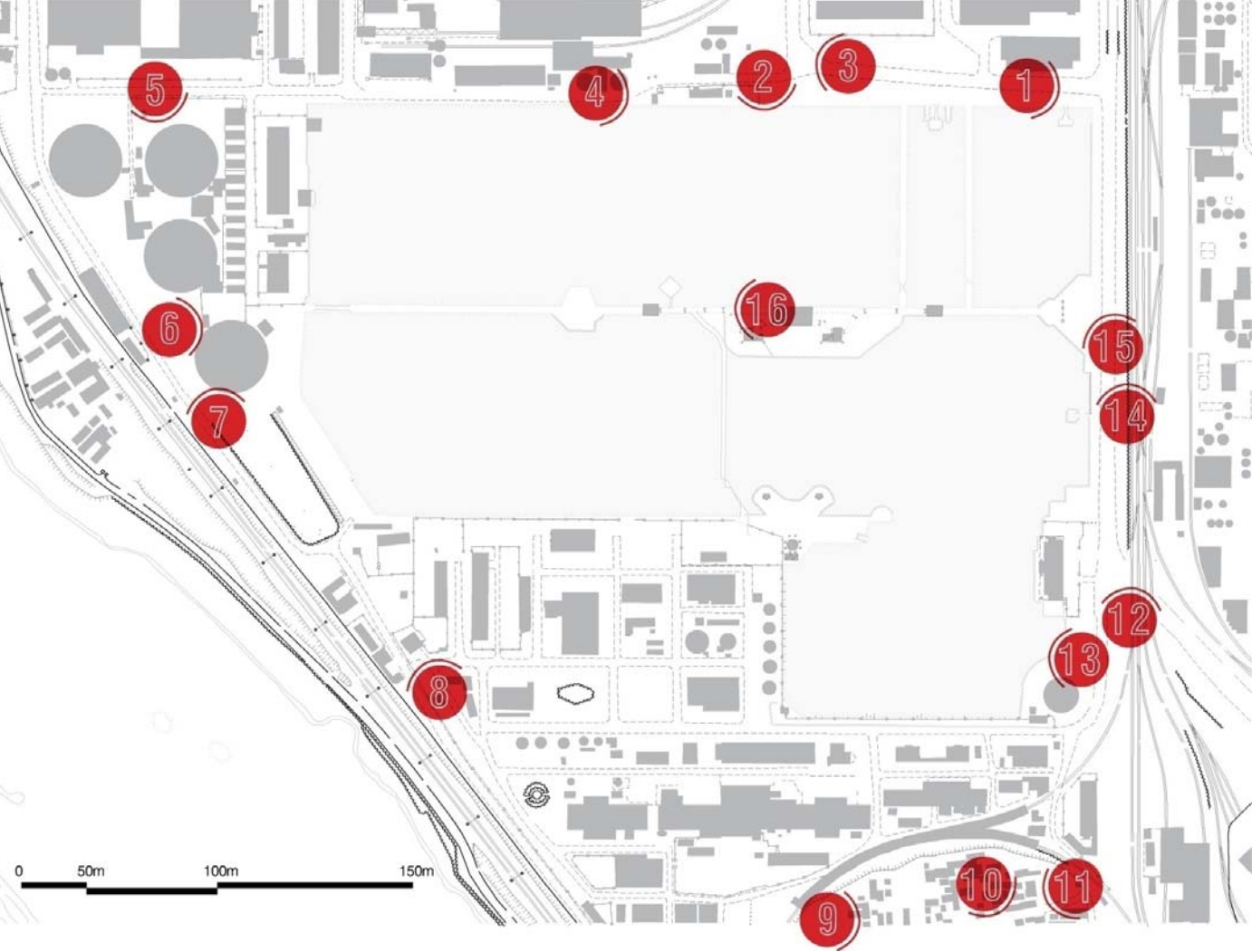
Open Space

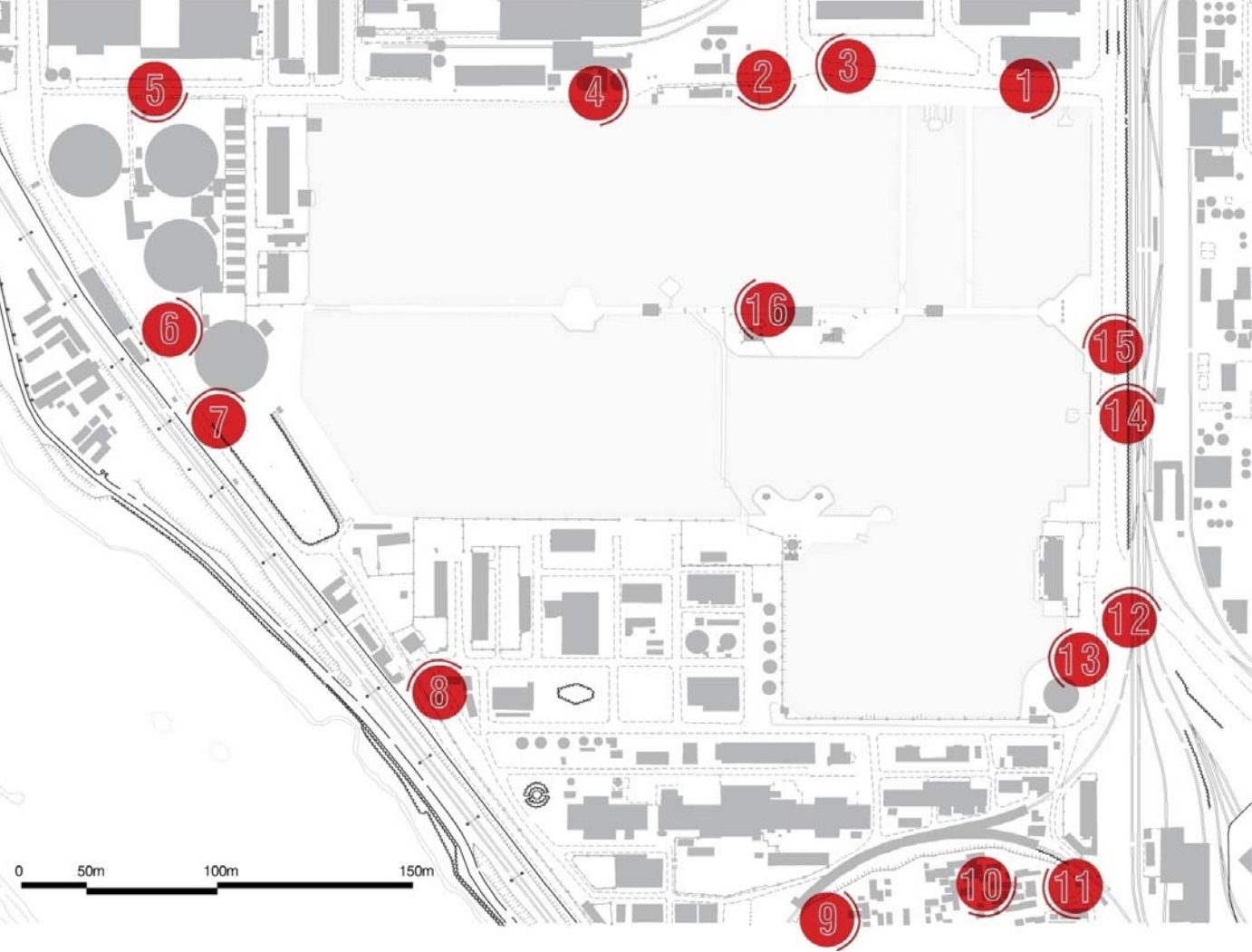










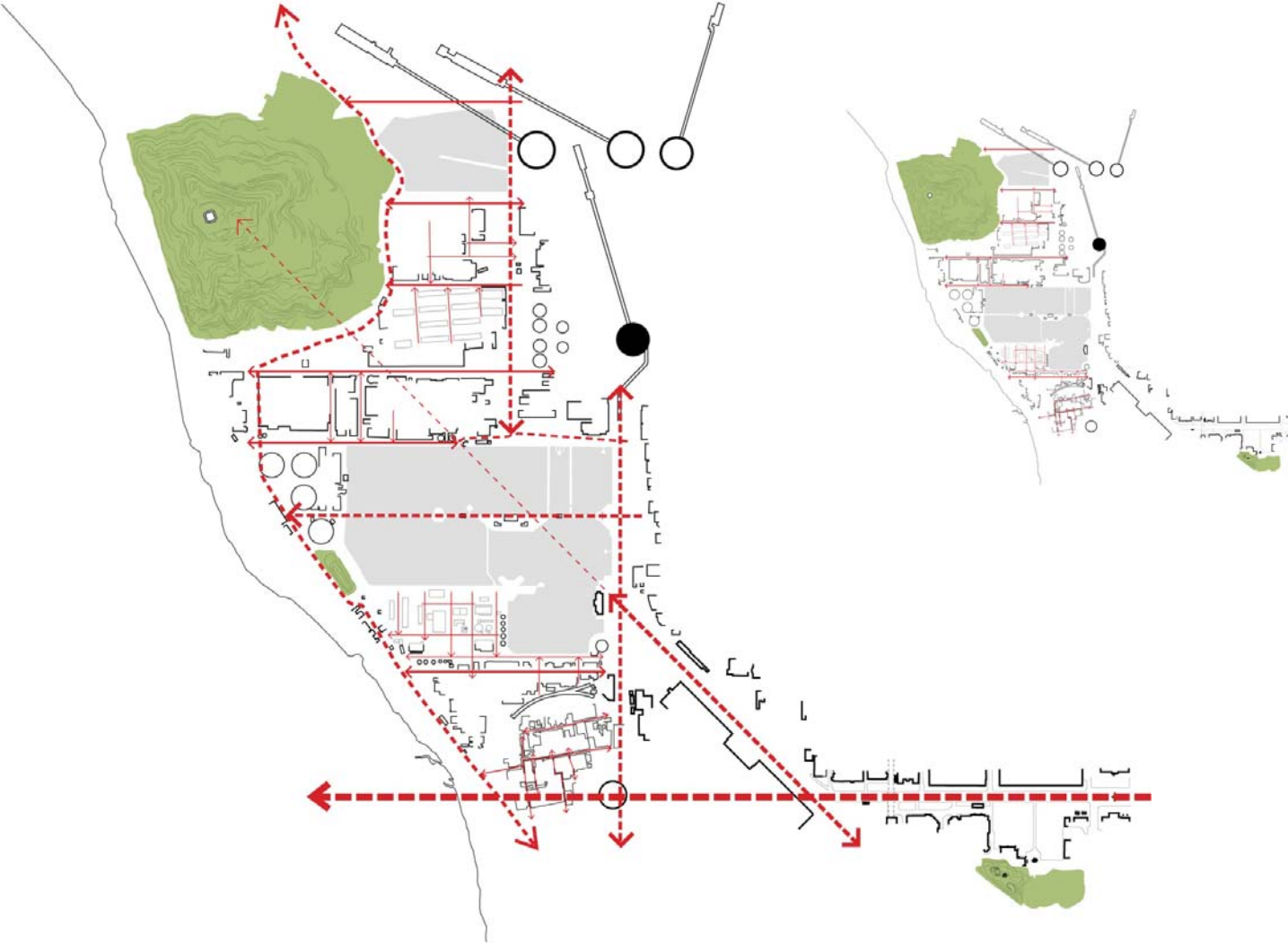


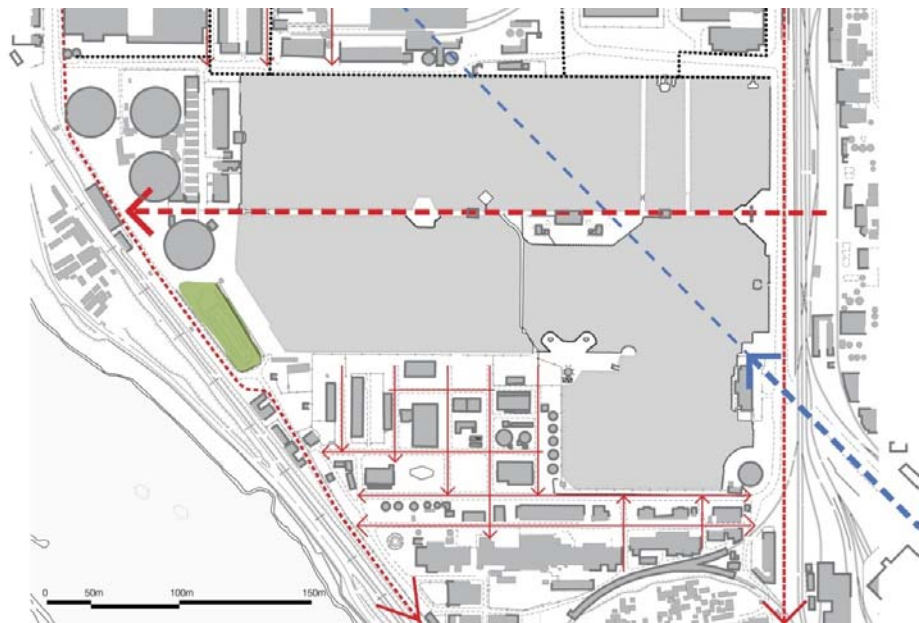
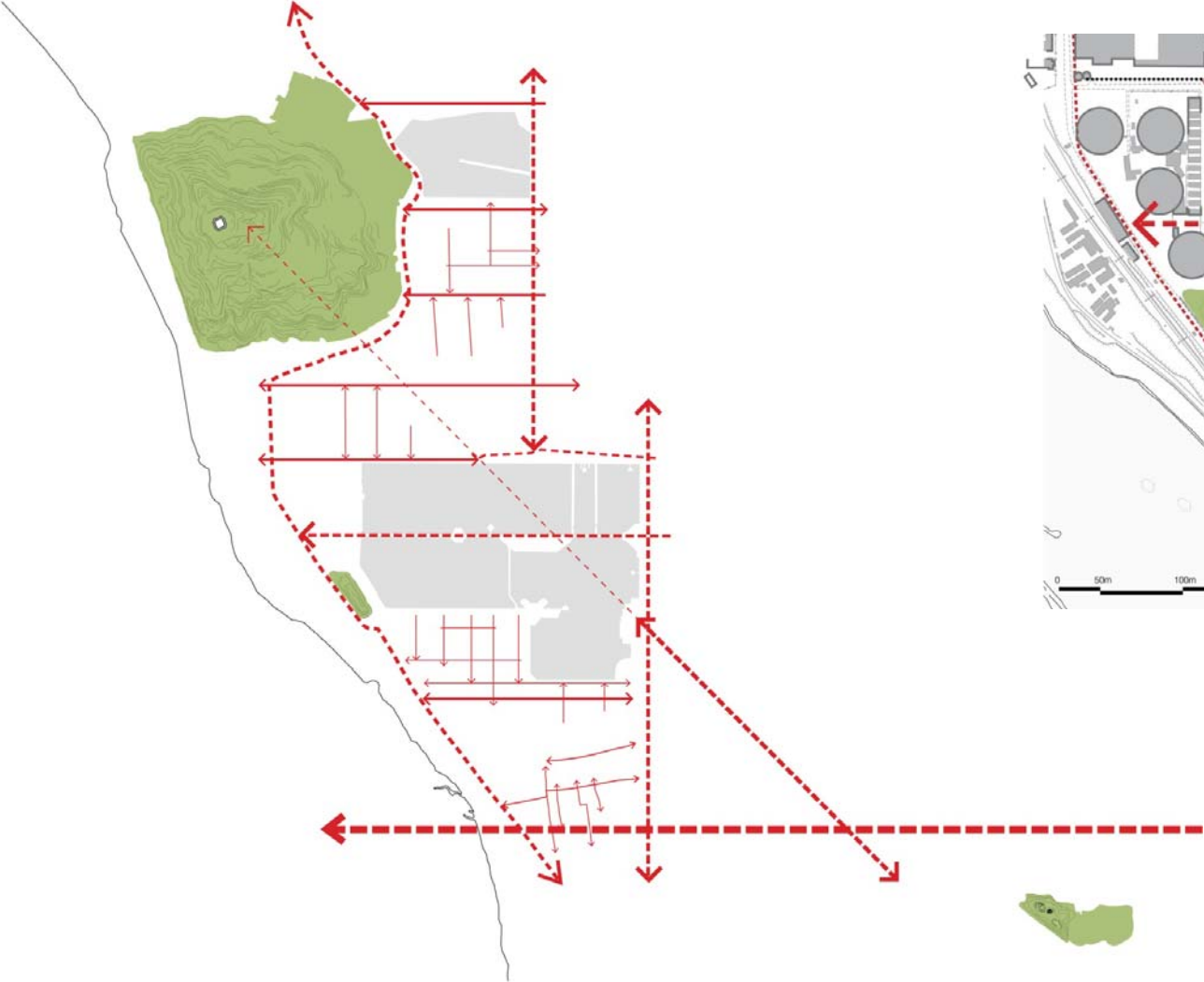
# **Access, movement & places**

---

**Big Lakes Site**

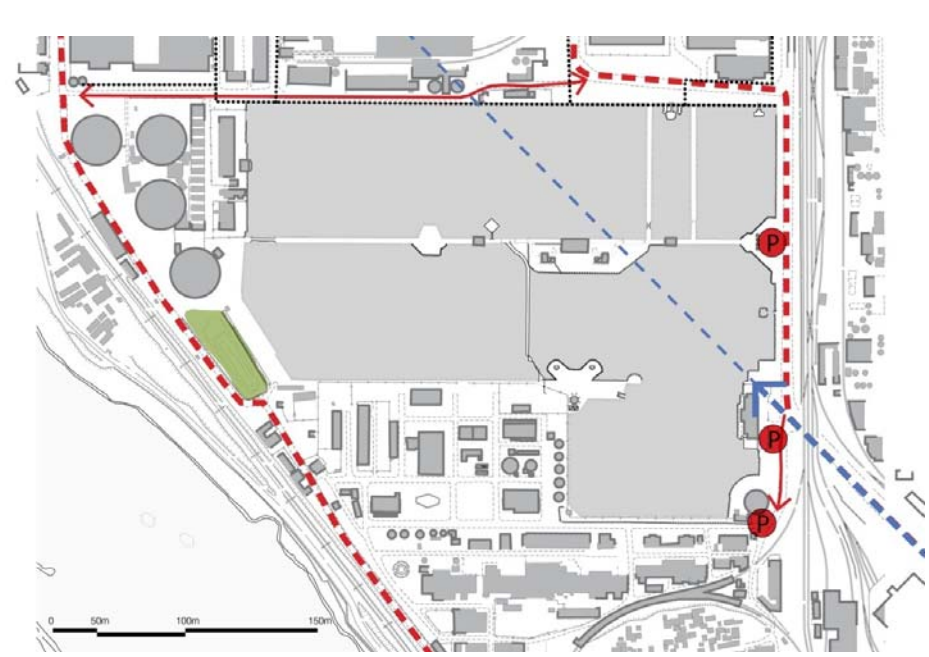
# Site Axes





**Grid Texture**



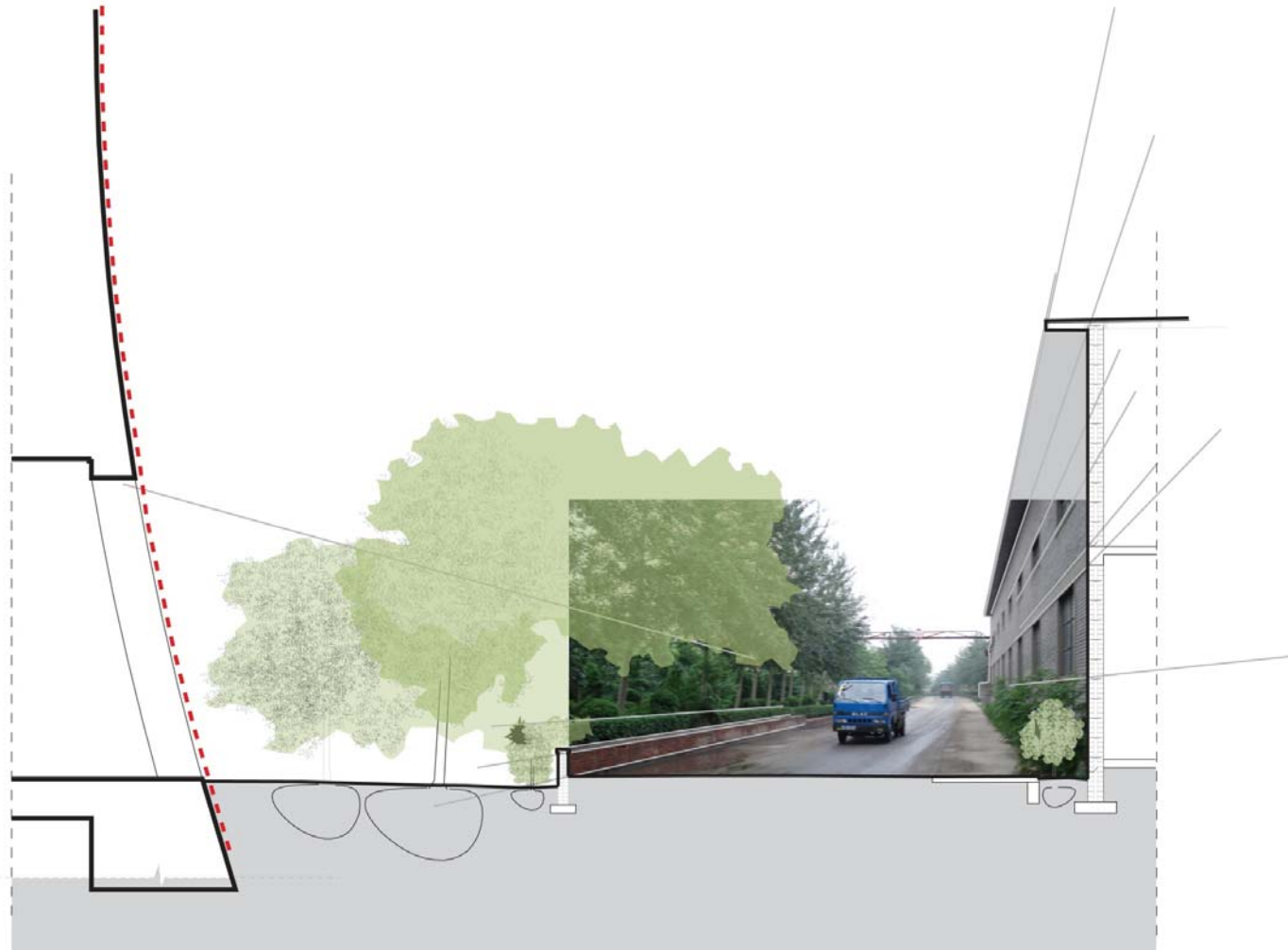


**Primary Streets & Edges**

# Northern Edge Section

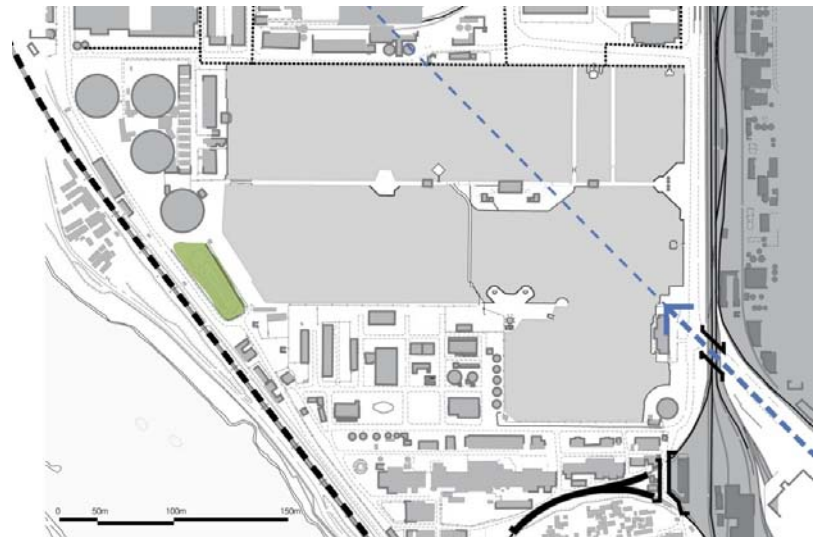


**Western Edge  
Section**

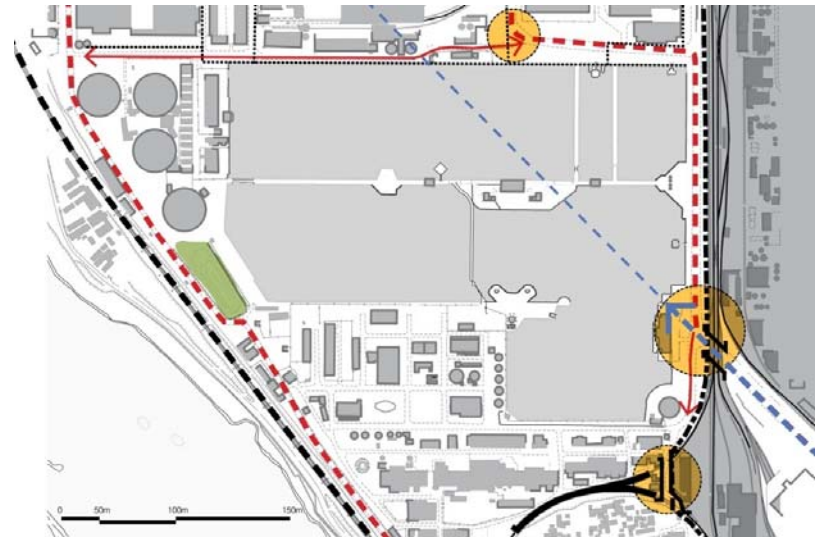


**Eastern Edge  
Section**

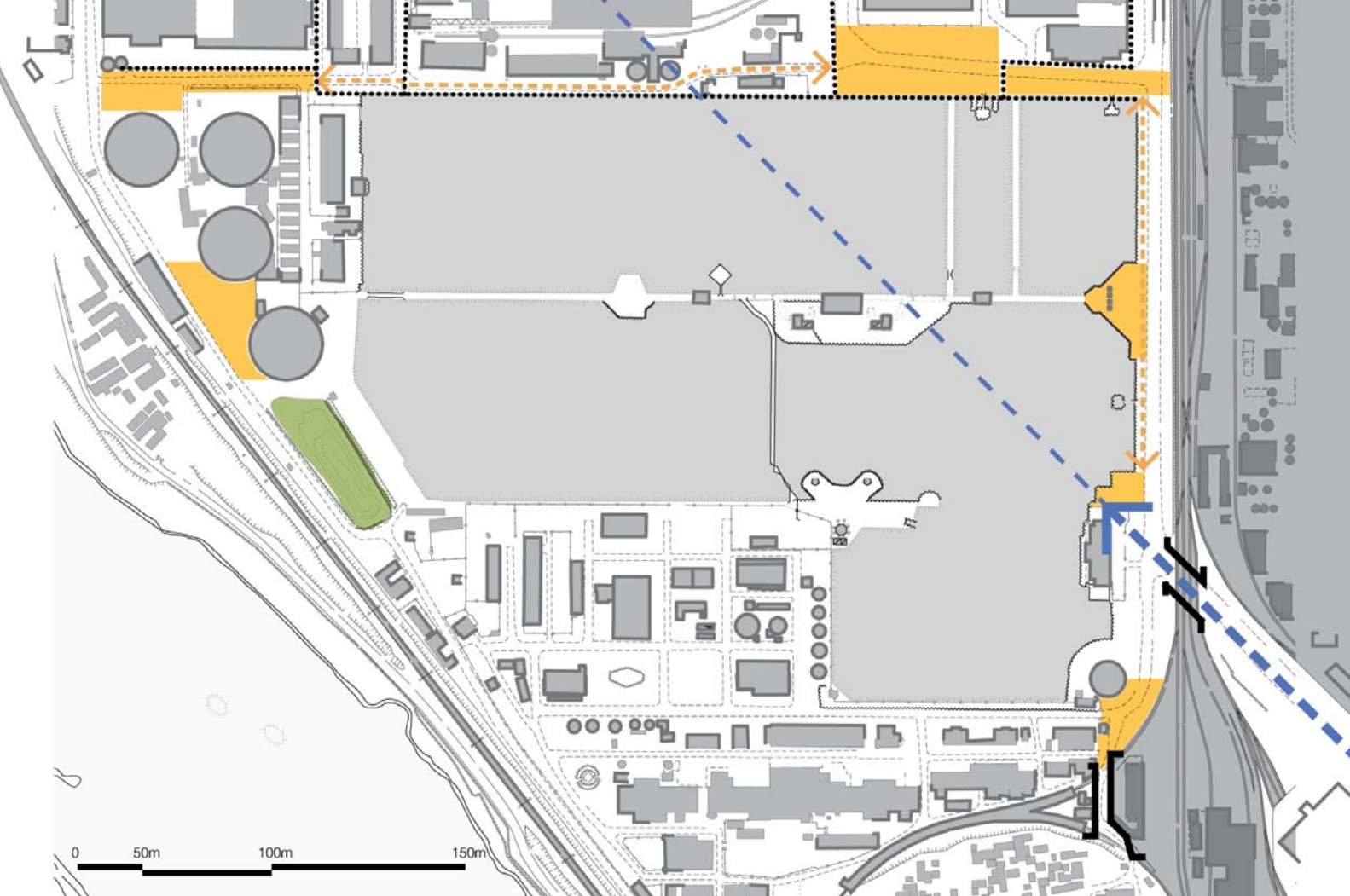




**Railway Edges**



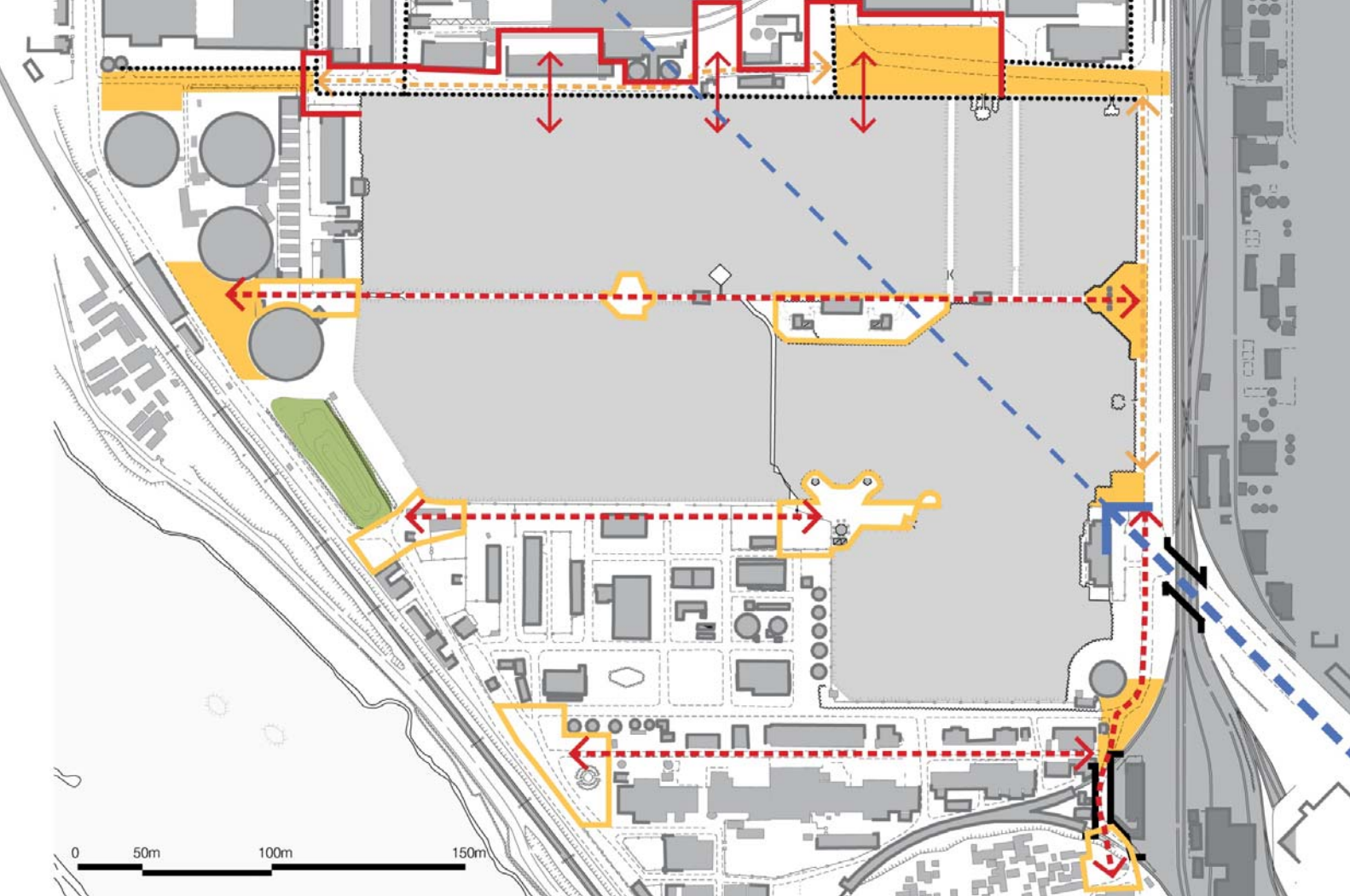
**Gateways & Junctions**



Existing Places



# Potential Places & Links





# **Built Form and Fabric**

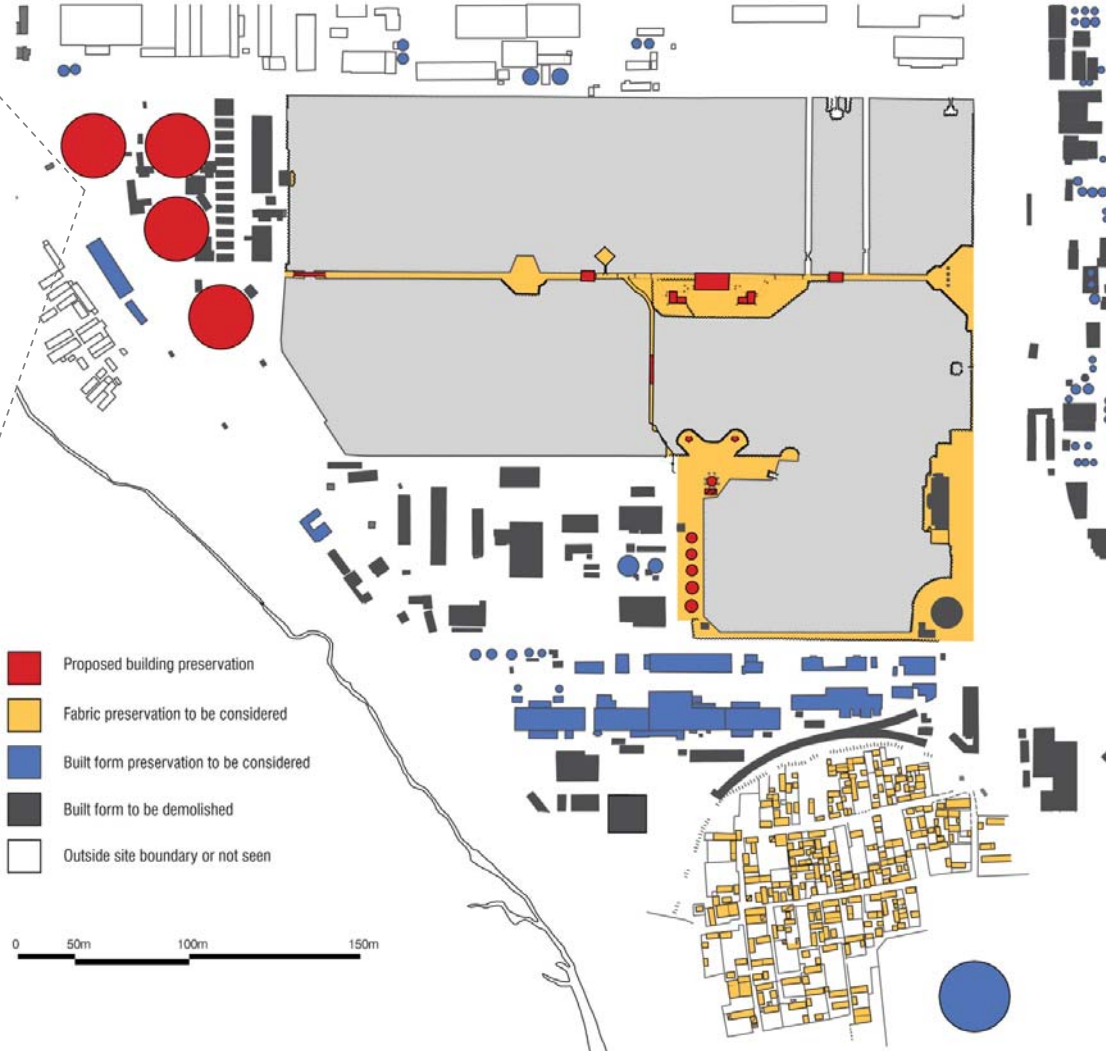
---

**Big Lakes Site**



### Figure Ground Diagram

1. Industrial Elements
2. Isolated buildings
3. Consistent edges
4. Human scale – residential development
5. Towers



## Preservation and Demolition

- Cooling towers define the landscape. The four towers to the west already have a secondary function of being the place where plants are propagated for the site
- Edge conditions: the oxygen factory has a strong street edge
- The residential buildings in the south are in bad condition, but the urban fabric provides a strong relief from the scale of the industrial site and is pleasant to walk through





HEIGHT



30 m+



10-30 m



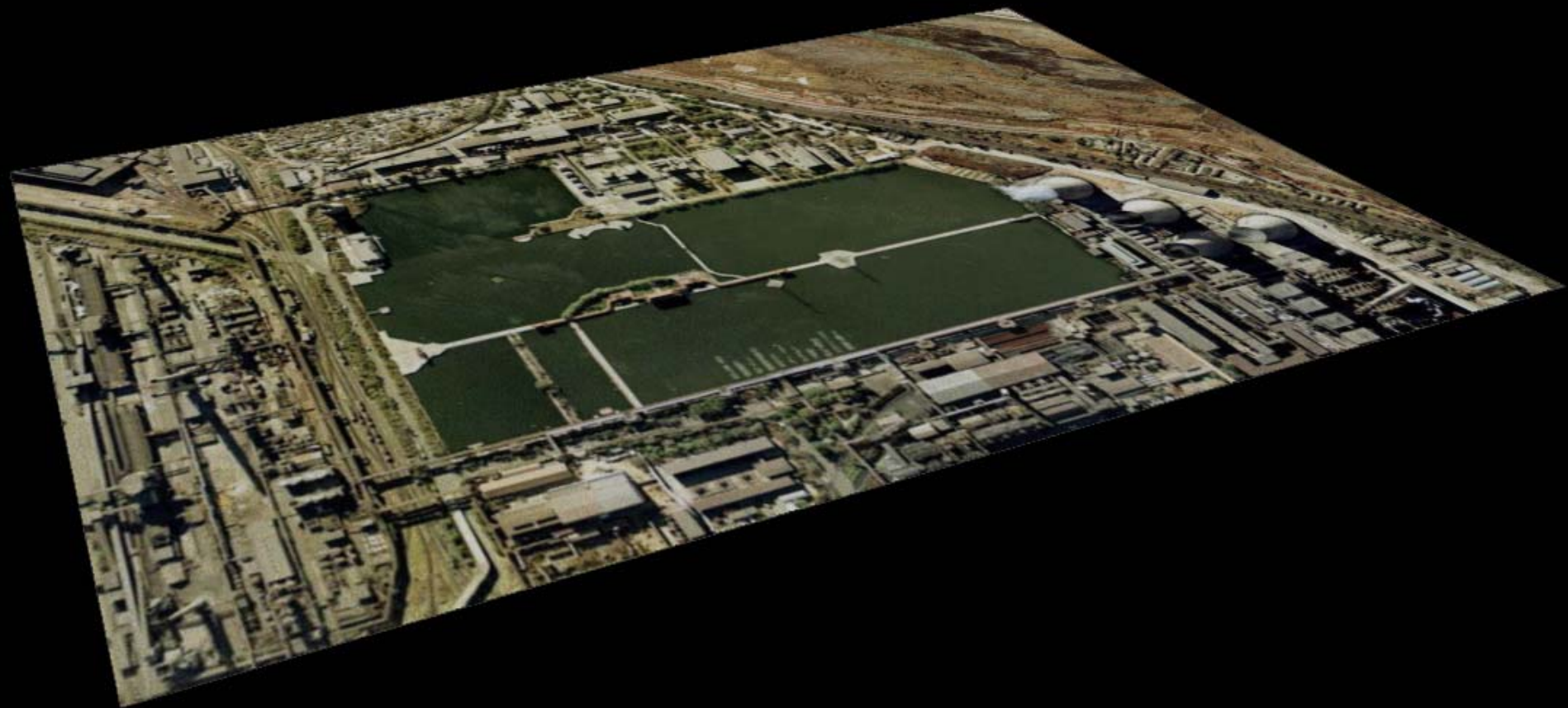
0-10 m

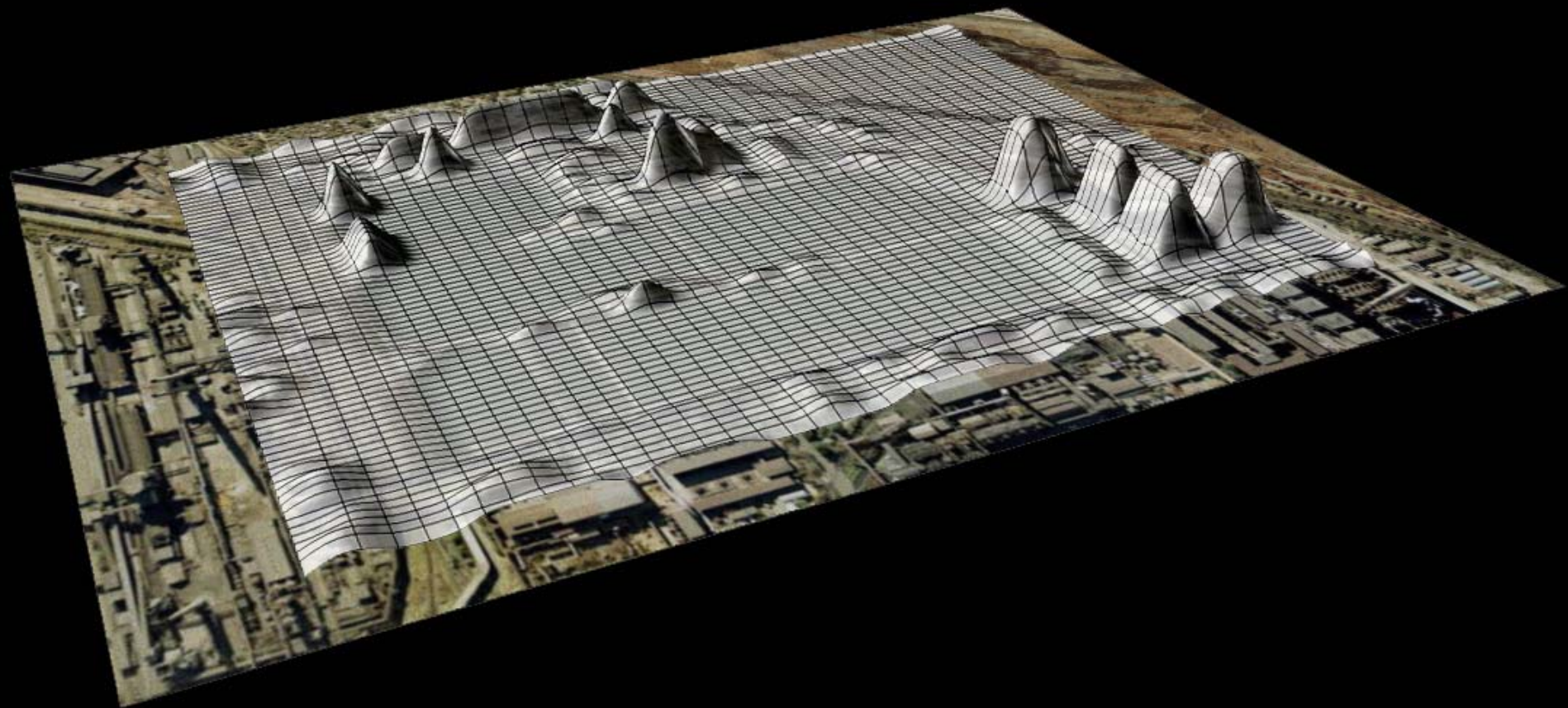


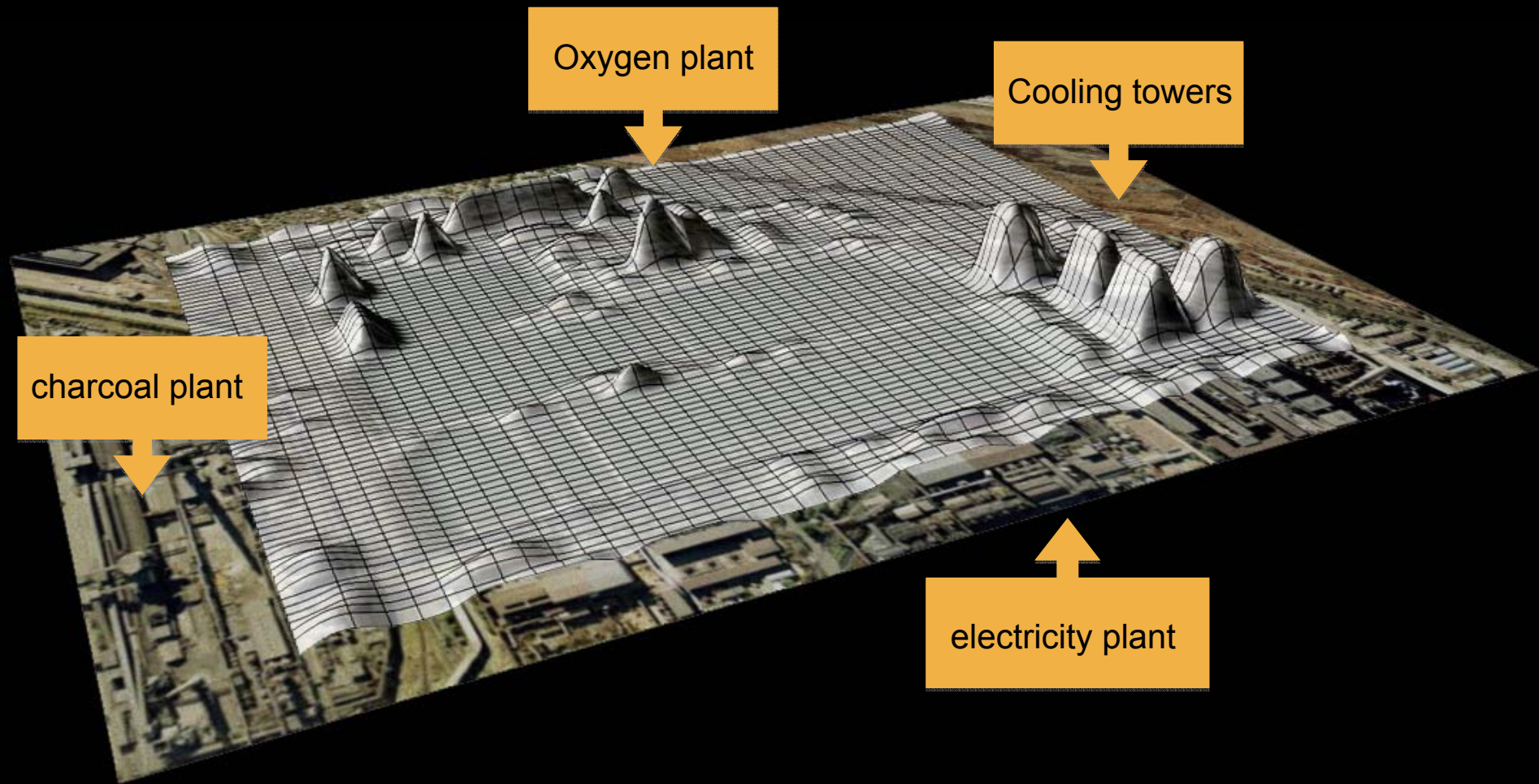
Ground & road



water







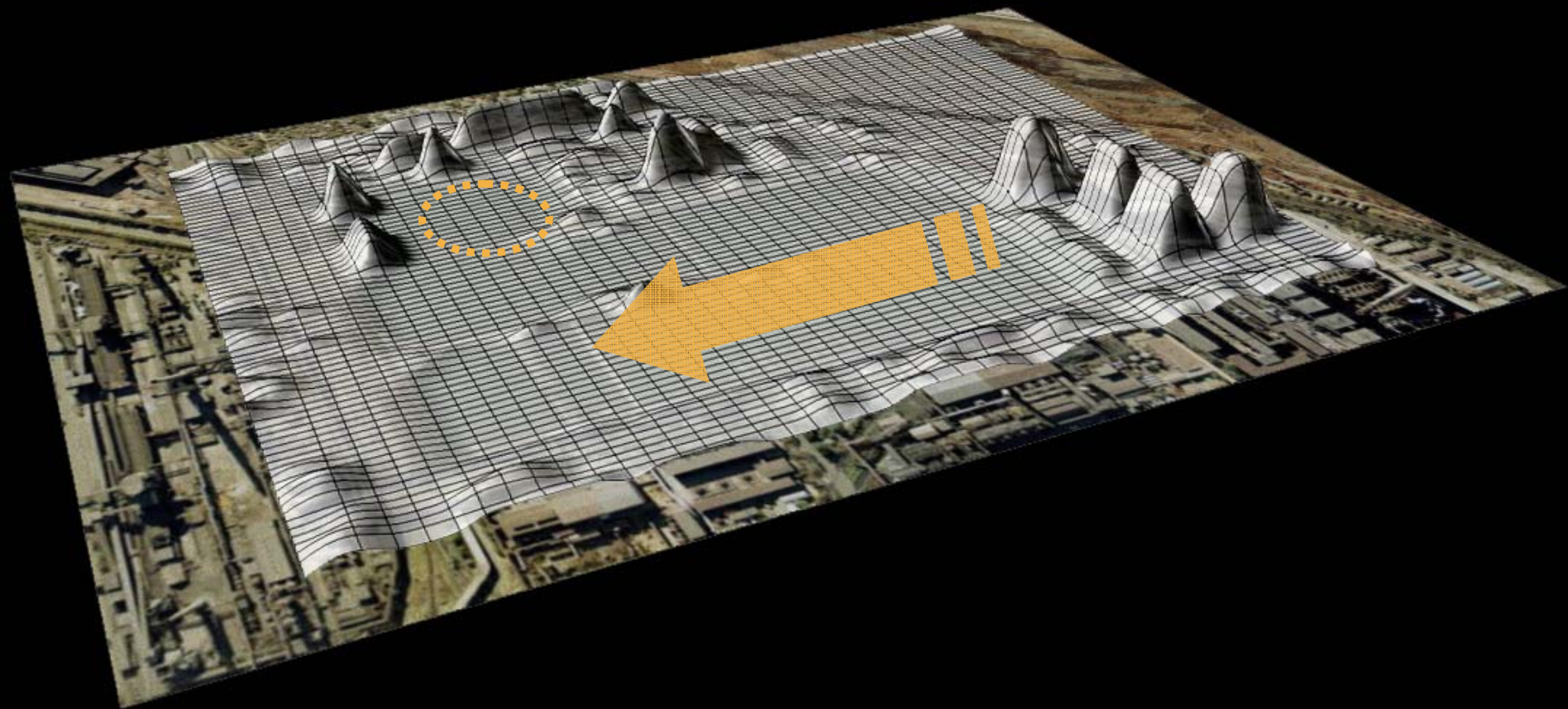
Oxygen plant

Cooling towers

charcoal plant

electricity plant







Oxygen plant



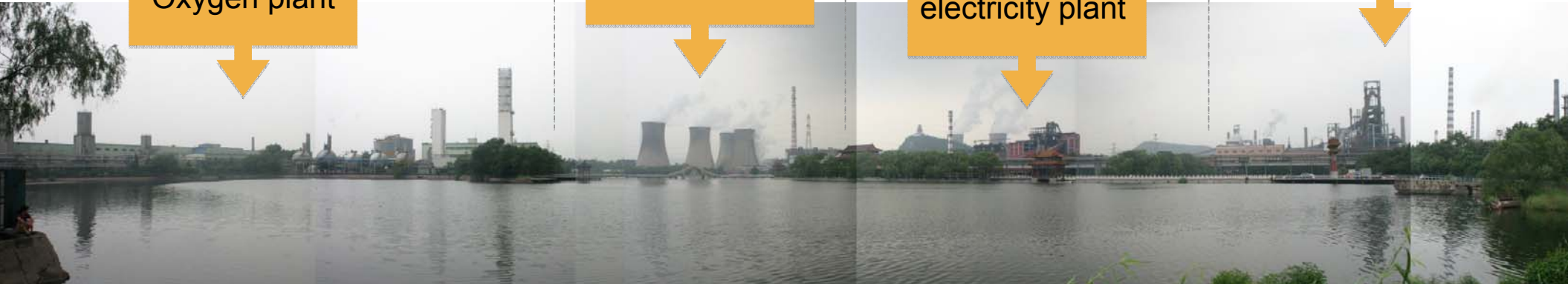
Cooling towers

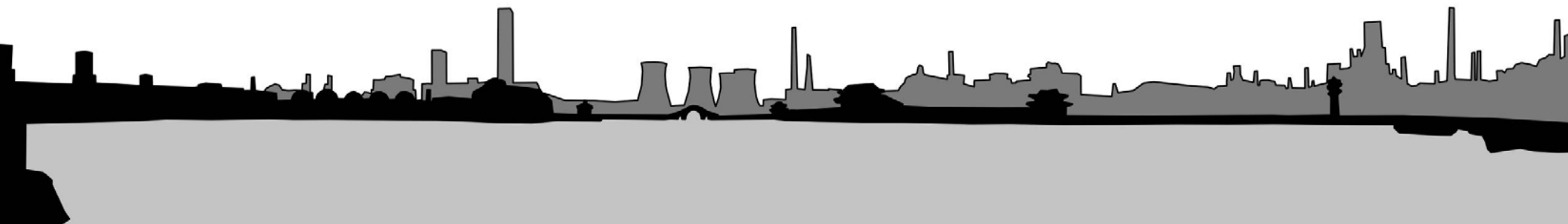


electricity plant



Furnace No.4



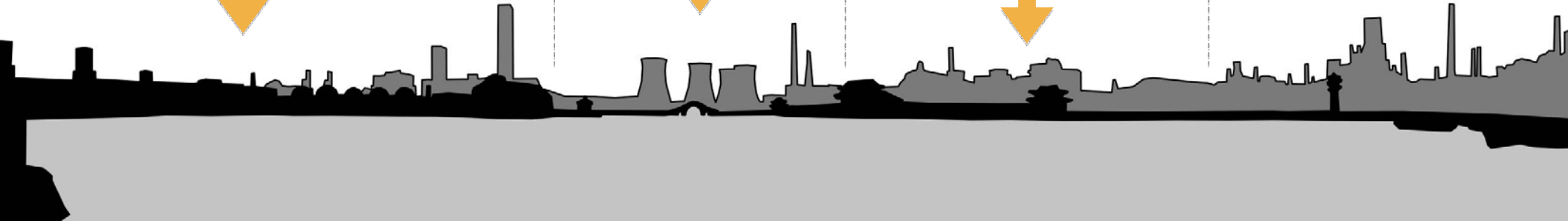


Oxygen plant

Cooling towers

electricity plant

Furnace No.4





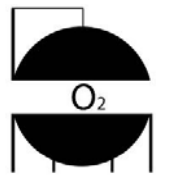
5/50 = 10%



6/50 = 12%

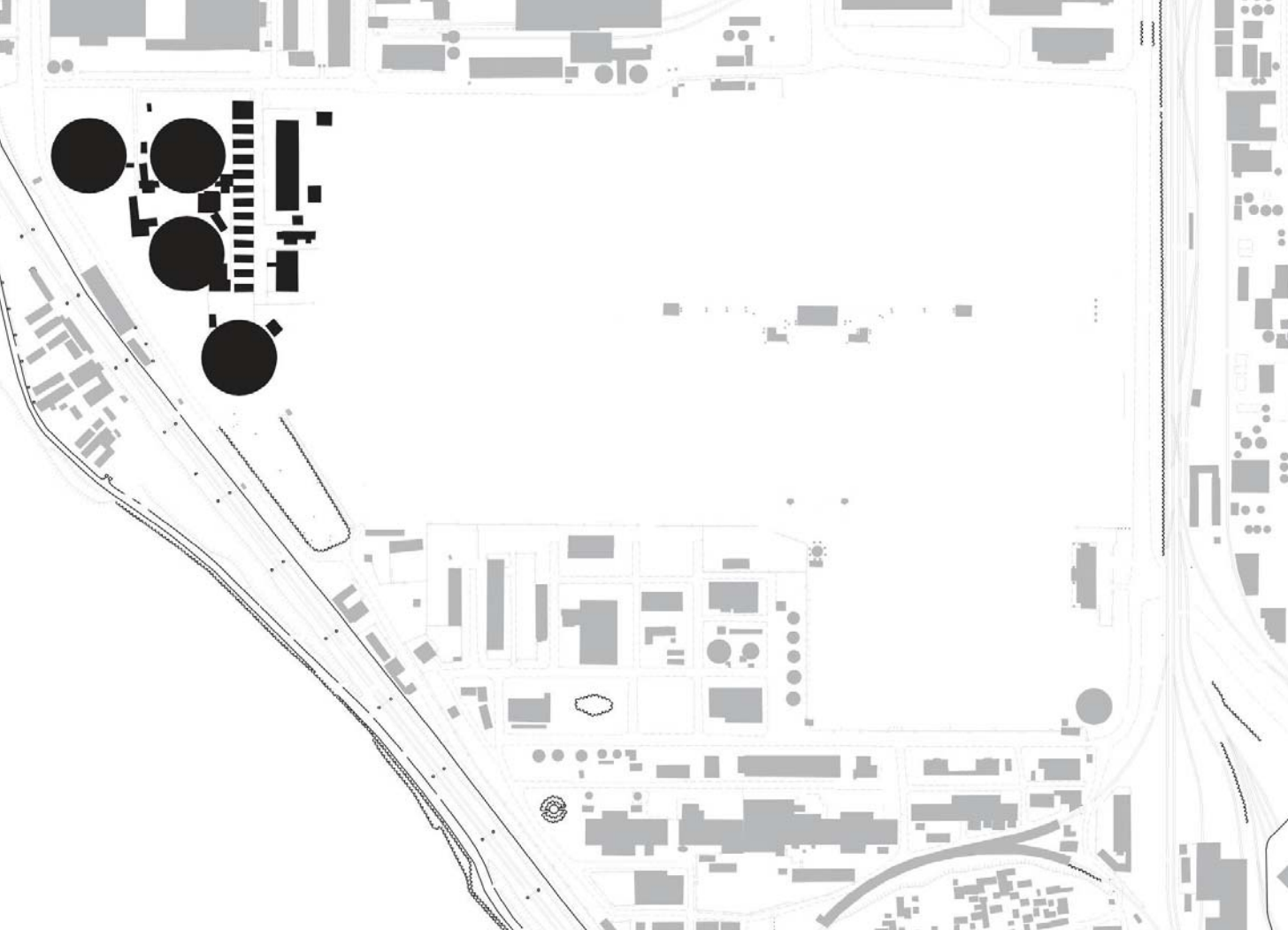


32/50 = 64%



7/50 = 14%





## GIANTS

- Built year: 1980s
- Use: cooling tower
- Size:  $h=80\text{m}$ ,  $r=28\text{m}$
- landscape

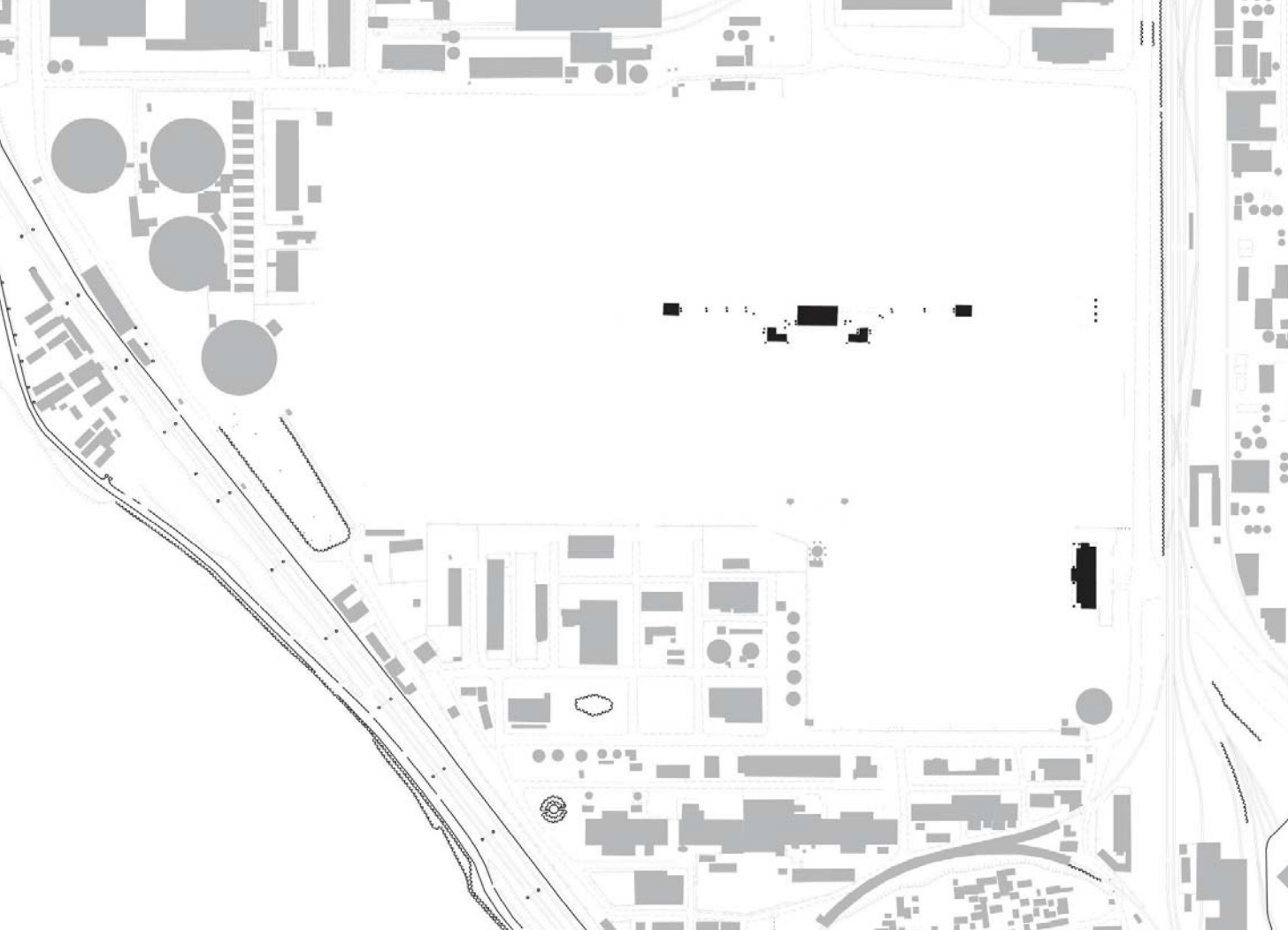






80m →





“TRADITION”

- Built year: 1990s
- For celebrating the arrival of Deng Xiaoping
- Use: leisure
- Anachronism & Memories

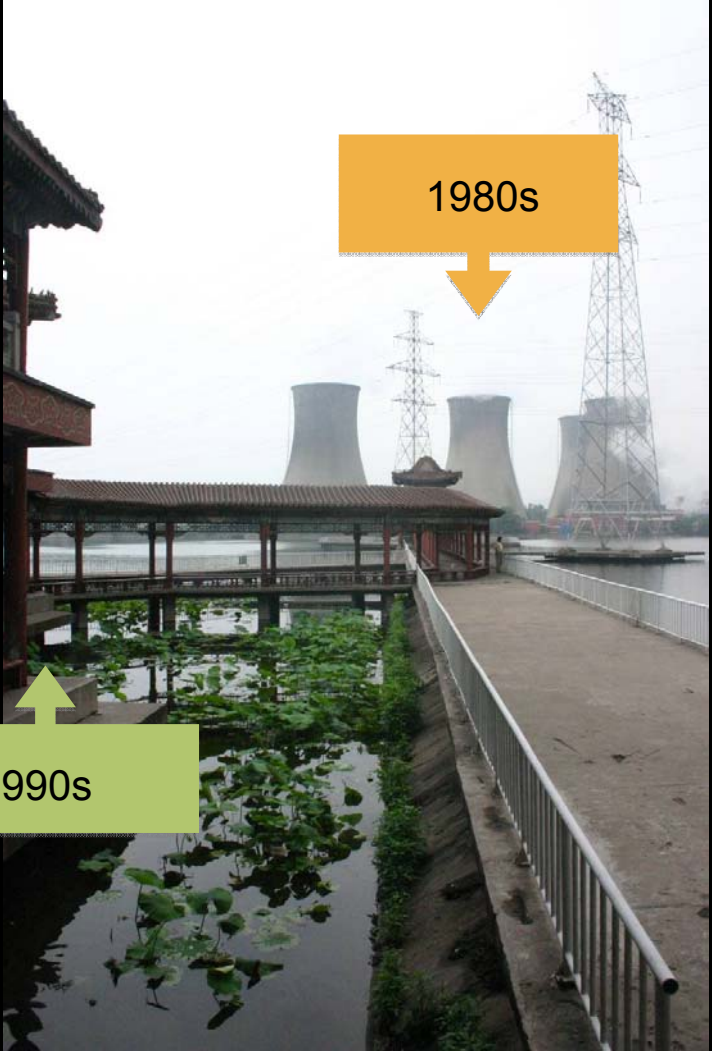
1970s – 1990s



1990s



1980s



1990s

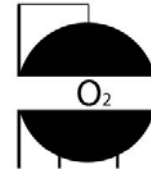




no idolatry but memory of that age



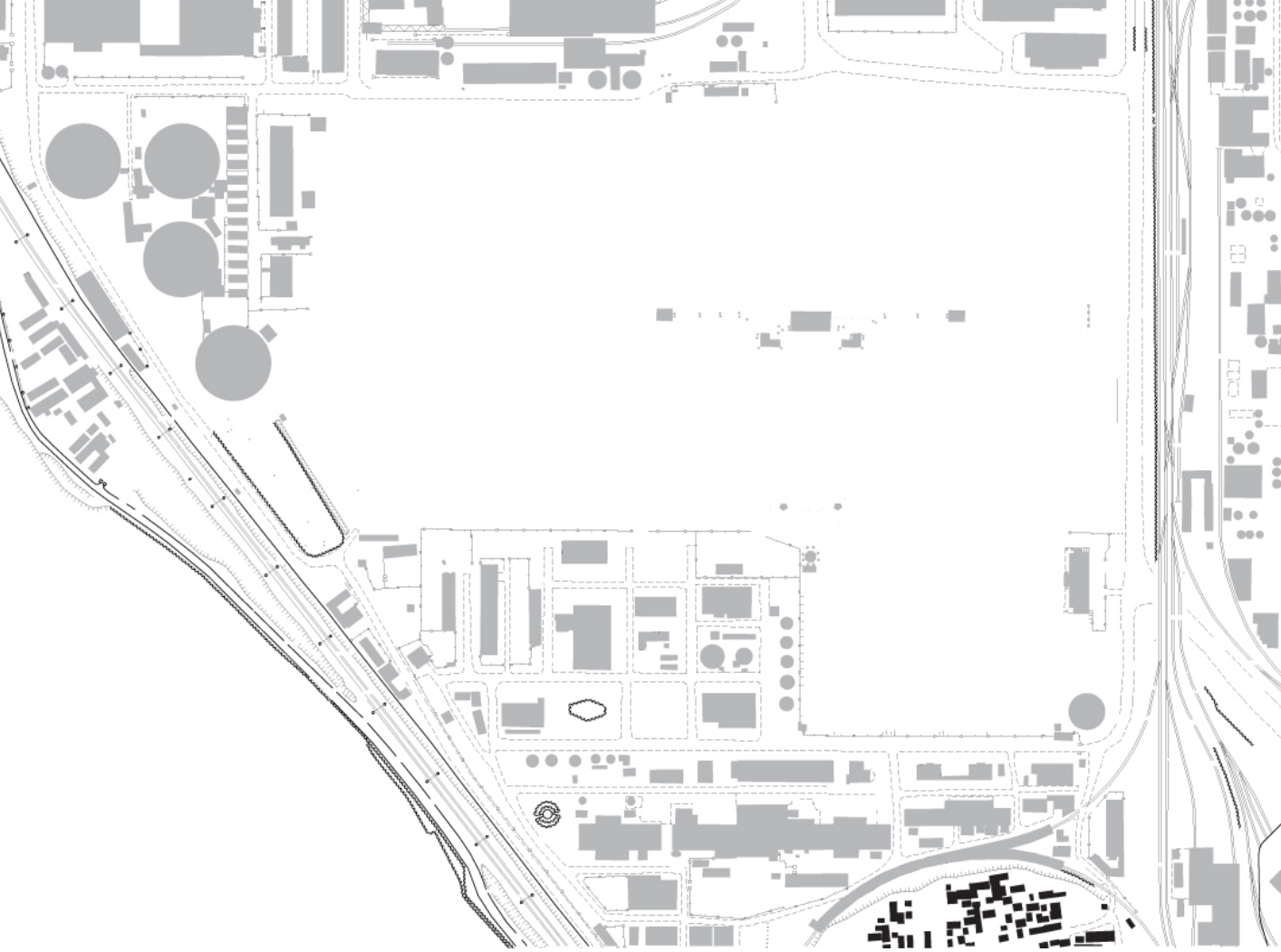
ORDINARY



EGGS

- Built year: 1970s-1990s
- Use: oxygen plants





## PARASITE

- Since 800 years ago
- Shabby now
- Residential fabric

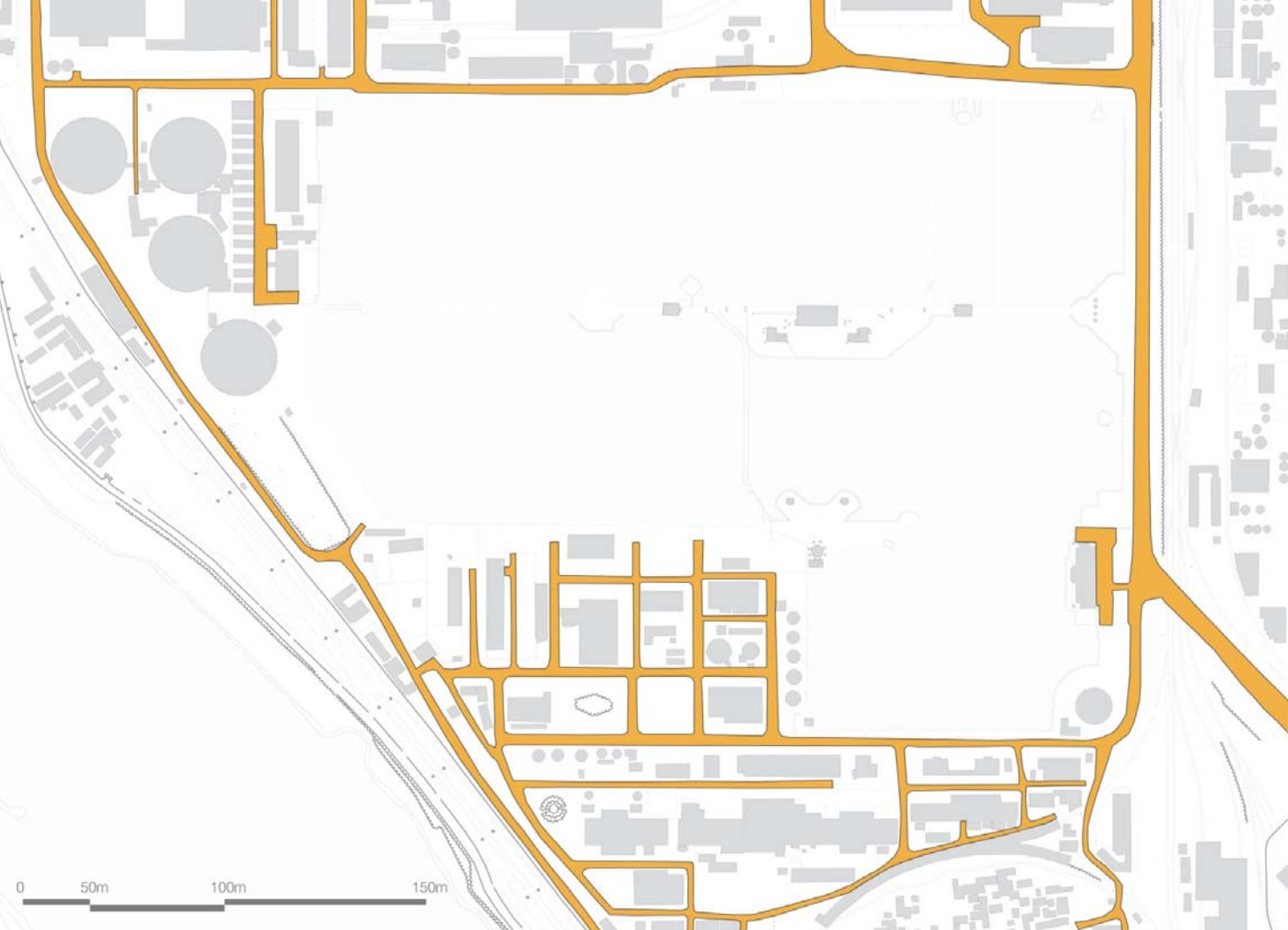






## PARASITE

- A natural village
- Survived and isolated in the factory
- Villagers were stealing the steel products to make illegal profit
- Landowners are keeping the houses for more compensation
- Now temporaries are living here
- After the relocation of Shougang...



ROADS FOR CAR

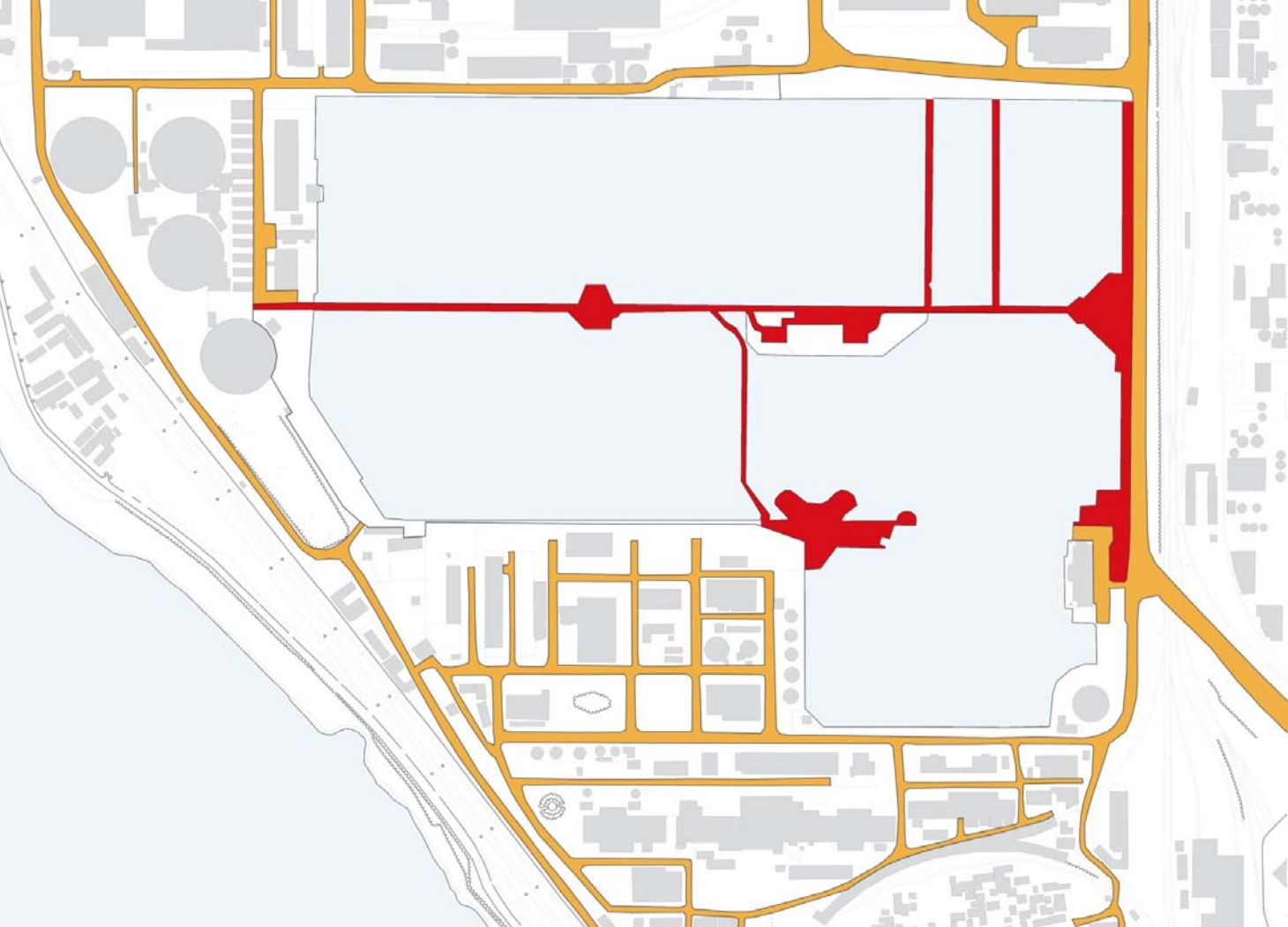


WATER



WATER &  
ROAD WEB

PEDESTRIAN  
ACCESSIBILITY





# **Opportunities and Constraints**

---

**Big Lakes Site**





