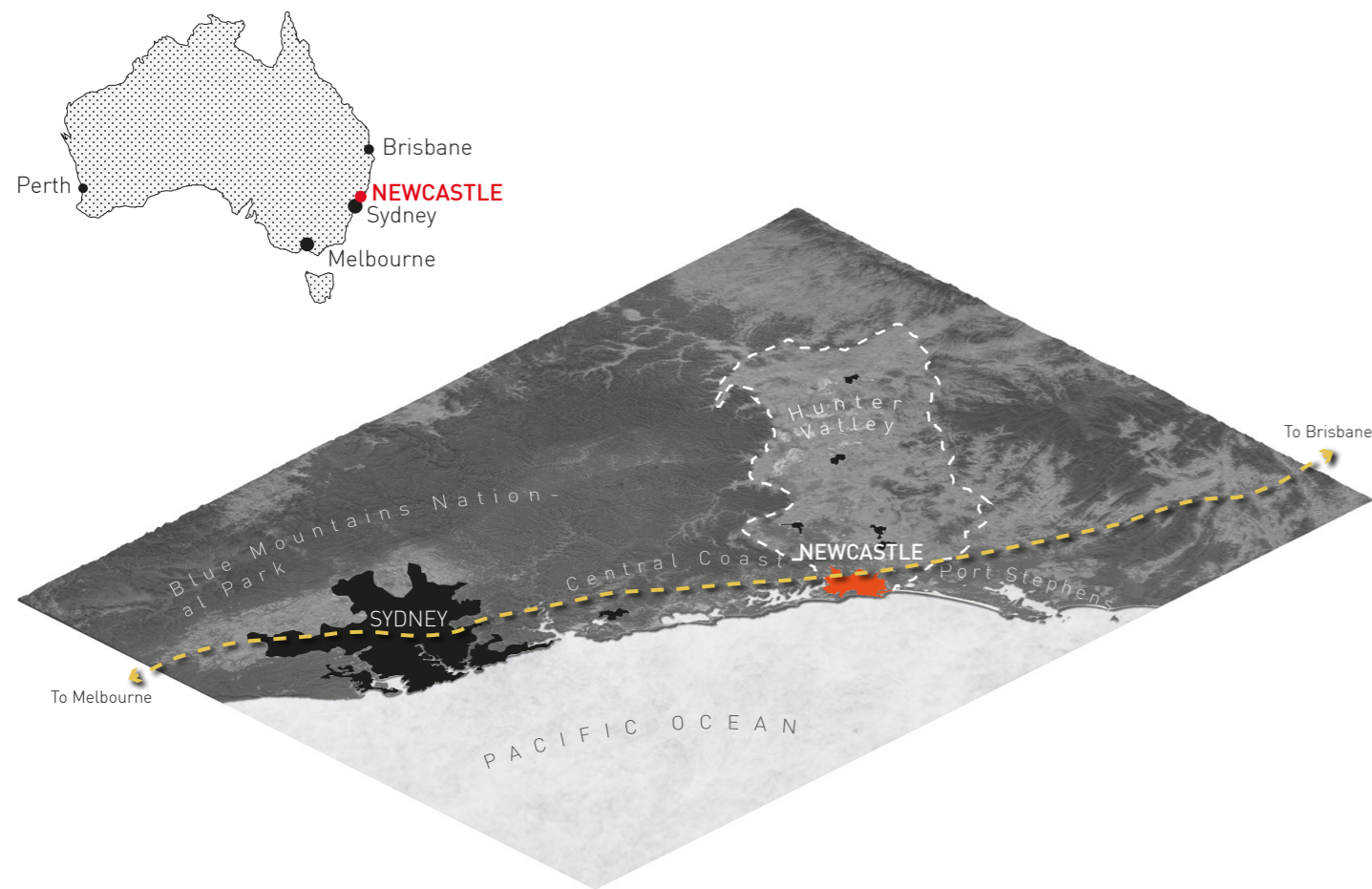
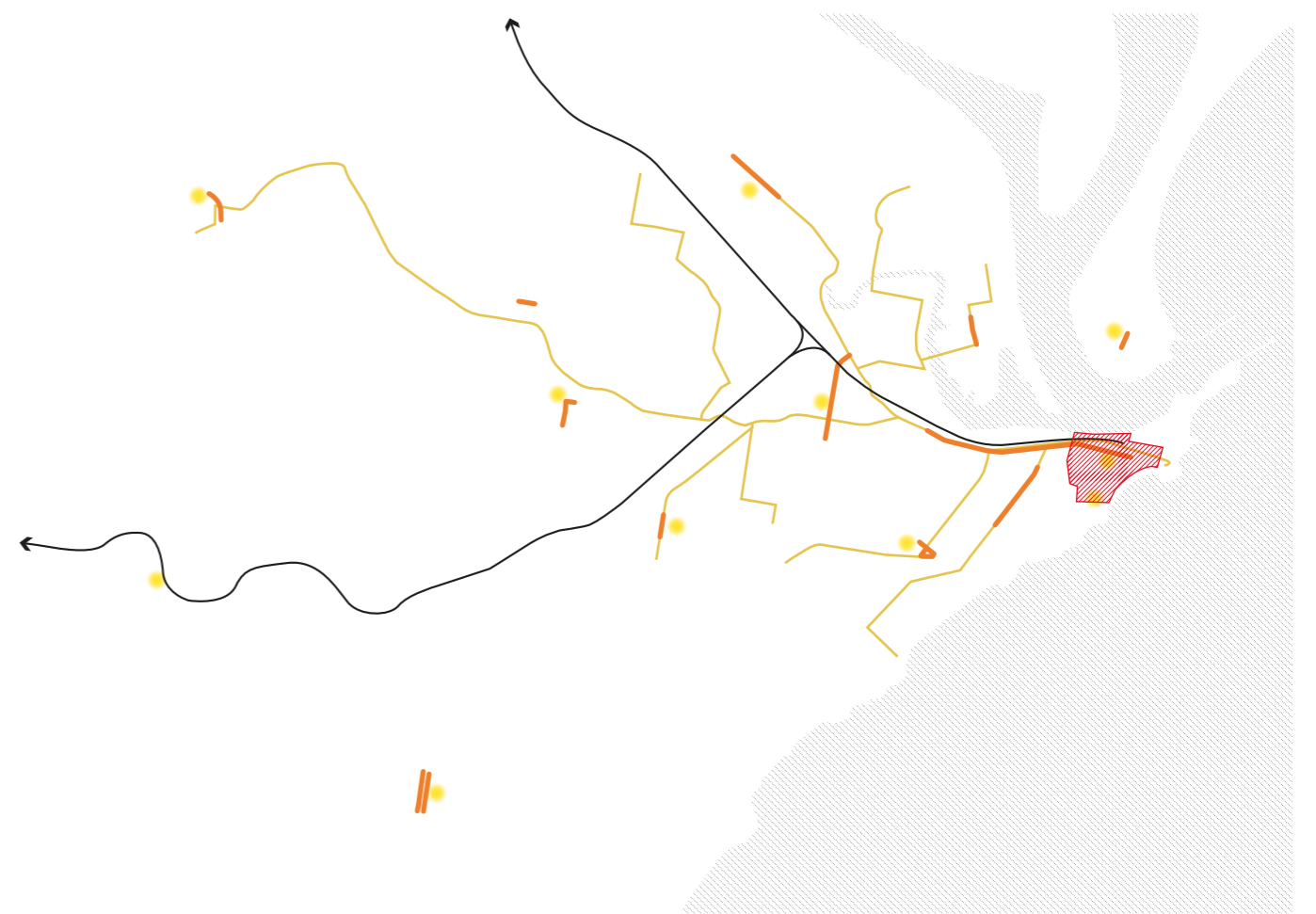







Rejoining the Peninsula

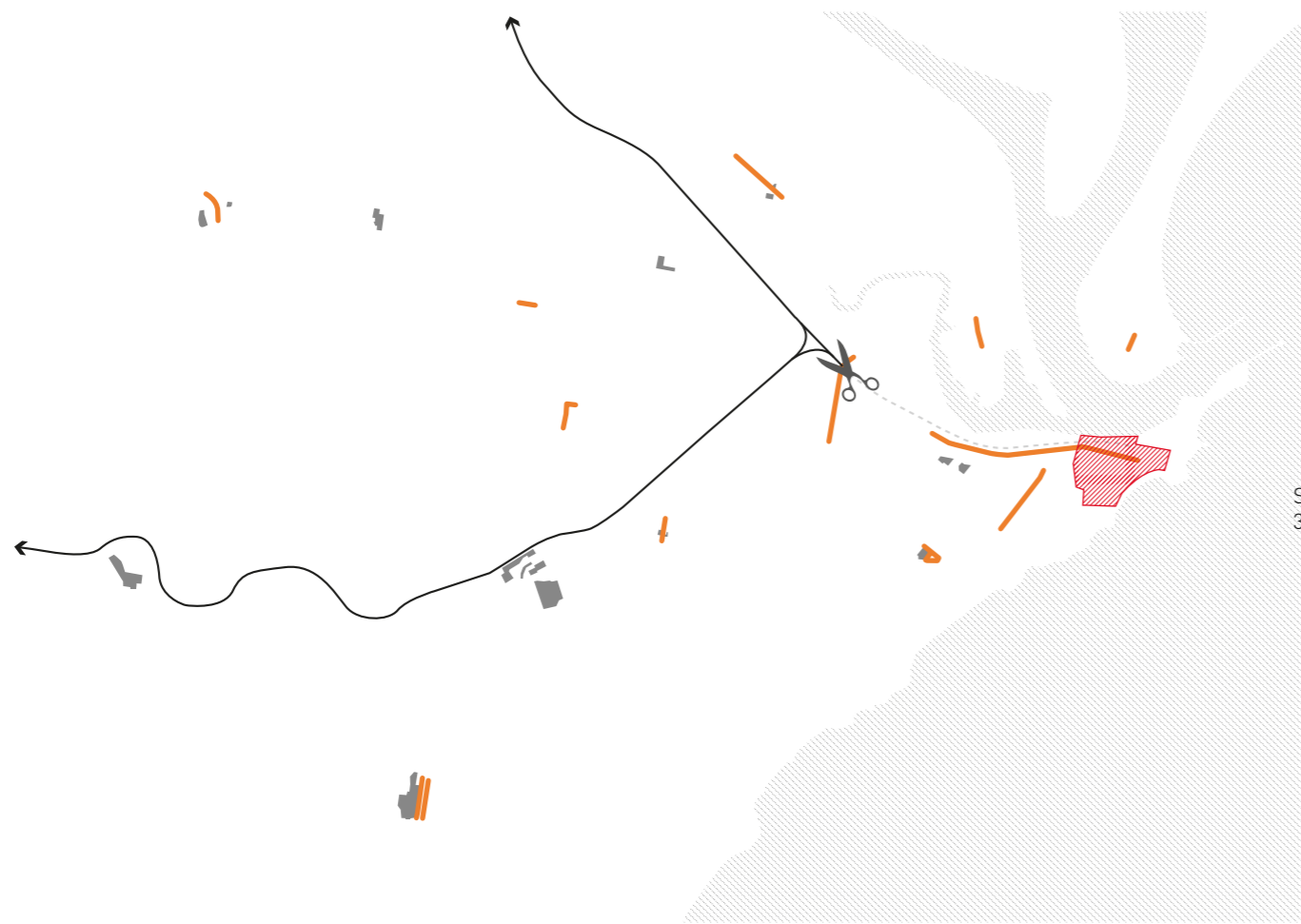
LIAM WILLIAMSZ • MSc SUSTAINABLE URBAN DESIGN THESIS
LUND UNIVERSITY • 2016 • SUPERVISOR: MARTIN ARFALK






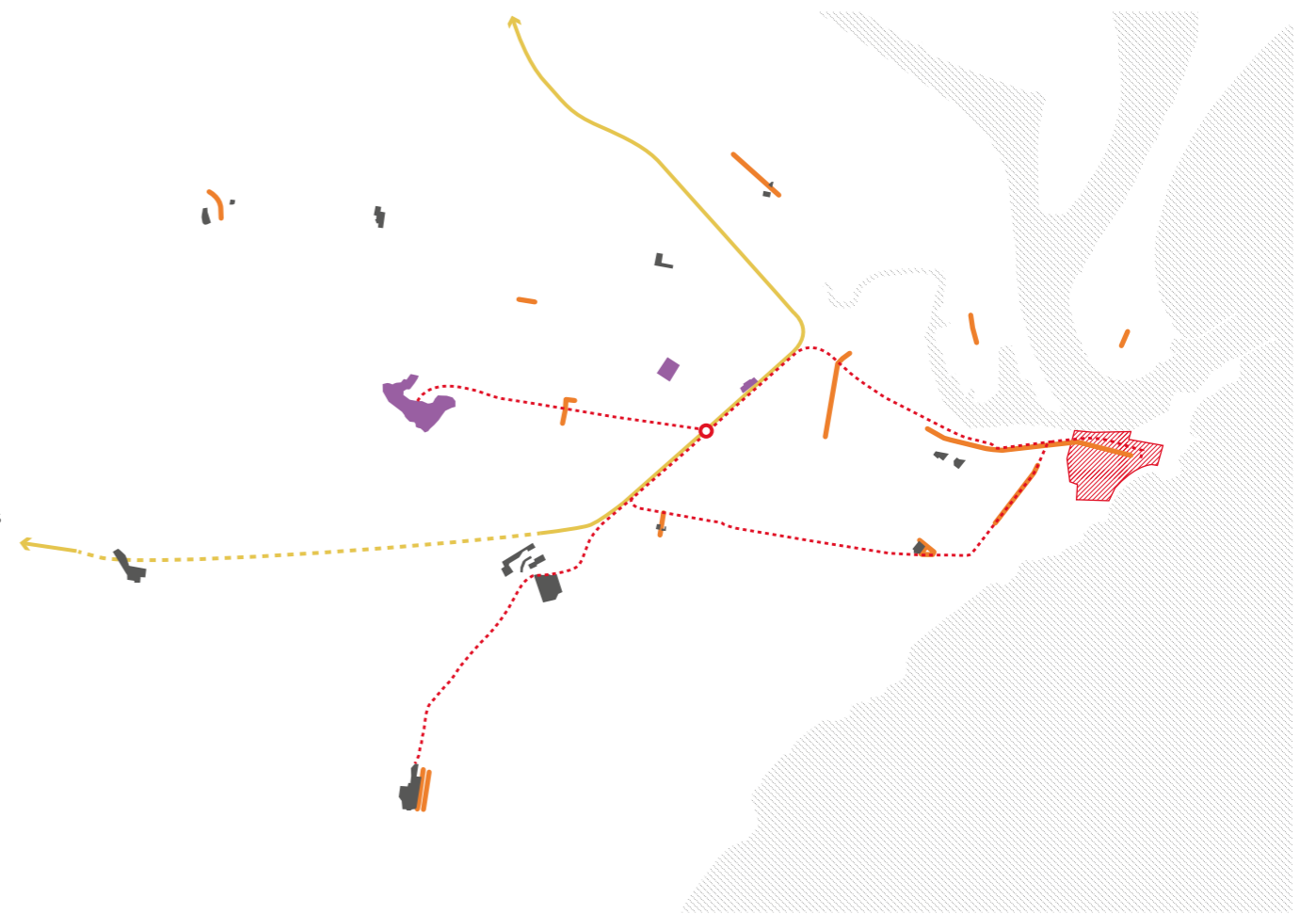
Newcastle sits at the mouth of the Hunter valley 117km north of Sydney. High speed railway is being planned to connect cities on the East Coast by 2040. This will reduce the travel time between Newcastle and Sydney from 2.5 hours to 37 minutes, making it possible for daily commuters to live in Newcastle and work in Sydney.







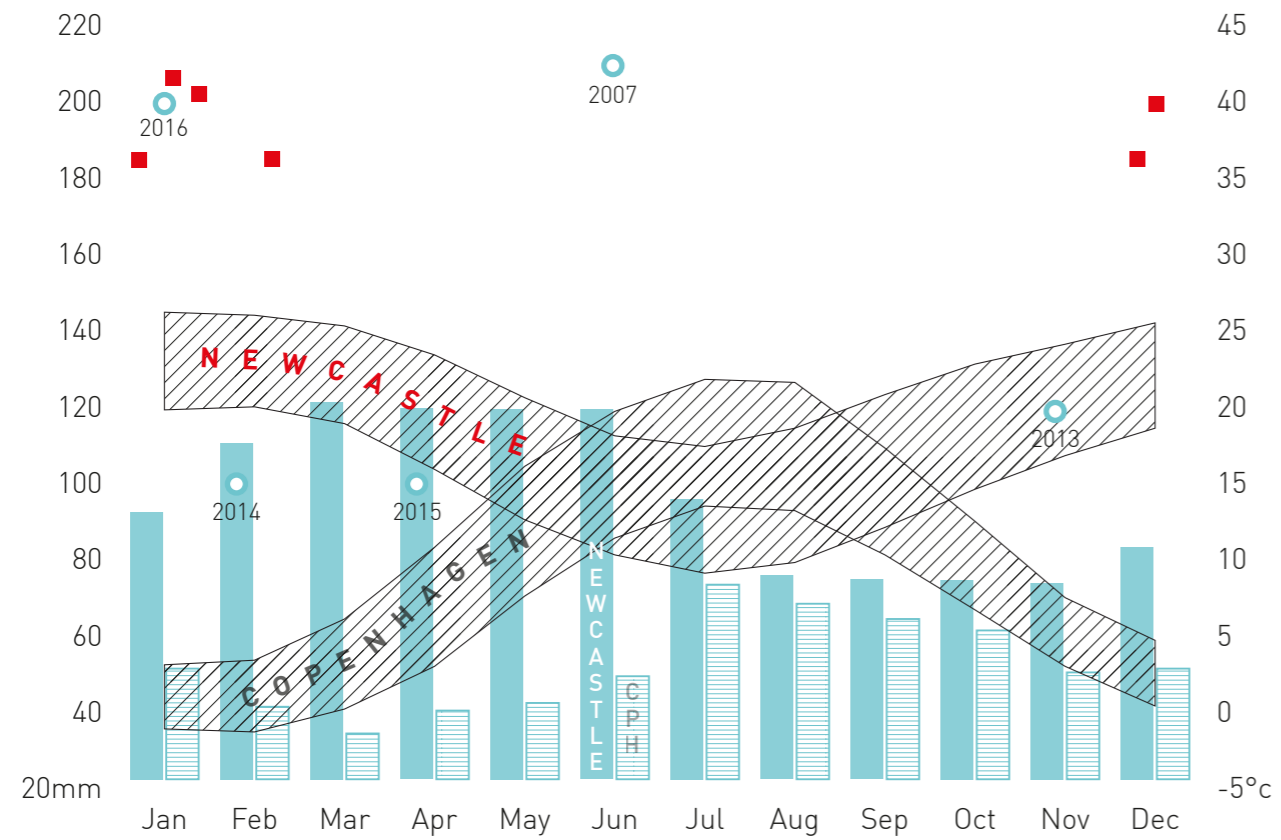
In the **PAST** village high streets  developed around mine shafts  and were **joined** to the vibrant peninsular city centre  by trams  and to Sydney by railway 



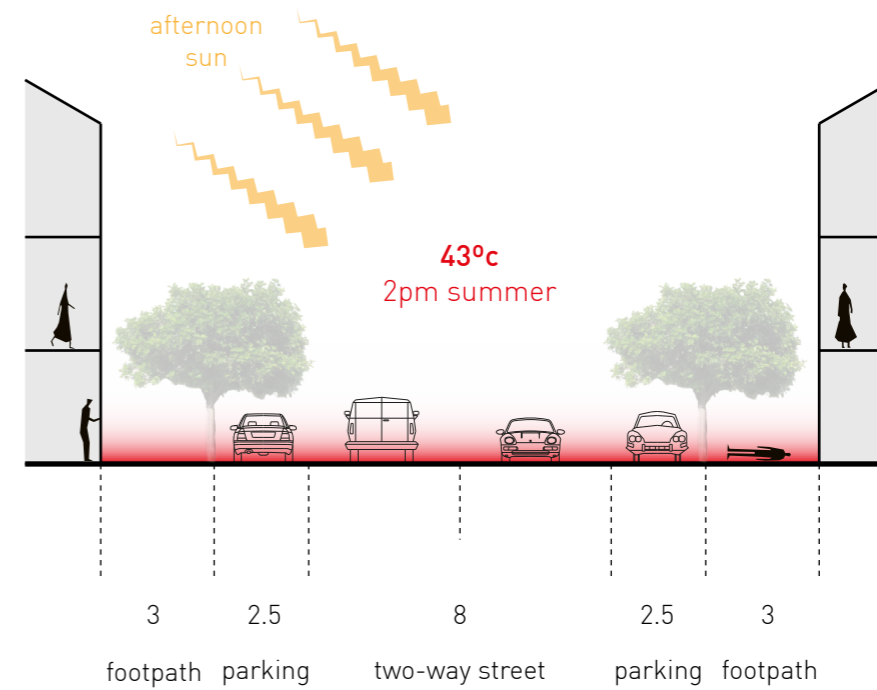
NOWADAYS car dependent suburban malls  and removal of the central city rail corridor  have **disconnected** and killed the peninsular city centre 



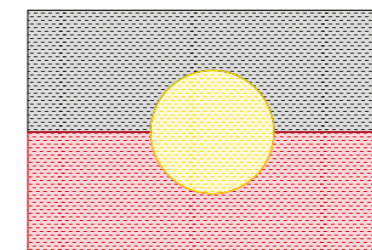
A **FUTURE PROPOSAL** would be a light rail loop  **rejoining** the city centre  to suburban high streets  and an interchange with high speed rail  allowing residents to commute to Sydney



The city has a subtropical climate with **hot summers**, high spring rainfall and year-round **rain-storms** which are increasing in severity with climate change.



In summer the the wide city streets reach **extreme on-street temperatures** in the afternoon making it very uncomfortable to walk.



Compared to other cities, Newcastle is **low density**, car dominated and sprawling. It is approximately one third as dense but 1.5 times the size of Malmö which has the same overall population.

Newcastle has the worlds biggest coal exporting harbour and must move away from coal dependency to celebrate its unique **history**.

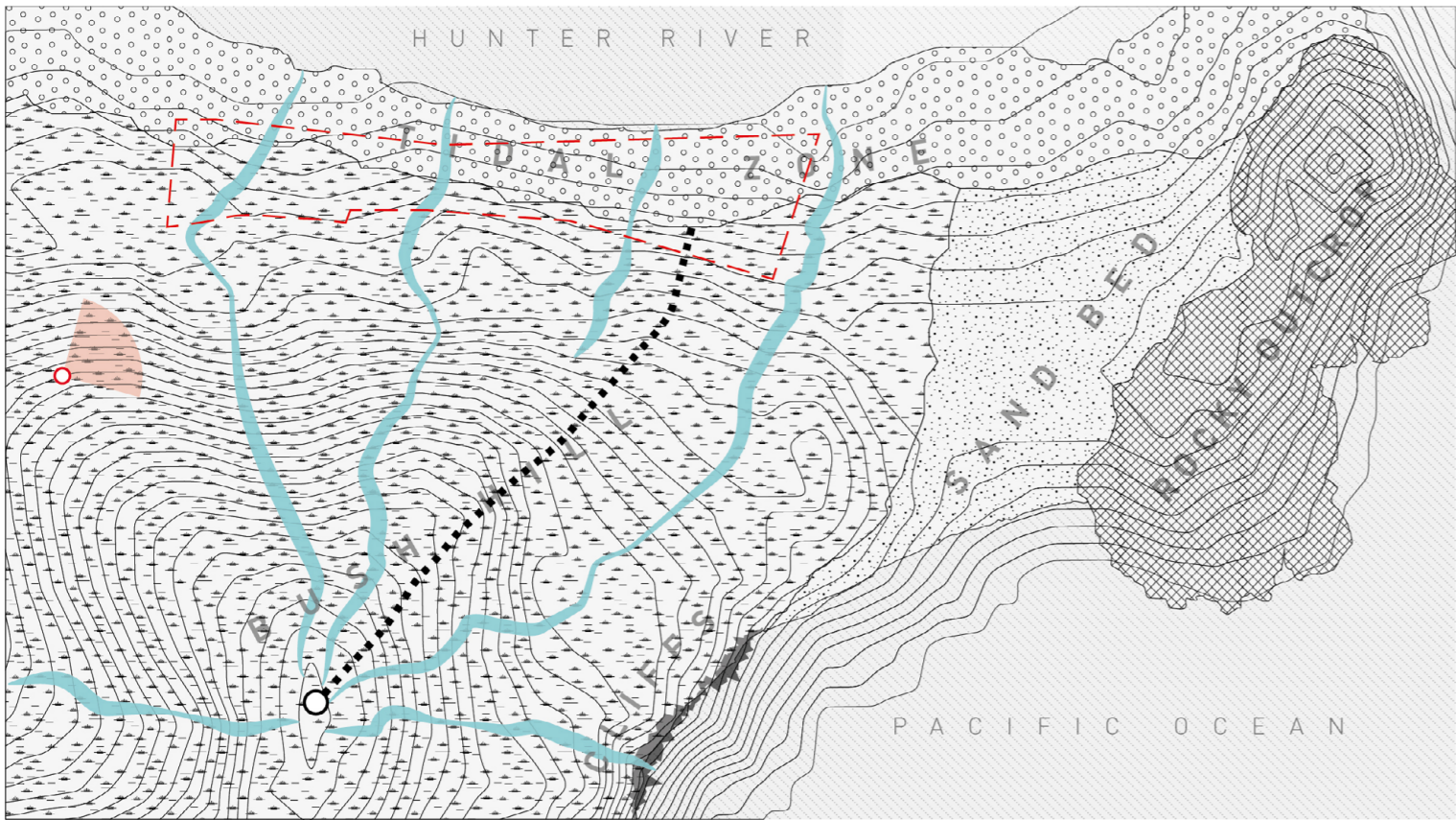
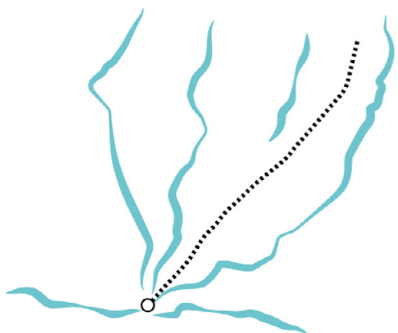
45 000 BC



Streams flowed from the hilltop to the river and sea and an aboriginal walking track led to the hilltop meeting place

Permain era outcrops and cliffs c.250 million years old

Aboriginals of the Awabakal tribe used the meeting place on the hilltop to settle disputes



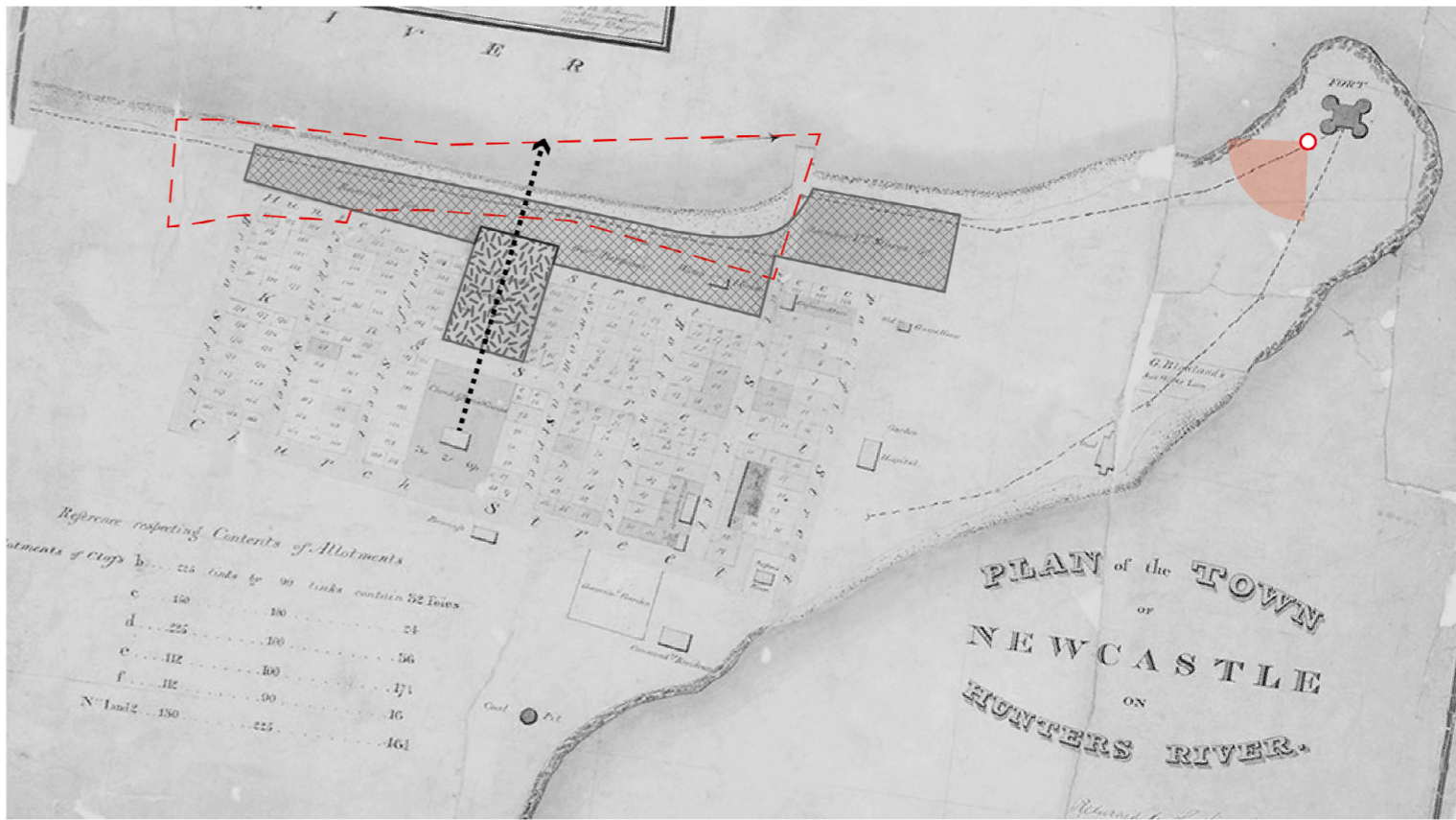
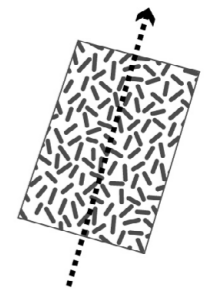
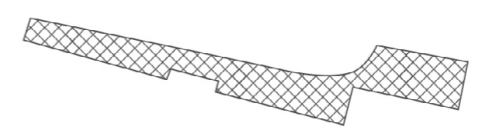
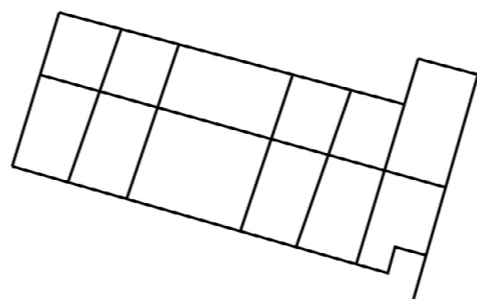
1823



A grid is imposed on the north facing hill camp which forms the historic core of Newcastle

Harbourfront reserved for government purposes

Cathedral axis through market square to the harbour



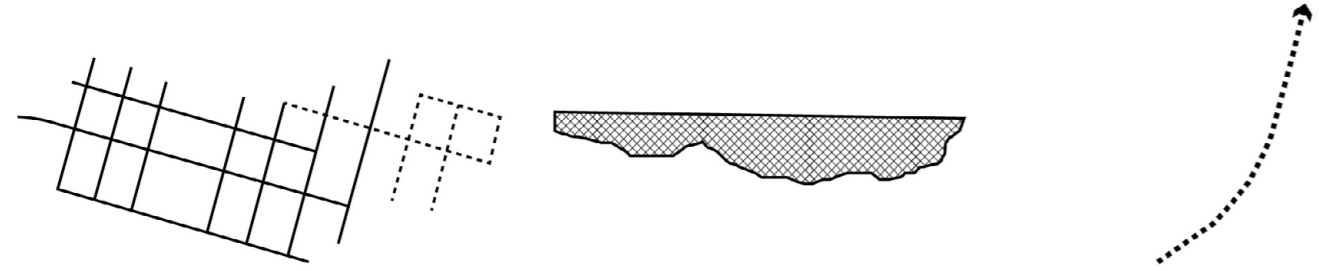
1851



Grid extended east reclaiming a sand-une and breaking the connection between beach and river

Harbourfront dock is reclaimed for ship loading space

First railway tracks connecting coal mineheads to the harbourfront



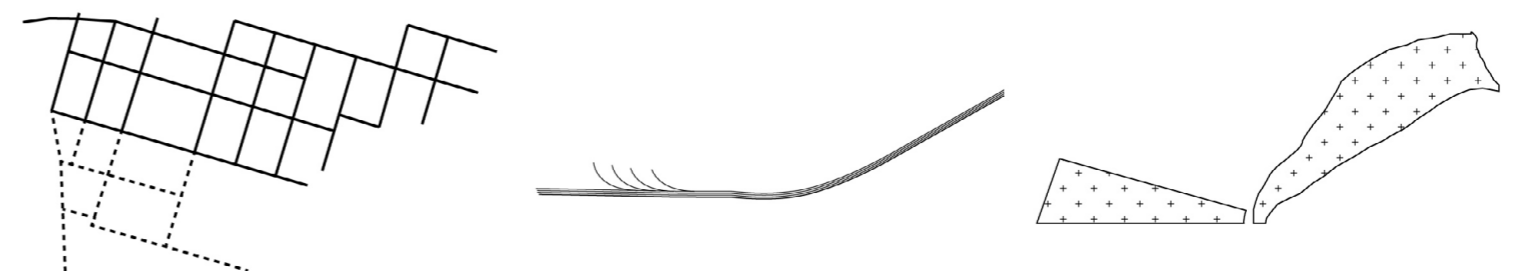
1873



Grid extended south up the hill completing the major streets of the city core

Extensive network of goods railways on harbour wharf

Beach and park designated as public reservations for recreation



1910



1933



East Newcastle is established and major rail and maritime infrastructure is built on the harbourfront

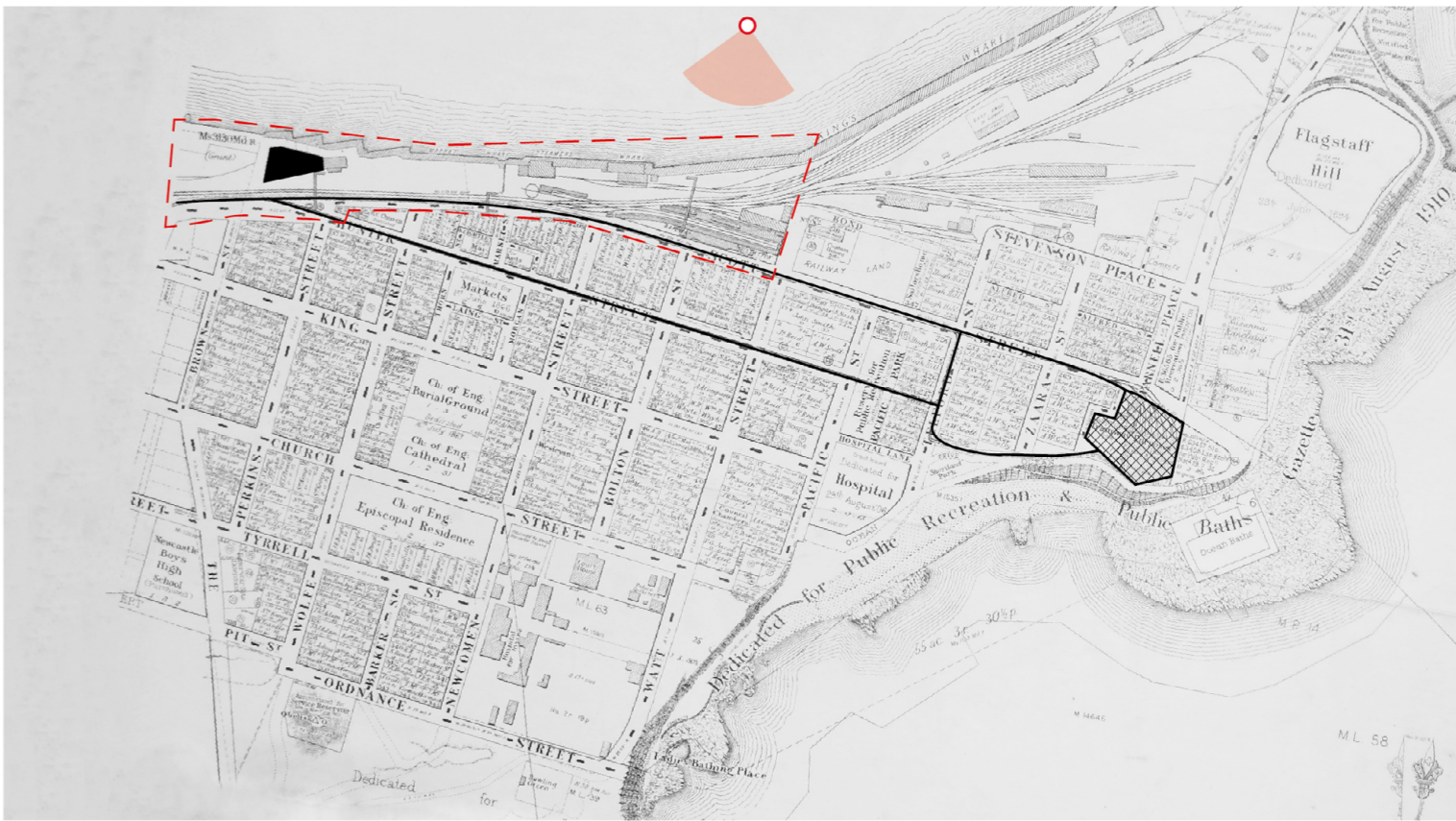
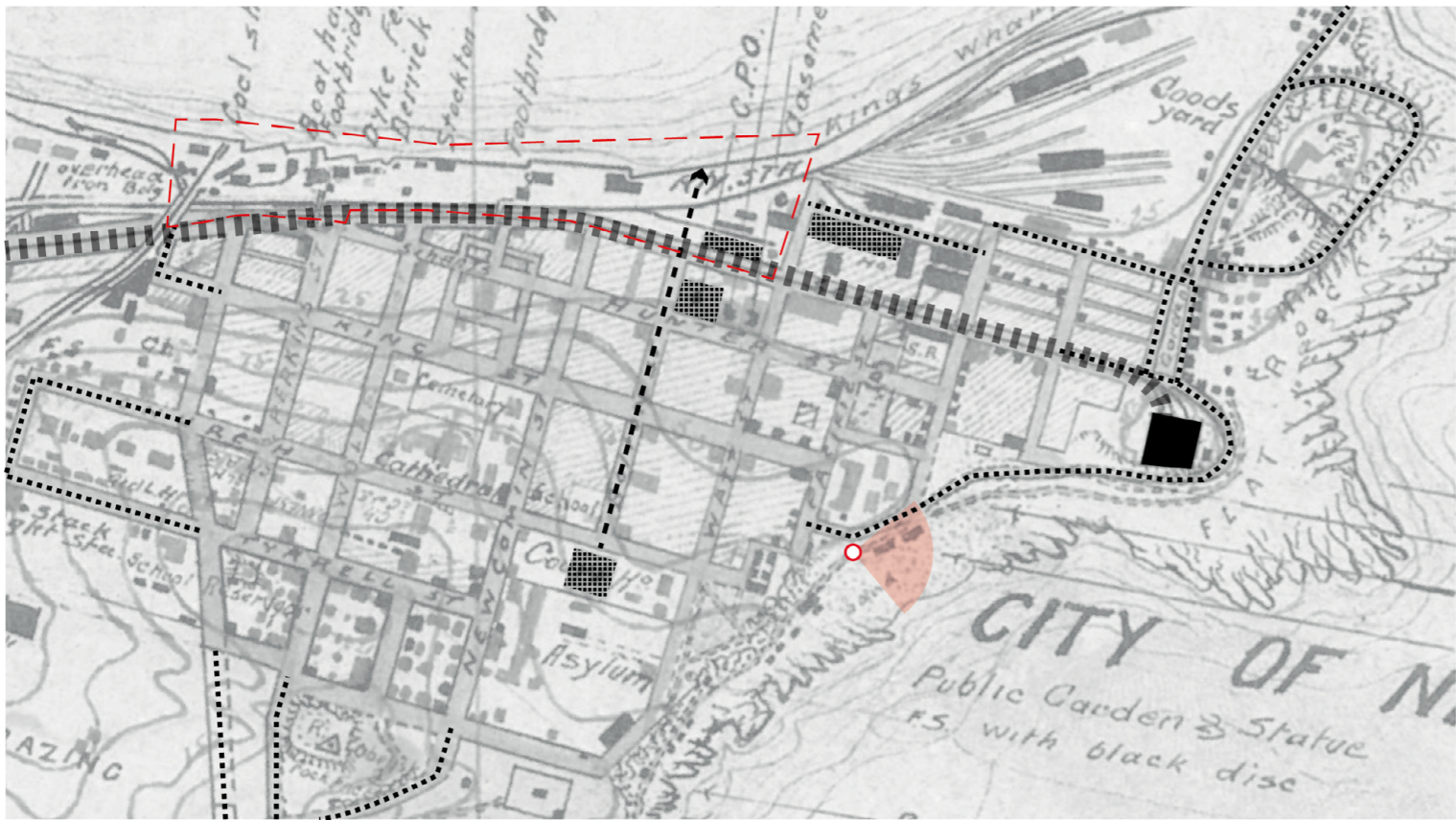
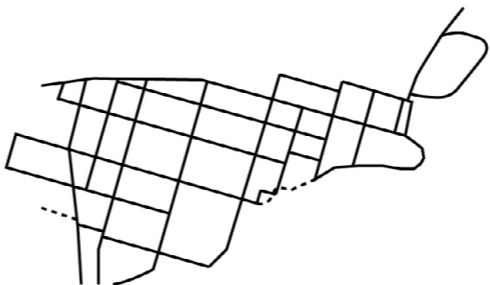
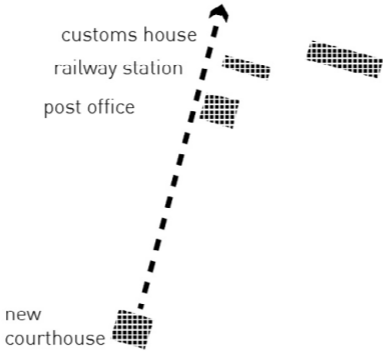
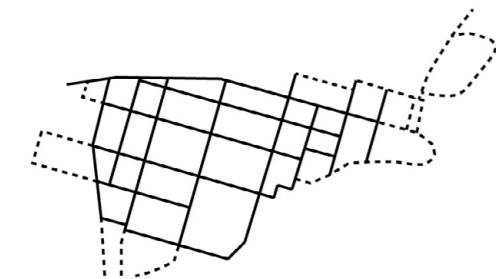
Tram along Scott street with depot at tramway reserve

Public buildings along Bolton street axis

Beachfront land reclaimed to complete ocean road and grid connected westwards to the expanding city

Tram line is duplicated along Hunter street to make a central city loop

Small public boat harbour is built



1960



2016



Automobile focused suburban shopping malls open in 1965 at Kotara and 1979 in Charlestown which suck life from the city centre

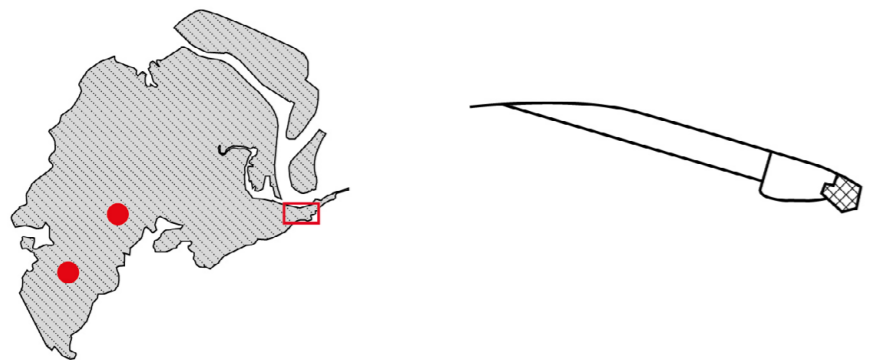
Tram removed and tramway reserve transformed into a bus depot

Strict monofunctional modernist zoning laws introduced

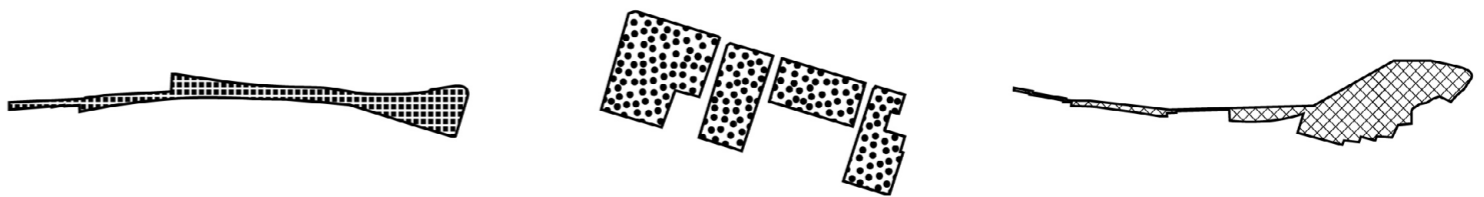
City centre railway corridor cut in 2014 which disconnected city core

Post financial crisis project 'Renew Newcastle' provides cheap rent and has created thriving food and arts street

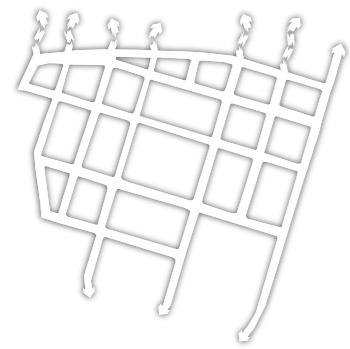
Foreshore parkland built on industrial harbourfront and train yards in 1988



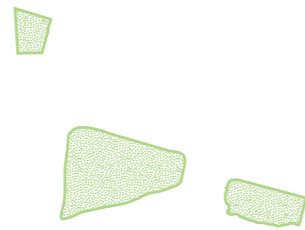
- Special use (railways)
- General business
- Residential
- Special use (public)
- Recreation







Grid of wide streets (19m) severed from harbour by road and rail tracks



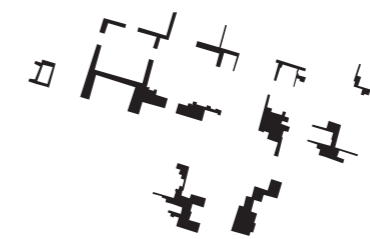
Each north-south grid street terminates at a disused hilltop green



Topography creates viewpoints from streets, buildings and parks



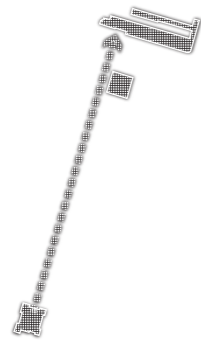
Fragmented ring of coastal parkland could be strengthened



Commercial core block interiors used for private car parking



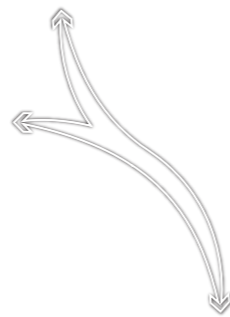
Carparks, dilapidated buildings and empty plots



Disused heritage buildings along Bolton street



Active pedestrian shopping street



Illegible connection between beach and harbour



Polluted stormwater runoff drains from hilltop streets into the harbour



Old mine shafts make construction of tall buildings expensive



So harbourside site is key because:

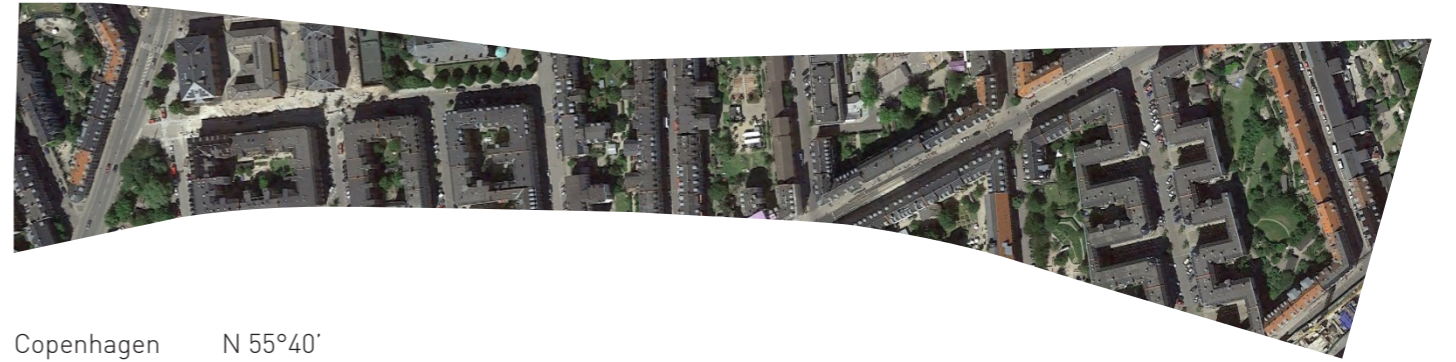
- currently disused with heritage buildings
- not undermined
- dividing city from the harbour
- reclaimed land and historically dynamic



Overlaying the site area onto other cities with less daily sunlight shows the site can support significant building density



Newcastle site area S 32°55'



Copenhagen N 55°40'



Sydney S 33°53'



Lund N 55°42'



Melbourne S 37°47'



Paris N 48°52'



London N 51°29'



Venice N 45°26'

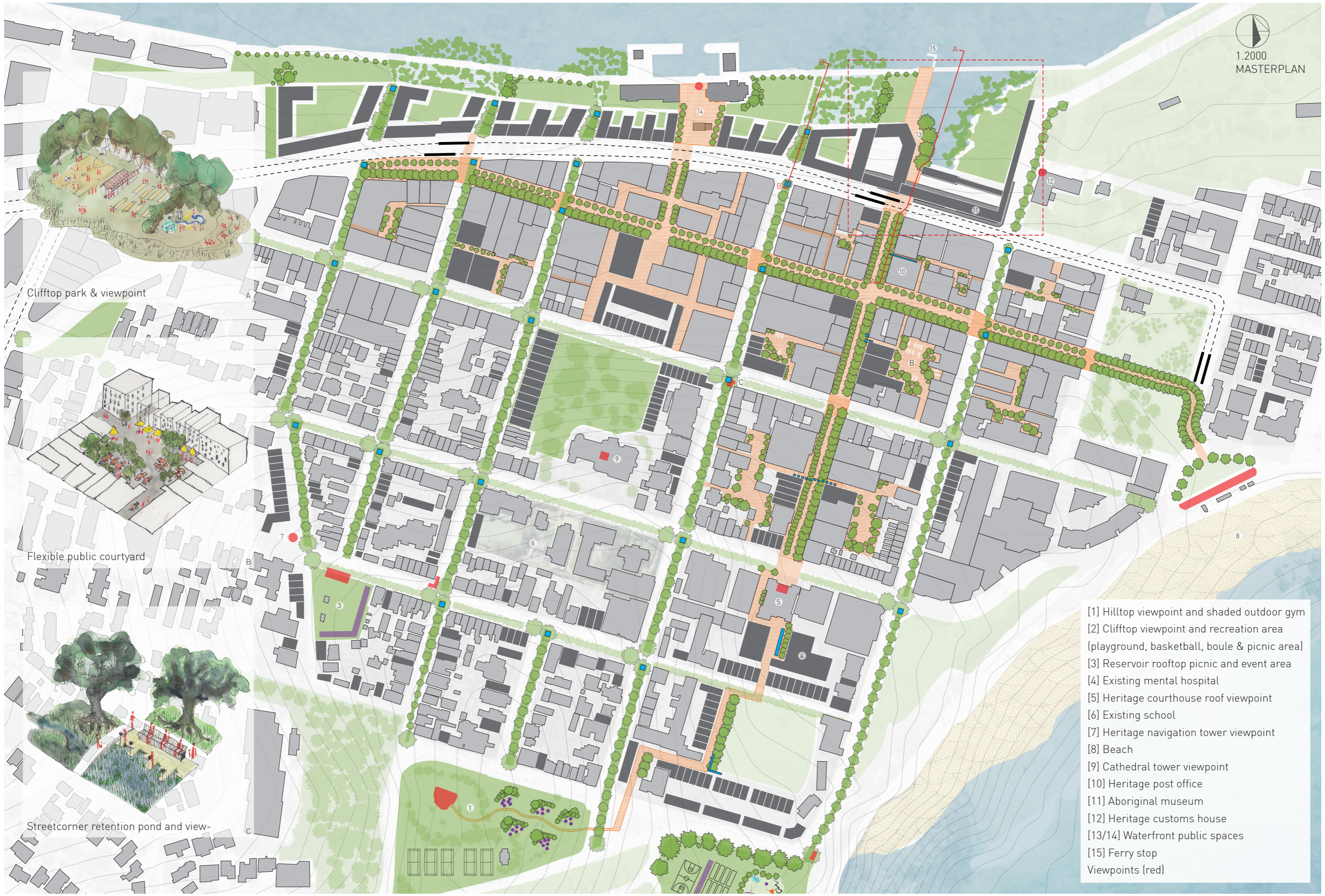
How to use the **STREET GRID, LANDSCAPE** and **HISTORY** to rejoin the peninsula?

by:

- Encouraging pedestrians
- Improving the street environment
- Celebrating the historic identity



Green swale streets stretching from a natural and urban harbourfront ascending through the city to hilltop parks and historical viewpoints



Clifftop park & viewpoint

Flexible public courtyard

Streetcorner retention pond and view-

- [1] Hilltop viewpoint and shaded outdoor gym
- [2] Clifftop viewpoint and recreation area (playground, basketball, boule & picnic area)
- [3] Reservoir rooftop picnic and event area
- [4] Existing mental hospital
- [5] Heritage courthouse roof viewpoint
- [6] Existing school
- [7] Heritage navigation tower viewpoint
- [8] Beach
- [9] Cathedral tower viewpoint
- [10] Heritage post office
- [11] Aboriginal museum
- [12] Heritage customs house
- [13/14] Waterfront public spaces
- [15] Ferry stop
- Viewpoints (red)



Connect the city with **lightrail**, densify by **filling the grid** and culturally anchor the city with an **aboriginal museum**



Expand and Renovate **waterfront and hilltop parks** and to complete the **peninsular green ring**



Green grid of vegetated swales and one-way streets to **cool** the streets, **join parks** and **encourage pedestrians**



Biofiltration swales, **retention ponds** and **estuarine mangroves** collect and clean stormwater from hilltop parks and **restore natural waterflow**

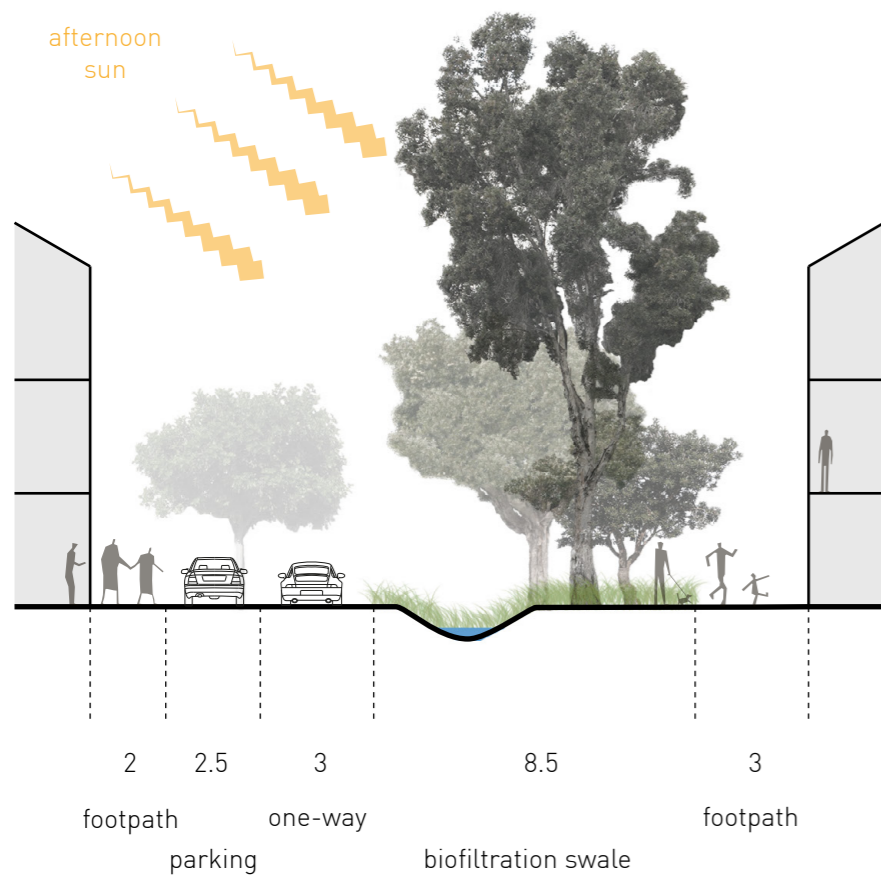


Pedestrian axis alongside heritage buildings from harbourfront museum to hilltop to reestablish **aboriginal walking track** and transform internal parking into **flexible courtyards** to **pedestrianise the city core**

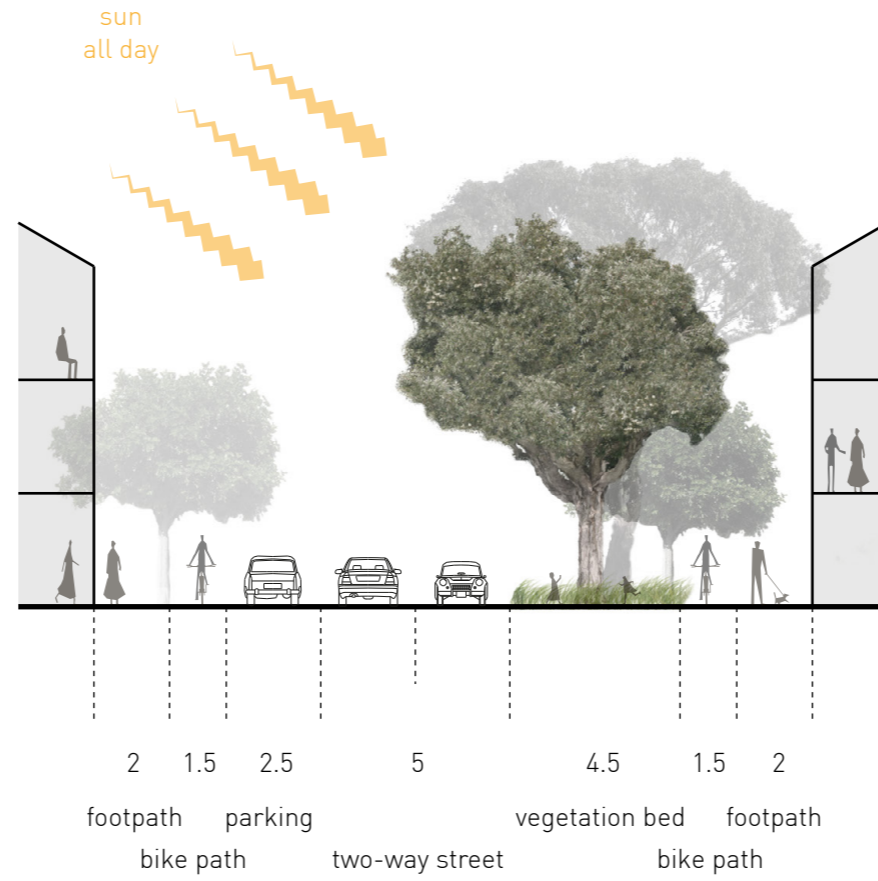


network of viewpoints at high positions on street corners, parks and building rooftops to **unite the city topography**

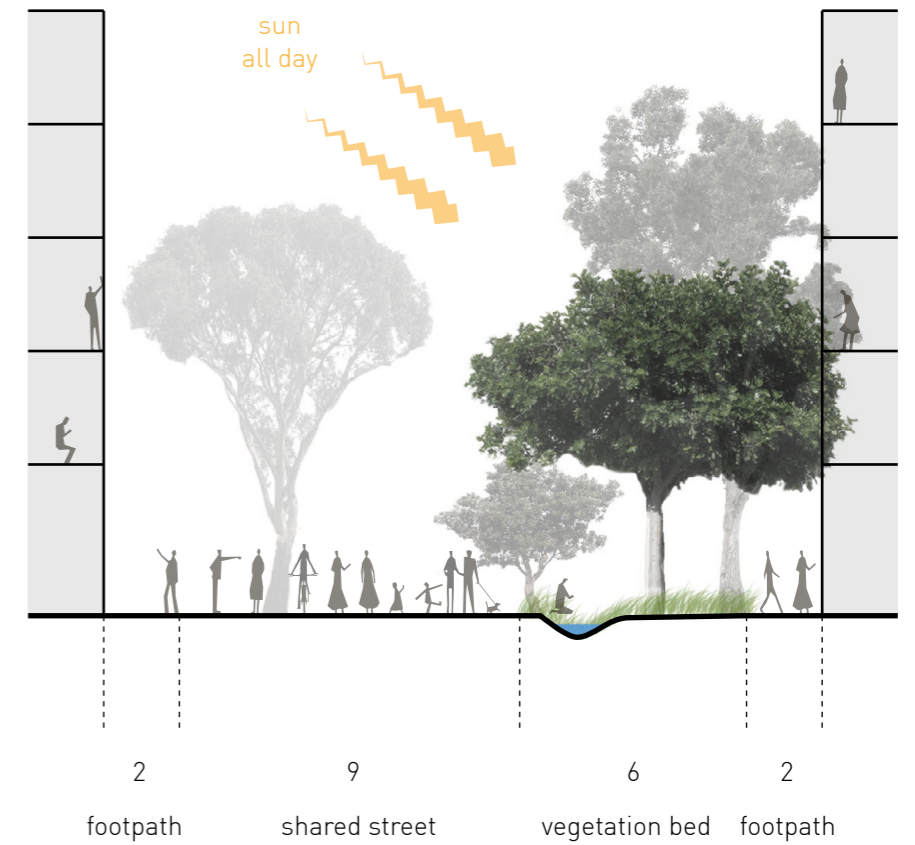
BIOFILTRATION SWALE STREETS
north-south



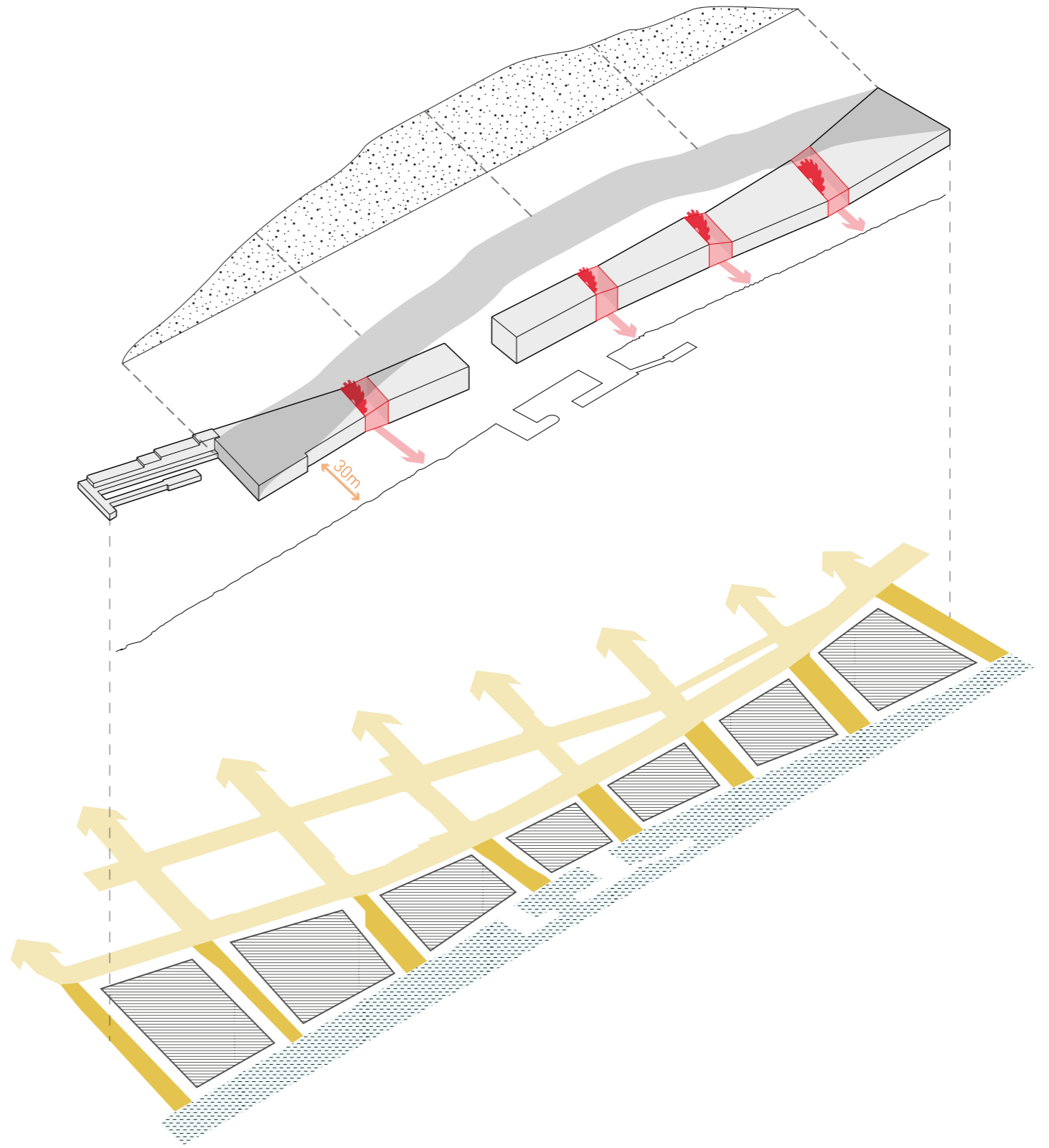
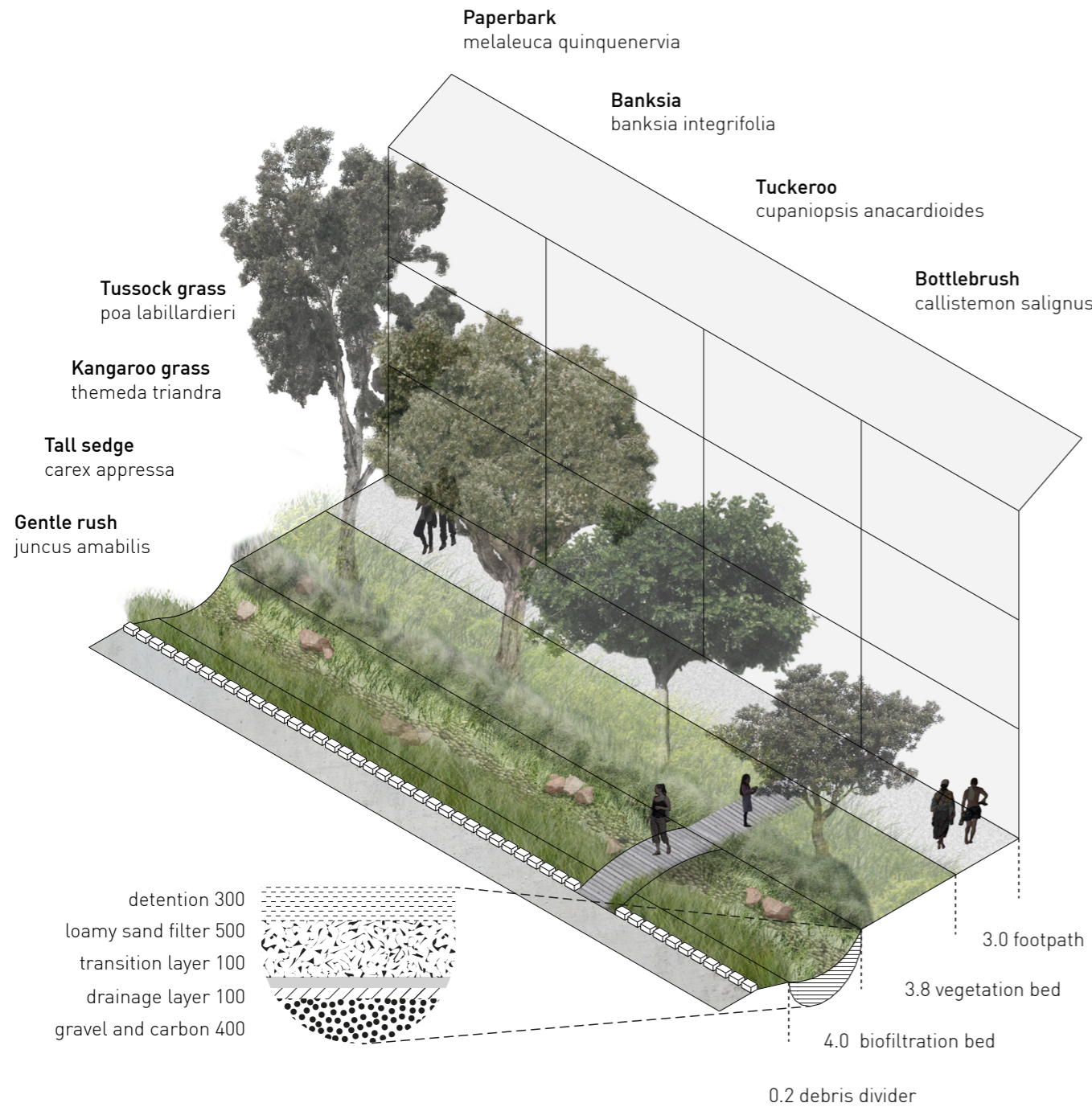
TRANSIT STREETS
east-west



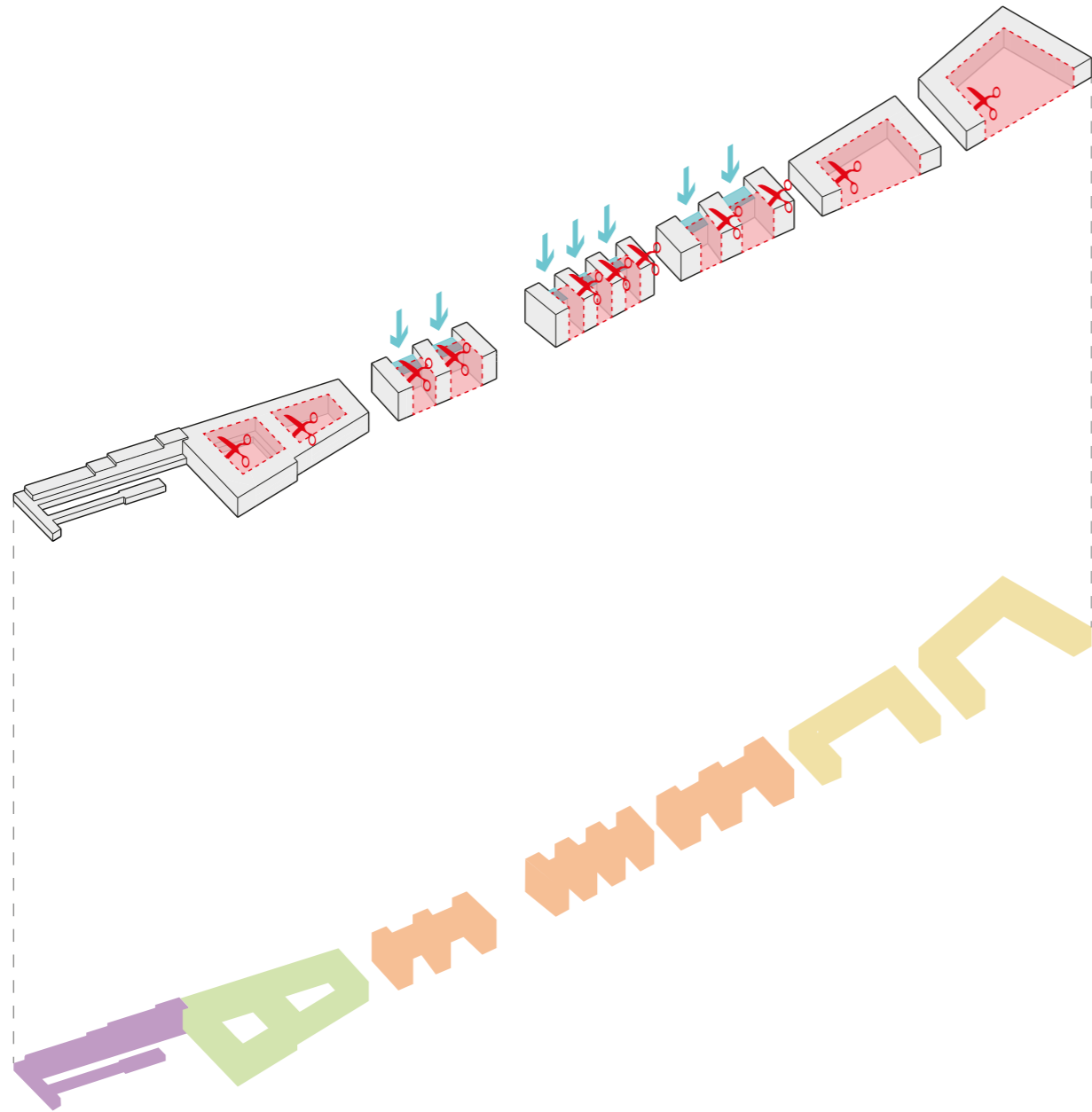
PEDESTRIAN MAIN STREET
n-s & e-w



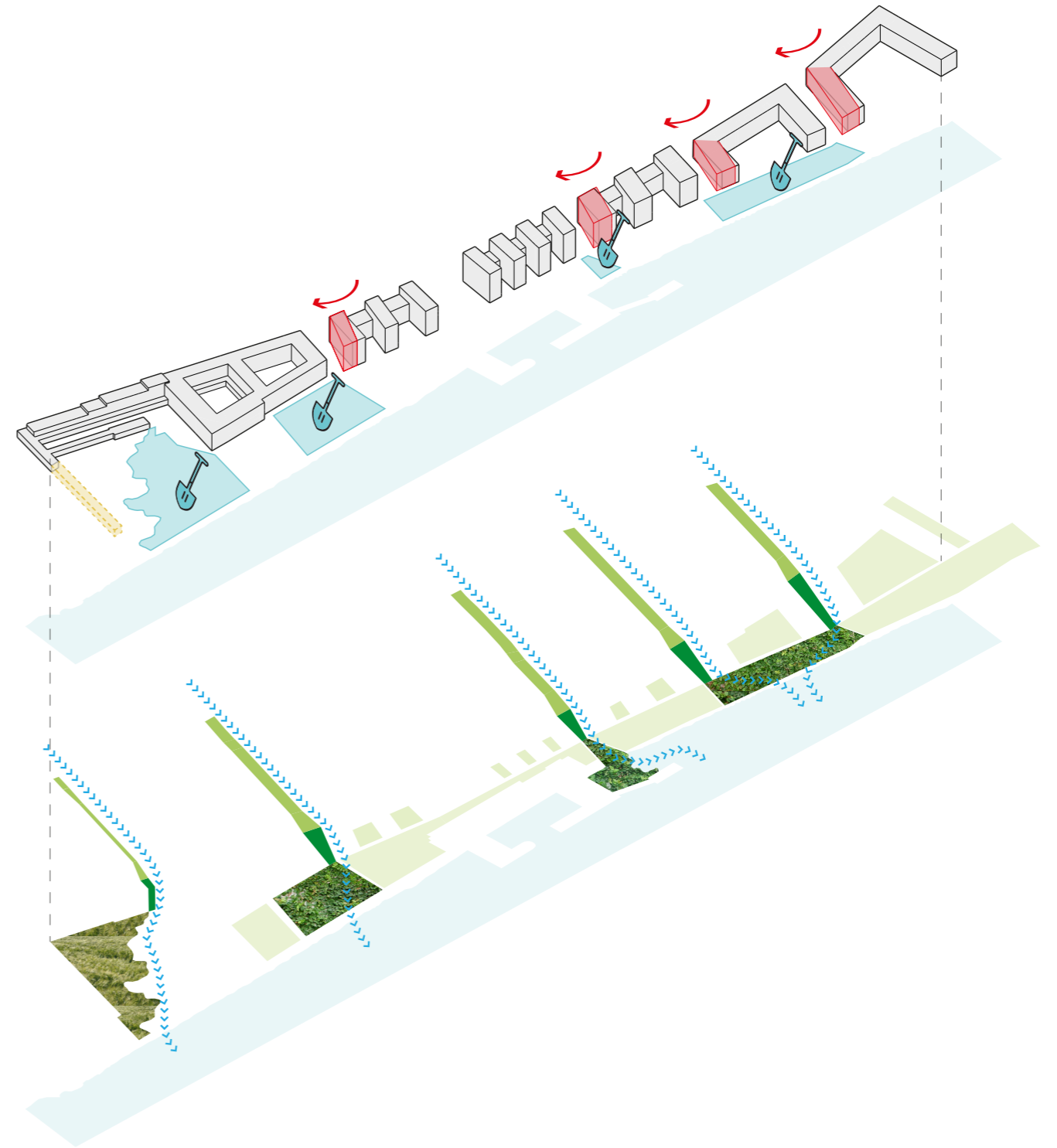
Native littoral trees and grasses for sandstone derived soils



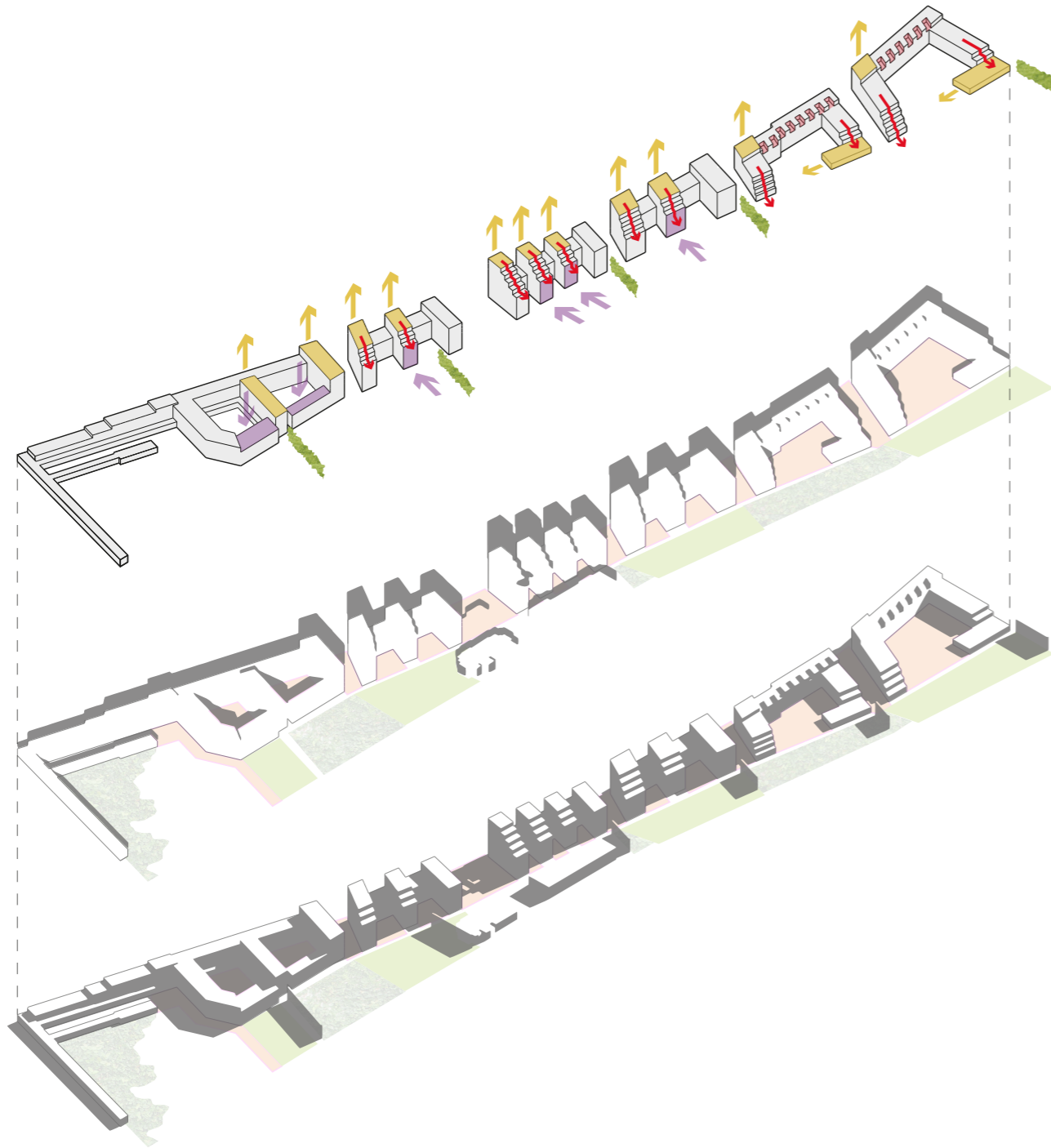
- [a] volume **set back** 30m from harbourfront to increase existing open space
- [b] volume height mirrors hill silhouette behind
- [c] **cut** volume to extend **street grid** to the waterfront and create sevel parcels



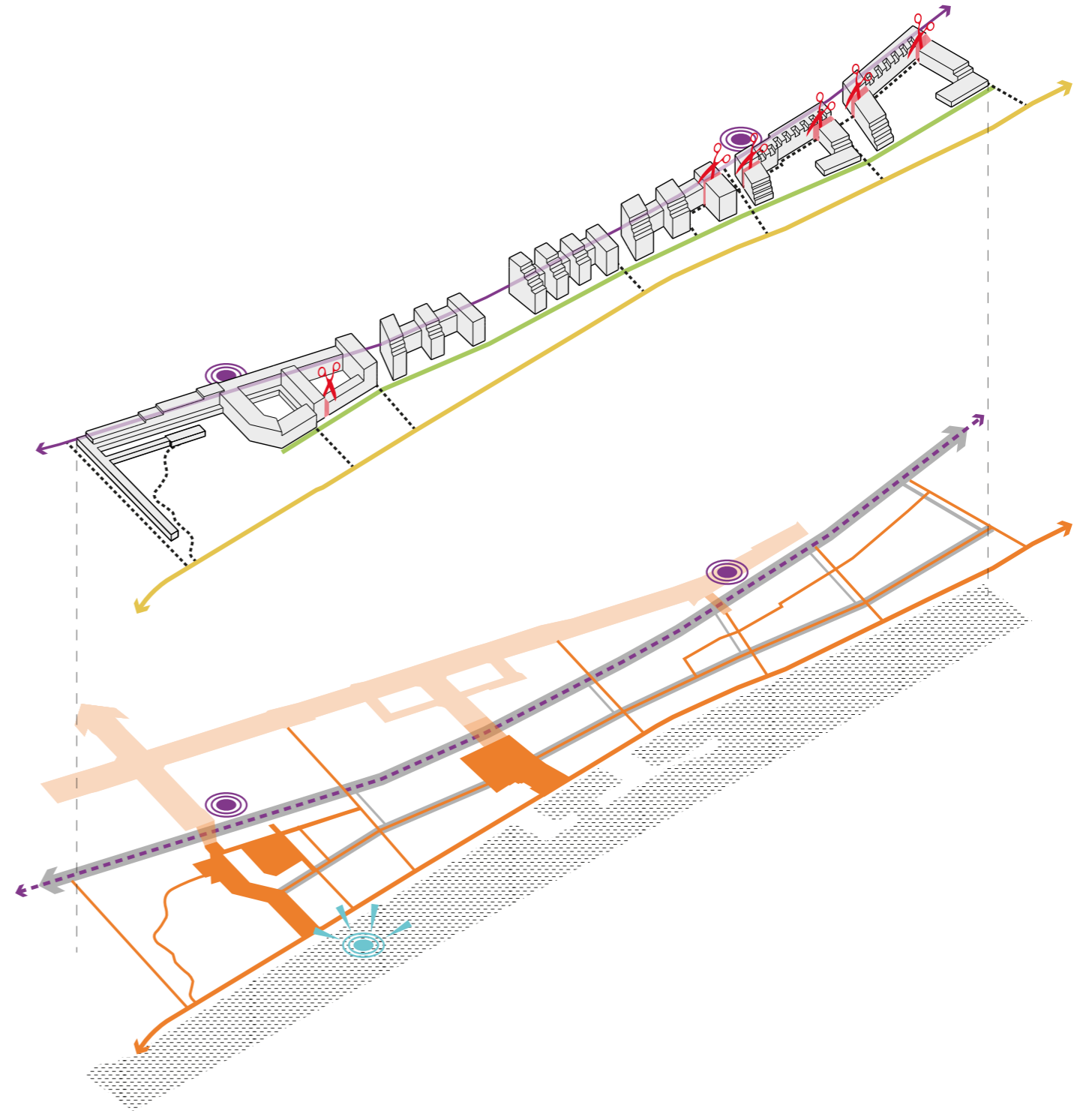
[a] **cut volumes** to embrace northern sun and create a range of typologies for an **aboriginal museum, restaurant & offices, apartments** and **family courtyards**
 [b] **depress back side** to give solar access to street behind



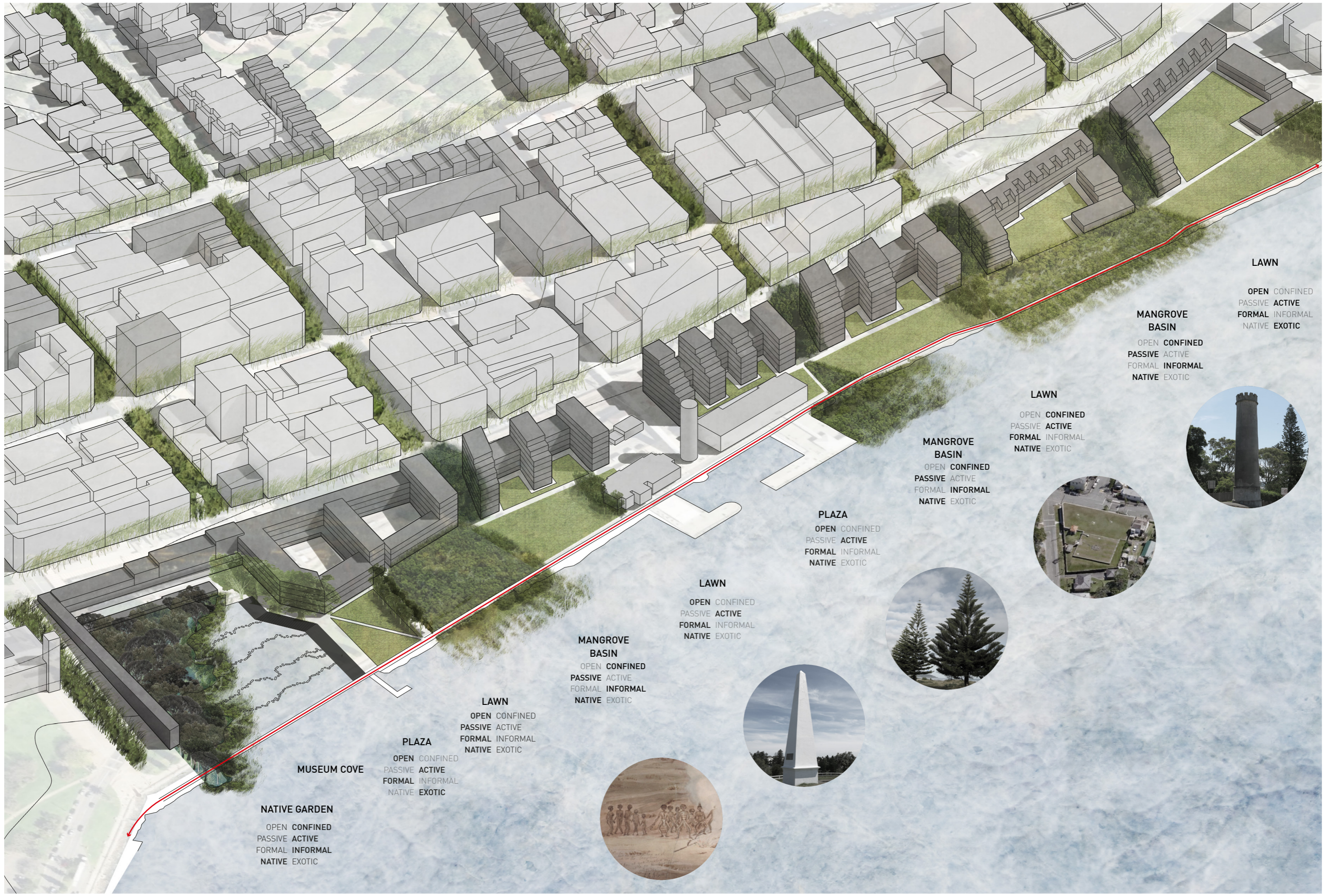
[a] **twist corner buildings** to shade **subtropical rainforest** streets and create pedestrian **compression points**
 [b] **excavate** and replant compartments with **mangroves** to complete hillside swale system and green harbourfront
 [c] **extend museum wing** to enclose museum native garden
 [d] thus creating four ecosystems through which the swale passes: **littoral bushland swale, subtropical rainforest estuarine mangroves, museum bush garden**



- [a] **step buildings** down to waterfront and create rooftop sundecks
- [b] **push and depress buildings** to maximise morning sun into courtyards
- [c] **raise and extend buildings** to shade streets and public space from afternoon sun
- [d] **vegetate parks** to create shaded and sunny areas



- [a] **cut buildings** to create access paths through larger volumes
- [b] **lightrail** with **stops** at crossings to pedestrian shopping street
- [c] **ferry stop** at public space linked to **lightrail**
- [d] **shared access** street, **waterfront boardwalk** and **pedestrian paths**
- create **street hierarchy** linking public spaces



LAWN

OPEN PASSIVE FORMAL NATIVE
CONFINED ACTIVE INFORMAL EXOTIC

MANGROVE BASIN

OPEN PASSIVE FORMAL NATIVE
CONFINED ACTIVE INFORMAL EXOTIC

LAWN

OPEN PASSIVE FORMAL NATIVE
CONFINED ACTIVE INFORMAL EXOTIC

MANGROVE BASIN

OPEN PASSIVE FORMAL NATIVE
CONFINED ACTIVE INFORMAL EXOTIC

PLAZA

OPEN PASSIVE FORMAL NATIVE
CONFINED ACTIVE INFORMAL EXOTIC

LAWN

OPEN PASSIVE FORMAL NATIVE
CONFINED ACTIVE INFORMAL EXOTIC

MANGROVE BASIN

OPEN PASSIVE FORMAL NATIVE
CONFINED ACTIVE INFORMAL EXOTIC

LAWN

OPEN PASSIVE FORMAL NATIVE
CONFINED ACTIVE INFORMAL EXOTIC

PLAZA

OPEN PASSIVE FORMAL NATIVE
CONFINED ACTIVE INFORMAL EXOTIC

MUSEUM COVE

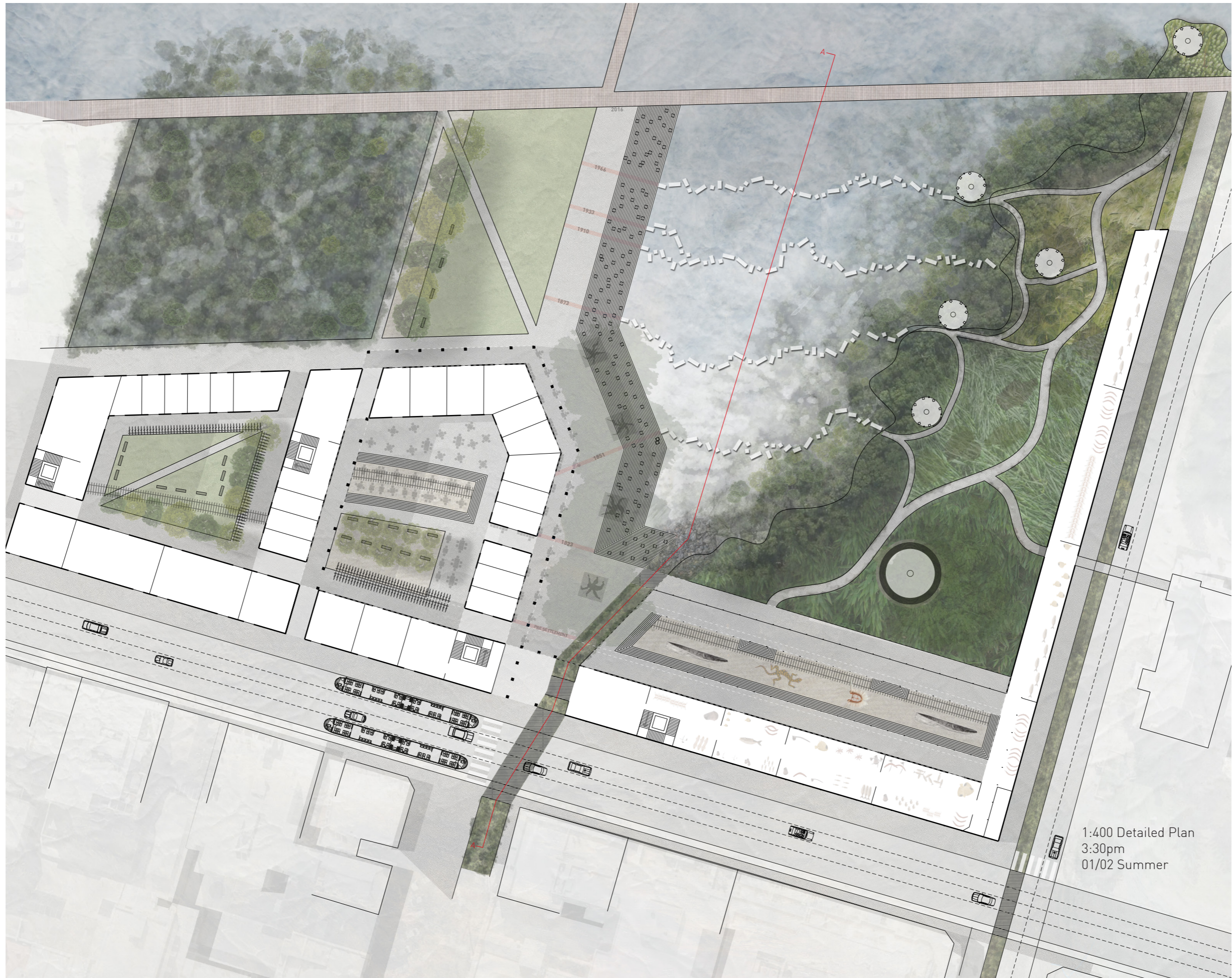
NATIVE GARDEN

OPEN PASSIVE FORMAL NATIVE
CONFINED ACTIVE INFORMAL EXOTIC





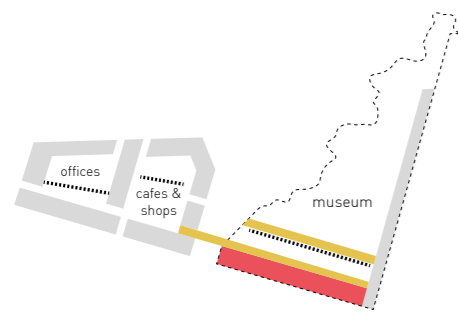
View of shaded public space looking north towards the cove



1:400 Detailed Plan
3:30pm
01/02 Summer

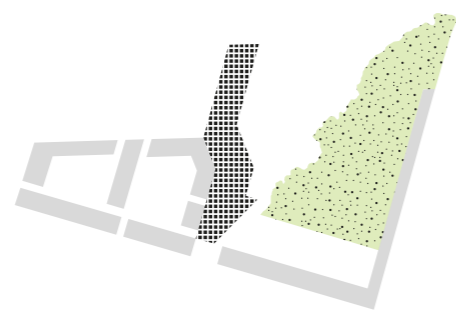


View of the stepping stones from the boardwalk



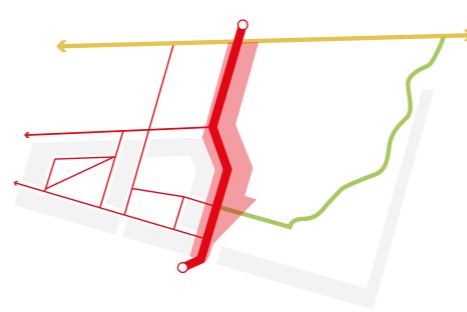
The **existing train station** is extended and transformed into a museum. Existing rail tracks and **platform canopies** are integrated into the paving and buildings.

EXISTING STRUCTURES



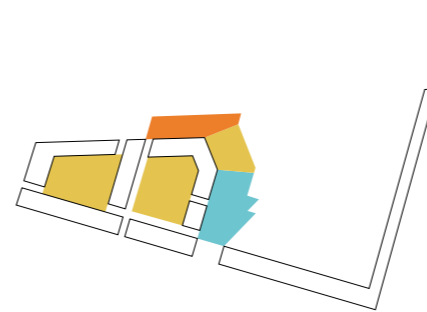
The hardscaped plaza on the east side contrasts with the dense **native garden** on the west side.

CONTRASTING PUBLIC SPACES



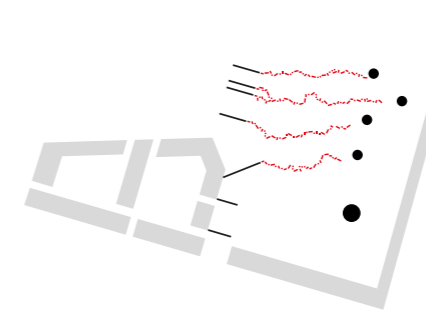
Route from **ferry to tram** through public space. **Harbourfront boardwalk** and **scenic garden path** are two routes from east to west. Smaller alleys connect the courtyards to waterside plaza.

MOVEMENT



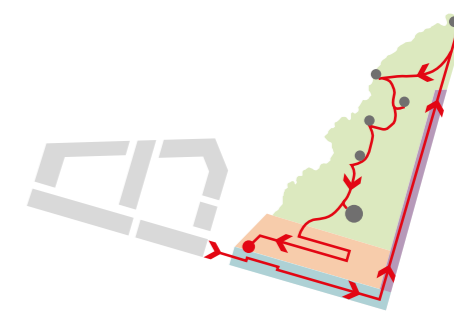
Orientation and placement of trees creates shaded **summer spaces** (E), transitional **spring/autumn spaces** (NE) and sunny north facing **winter space** (N)

SHADE



Sandstone stepping stones map the changing shoreline throughout history. The stones change to paving on the plaza and link to pavilions in the garden. They are submerged with the tides which changes possible routes across the space.

HISTORIC STEPPING STONES



The museum is divided into **colonial, geological, outdoor aboriginal pavilions** and **changing aboriginal exhibition space**. The outdoor pavilions reflect the land focused nomadic tradition as opposed to a single structure in the western tradition.

MUSEUM MOVEMENT SEQUENCE



B

B



View of the subtropical rainforest street corner

A

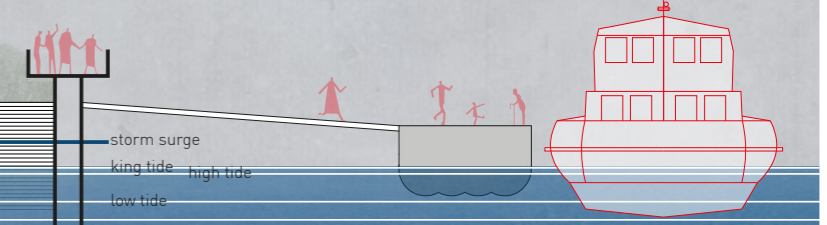
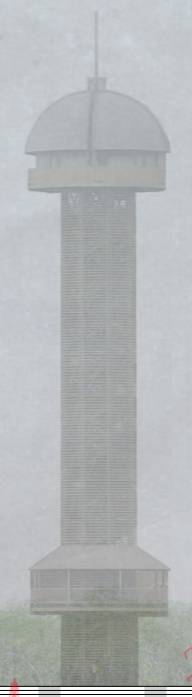


W

ce with colonnade

littoral bushland swale

ferry jetty



1851

1873

1910

1933

1960

2016

