

AMRF - FIRST BUILDING

AGENDA

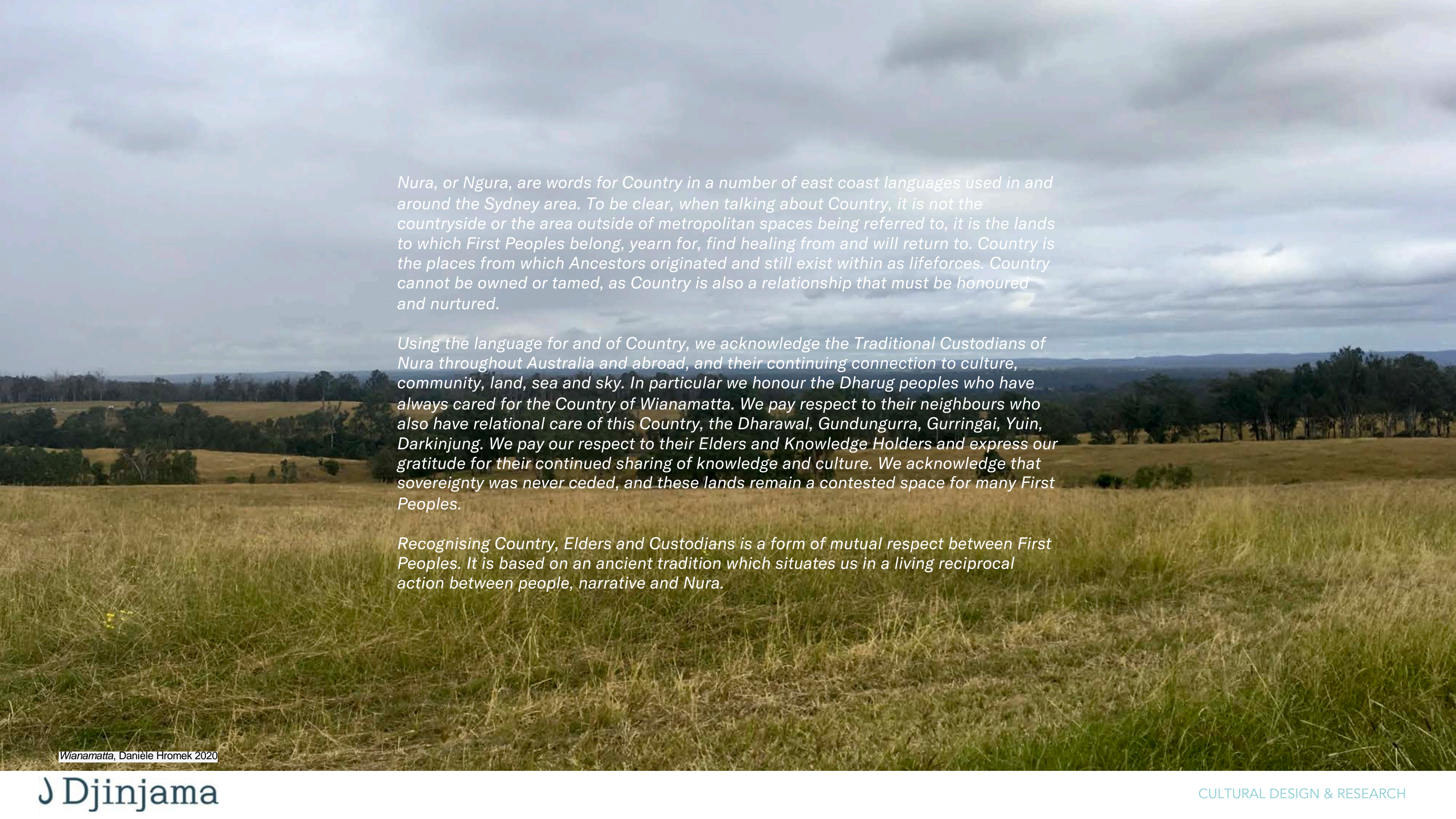
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- 01. Cultural Design and Research
 - 02. Context and Planning Objectives
 - 03. First Building and Landscape Response



Ƨ Djinjama

Cultural Design and Research

Djinjama: Defying the Grid, Danièle Hromek 2020

A wide-angle landscape photograph showing a vast, open field of tall, dry grass in the foreground. In the middle ground, there are scattered trees and shrubs. The background features a range of low hills or mountains under a heavy, overcast sky with grey clouds. The overall mood is somber and contemplative.

Nura, or Ngura, are words for Country in a number of east coast languages used in and around the Sydney area. To be clear, when talking about Country, it is not the countryside or the area outside of metropolitan spaces being referred to, it is the lands to which First Peoples belong, yearn for, find healing from and will return to. Country is the places from which Ancestors originated and still exist within as lifeforces. Country cannot be owned or tamed, as Country is also a relationship that must be honoured and nurtured.

Using the language for and of Country, we acknowledge the Traditional Custodians of Nura throughout Australia and abroad, and their continuing connection to culture, community, land, sea and sky. In particular we honour the Dharug peoples who have always cared for the Country of Wianamatta. We pay respect to their neighbours who also have relational care of this Country, the Dharawal, Gundungurra, Gurringai, Yuin, Darkinjung. We pay our respect to their Elders and Knowledge Holders and express our gratitude for their continued sharing of knowledge and culture. We acknowledge that sovereignty was never ceded, and these lands remain a contested space for many First Peoples.

Recognising Country, Elders and Custodians is a form of mutual respect between First Peoples. It is based on an ancient tradition which situates us in a living reciprocal action between people, narrative and Nura.

Djinjama is guided by some simple values based on the guidance of Elder Uncle Greg Simms. These values are:

- *Always show respect*
- *Acknowledge*
- *Never be greedy and always share*
- *Don't take too much from the water or the bush*
- *Always listen*

Uncle Greg is a Gadigal/Dharug/Gundungurra/Budawang Elder

Country provides opportunities to reimagine and mutually create how Knowledges are considered and practiced, because Country holds Knowledges in place, as a source to connect and reconnect to the land and to oneself.



Bernadette Hardy
Dharug/Gamilaroi

Interior designer and researcher

Samantha Rich
Wiradjuri

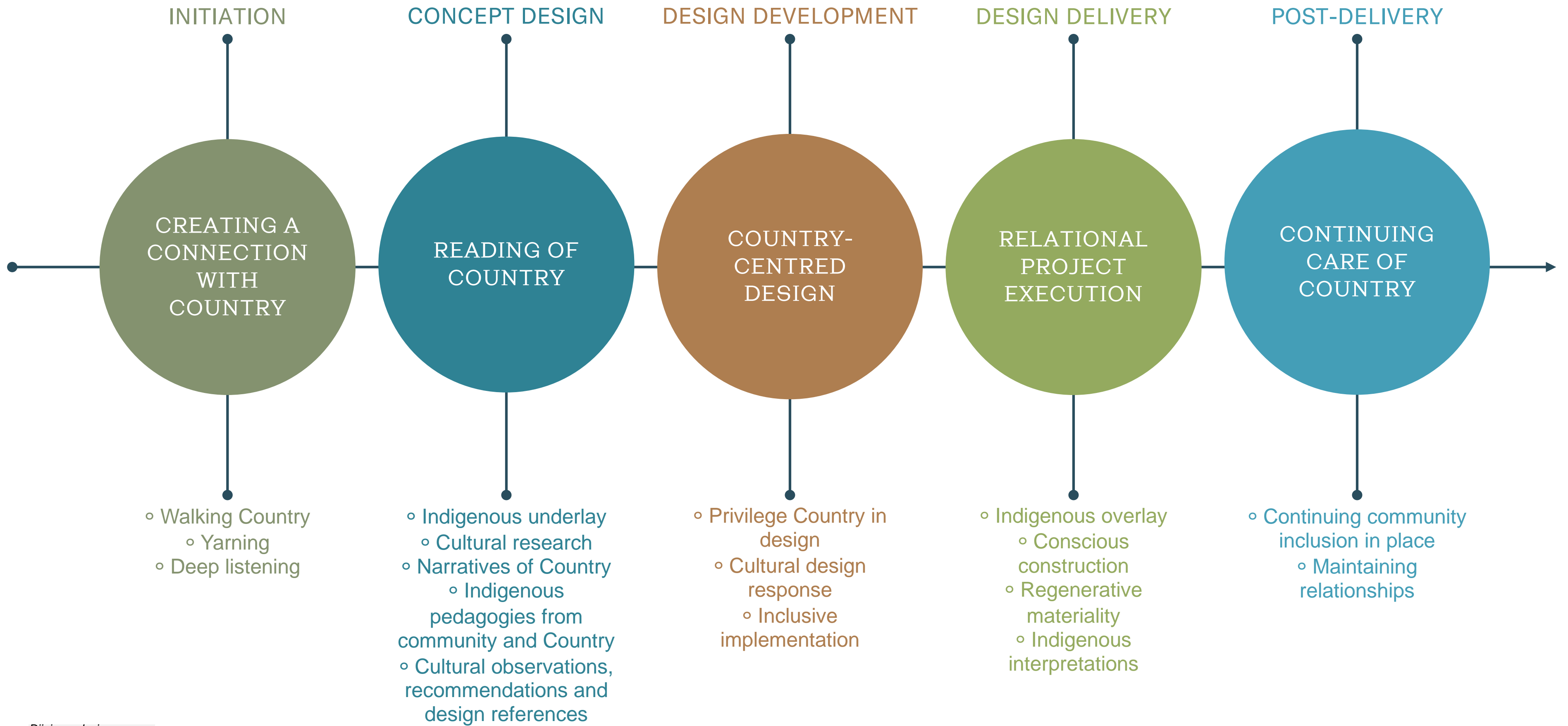
Architectural designer

Danièle Hromek
Budawang/Yuin

Spatial designer and researcher

Craig Kerslake
Wiradjuri

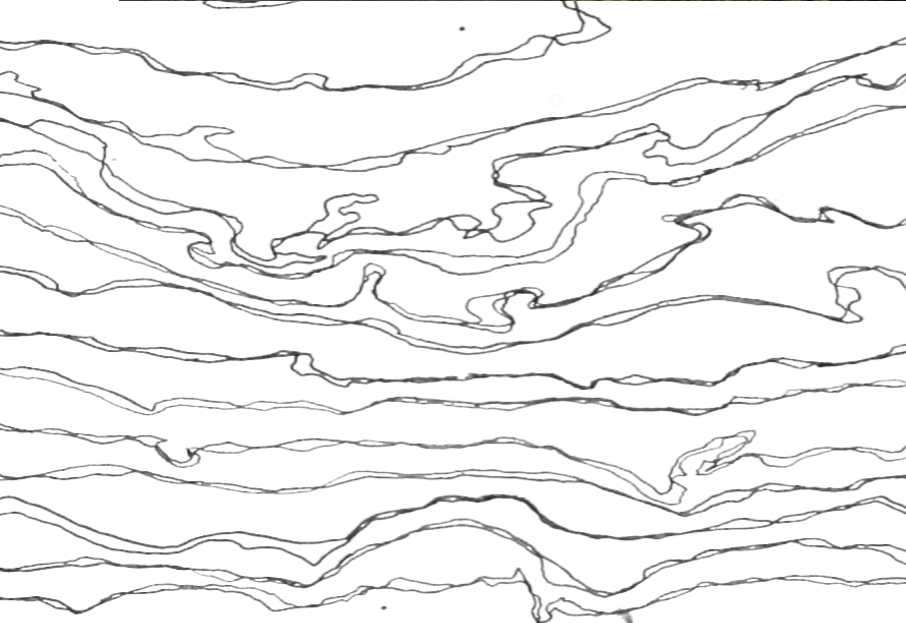
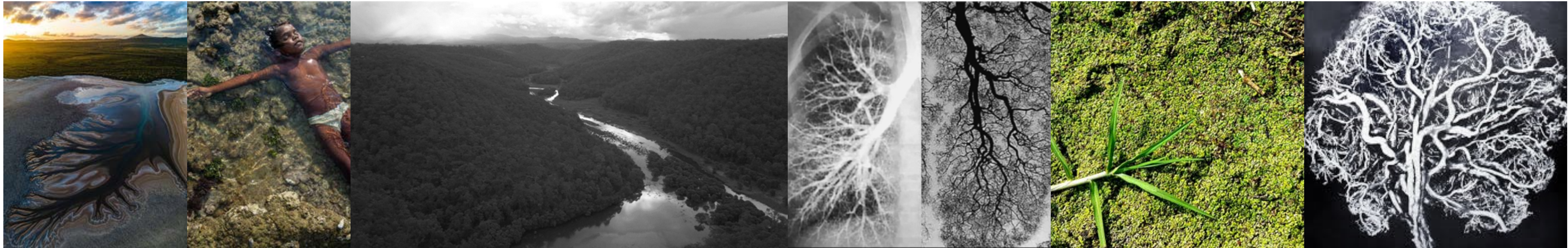
Architect



Djinjama design process

The Water Story

| Principles | Values | Design Opportunities and Strategies |
|--|--|--|
| <ul style="list-style-type: none">• The waters of Wianamatta are sacred• The movement and fluidity of water• Sweetwater Country• Layers of mountains from which the waters come• Learn to move with the flow of waters and Country• Water gives life and connects us all• Relationality• Women's business | <ul style="list-style-type: none">• Not about ownership, about landscape• Importance of flooding• Understanding change is going to happen• Protecting water | <ul style="list-style-type: none">• Fluid lines• No sharp edges• Meander• Layering• Expanding and contracting• Designing for water change, designing for the results of water including flooding• Designing for movement |



The Maternal Story

| Principles | Values | Design Opportunities and Strategies |
|--|--|--|
| <ul style="list-style-type: none">• Our mother the earth• Understanding the role for women but also for men• Creation (it takes two) – male and female flowers• Women’s voice with men’s support (elevating, protecting and giving space)• Understanding role and purpose• Values of motherhood | <ul style="list-style-type: none">• Mother earth does not discriminate between her children• Mother earth is inclusive• People tend not to harm their mother• Equality but not sameness• Birthing on Country• Nurturing• No further harm | <ul style="list-style-type: none">• Country births this structure• Rose up from the landscape• Fire and water, i.e. steam• Equal does not mean same• Sustainability from matricentricity• Caring for mother |



Healing Country

| Principles | Values | Design Opportunities and Strategies |
|--|---|--|
| <ul style="list-style-type: none">• Biodiversity• Creating a place that welcomes emu• Fatherhood – supporting women to do their business and stepping up to look after the offspring (emu) | <ul style="list-style-type: none">• Reciprocity• Taming the inner emu – only thinking about oneself, standing tall and dominating• Collective• Family oriented | <ul style="list-style-type: none">• Sustainability• Contribute to keeping waters clean• Returning Cumberland Plain• Addressing climate change and urban heat island effect• Cleaning water, cleaning land• Re-use waste (water and other) |



Ingenuity of Country

Principles

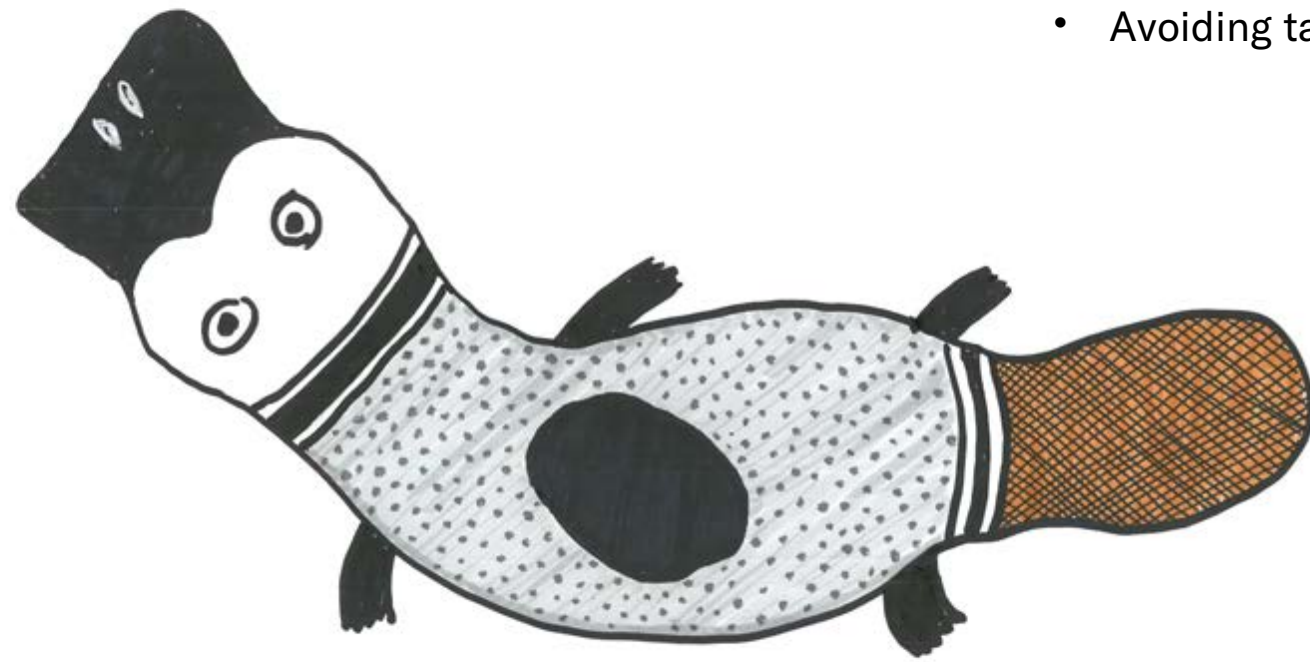
- Manufacturing with Country
- Country already perfects everything without being perfectionist
- Site is not in isolation as in Country, everything is interconnected, complex and entwined
- Quandong – emu digests to soften and access nutrients

Values

- Country leading innovation
- Country driving robots
- Sharing power
- We need to educate machines to be mindful of Country
- Often Country has the solutions
- Beauty of tragedy
- Avoiding tawdriness and flashiness

Design Opportunities and Strategies

- Water purification (platypus)
- Intertwined
- Complex but not complicated
- Interconnected lines and spaces
- Embracing “mistakes”



Relational Materials

Principles

- Materials of place
- Respect for materials
- Recognise inspiration of Country behind manufacturing

Values

- Expressing the materials, expressing the nature of materials
- Intricate balance
- Protocols for caring for materials to avoid overuse
- Inclusive specifying

Design Opportunities and Strategies

- Materiality assigned by Country
- Conscious decision making in materials
- Transparency (expressing materials the making of built form) and opacity (not expressing materiality, removing the understanding of materiality)
- Precision while honouring imperfections
- Regenerative manufacturing
- Healthy construction materials



Belonging

Principles

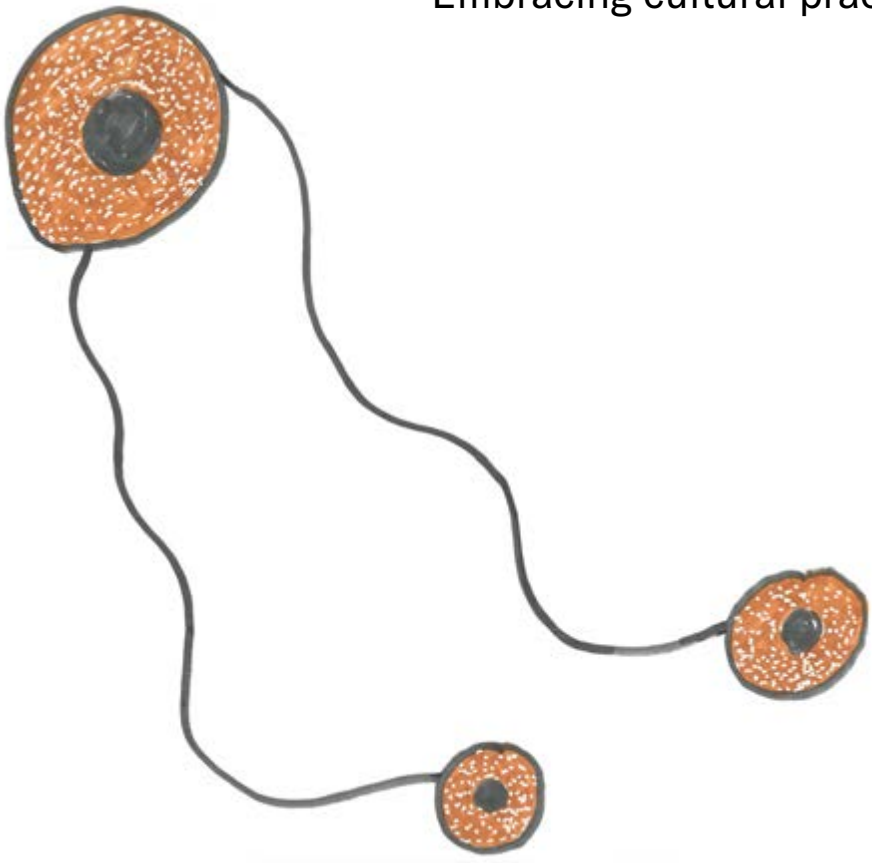
- Feeling we are being welcomed by local mobs
- Yes and yes (and yes!)
- Buildings belong to the place, not imposing on the landscape
- Like receiving a hug or coming home

Values

- Inclusion
- Bringing back emus who have belonging here [mariang, marawung, mariyong]
- Embracing cultural practice

Design Opportunities and Strategies

- Country gives indications for the right way to locate and directionality
- Country orients
- Organic form



Cycles

Principles

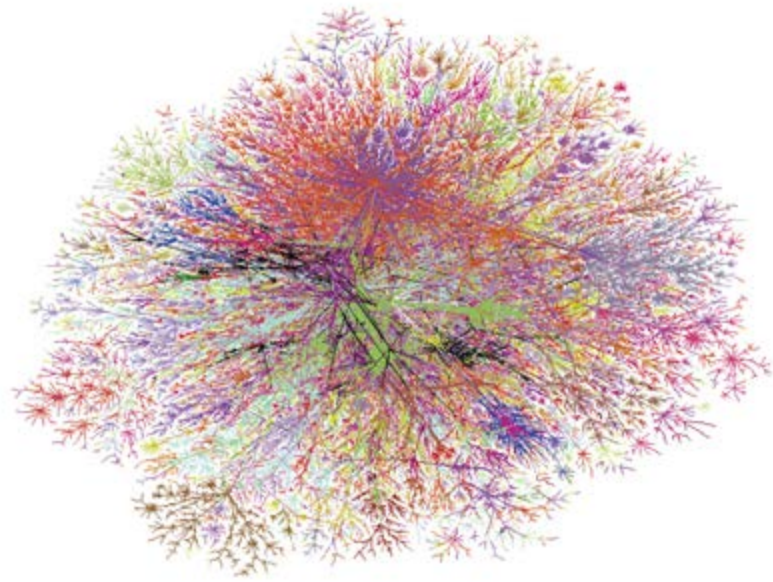
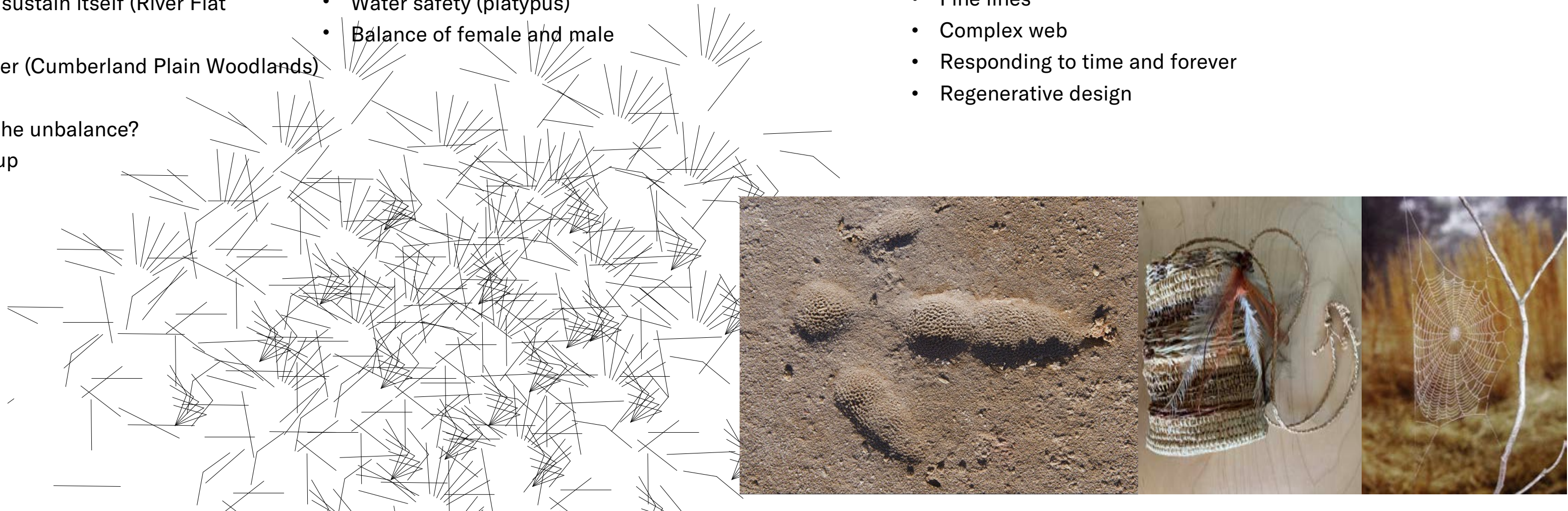
- Circular economy
- Cycles of ecology
- Needs natural flow of water to sustain itself (River Flat Woodlands)
- Needs a certain amount of water (Cumberland Plain Woodlands)
- Seed distributors (emus)
- What is missing as a result of the unbalance?
- Astronomy, night sky, looking up

Values

- Everything is connected
- Affect the water, affect the ecosystem as a whole
- Water safety (platypus)
- Balance of female and male

Design Opportunities and Strategies

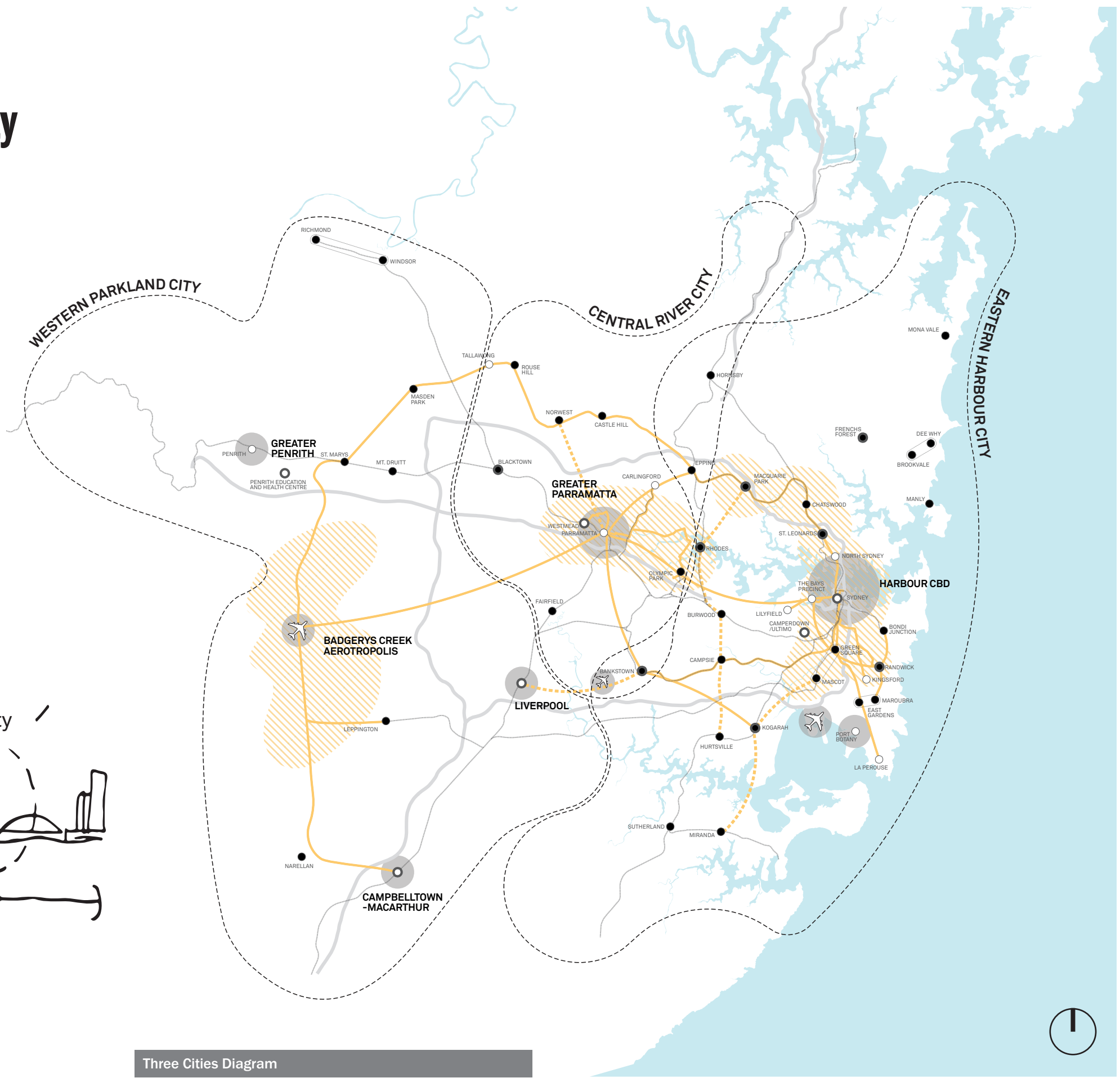
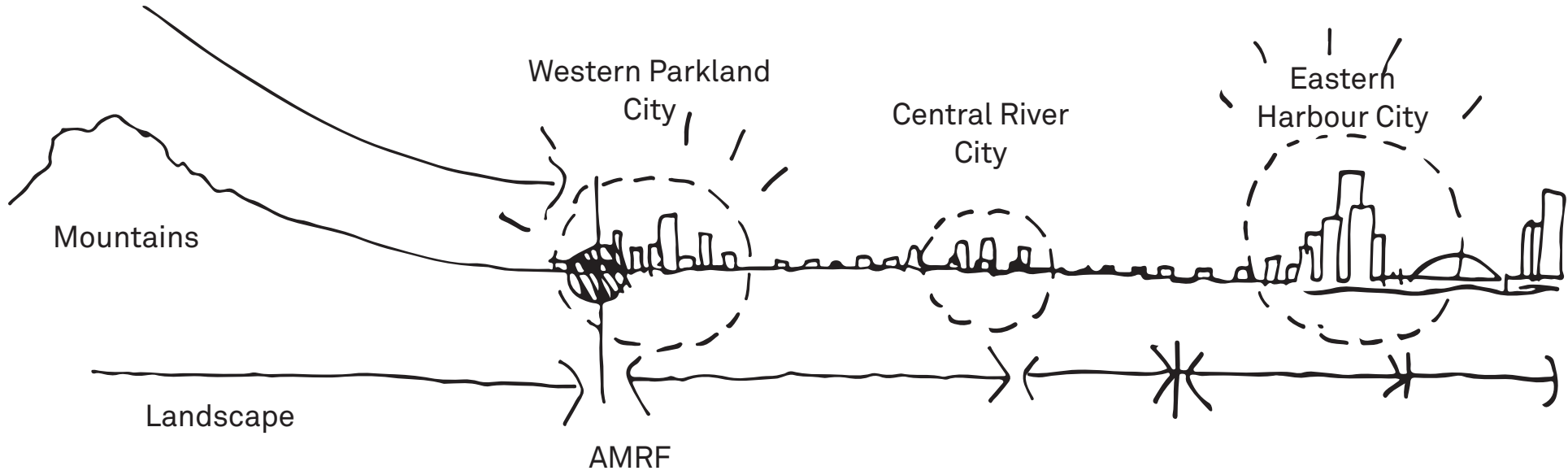
- Flowing lines rather than sharp and linear
- Avoid grids or sharpness
- Fine lines
- Complex web
- Responding to time and forever
- Regenerative design



PROJECT VISION

Australia's Newest, Most Advanced, Green & Connected City

An integrated landscape and architectural response that embeds a deep understanding of place and ambitious approach to sustainability and the future of manufacturing.



Three Cities Diagram

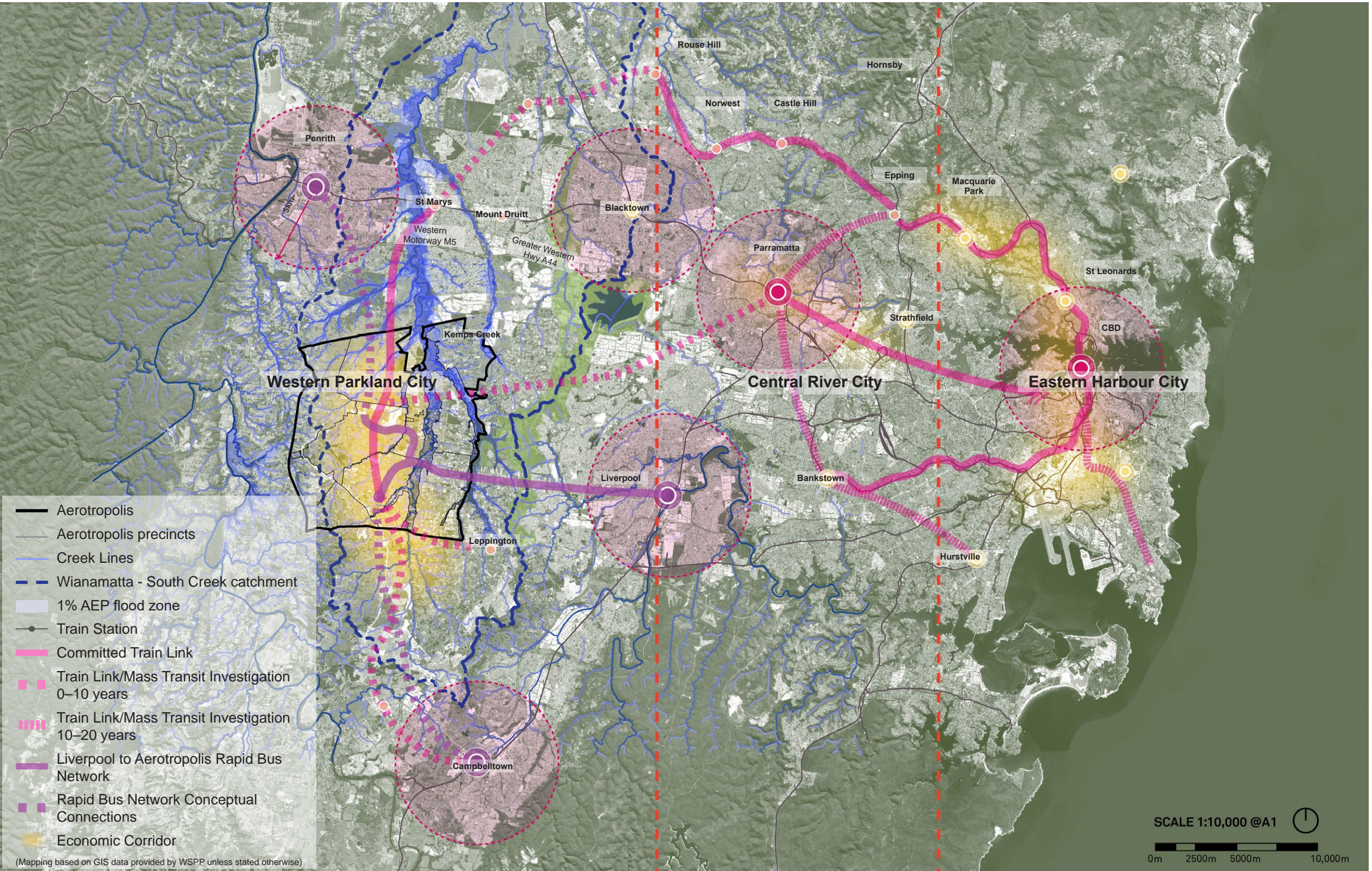
METROPOLIS OF THREE CITIES

IMPLEMENTING THE REGION PLAN

The Aerotropolis sits at the centre of the Western Parkland City. It forms the core of the Western Economic Corridor, where the airport provides the foundation for defence and aerospace activities, trade, freight and logistics and advanced manufacturing.

The Sydney Metro provides critical public transit connections from the Aerotropolis to metropolitan Sydney, and with future connections planned to Campbelltown and Parramatta. The Western Sydney City Deal also establishes rapid bus transit links to Liverpool, Penrith and Campbelltown.

For each city across the metropolis, water forms the foundational amenity and place signifier. In the case of the Western Parkland City, the water system is far more subtle - the fragile and interlaced system associated with the Wianamatta Creek and Nepean River systems. Ephemeral waterways traverse the Cumberland Plain, offering an existing network from which to derive new parkland.

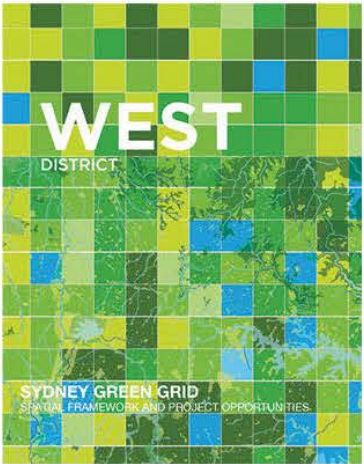


STRATEGIC CONTEXT



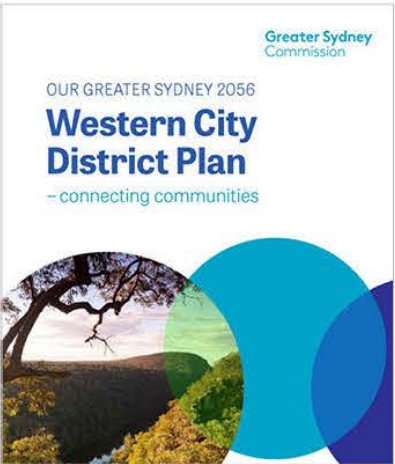
PREMIER'S PRIORITIES

In June 2019, NSW Premier Gladys Berejiklian unveiled 14 Premier's Priorities

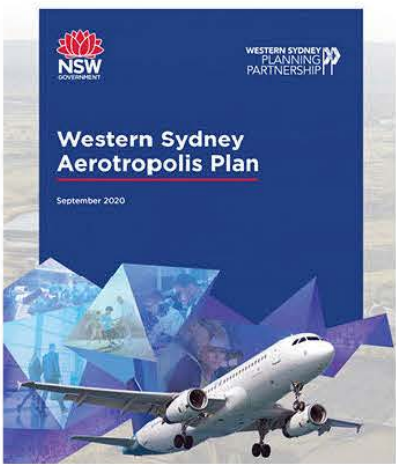


WEST DISTRICT SYDNEY GREEN GRID

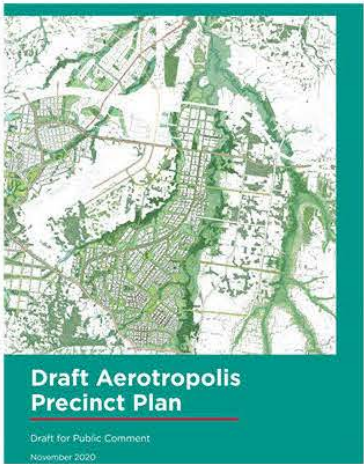
Strategies



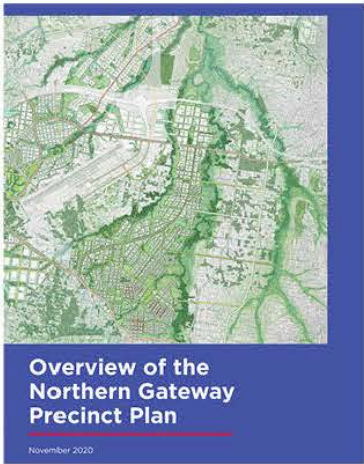
WESTERN CITY DISTRICT PLAN



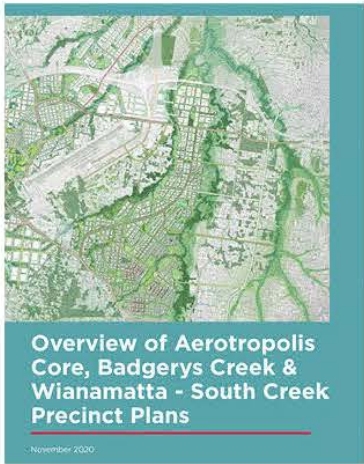
WESTERN SYDNEY AEROTROPOLIS PLAN



DRAFT AEROTROPOLIS PRECINCT PLAN



OVERVIEW OF THE NORTHERN GATEWAY



OVERVIEW OF AEROTROPOLIS CORE,



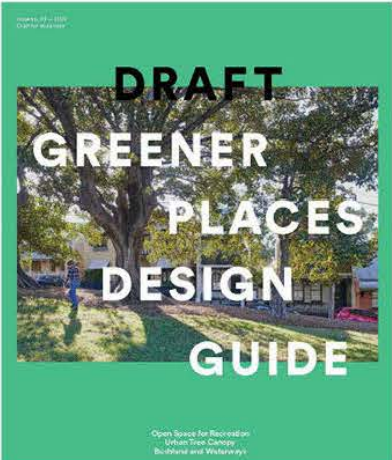
BETTER PLACED - GOVERNMENT ARCHITECT



BETTER PLACED; ALIGNING MOVEMENT AND PLACE -



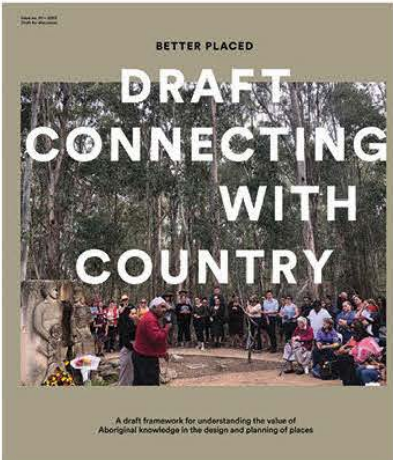
GREENER PLACES - GOVERNMENT ARCHITECT



DRAFT GREENER PLACES DESIGN GUIDE -



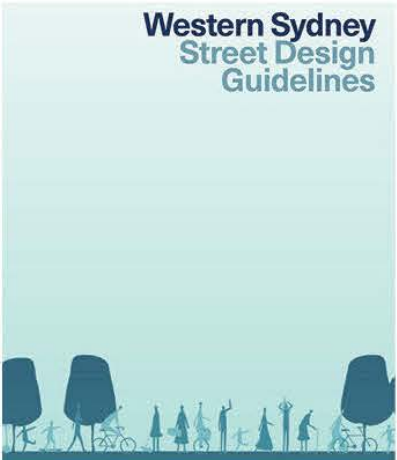
DRAFT DESIGNING WITH COUNTRY



DRAFT CONNECTING WITH COUNTRY



TOWARDS PEDESTRIAN COMFORT AND SAFETY



WESTERN SYDNEY STREET DESIGN GUIDE

WESTERN SYDNEY AEROTROPOLIS PLAN

LANDSCAPE LED URBANISM

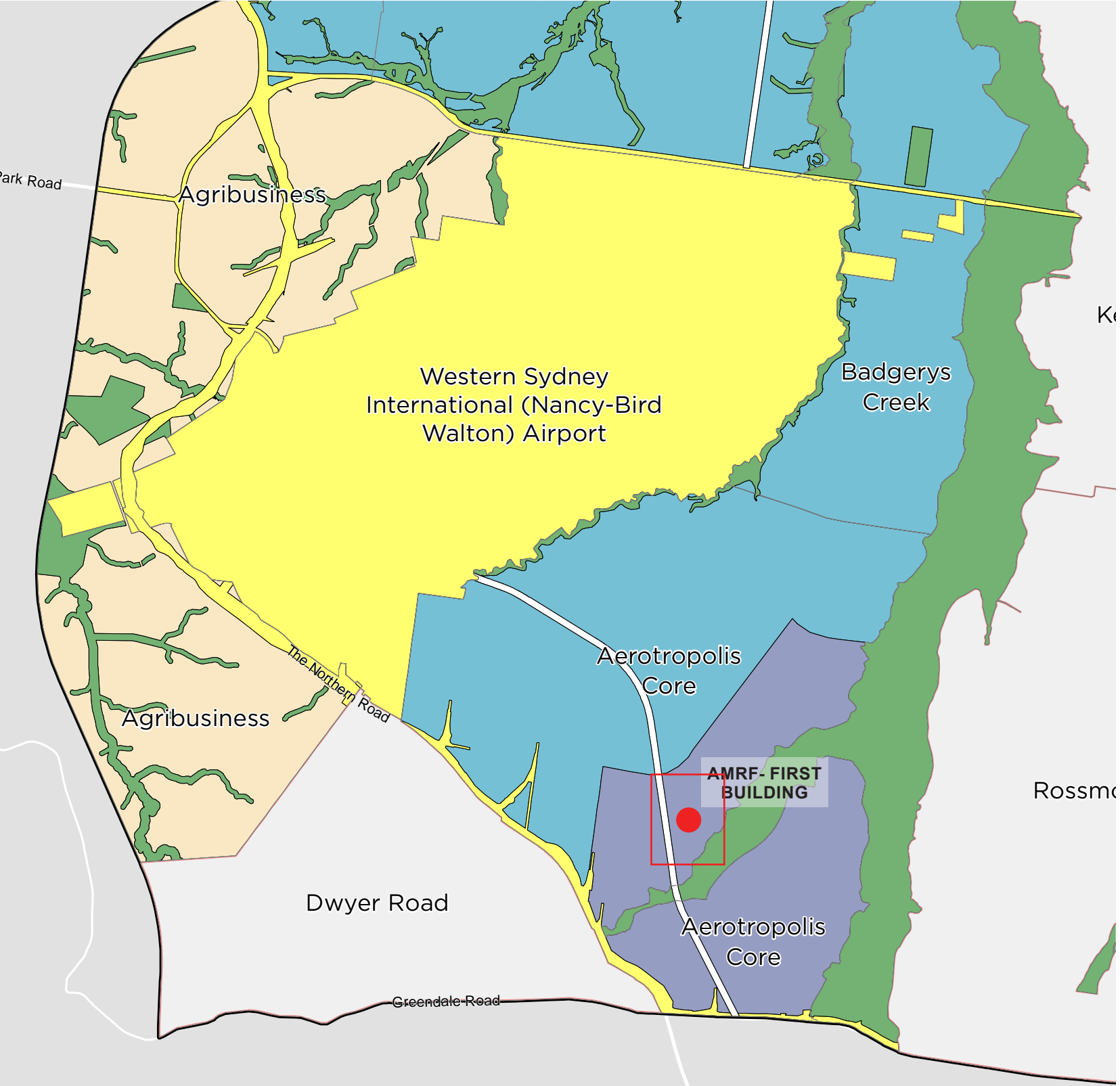
- Start with Country
- Retain water in the landscape
- Preserve, extend and restore the green
- Locate transit corridors within walking distance to landscape amenity
- Orientate urban development towards landscape amenity, connected to transit corridors
- Adopt urban typologies.

The key themes that need to be addressed:

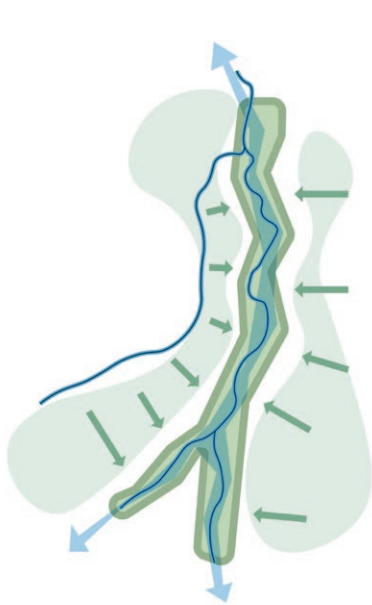
- **PRODUCTIVITY** – accessible and well connected Aerotropolis, enhance employment, enable job growth and safeguard airport operations
- **SUSTAINABILITY** – landscape-led approach to urban design and planning, environmental sustainability (low carbon) and resilient and adaptable
- **INFRASTRUCTURE AND COLLABORATION** – infrastructure that connects and services Western Parkland City and collaborative approach to planning and delivery
- **LIVEABILITY** – diverse, affordable and well located housing (30-minute city) and provision of social and cultural infrastructure (including affordable rental housing)

THE MIXED USE ZONE

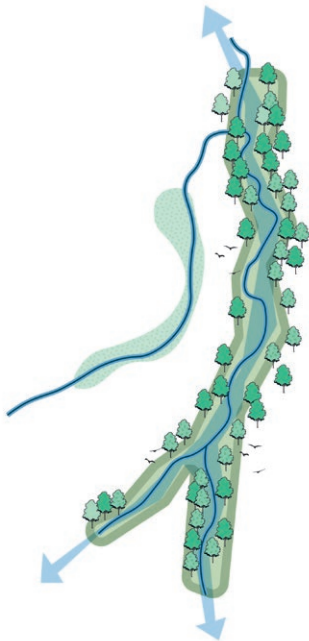
- Permits mixed use developments that integrate residential and/or commercial uses.
- This zone will ensure higher density residential and employment areas are located in places with high amenity.
- This includes having access to high frequency public transport, good connections to the State road network, open spaces including parks and waterways, pedestrian and cycle linkages and public squares, and will ensure residential uses are well outside of aircraft noise contours.



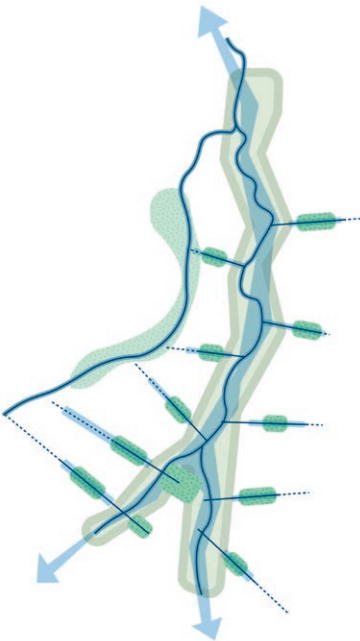
THE AEROTROPOLIS PRECINCT PLAN OBJECTIVES



Join landscape with water



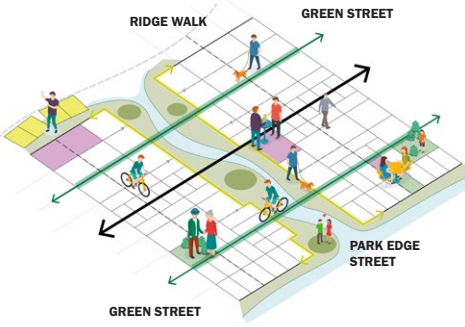
Wianamatta - South Creek is an ecological corridor



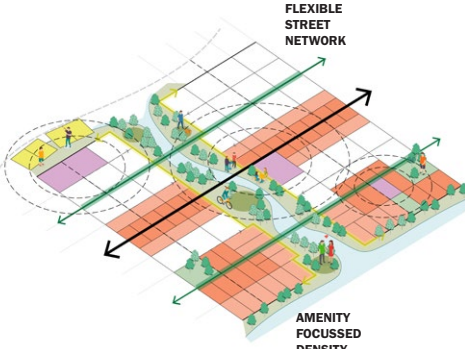
Ephemeral creeks retained in open space



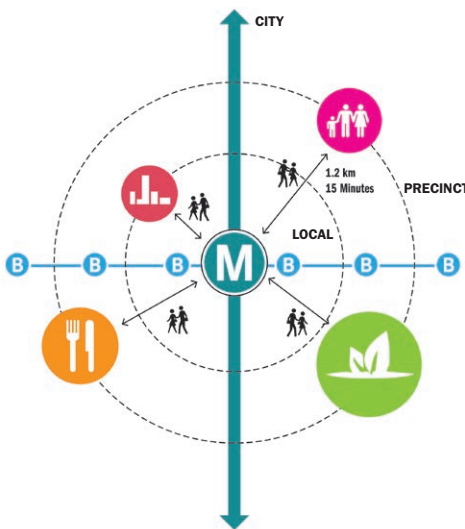
Centres provide a focus to all neighbourhoods



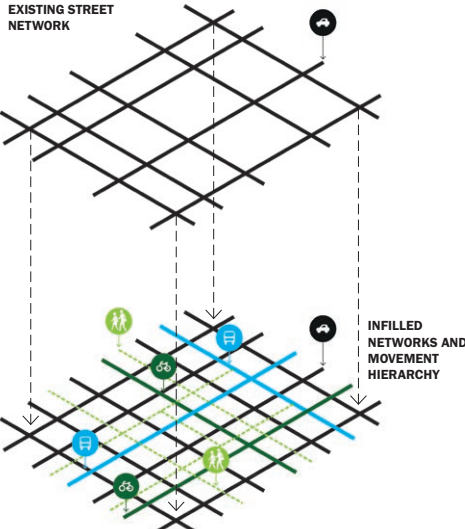
Neighbourhoods are walkable to propel activity



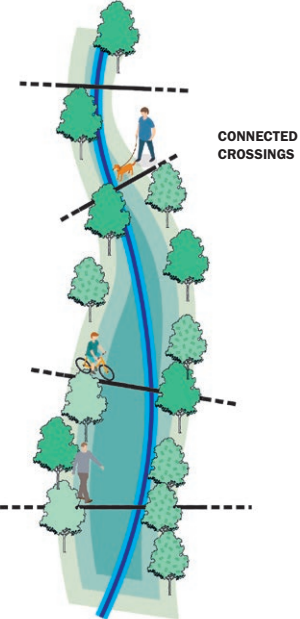
Activity and amenity to creek corridors



Maximise benefit of and connectivity to Metro



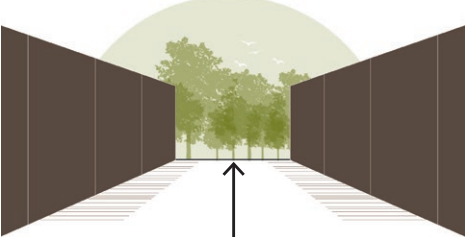
A connected and permeable urban structure



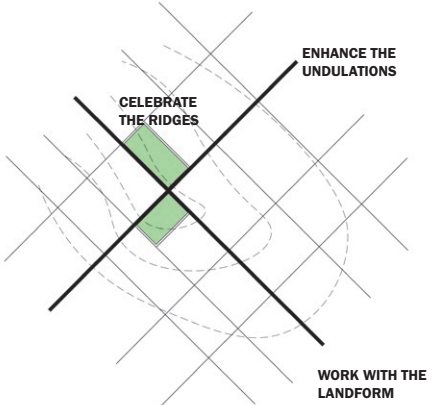
Provide regular creek crossings



Urban structure responds to Country (land, water, sky)



Streets visually and physically connect with landscape



Urban development respects landform

THE AEROTROPOLIS CORE PRECINCT

(Draft Plan)

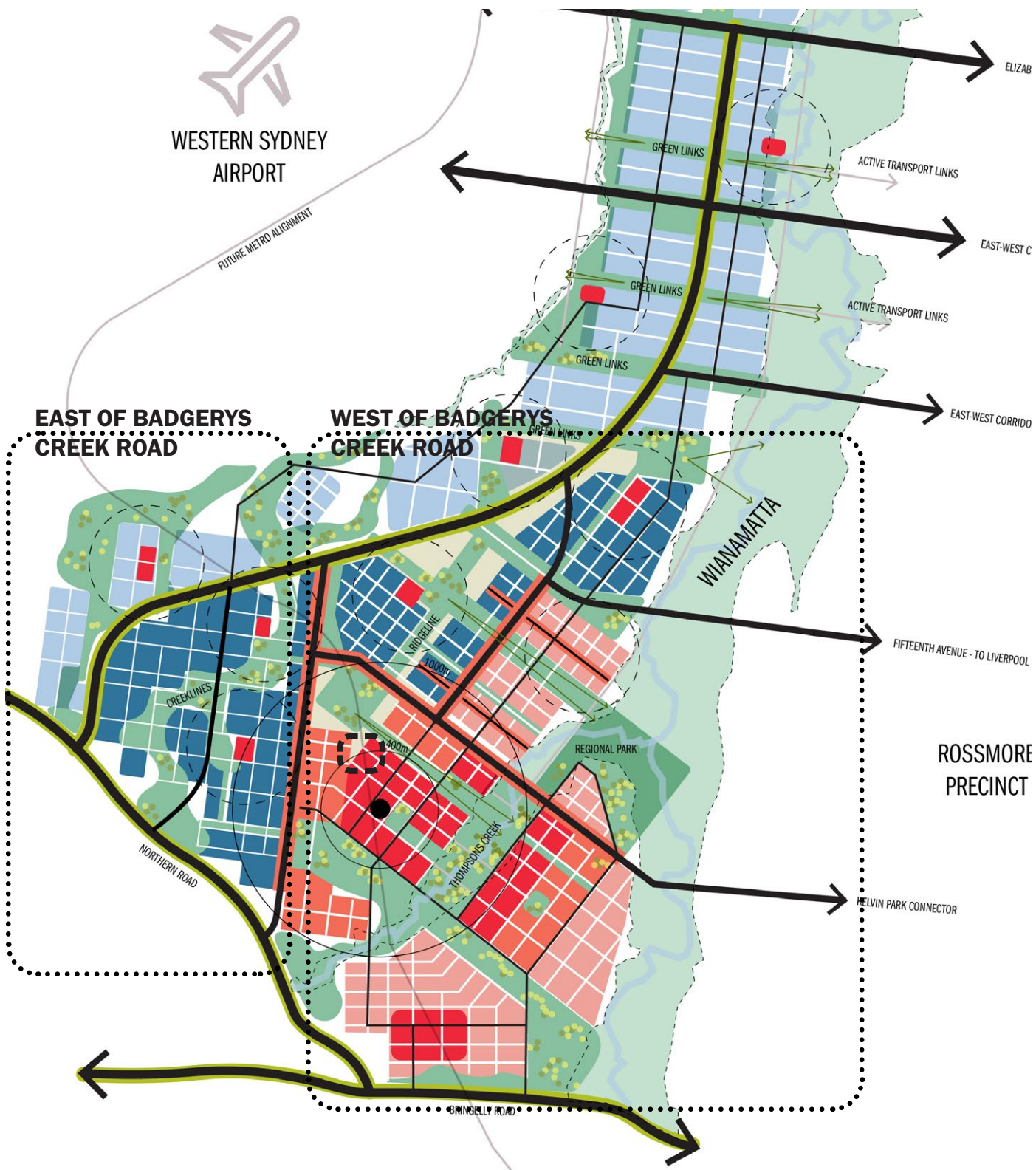
THE STRUCTURE

- The urban structure of the urban design framework is described in the diagram overleaf, and identifies:
- A structured urban centre with a grid of streets connecting Thompsons Creek and Metro
 - A mixed use frame to Thompsons Creek, enhancing its function as a regional park
 - A focus on the Wianamatta - South Creek system as the driving component to the Western Parkland City
 - East of Badgery's Creek Road: Neighbourhood clusters framed by existing ephemeral creeks and associated parkland
 - West of Badgery's Creek Road: The ephemeral creek and associated vegetation disintegrates the enterprise structure

NOTE: A detailed master planning process can amend the precinct for land areas greater than 100 ha. This process is ongoing for Bradfield and being undertaken by the WPCA.

Legend

- Centre
- Centre frame
- Mixed use
- Knowledge + Enterprise
- Enterprise + Industry
- Open space
- Creek
- Activated mixed use boulevard
- Regional landscaped transport link



An aerial photograph of a rural landscape. A large, irregularly shaped area in the center is outlined with a red dashed line. The surrounding area includes fields, some with crops, and patches of trees. A road or path runs diagonally from the bottom left towards the center. In the top left corner, there is a small circular icon with a vertical line through it. The text "FIRST BUILDING SITE" is overlaid in large, white, bold, sans-serif capital letters across the middle of the image. Two small labels, "Thompson's Creek" and "Smith Creek", are visible near the bottom center and bottom right respectively, pointing to specific water features.

FIRST BUILDING SITE

A RAPIDLY EVOLVING CONTEXT

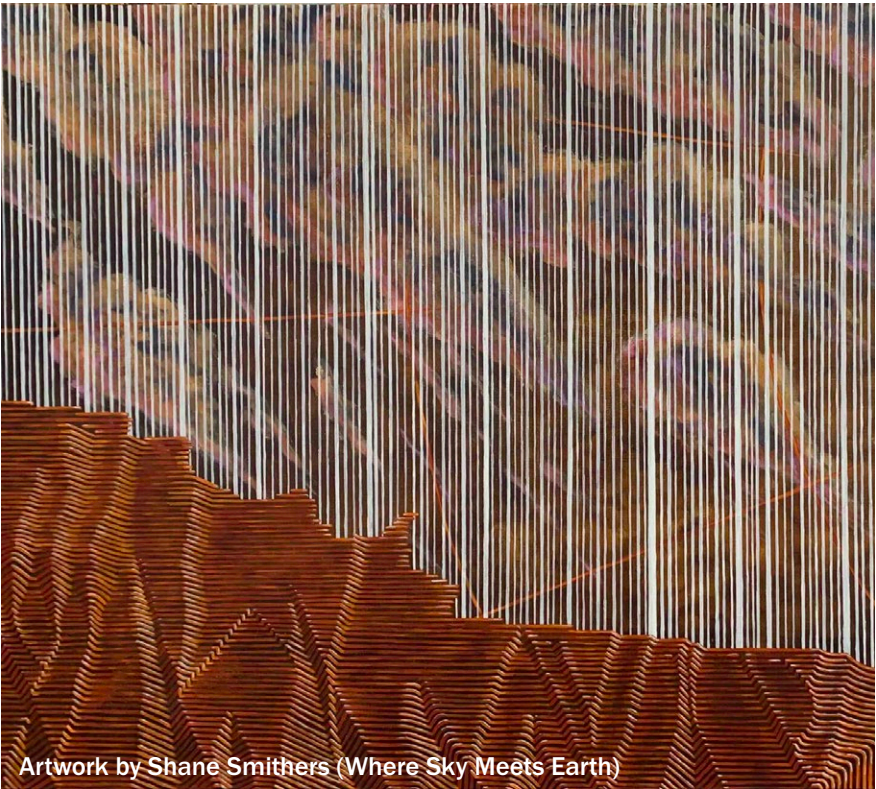
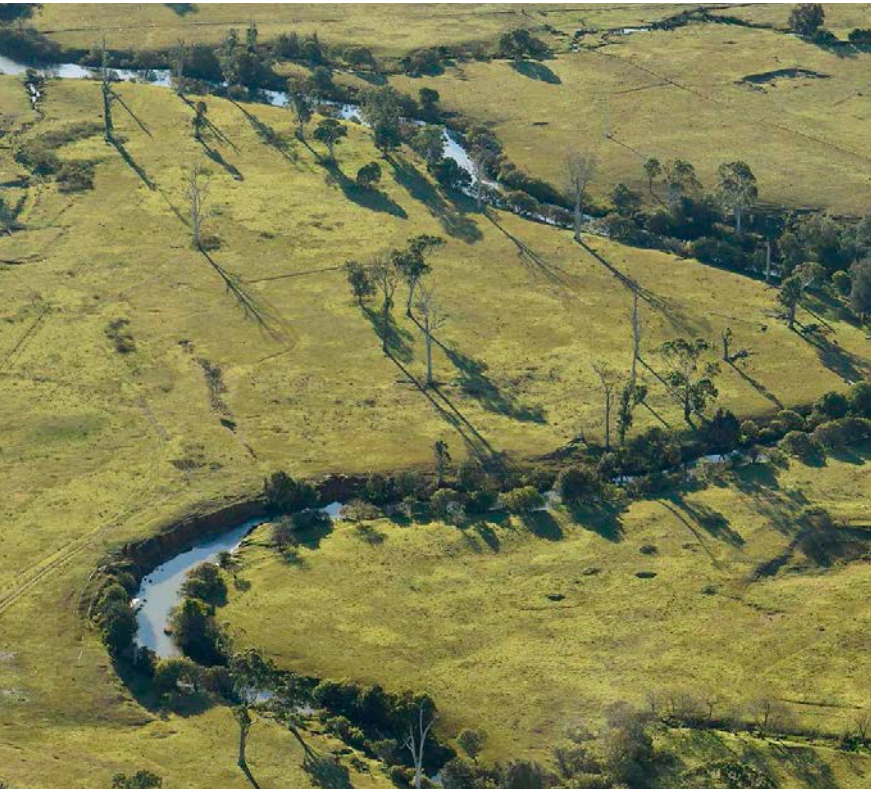
Wianamatta



A Managed Landscape



City Centre



Artwork by Shane Smithers (Where Sky Meets Earth)



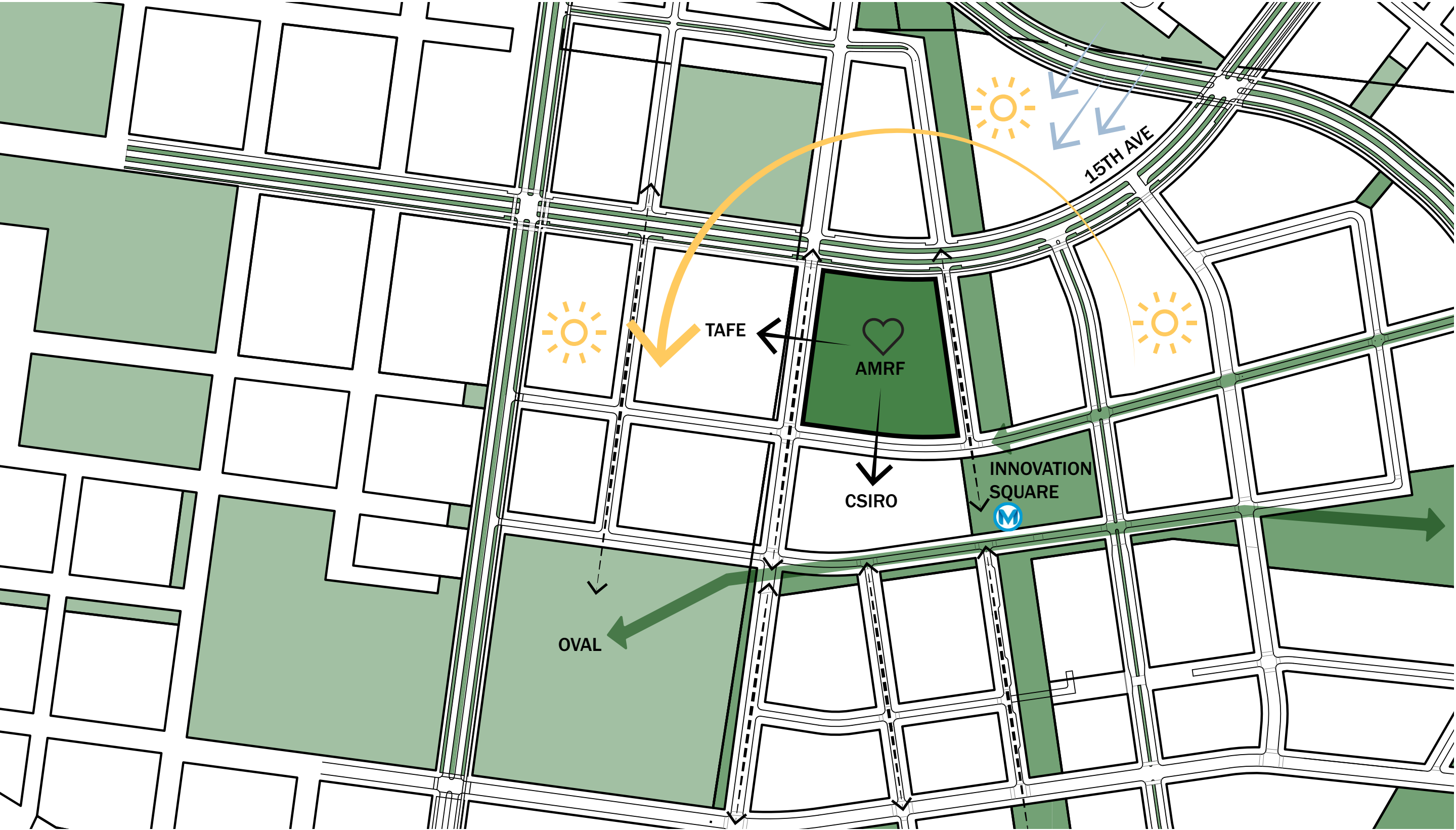
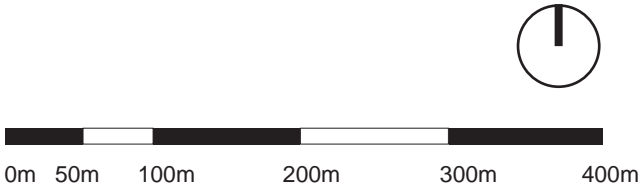
Joseph Lycett _View upon theNapean



Bradfield City Centre - Masterplan WPCA

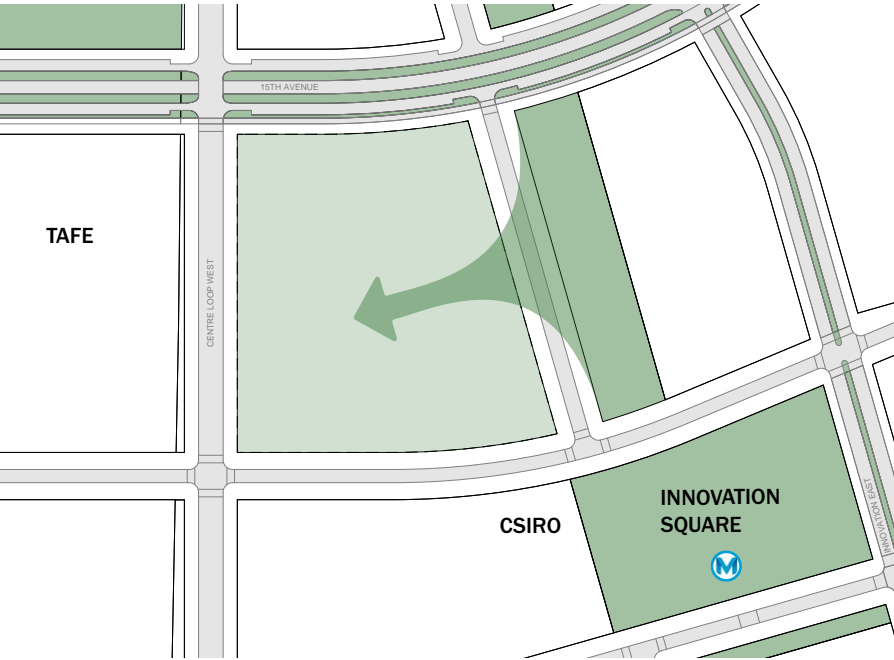
CONTEXT

Education & Innovation Quarter

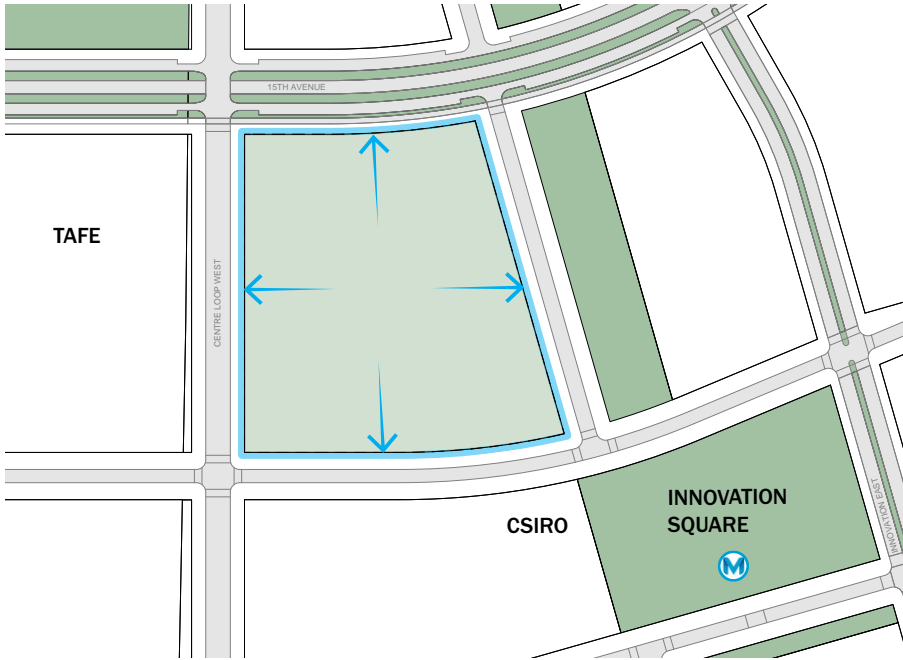


SITE ORGANISING STRATEGIES

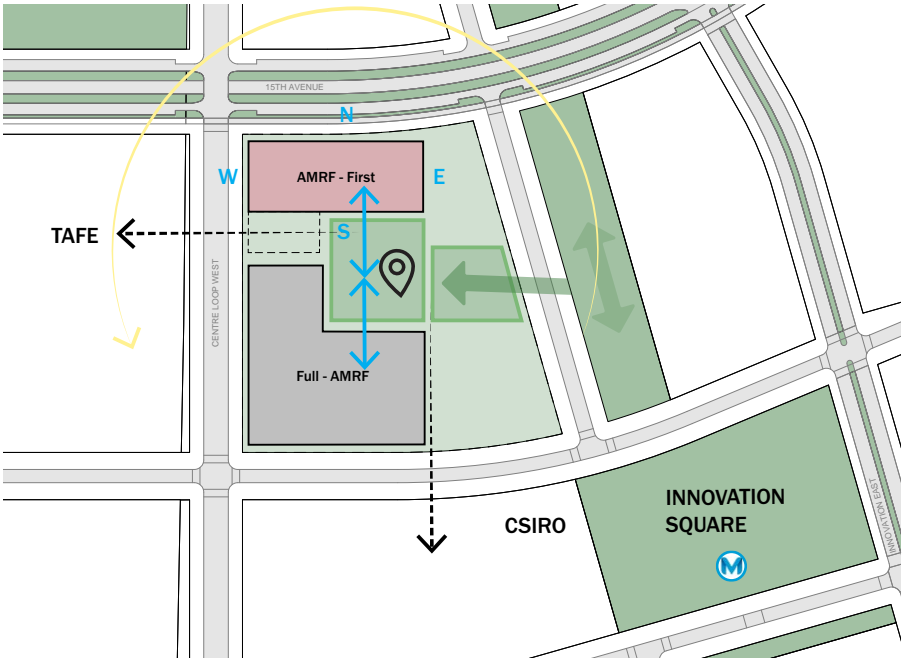
Landscape Driven



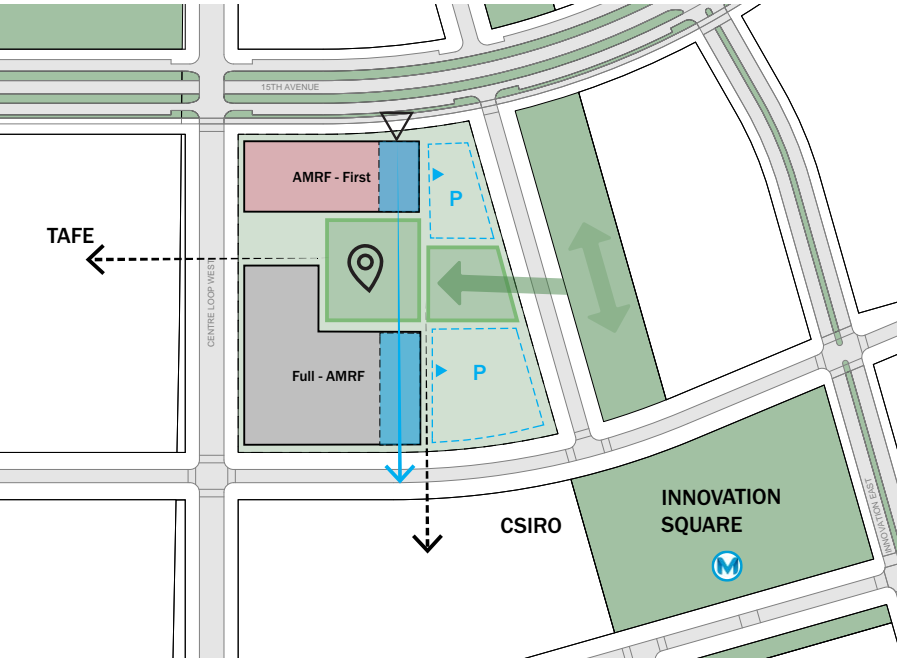
Maximise Street Activation



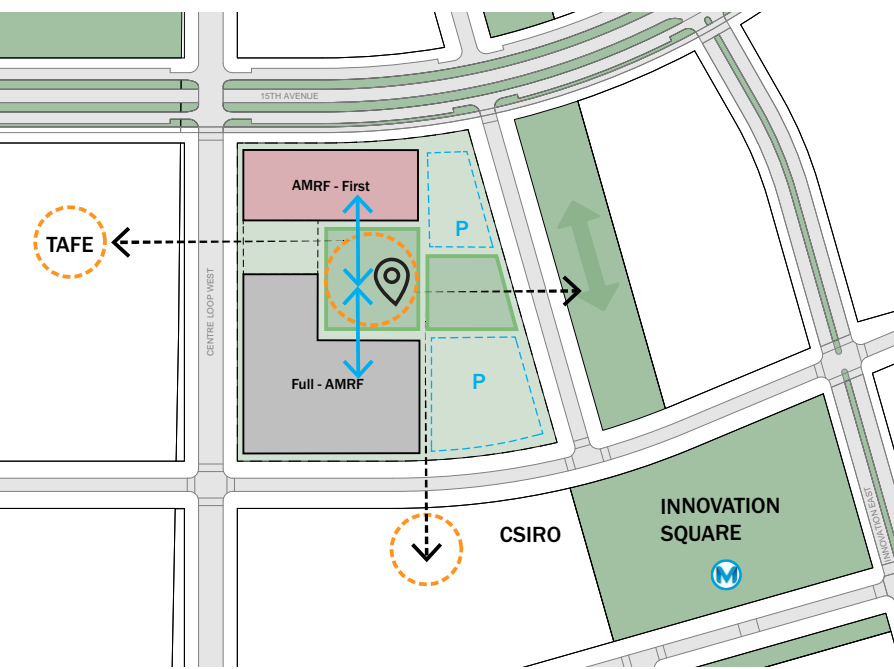
Passive Design & Connect to Country



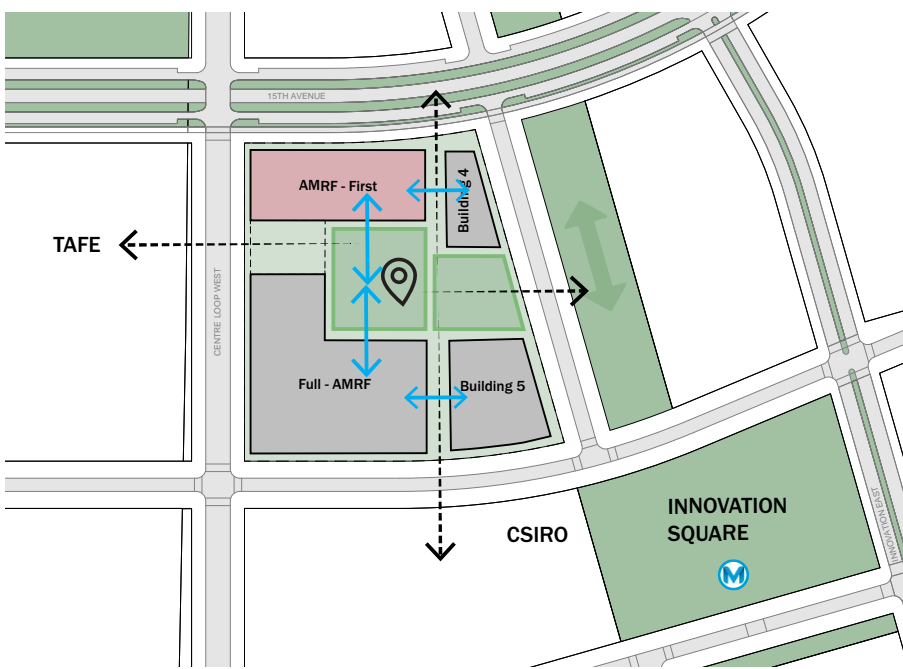
Minimise Service Entries



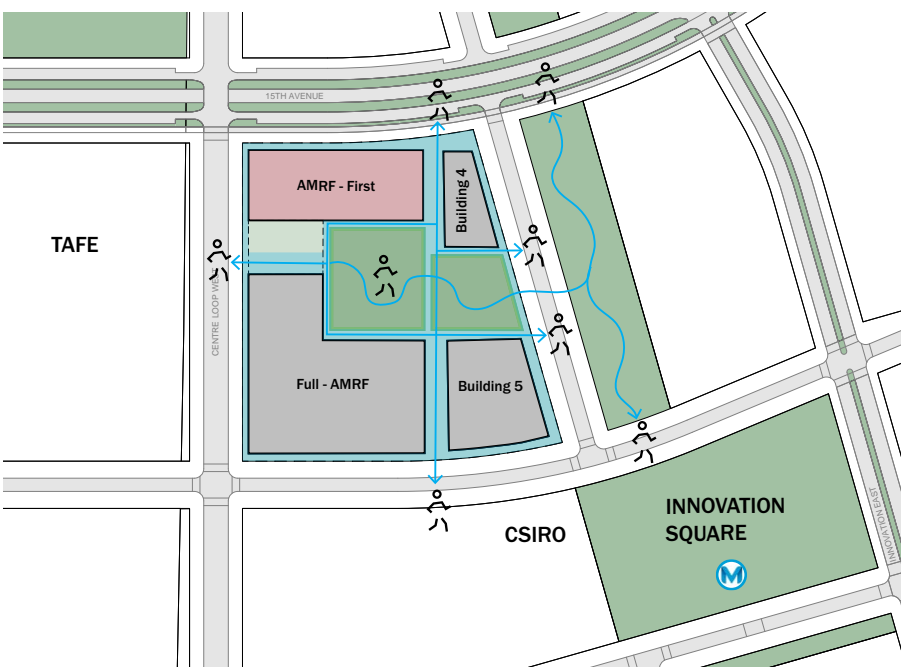
Inspiring Moments & Visitors Centre



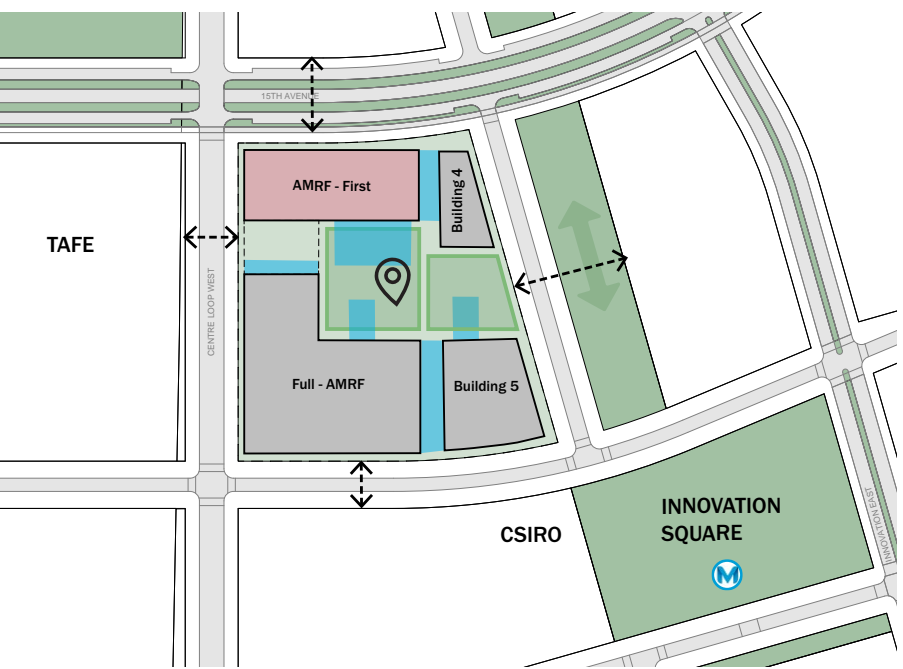
Connected Campus Experience



Permeable Pedestrian Focus



Diversity of Spaces



CONCEPTUAL DRIVERS

AMRF - First Building

Landmark & Identifier



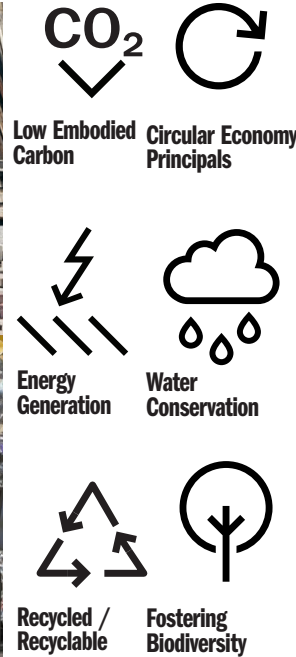
Flexible and Adaptable



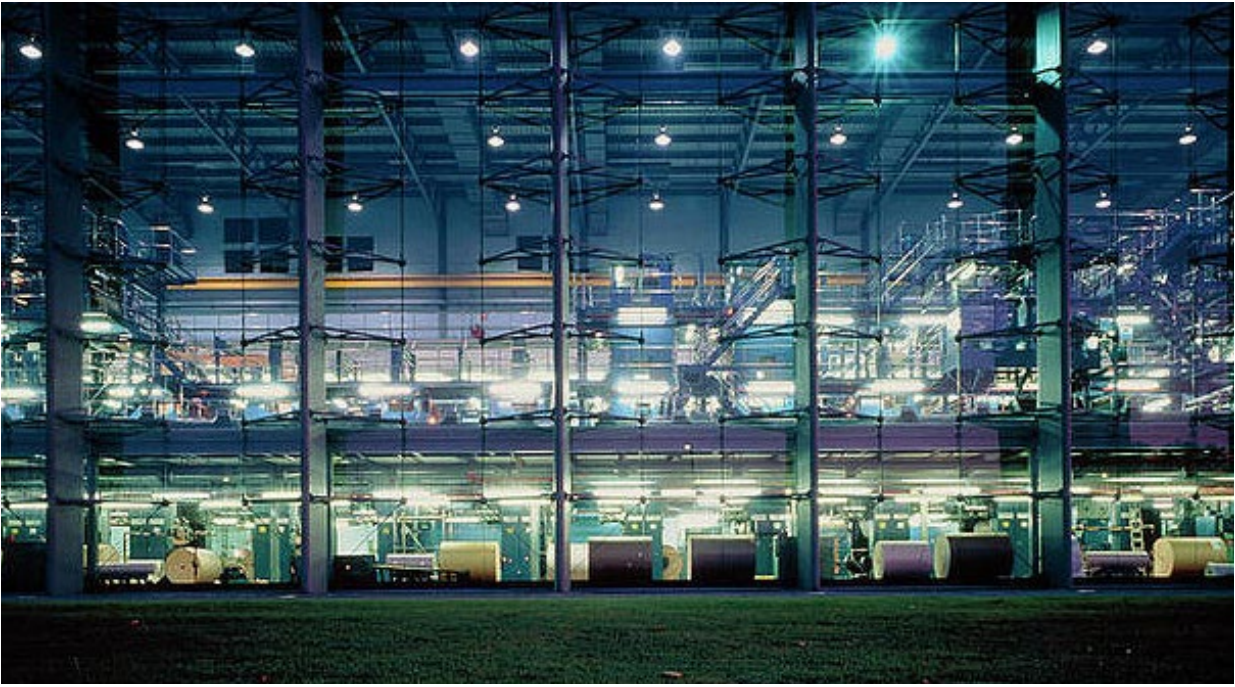
Welcoming & Engaging



Environmental & Social Sustainability



Advanced, Inspiring & Innovative



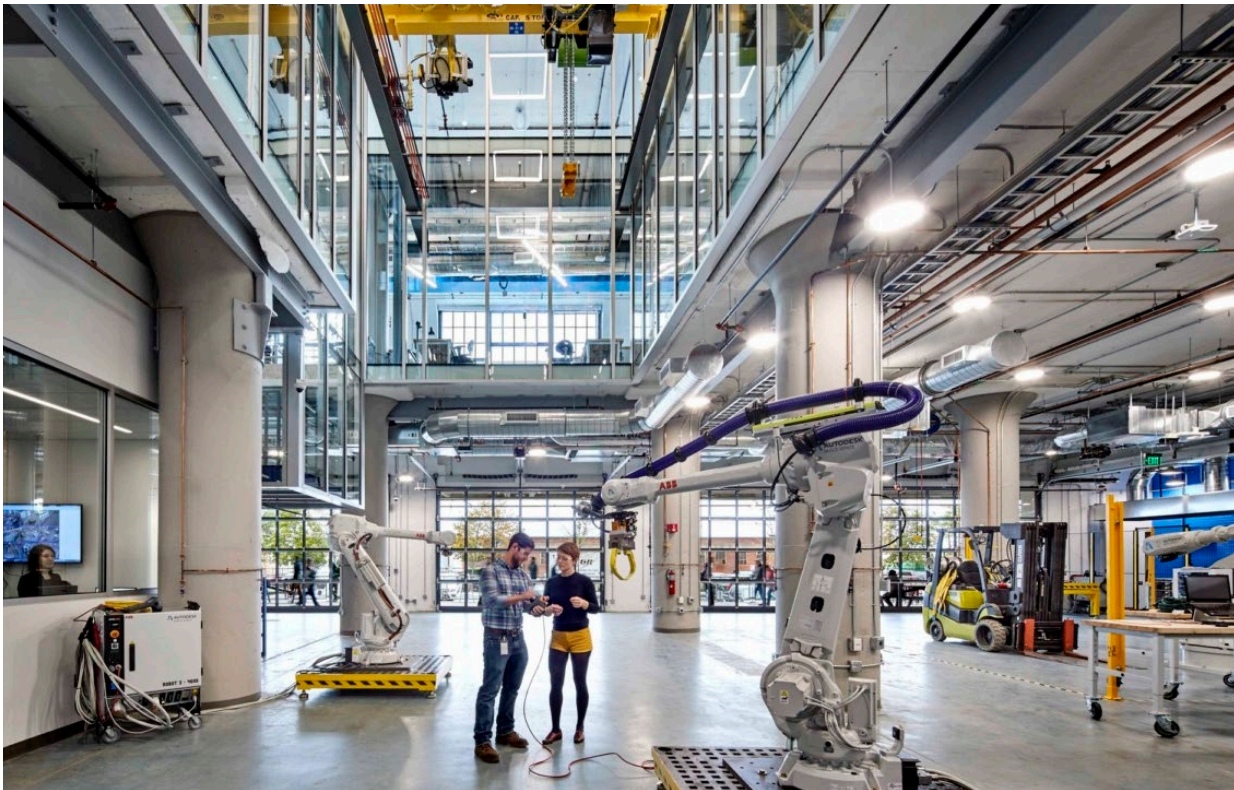
Connected to Country & Unique to Place



TYPES OF SPACES

Manufacturing Hall

- Diffuse natural light
- Clear spans
- Functional & flexible
- Connected to office spaces
- Manufacturing on display, transparent & visible
- A backdrop to the public interface
- Loading dock adjacent and directly connected



Visitor Component

- Multifunctional space
- Welcoming and engaging
- Internal and external exhibition space.
- Grandstand for talks
- Views into the Manufacturing Hall
- External engagement space also to house talks and events, connected to internal space and of a similar scale.



AMRF - First Building

Workplace

- Warm, inviting and comfortable
- Well connected to other building functions.
- Overlooking manufacturing hall
- Mezzanine feeling for maximum visibility and connectivity.
- Collaborative
- Makers space
- Adjoining support spaces such as a kitchen.



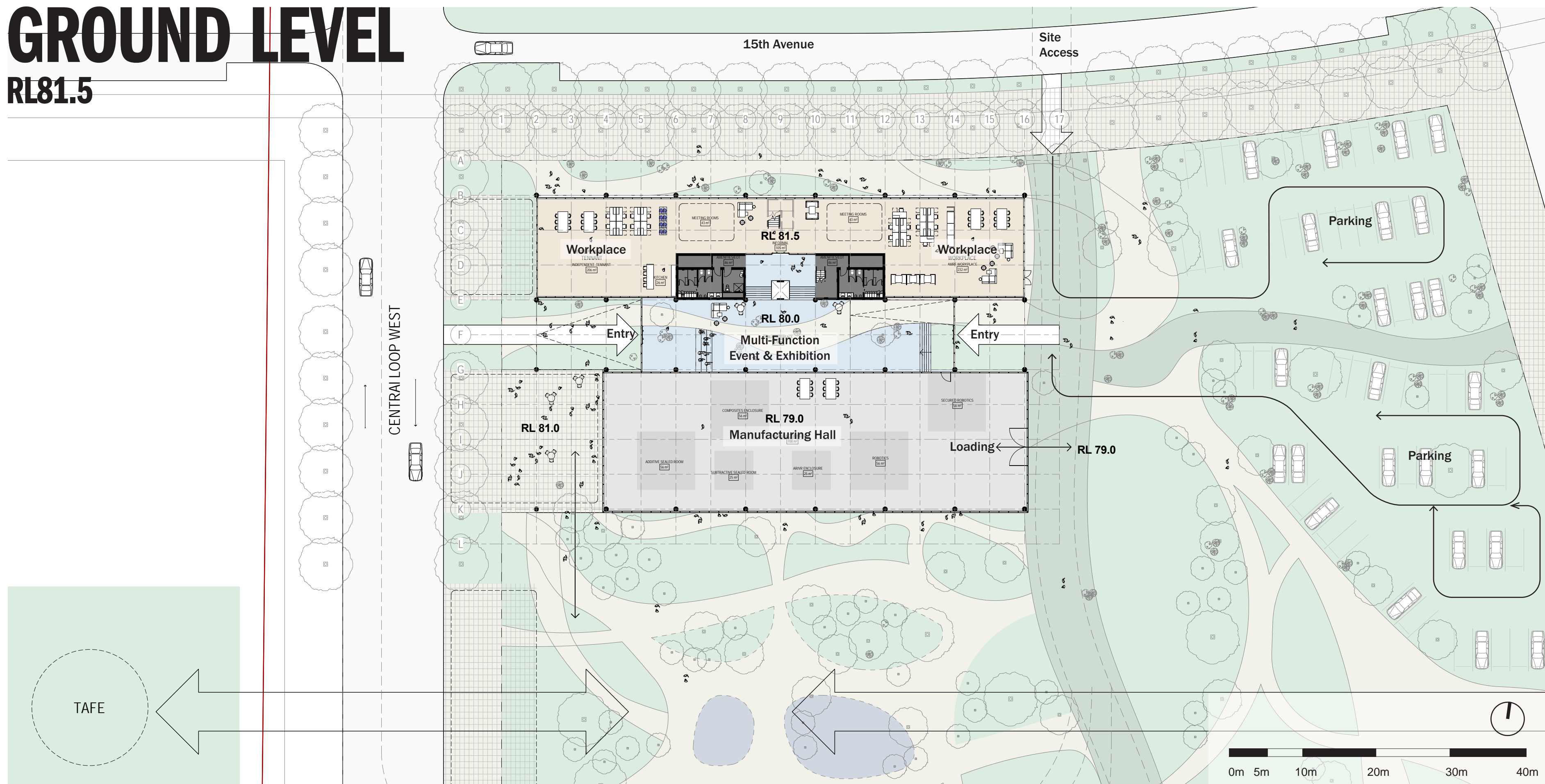
Hassell - Sky Central, London, UK

Community Interface

- A landmark and attractor.
- Arrival space immersed in the landscape.
- Space for the community, and gathering.
- Connection to water

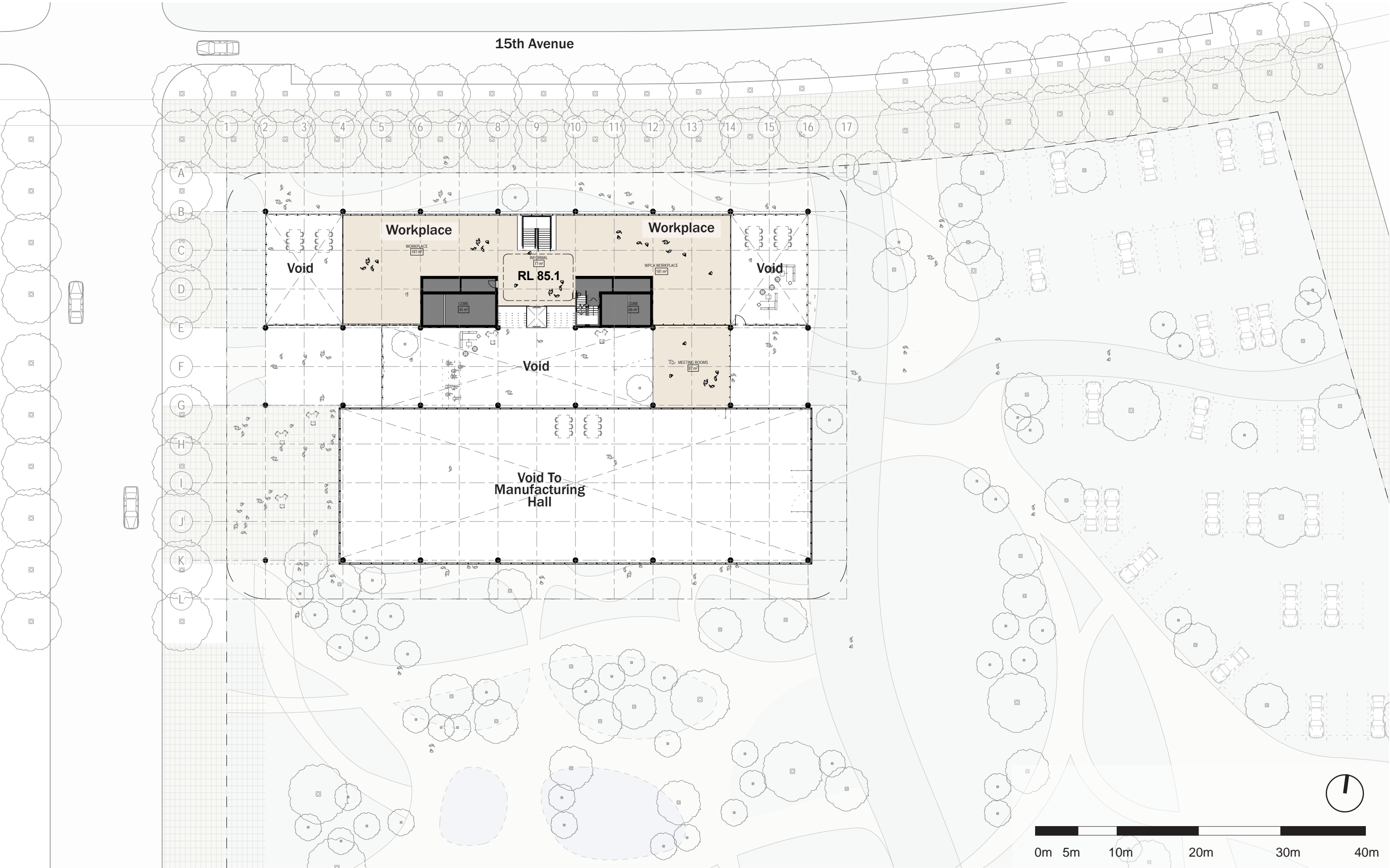


Hassell - Riverside Green



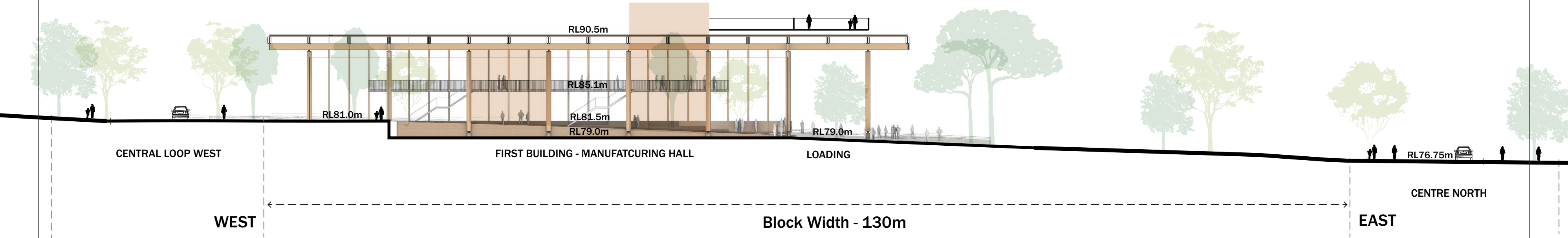
LEVEL 1

RL85.1



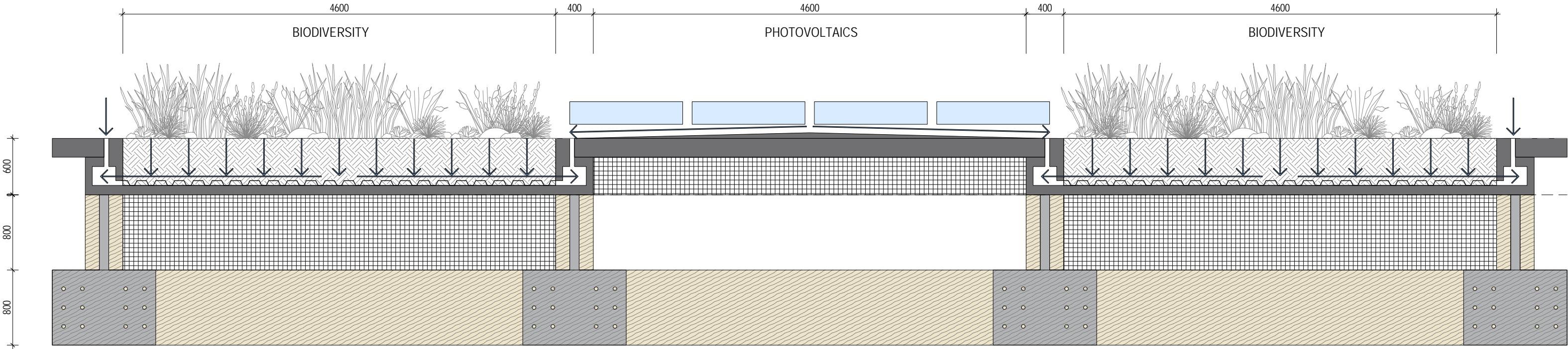
SITE SECTION

RL85.1



ROOF CONCEPT

RL85.1

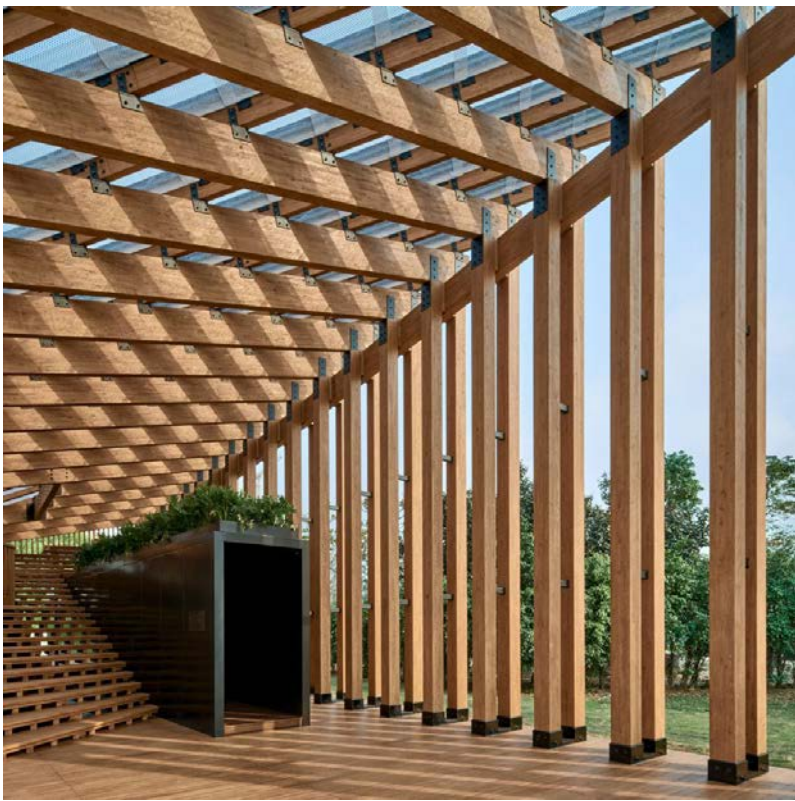


SUSTAINABLE INDUSTRIAL

Timber Structures

Advanced timber construction techniques and materials such as CLT and glue-lam allow for large spans and application within industrial typologies.

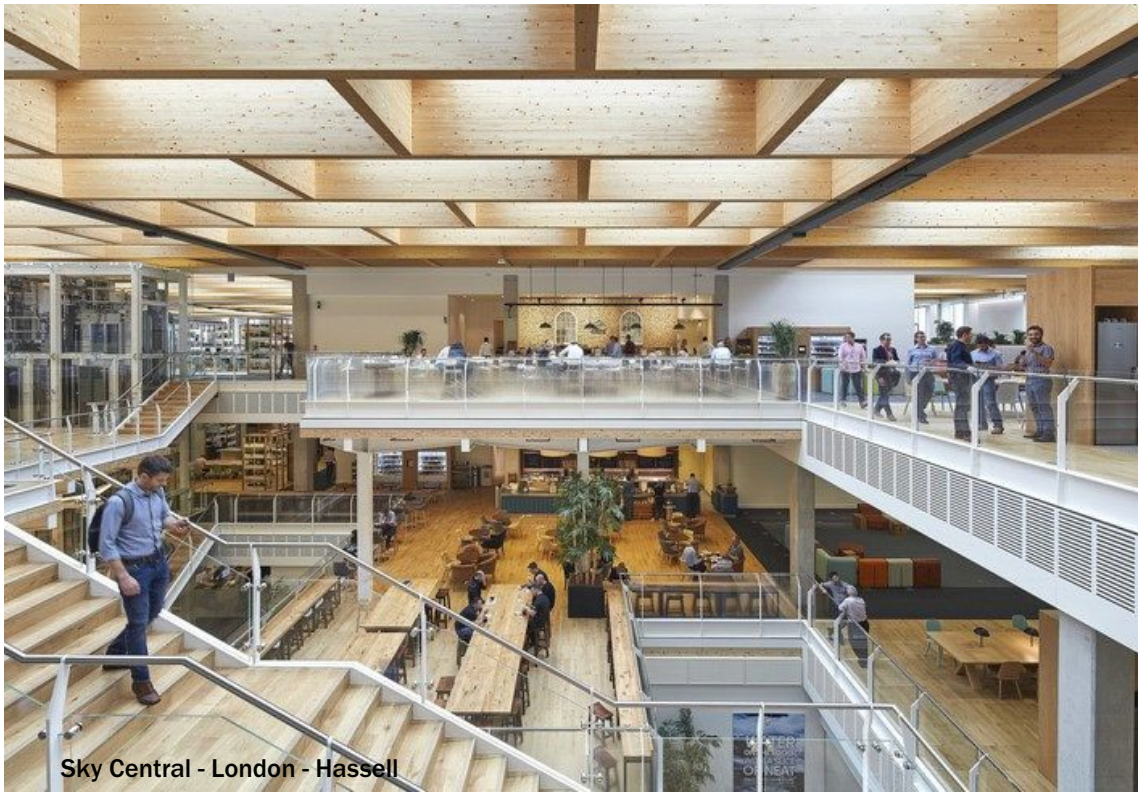
50% less embodied carbon



Centre d'incendie et de secours - Besançon Est



Ateliers ECOTIM II - Rotherens / France / 2011



Sky Central - London - Hassell

WHOLE LIFE CARBON

The Circular Economy

- 1. Define energy & embodied targets.
- 2. Use Whole Life Carbon analysis during the design process.
- 3. Address upfront embodied carbon emissions by using minimal material.
- 4. Consider the carbon cost/ benefit between upfront carbon, operational carbon and life cycle carbon due to replacement cycles.
- 5. At each replacement cycle, prioritise low carbon materials and Circular Economy principles to reduce WLC emissions.
- 6. Operational energy loads must be minimised and meet local energy targets
- 7. Utilise Circular Economy principles at the beginning and end of the building and component life cycle.

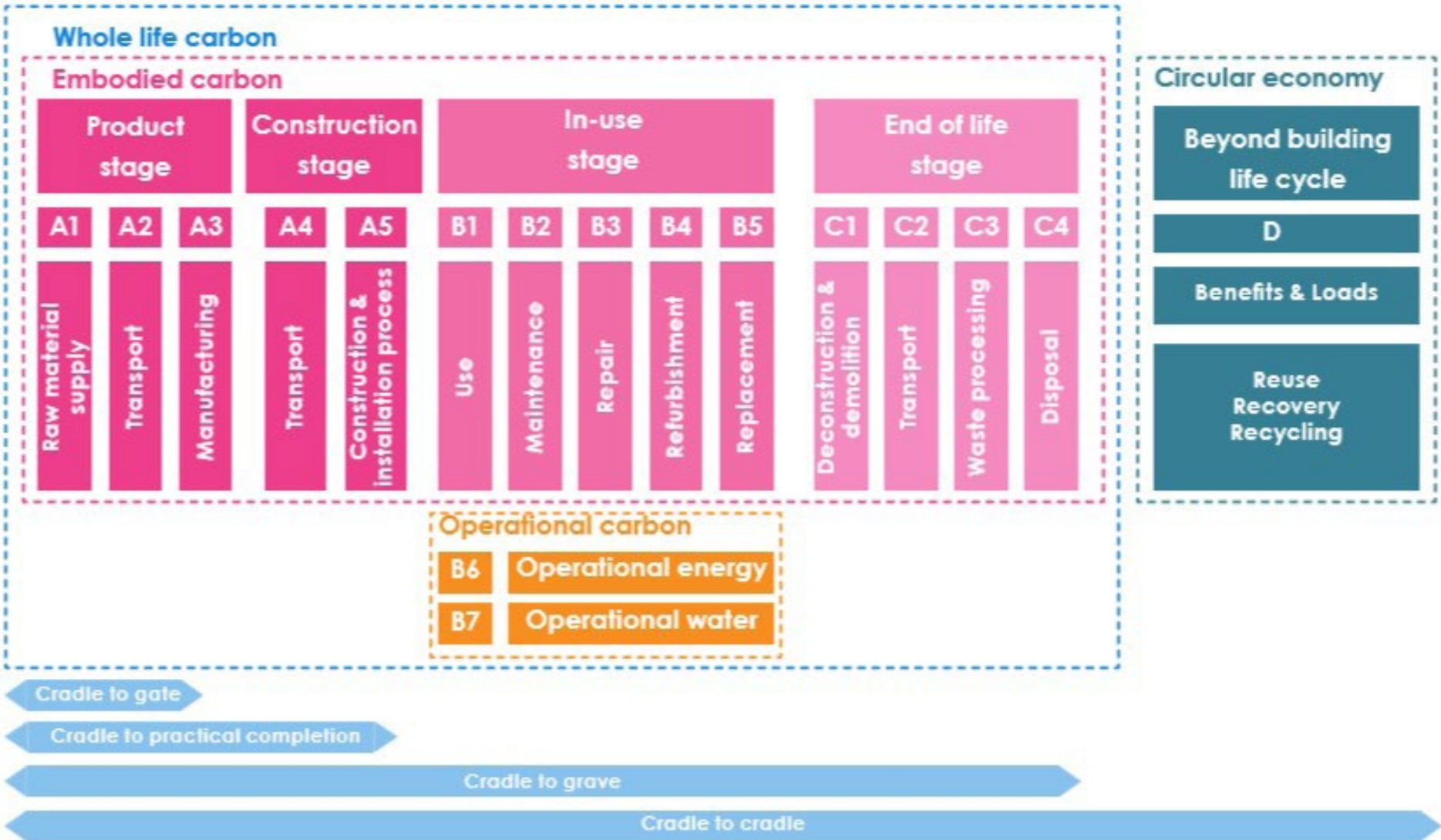


Figure A.3.2 - System Boundary: EN 15978:2011 Display of modular information for the different stages of the building assessment

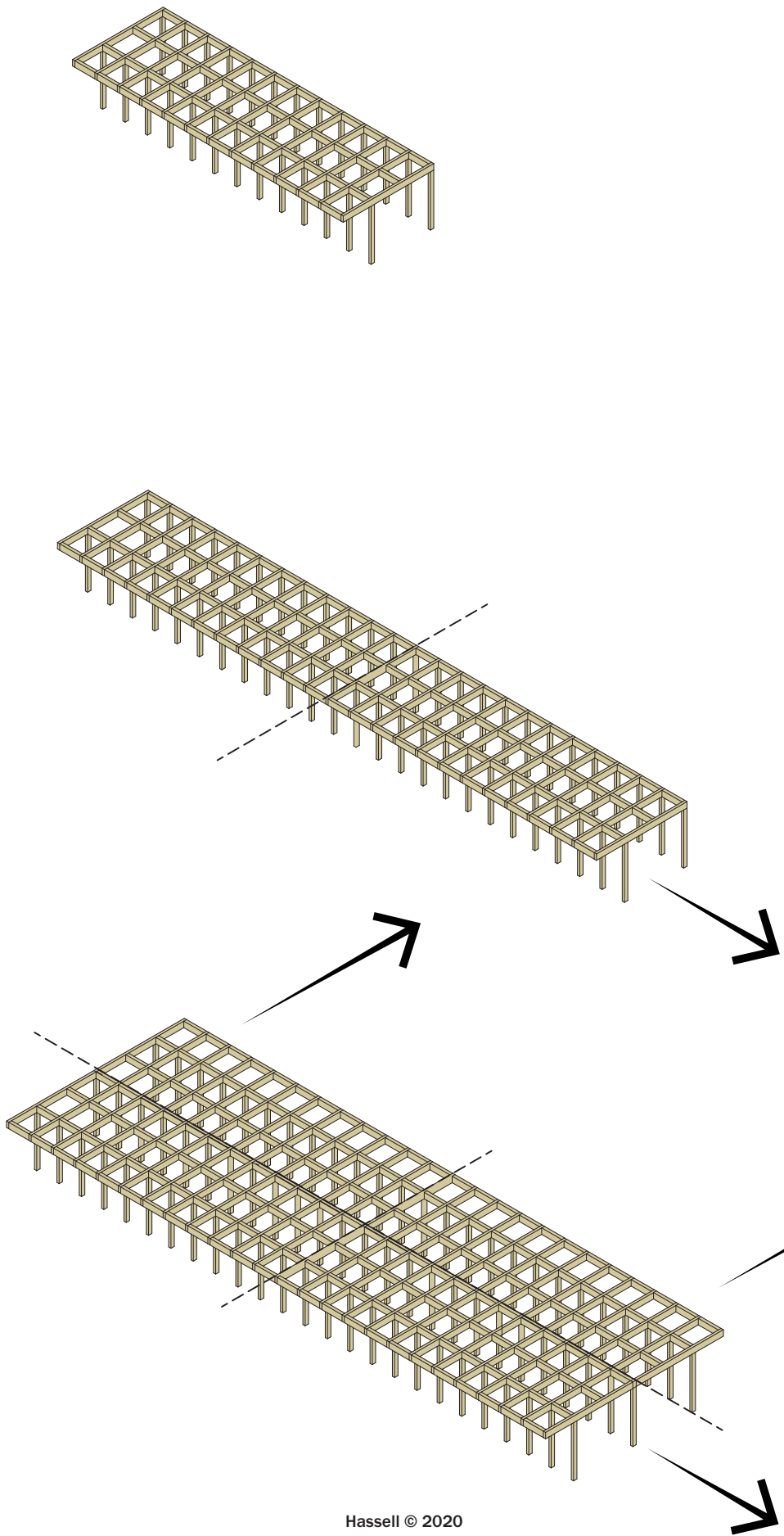
DISASSEMBLY & ADAPTABILITY

Expansion & Modularity

Buildings are almost entirely disposable. With the increasing ability to recycle more building materials there is the opportunity to adapt and reuse building components. Through designing for disassembly it can be moved, expanded or adapted with ease.



AMRF - First Building



_2023

- Develop a modular construction system that can be added to.
- Easily disassembled and moved or relocated.

_2046

- Ability to extend through modular structural systems.

_Future

- Continue to grow with demand.

PERSPECTIVE

Northern Elevation



_Timber



_Rammed Earth



_Glass



_Woven Structure



_Natural Textures

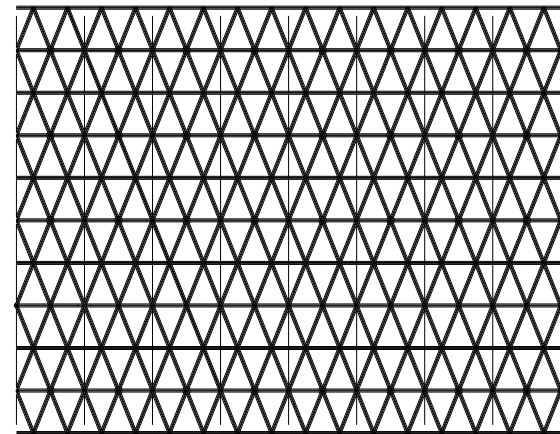
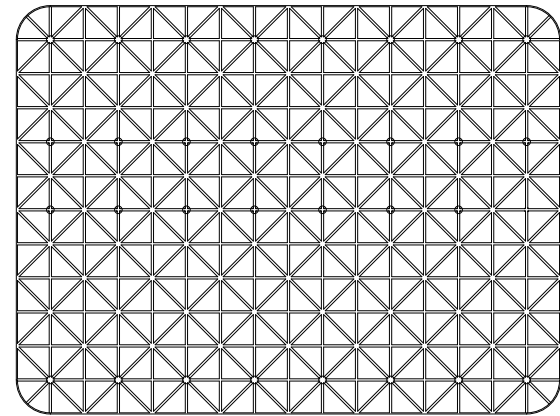
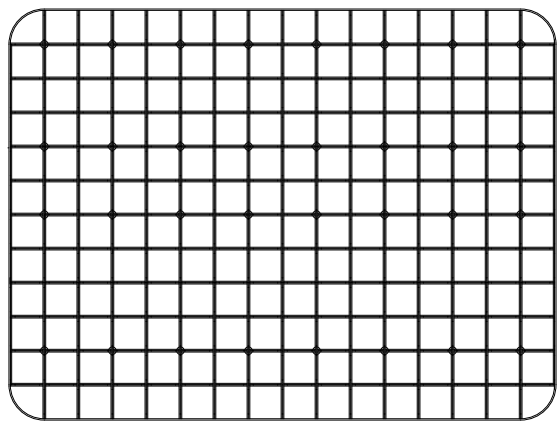


_Ochre Steel

Northern Elevation Perspective - From 15th Avenue

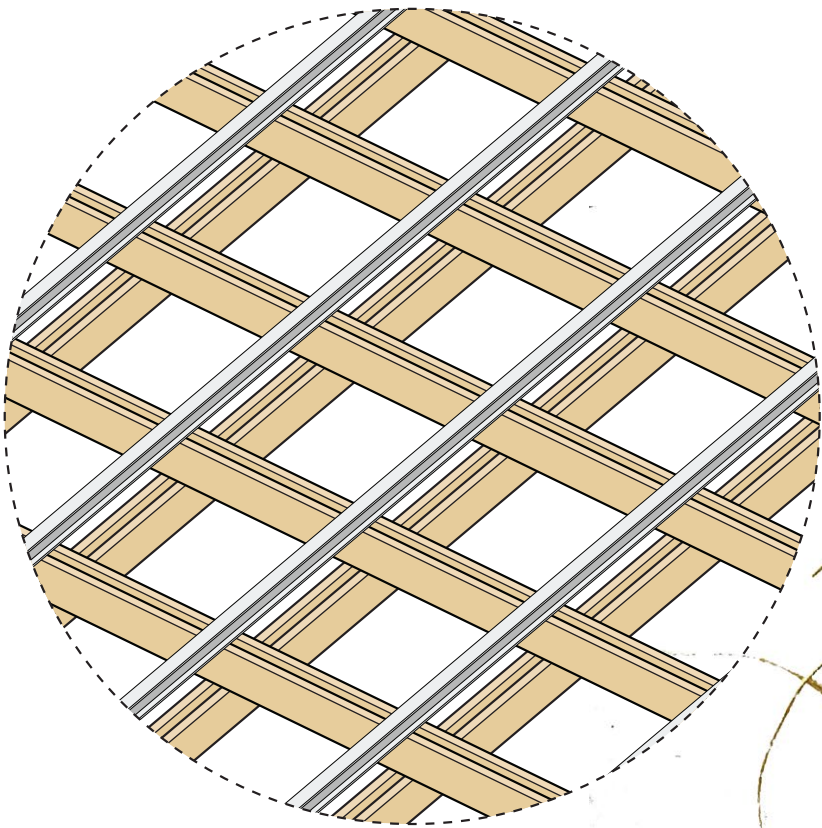
EXPLORATIONS

Woven Modular Structure

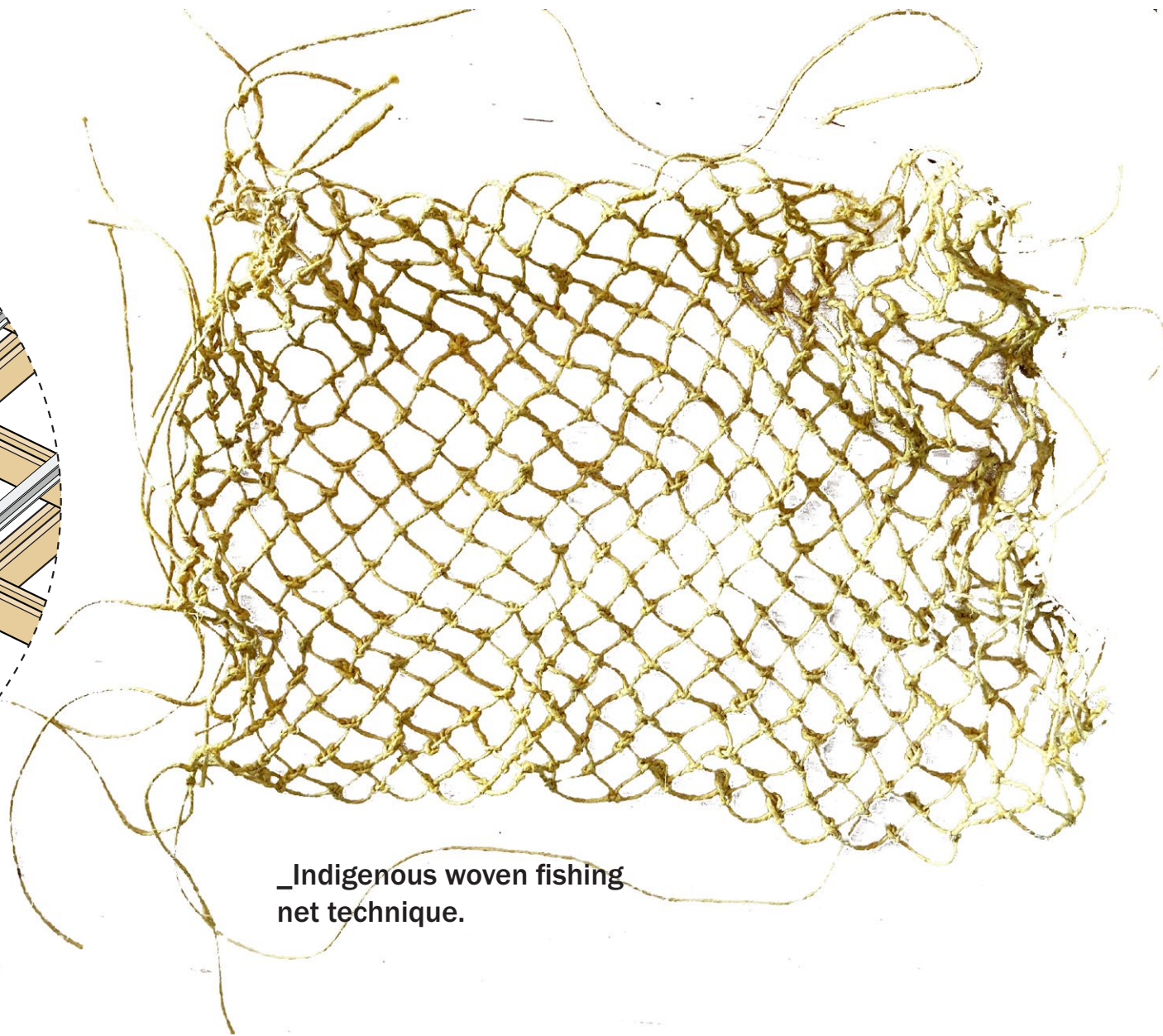


_Roof plan pattern studies

_Testing

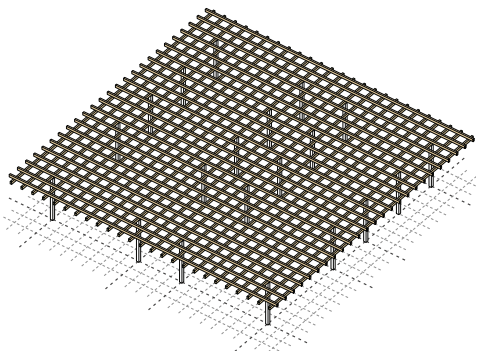
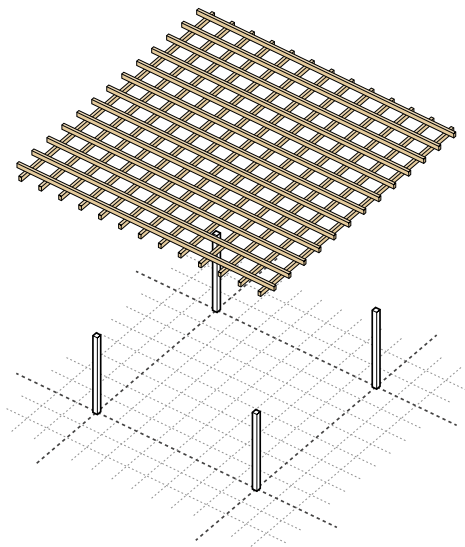
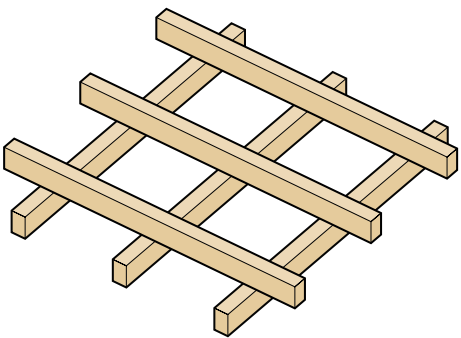
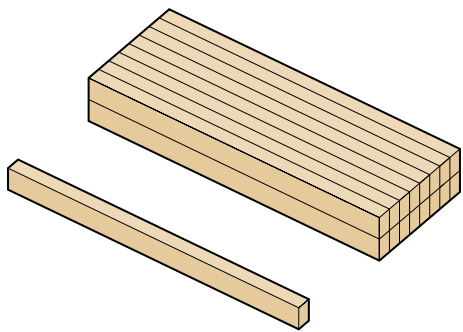


_Layering of structural components to achieve a woven sensibility



_Indigenous woven fishing net technique.

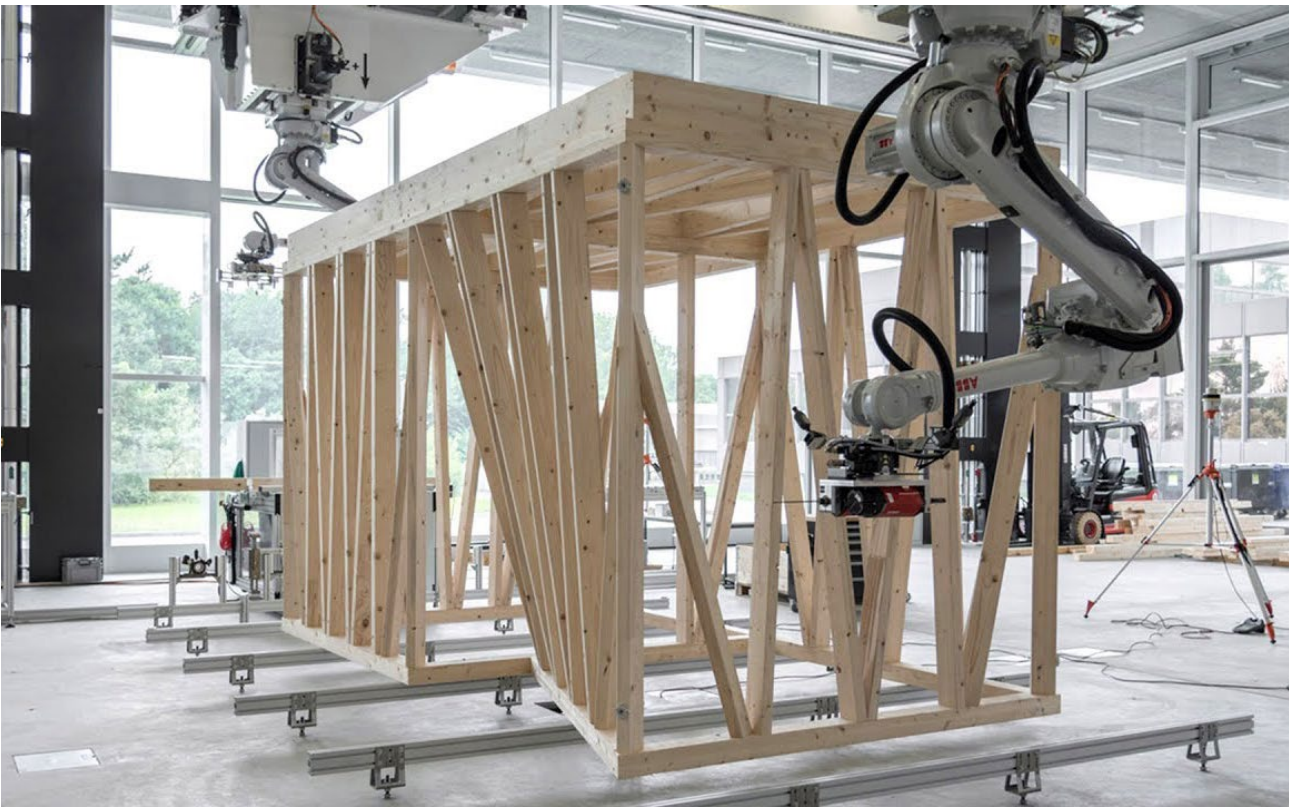
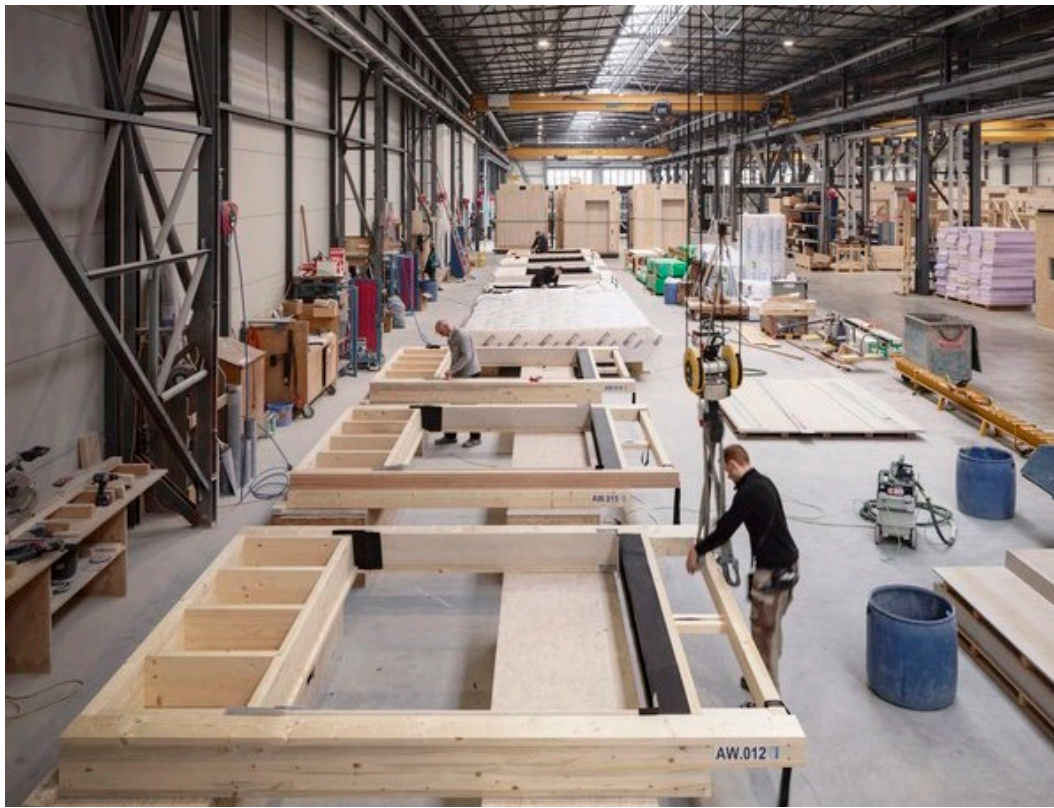
_Modular Construction



ADVANCED CONSTRUCTION

Emerging Technologies

Emerging technologies in construction include large scale 3D printing, composite materials, pre-fabrication, virtual reality, robotics, drones and more.



Adobe 3D PPrinting

SUSTAINABILTY

Environmental Sustainable Design

Highlight Initiatives:

WATER

- Responsible water use
- Net Positive Water

PLACE

- Ecology of Place
- Urban Agriculture
- Habitat Exchange
- Human scale

HEALTH + HAPPINESS

- Healthy Interior Environment
- Healthy Interior Performance
- Access to Nature

MATERIALS

- Responsible Materials
- Red List
- Responsible Sourcing
- Living Economy Sourcing
- Net Positive Waste

ENERGY

- Energy + Carbon Reduction
- Net Positive Energy

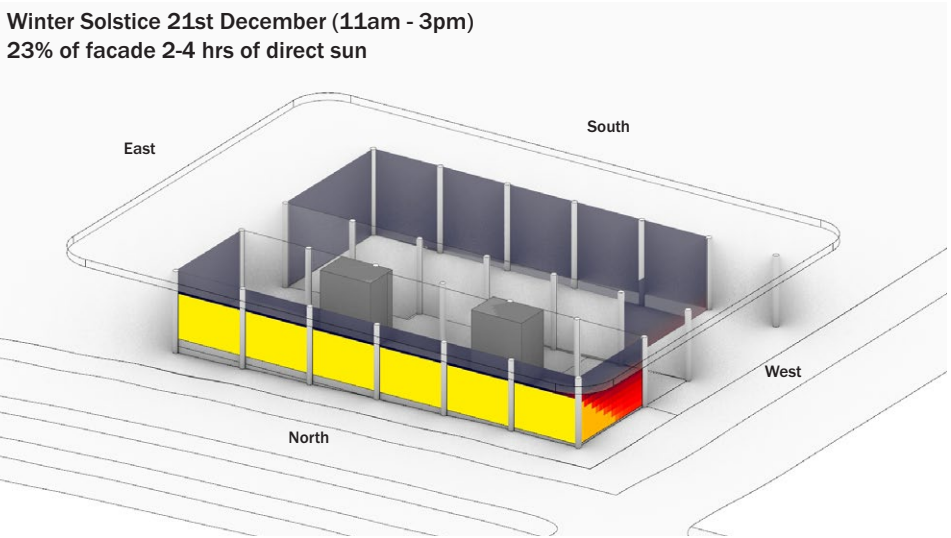
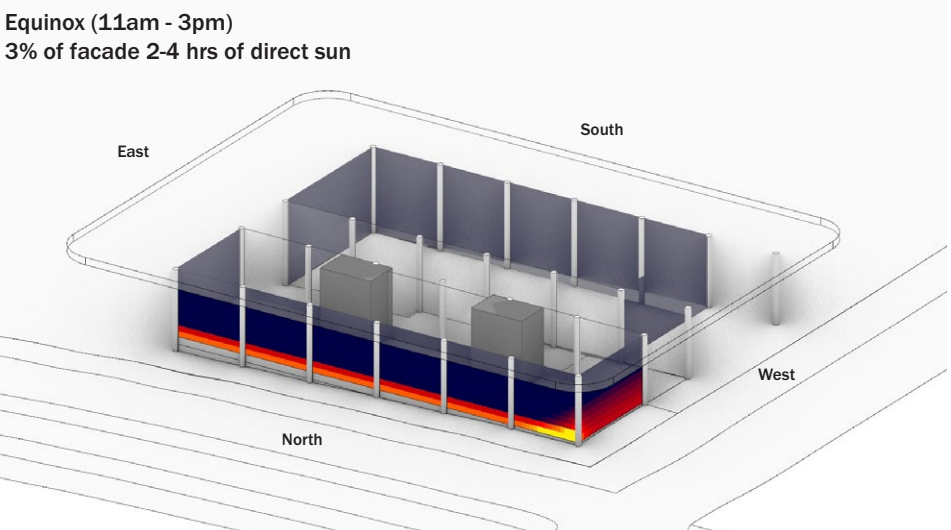
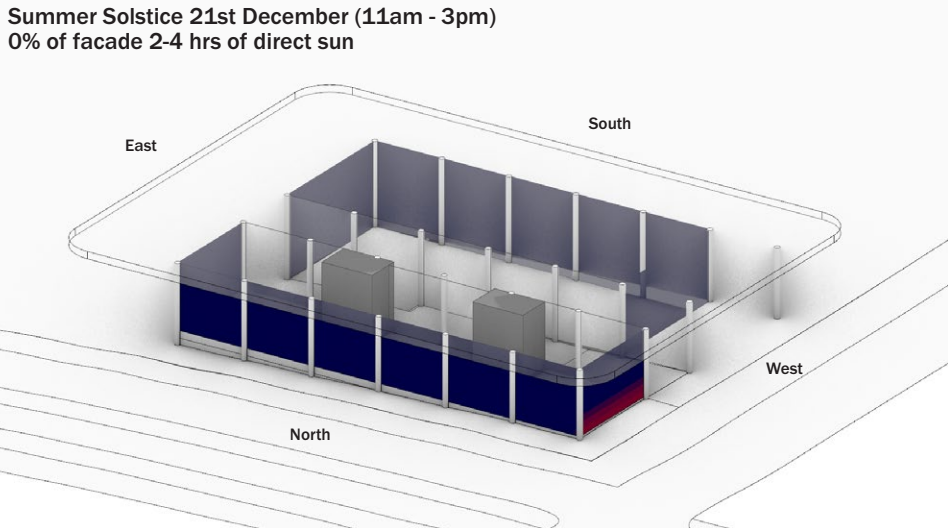
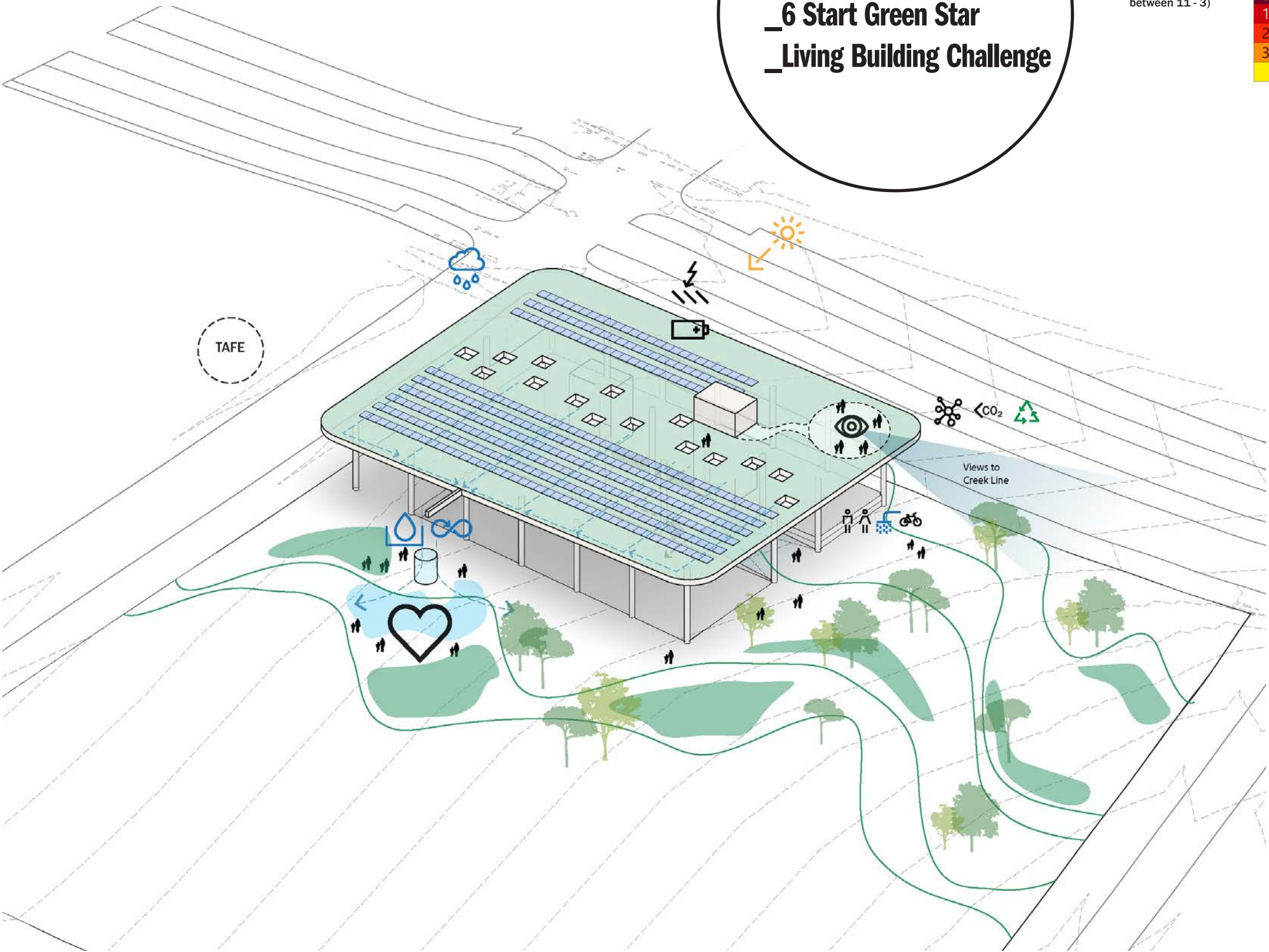
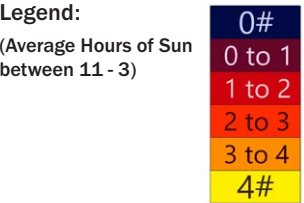
EQUITY

- Universal Access
- Inclusion

BEAUTY

- Beauty + Biophilia
- Education + Inspiration

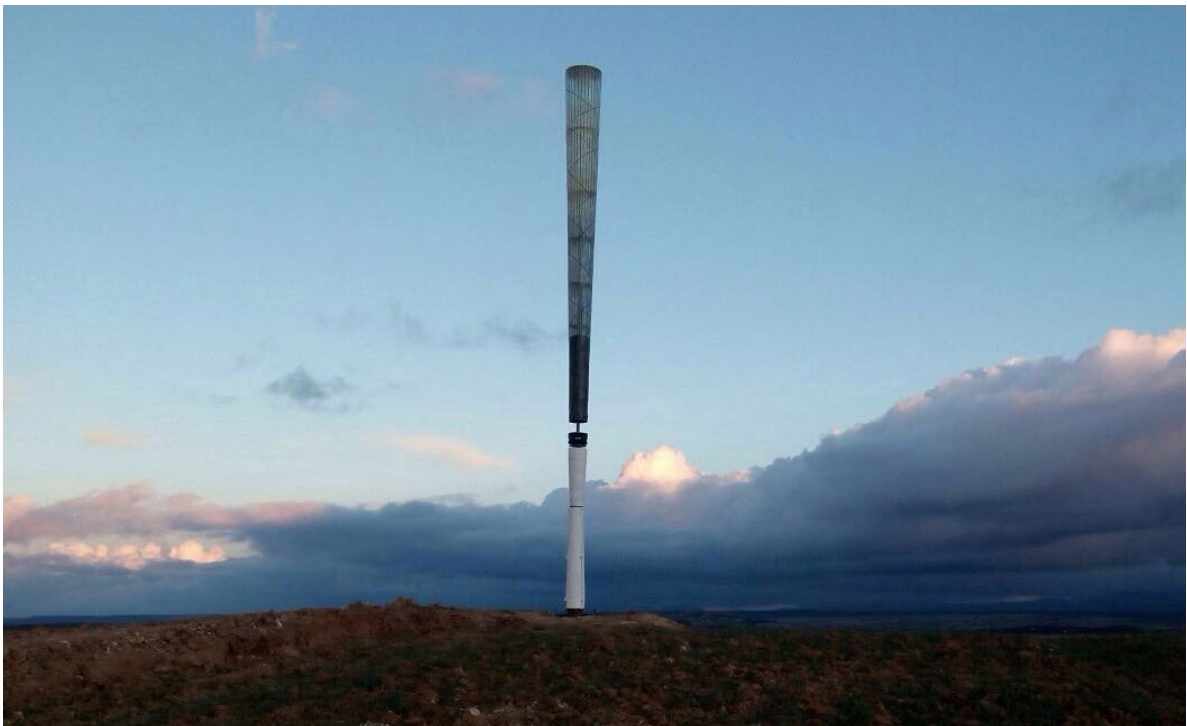
ESD Targets:
_6 Start Green Star
_Living Building Challenge



LANDMARK

Identifier & Community Space

- Beacon for Bradfield from day one.
- Place for the community to gather.
- Identifier showcasing the founding principles
- Strong component within the landscape



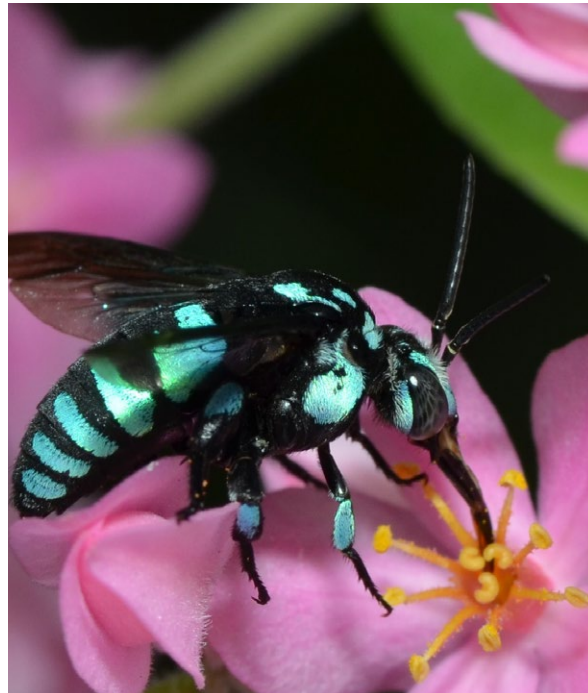
ADVANCED LANDSCAPE



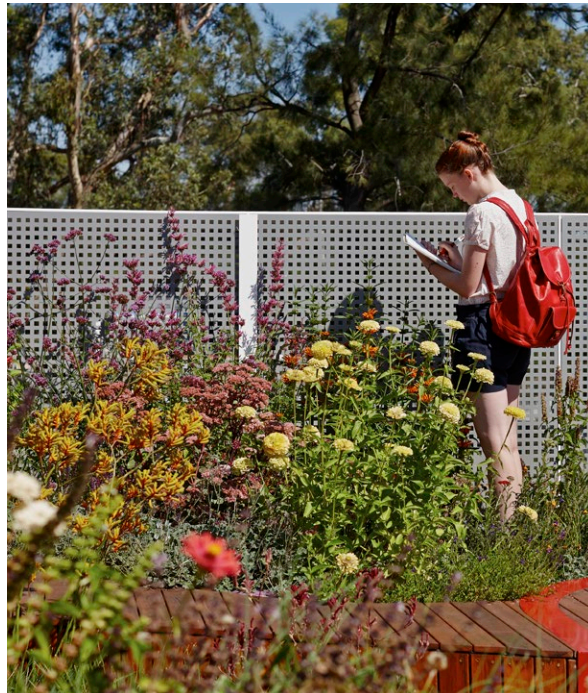
Landscape that is there for a purpose, not just to fill space.



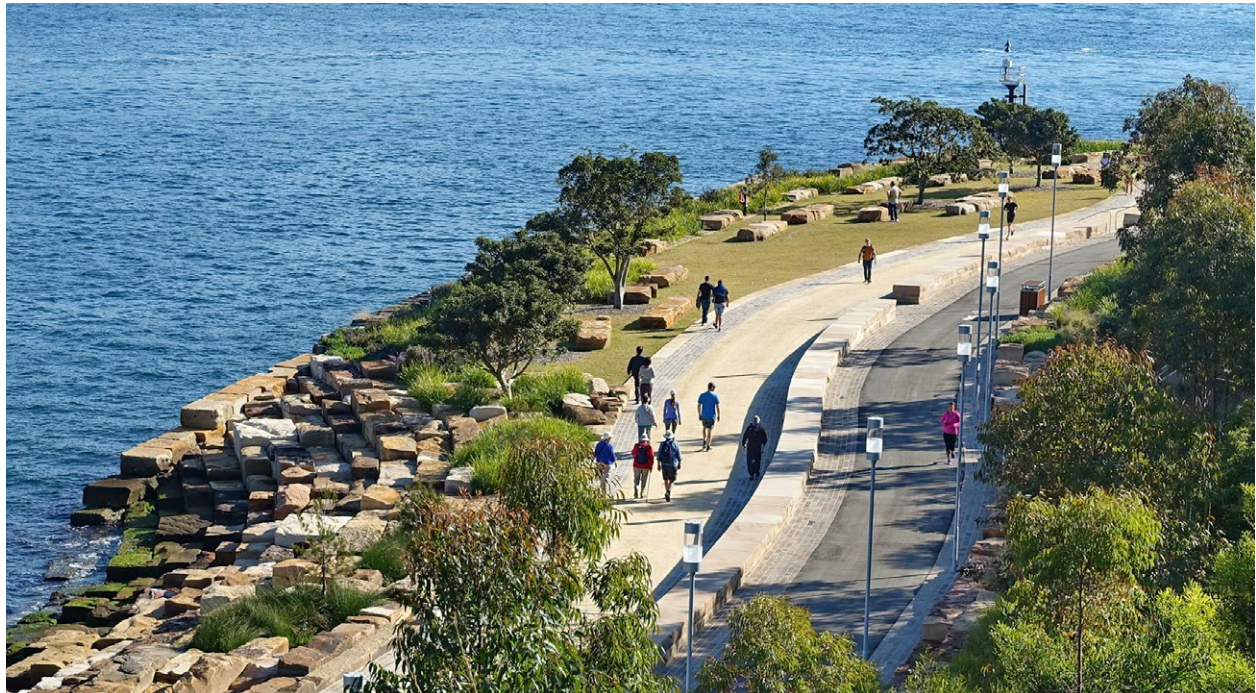
Landscape that regenerates, accepts change and understands seasons.



Landscape that is diverse and encourages biodiversity



Landscape that is educational, monitored and recorded



Barangaroo Headland Park, Sydney



Landscape that cools the environment



Landscape that responds to Climate Change



Landscape that is immersive



Landscape that is productive



Planting Trials, Sydney - Hassell

A PLACE OF EXTREMES

Western Sydney

Recognising that Western Sydney is a place of extreme climatic conditions, with 50+ degree days. This impacts the community. What is being done to mitigate this and what can we do to minimise or even counter the urban heat island.

Reduction of urban heat - not just about trees.

Environmental impacts associated with paving materials



Use low embodied carbon materials

Use materials with a low embodied carbon required for production and installation/construction.



Recycled content materials

Reduce the consumption of raw material and avoid landfilling by using materials with recycled content.



Use regional materials

Reduce energy use for transportation and promote regional identity by supporting the use of local resources.



Reduce urban heat island effects

Use reflective materials to help mitigate urban heat island effects.



Support responsible extraction of raw materials

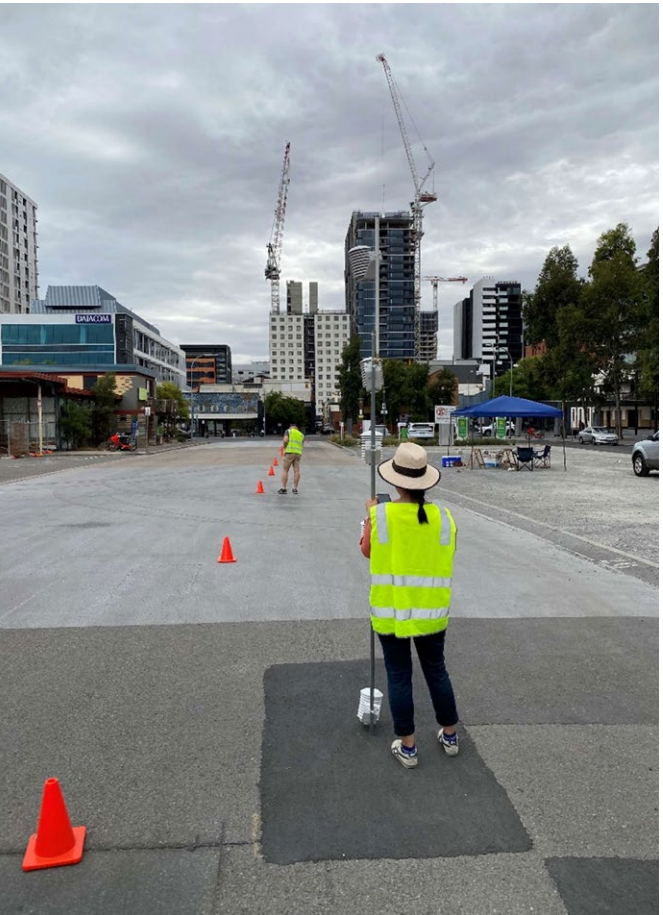
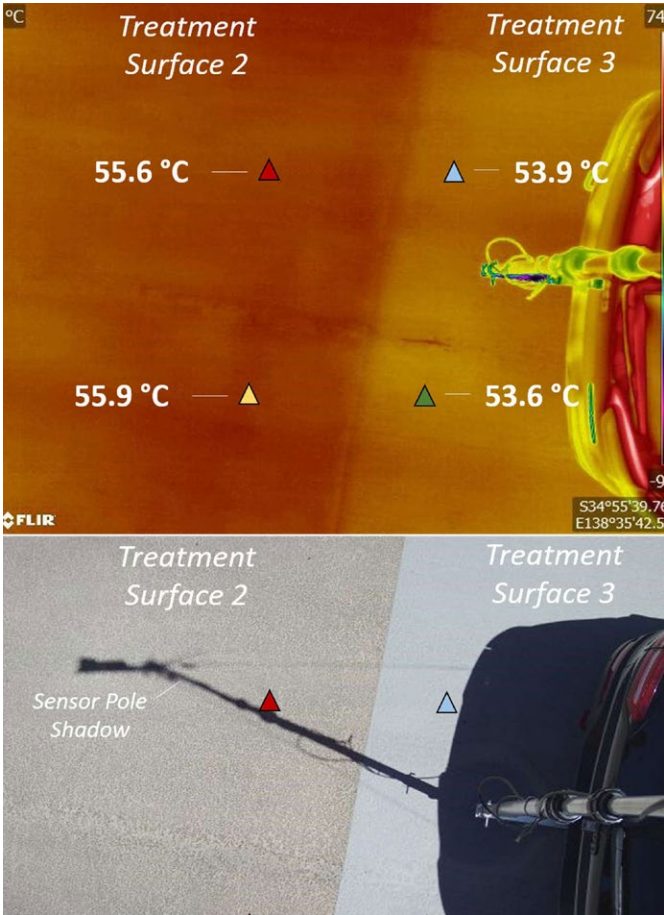
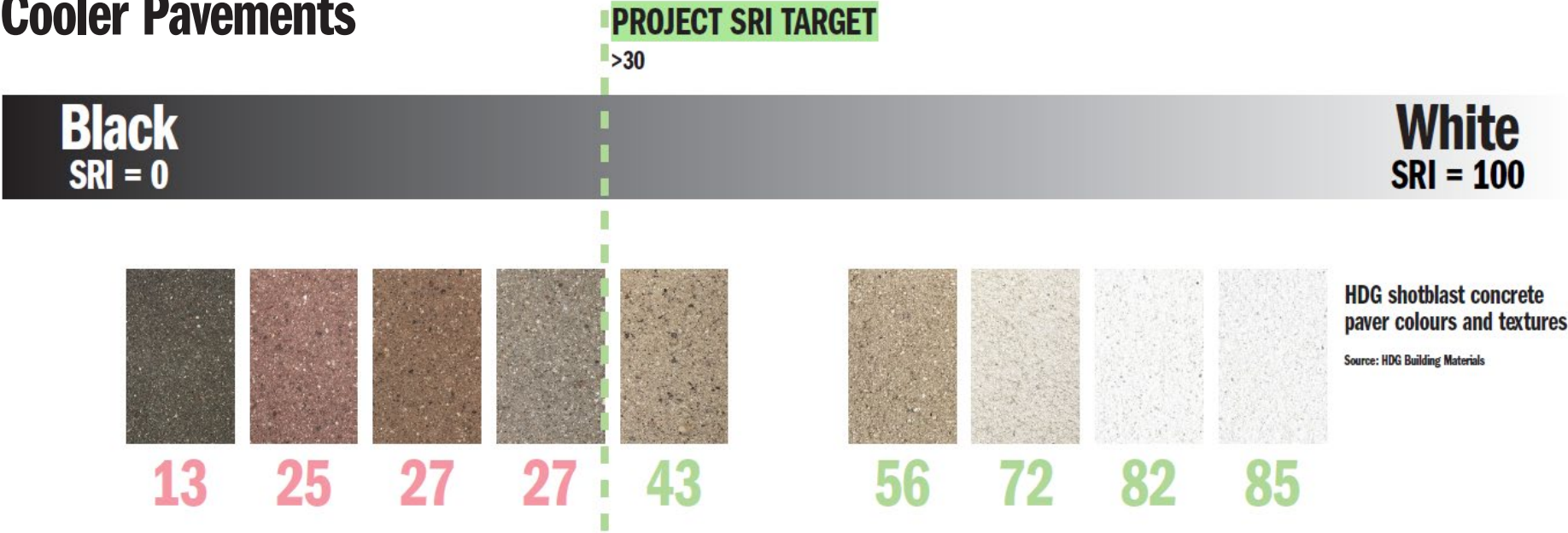
Protect ecosystems, respect cultural and community values and improve land use.



Support sustainability in materials and manufacturing

Select materials from manufacturers whose practices minimise impacts on the environment.

Cooler Pavements



GROUND RULES



No water intensive lawn



All surfaces to be permeable and cooling



Embrace water in the landscape



Immersive and human scaled



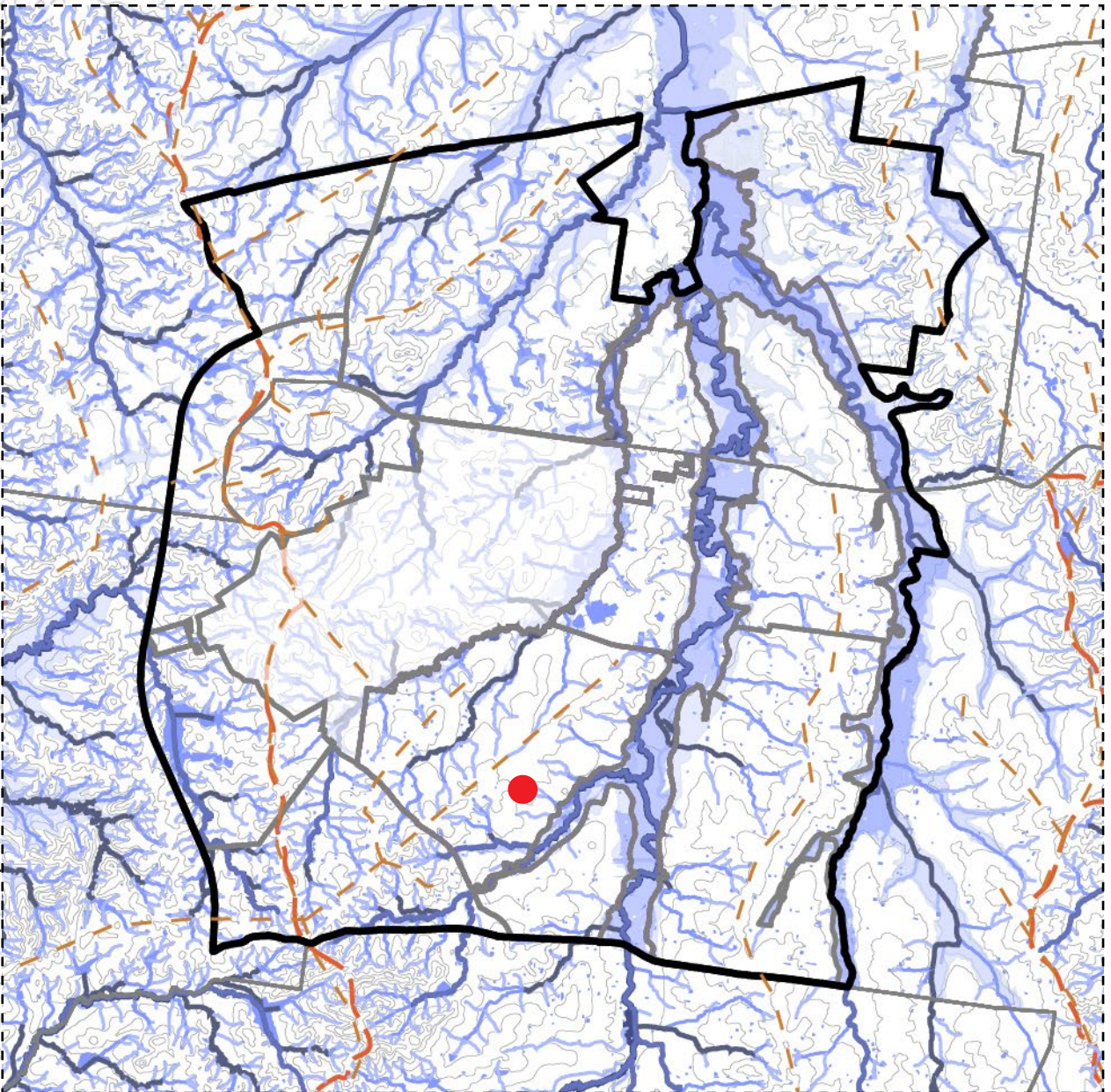
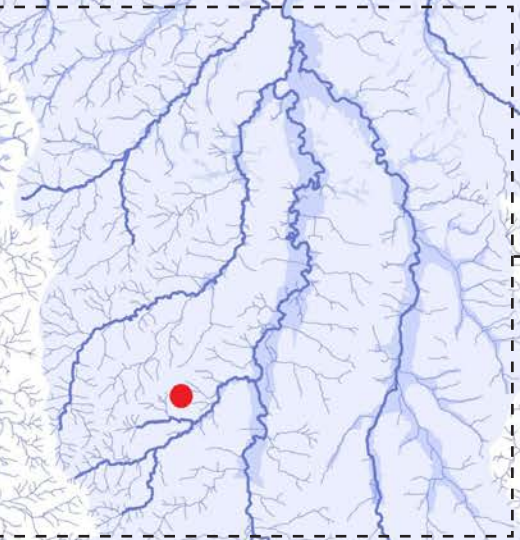
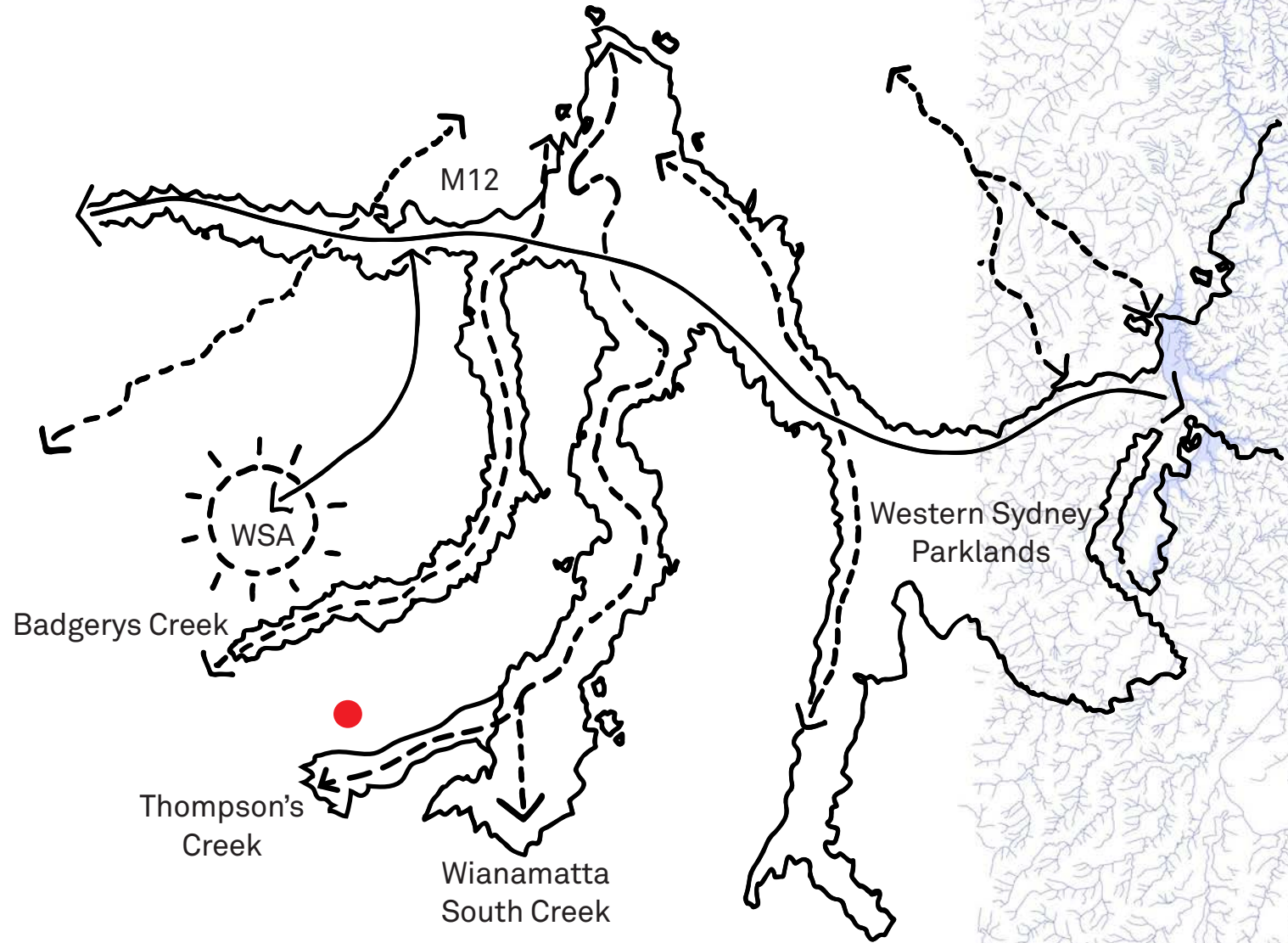
Working with the land, not against it



This is not an acceptable outcome

WIANAMATTA

From the Dharug language meaning ‘Mother Place’ (Wiana meaning mother and Matta meaning water place). A landscape of gentle undulations, with many subtle ridges and valleys creating a filigree of ephemeral creeks.

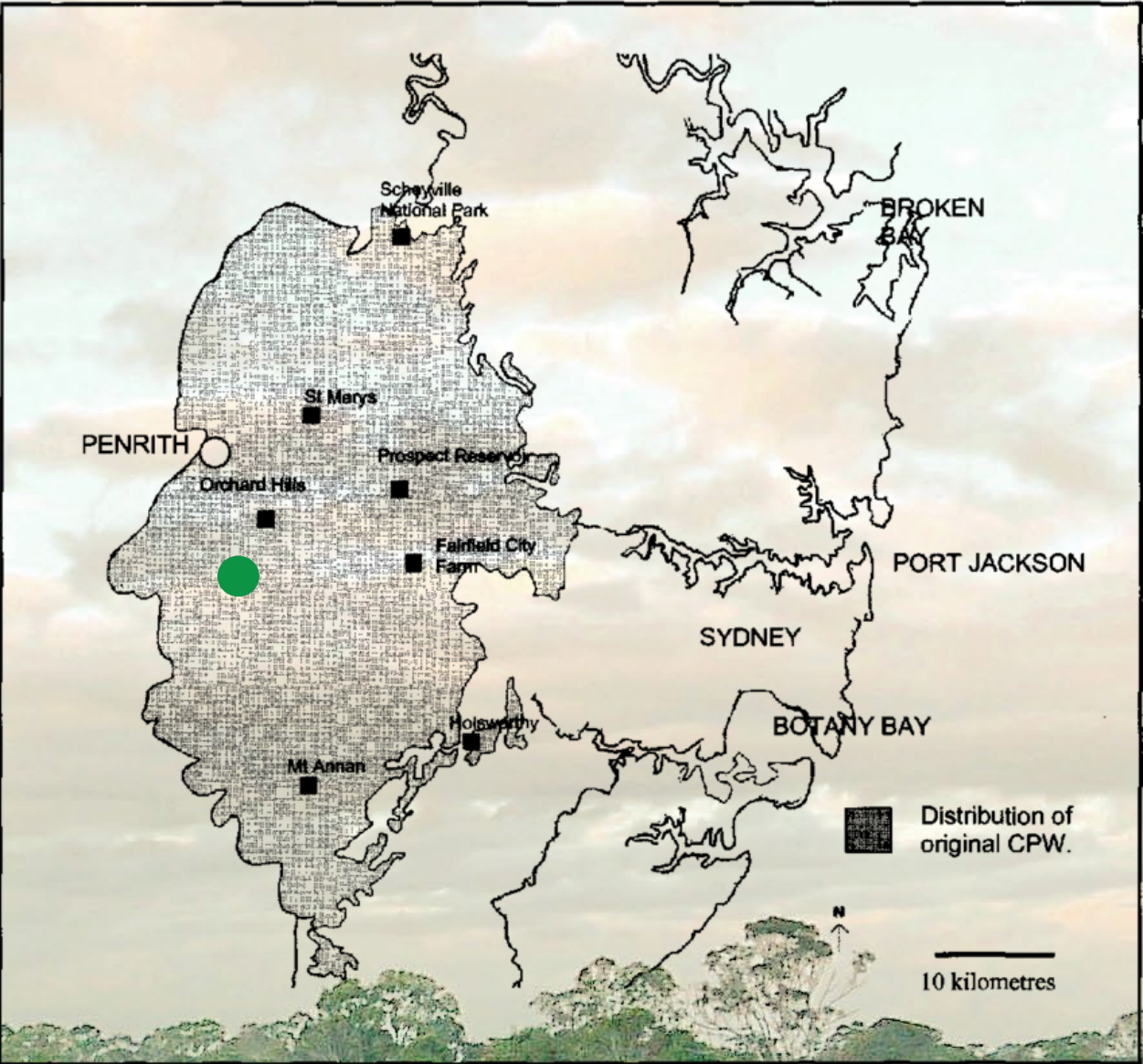


CUMBERLAND PLAIN

Grassy Sclerophyll Woodlands

Cumberland Plain Woodland is distinguished by wide stretches of grass species with irregular stands of Eucalyptus.

‘Singularly fine, level, or rising in small hills of a very pleasing and picturesque appearance. The soil excellent, except in a few small spots where it was stony. The trees growing at a distance of from 20-40 feet (6-12 m) from each other, and in general entirely free from brushwood (shrubs)’ Governor Phillip



The landscape of the Cumberland Plain is particular to this area. For the AMRF First Building, the opportunity is for a building which celebrates a broader landscape. A design which connects traditions thousands of years old to the more globalised future of the region.

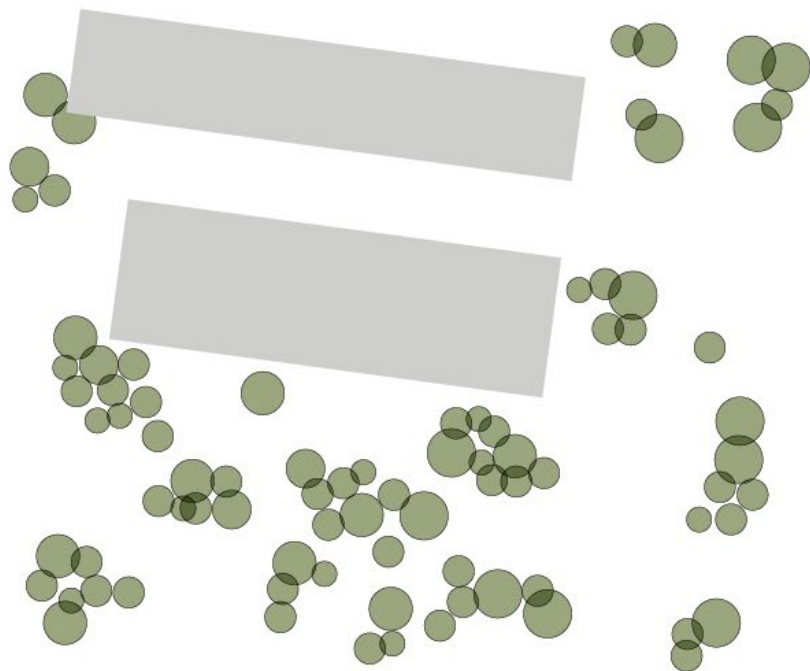


TRIBUTARIES / MEANDERING



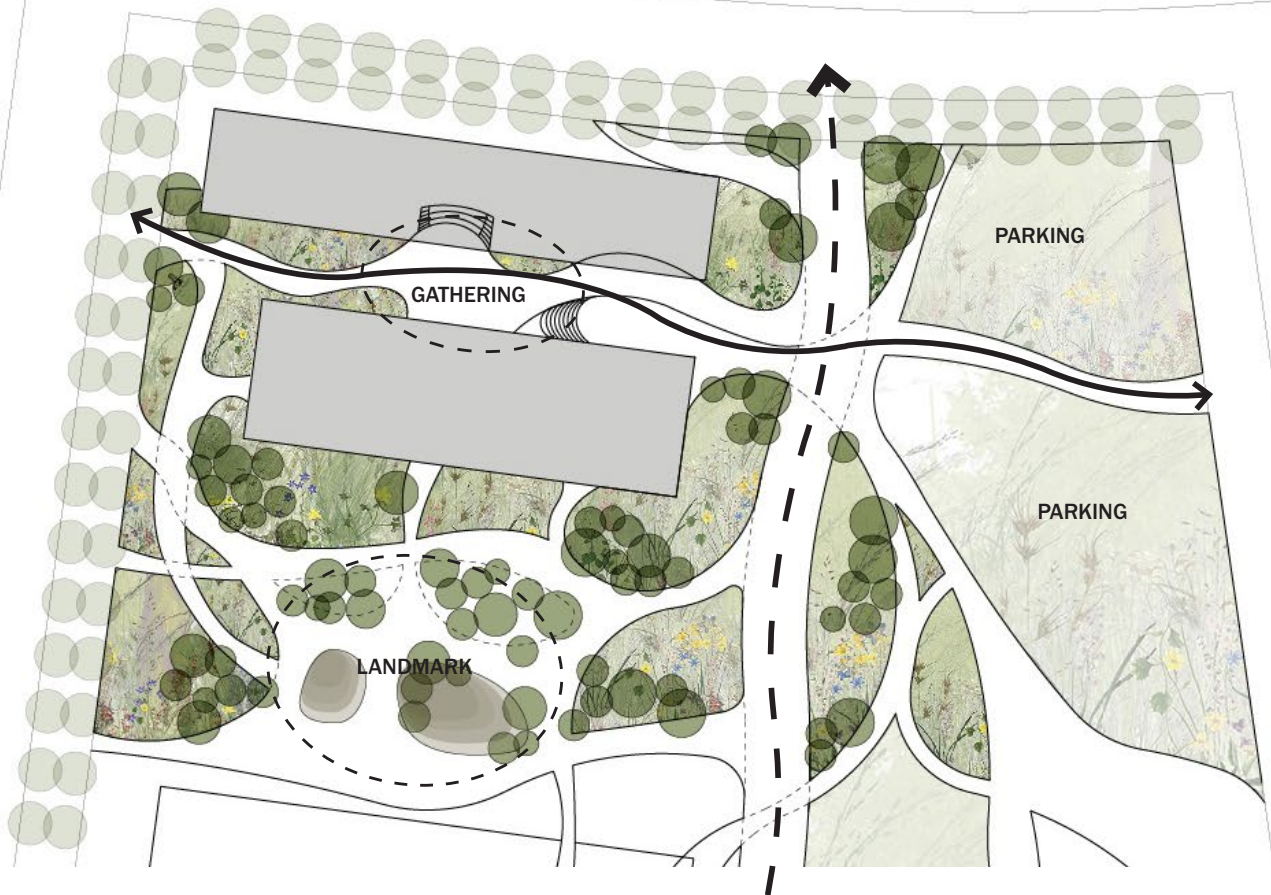
LANDSCAPE CONCEPT

Tree Stands



AMRF - First Building

Understorey



Hassell © 2020



PERSPECTIVE

Southern Elevation



PERSPECTIVE

Southern Elevation

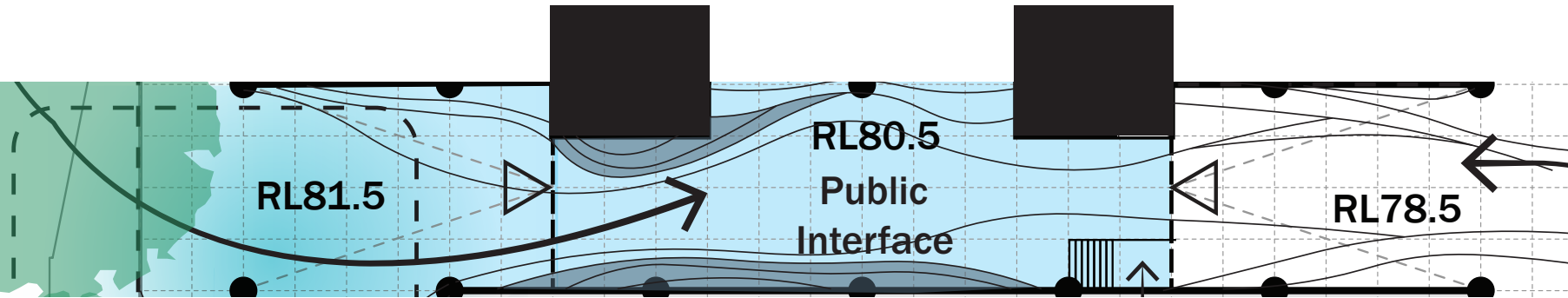


PERSPECTIVE

Eastern Elevation



PUBLIC SPINE







VIEWING PLATFORM

