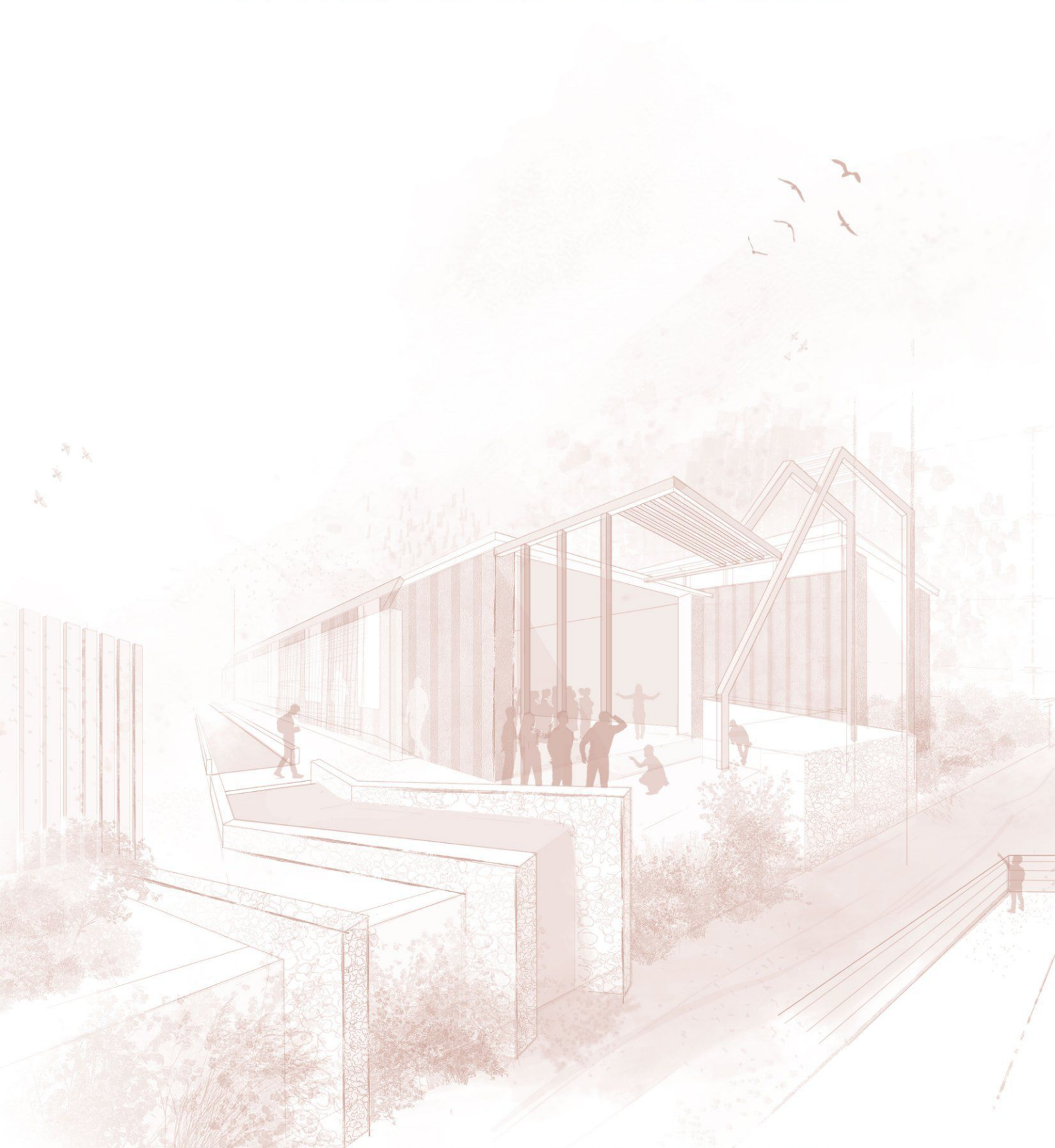


EXPANDING ARCHITECTURAL ACCESSIBILITY

A CPD CONVENTION HUB IN ARCADIA, PRETORIA



pursue, produce, prototype, public

PROJECT INTENTION

EXISTING TO GOAL

Vision for the project at the beginning of the design process

URBAN FRAMEWORK

The suggested masterplan that will result in a promenade of emerging building technology installations along the river, connected to various existing programmes



CONTEXT

SITE

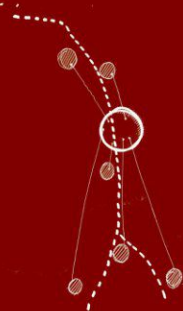
Macro and micro analysis on existing programmes and spaces

CONDITIONS

Natural and planned spaces on site with services and systems

RIVER

Apies River in the Arcadia area that runs through the site



THEORY

BUILDINGS

Repetition and hierarchy in built form (Ching, 1979)

PUBLIC

Public spaces within cities for people (Gehl, 2010)

GENERAL

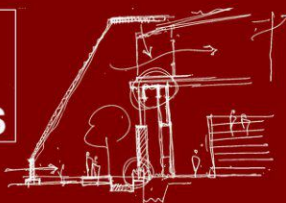
Integrated design perspectives (DeKay, 2011)



EMERGING BUILDING TECHNOLOGIES

RESEARCH

EBTs in the South African context - how they can be used along with current conventional building technologies in order to reduce harm caused by the industry to the natural environment and create an influx innovative ways of creating buildings



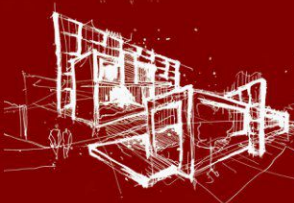
PRECEDENTS

TECHNOLOGY

EBTs from the research catalogue of projects done in South Africa in the past 15 years

SPATIAL

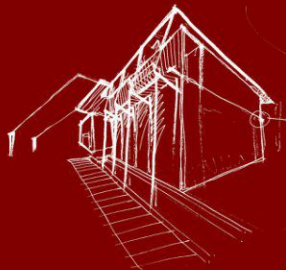
Global and local projects with spatial qualities that resonate with the intention of this project



FORM GENERATORS

FIVE PRINCIPLES

Five form generators as principles put into place to guide the spatial arrangement on site according to information gathered from previous site analysis and applicable theory



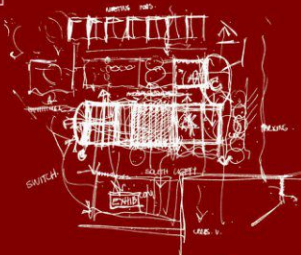
DESIGN DEVELOPMENT

MODELS

A series of models built to different scales that explore the design in a three dimensional way

SKETCHES

Rough sketches and parti diagrams that aided in the design development



INFORMANTS

creative hub — work cluster

ARCHITECTS

BUILT ENV.

PUBLIC

continuous
practice
development

APPROACHABLE
THRESHOLD

PUBLIC
SPACE

river

emerging
building
technologies

REHABILITATING NATURE

WITHIN THE CITY

On a once vacant site in Arcadia next to the heart of the Pretoria CBD now lies a series of buildings that integrate the public realm of the city with an intricate system of a distinctive discipline - architecture. This project is an architectural hub that accommodates Continuous Practice Development conventions hosted by the Pretoria Institute of Architects, as a permanent location for workshops and lectures. The primary aim will be to introduce professionals to emerging building technologies (EBTs) in the industry with events that result in the practical application of new knowledge gained by designers. Presenting EBTs will address the issue caused by conventional building technologies to the environment and add the opportunity for architects to engage in CPD conventions that result in a physical structure.

The Apies River that runs through the site presents a key opportunity to expand this project along the route of the river, creating a promenade of projects that were created and tested on site. The effects of the CPD conventions will echo along the river in the form of various installations that benefit existing programmes along the river that are currently disconnected from the natural space.

The buildings on site is the epicentre and the CPD convention projects that are created on site and installed at various locations along the river will be connected to the project as the branches of the system. The community is not only meant to benefit from these installations along the route that will enhance current programmes, but from the site itself as it will accommodate the public by creating walkways, ablutions and resting spaces, which will be interwoven with the workspaces to break the barrier between the architecture profession and the larger community.

The emphasis will be placed on creating visual and physical accessibility by dispersing the buildings across the site with approachable interfaces. The built form is meant to read as a palimpsest of legible, yet intriguing, layers that are a blend of both emerging and conventional building technologies.

KEYWORDS

emerging building technologies, architecture hub, lecture, exhibition, workshop, public integration, nature rehabilitation, promenade of projects, river network, CPD conventions, Pretoria Institute of Architects

ABSTRACT

GENERAL QUESTION

In what way can CPD programmes become optimised to challenge professionals with new knowledge within their industry?

URBAN QUESTION

To which extent can Arcadia, Pretoria accommodate a project that blends innovation in the architectural profession with the public?

ARCHITECTURAL QUESTION

How can the buildings become the exhibition of emerging building technologies on site and create space for the PIA to host workshops that convey EBT knowledge to architects and other members of the built environment?

This project takes an existing system (CPD system) required by our profession's council (SACAP) and manifesting it in a way that structures it to be a hub for architects that will have a lasting impact beyond the isolated learning session.

Besides hosting regular CPD events - identical to the current way the events are structured - CPD events that contain a practical component will be brought into the programme in this project. This will result in participants applying the knowledge they gained to build different installations of various EBTs. This project will be part of a network that functions within a master plan due to the nature of its greater goal - creating structures from knowledge gained at the conventions and inserting it at existing, currently-disconnected locations along the Apies River in Arcadia. The buildings on site will be the epicentre that will echo its effects along the programmes of the river.

The programme will offer meeting rooms, workshop areas, printing facilities and outdoor facilities. The built areas will mainly accommodate architectural professionals that attend conventions, exhibitions or lectures. Spaces will also provide them the opportunity to meet clients at a definite location, print plans for council, attend larger meetings with other parties of projects and attend PIA social events. These spaces will also be made available to other professions in the built industry that have CPD systems in place, such as engineers and quantity surveyors. This will ensure that the venue has an ongoing occupancy throughout. The printing facilities and small coffee shop will be income generators to the project which will be operated by external management owners.

The surrounding community, as well as commuting individuals, will be able to access and utilise the public walkways, ablutions, meeting spaces and viewing platforms that overlook the workshop areas throughout the site while the CPD programme is running. This will ensure that the larger public gains exposure to the events taking place within the architectural discipline.

Driven by the goal to integrate building technologies that will prove to be less harmful than current conventional building technologies used, the project is centered around the programme of introducing EBTs into the built industry and thus the buildings on site will be built from EBTs. Additive Manufacturing/ 3D Concrete Printing will be the main EBT applied in this project along with complementary EBTs such as Rammed Earth Walls and Composite Walls. Research was conducted on the subject of EBTs in the South African context, which invoked the interest to include the findings in a tangible design project. This will serve as an exhibition of the project's ethos, as well as every other installation that will be produced from this architectural hub and placed along the river.

The existing vegetation on site will be celebrated and multiplied throughout the new spaces to enhance rehabilitation. Special attention will be given to the condition of the water channel, introducing floodplains into the stream where plants can flourish.

For the water harvesting system, the roofs will be created to collect water that will be kept in storage and distributed to the public ablutions as well as the new water channel that will be located in the courtyards. These will contribute to the passive cooling strategies as well as regulating irrigation of the vegetation throughout the site.

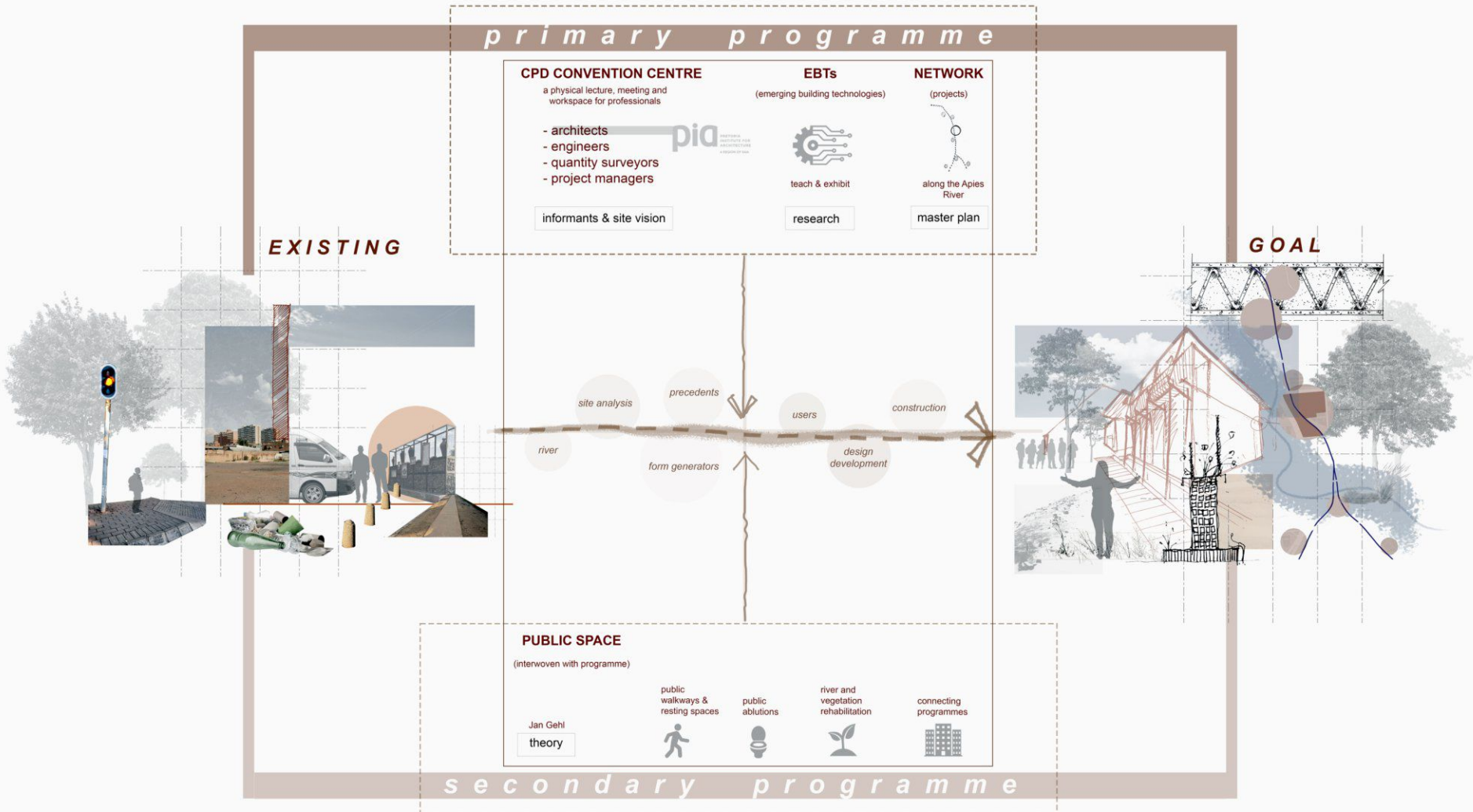
Basement parking will be provided for users although public transport is encouraged by its proximity to various transport networks.

This project is on course to not only accommodate the current needs the conventions hosted for the architectural discipline, but to be an expansion beyond current limitations.

A project brief:

- Reception Space
- Exhibition Areas
- Lecturing Halls
- Coffee Shop
- Office Space
- Print Facilities
- Workshop Area
- Viewing Platforms
- Public Ablutions
- Basement Parking
- Natural Public Spaces
- Meeting Rooms

This project has been undertaken with a great passion for the architectural discipline and the vision to create a platform where professionals can be continually inspired and involved while maintaining their status as architects. The project is meant to be encountered and explored by each individual that visits it, ensuring the accessibility of the architectural discipline to all.



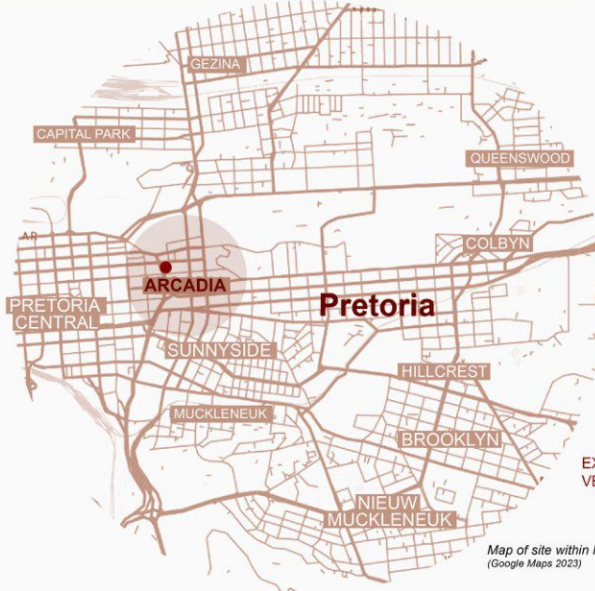
LOCATION



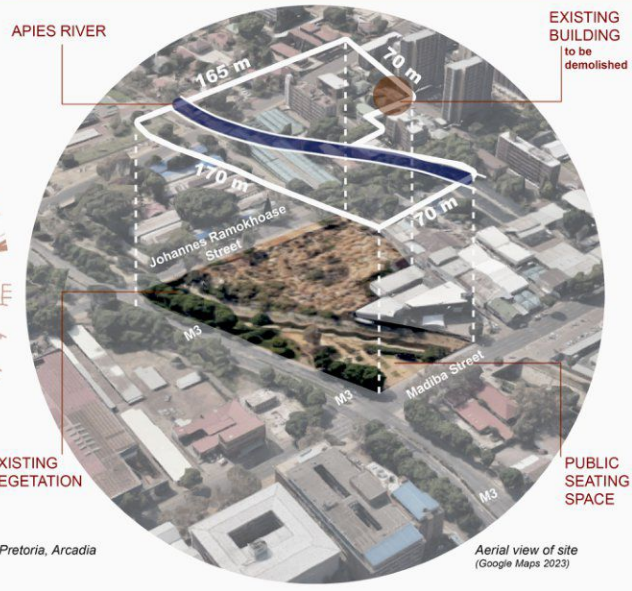
Map of South Africa with Gauteng's placement
(Google Maps 2023)



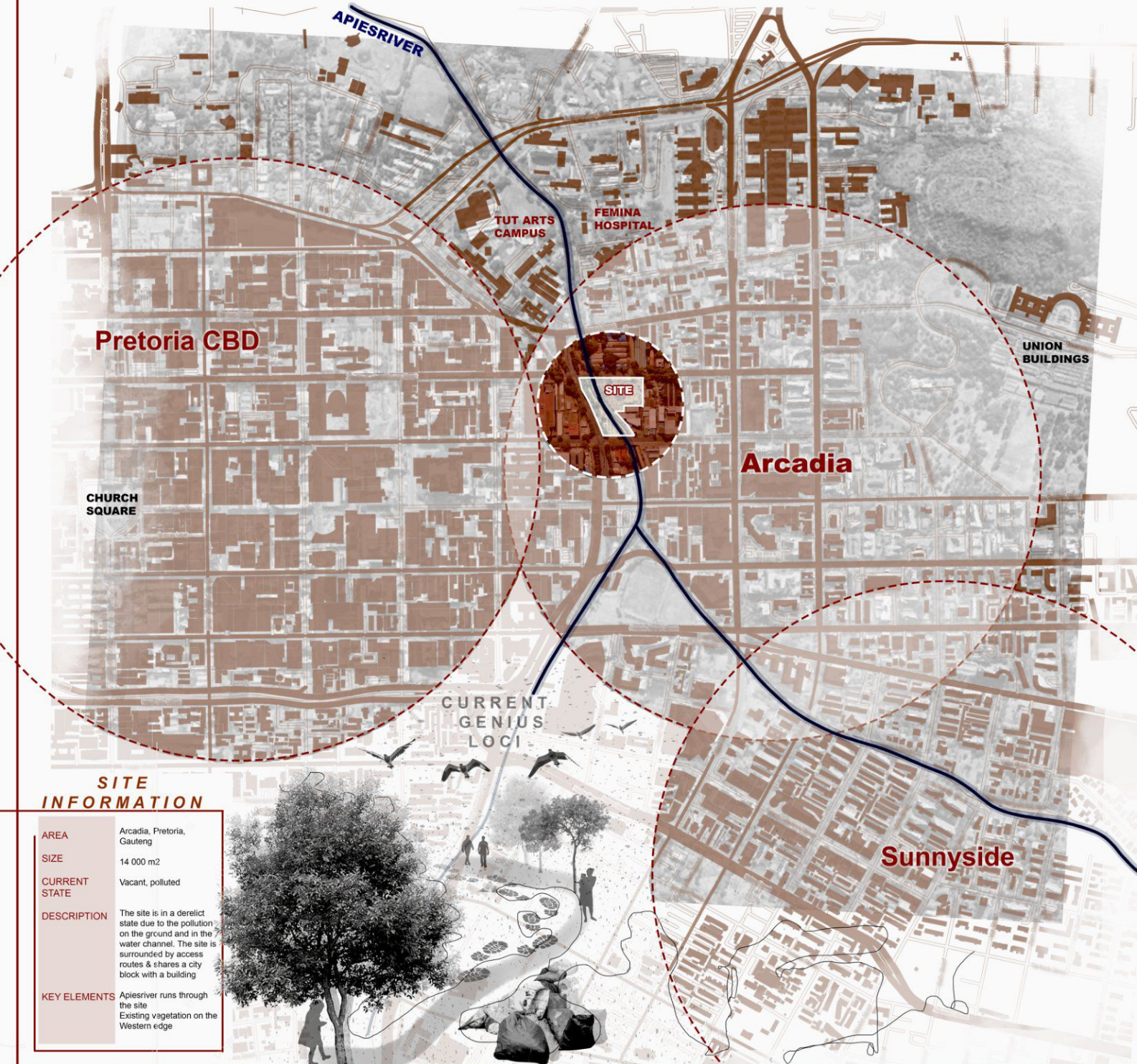
Map of Gauteng with Pretoria, Arcadia's placement
(Google Maps 2023)



Map of site within Pretoria, Arcadia
(Google Maps 2023)



Aerial view of site
(Google Maps 2023)



SITE INFORMATION

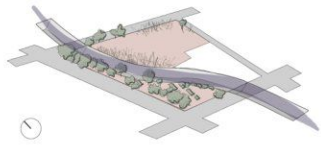
AREA	Arcadia, Pretoria, Gauteng
SIZE	14 000 m ²
CURRENT STATE	Vacant, polluted
DESCRIPTION	The site is in a derelict state due to the pollution on the ground and in the water channel. The site is surrounded by access routes & shares a city block with a building
KEY ELEMENTS	Apiesriver runs through the site Existing vegetation on the Western edge



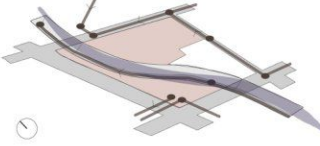
SITE (macro)

EXISTING CONDITIONS

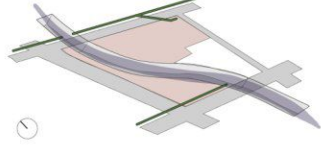
VEGETATION



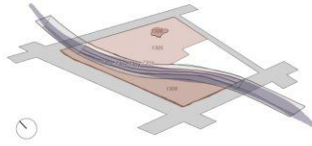
SANITATION SYSTEM



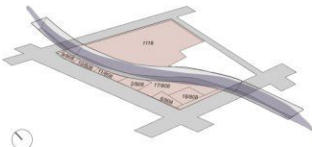
STORMWATER SYSTEM



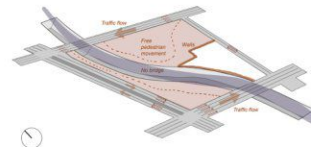
TOPOGRAPHY



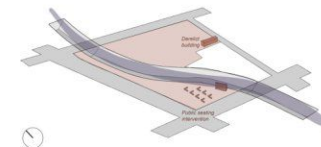
PLOT DIVISION



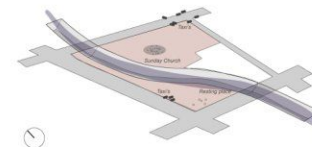
ACCESS/MOVEMENT



STRUCTURES



PROGRAMMES



Various hand-drawn aerial-view maps of the site in Arcadia, Pretoria with systems and services. (Derived from Tahwane GIS 2023)

SWOT ANALYSIS

STRENGTH

EXISTING VEGETATION (WESTERN BOUNDARY)
Indigenous trees that enhance biodiversity and invite people into natural spaces within the city

ACTIVITY AROUND SITE
Public transport routes that operate around the site creates active boundaries around the site

WEAKNESS

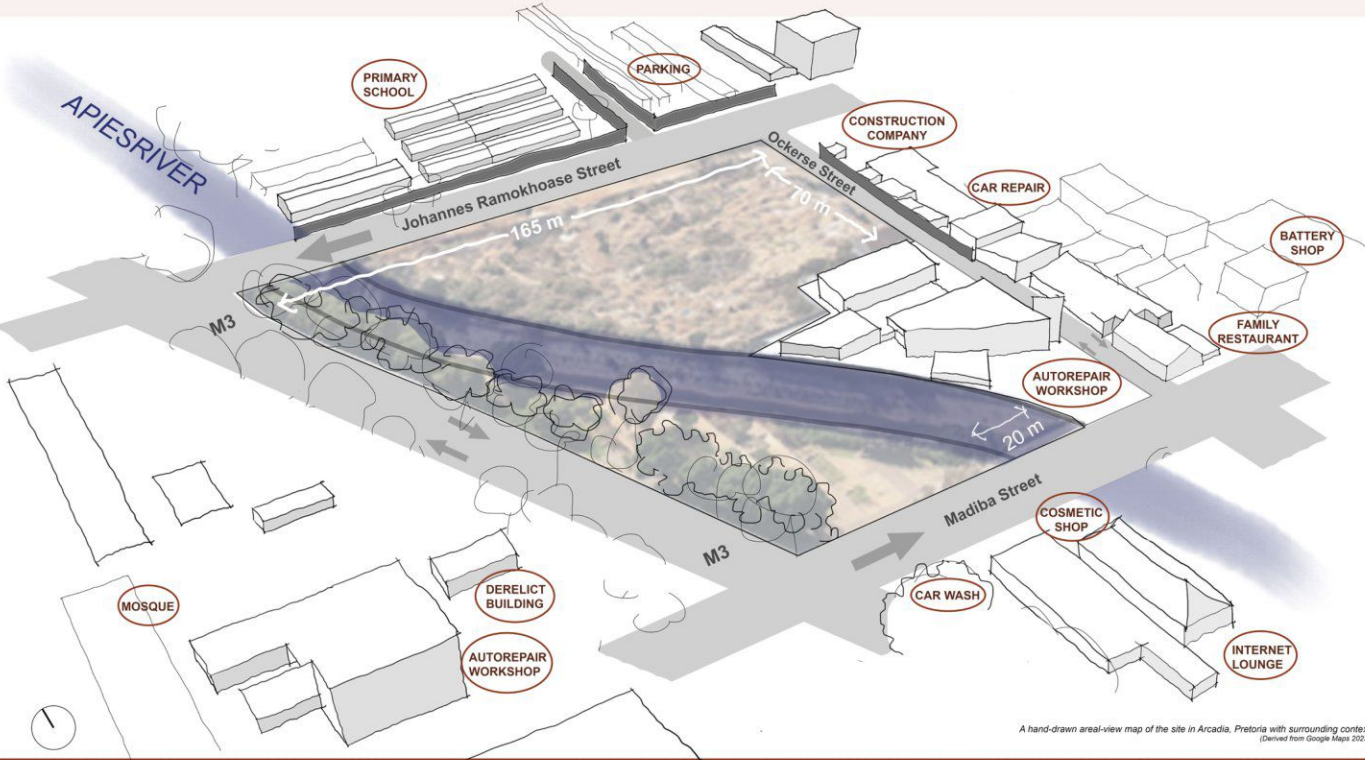
- POLLUTION**
- **Site** The Eastern boundary has become an illegal waste site blocking the road
 - **River** Waste travels through the water channel creating a new network of pollution

OPPORTUNITY

- APIESRIVER (REHABILITATION)**
The river can be tailored to accommodate vegetation and flood planes into the current concrete channel
- PUBLIC SPACES ON SITE**
Seating/resting space on the M3/Madiba Street corner can be restored and presented to the public again

THREATS

- LACK OF SAFETY AND OWNERSHIP**
No programme is in place which opens the site up to become a crime zone
- VANDALISM**
Graffiti and damage to existing infrastructure is occurring on site currently



A hand-drawn aerial-view map of the site in Arcadia, Pretoria with surrounding context (Derived from Google Maps 2023)

KEY ELEMENTS



DERELICT BUILDING

Current storage space with private owners. No heritage acts apply to the building.

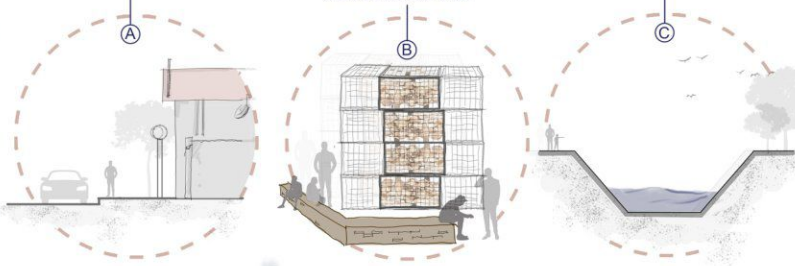
APIES RIVER

The river runs through a large portion of Arcadia and binds the area to the Pretoria CBD.

GABION WALL INSTALLATION

Artwork wall with bench on site

Photos taken on site of key element spaces that influence the design (Author, 2023)



A hand-drawn 2D map of the site in Arcadia, Pretoria with surrounding context (Derived from Google Maps 2023)

SITE (micro)

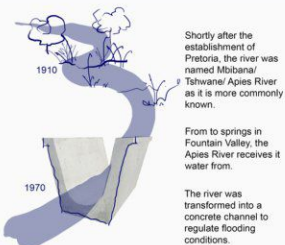
THE RIVER

APIES RIVER



TIMELINE

HISTORY

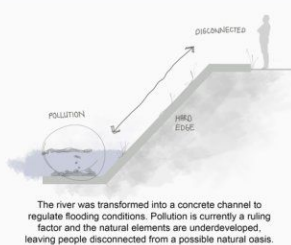


Shortly after the establishment of Pretoria, the river was named Mbibeni / Tshwane Apies River as it is more commonly known.

From its springs in Fountain Valley, the Apies River receives its water from...

The river was transformed into a concrete channel to regulate flooding conditions.

CURRENTLY



The river was transformed into a concrete channel to regulate flooding conditions. Pollution is currently a ruling factor and the natural elements are underdeveloped, leaving people disconnected from a possible natural oasis.

FUTURE



Landscape improvements are planned along the river banks in order to increase public spaces.

Rainbow Junction Development is a district identified for revitalisation that acts as a catalyst project within the City of Tshwane.

RIVER AS A CATALYST

REHABILITATION OF NATURE

creating floodplains for vegetation and wild life



ECONOMIC GROWTH

adding new programmes/ activating current sites along the river, attracting more people and business



LINK TO THE BUILT FABRIC

EBT installations built on site and added along the river that links existing built fabric to natural area



PEDESTRIAN POINTS

A walkway along the river to encourage movement, leading to security, community involvement and a sense of ownership



PRECEDENT

Cheonggyecheon River Urban Design

South Korean Government 2005, Seoul, South Korea Landscape, River



FORM

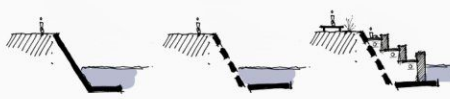


CONTEXT



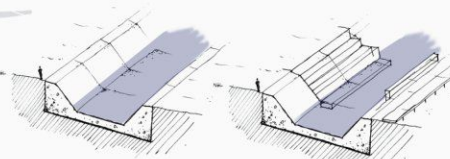
INTENTION

EDGE TRANSFORMATION



Parti diagrams that indicate how the river's edge was fragmented in form and material with the introduction of new walkways, seating and vegetation

FRAGMENTATION



The transformation from the diagram on the left shows how not all parts of the concrete channel will be demolished, but rather that selected areas will be excavated and replaced with retaining seating, planting and walkway areas.

ADDITIONS



A close-up sketch depicts a section through the river's edge. New gabion retaining walls replace the concrete water barriers. Seating surfaces are permeable to allow water to be drained through to pipes and redirected back into the main water channel.

Another close-up sketch shows a simplified diagram of how selected areas of the river's edge will be repeated on areas outside of the selected site. The demolition of the concrete channel at certain areas will be present, with retaining walls and new platforms that connect existing buildings to the river. The platform creates an opportunity for an EBT installation that was produced on site.

PROGRAMME

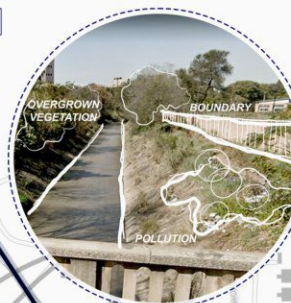
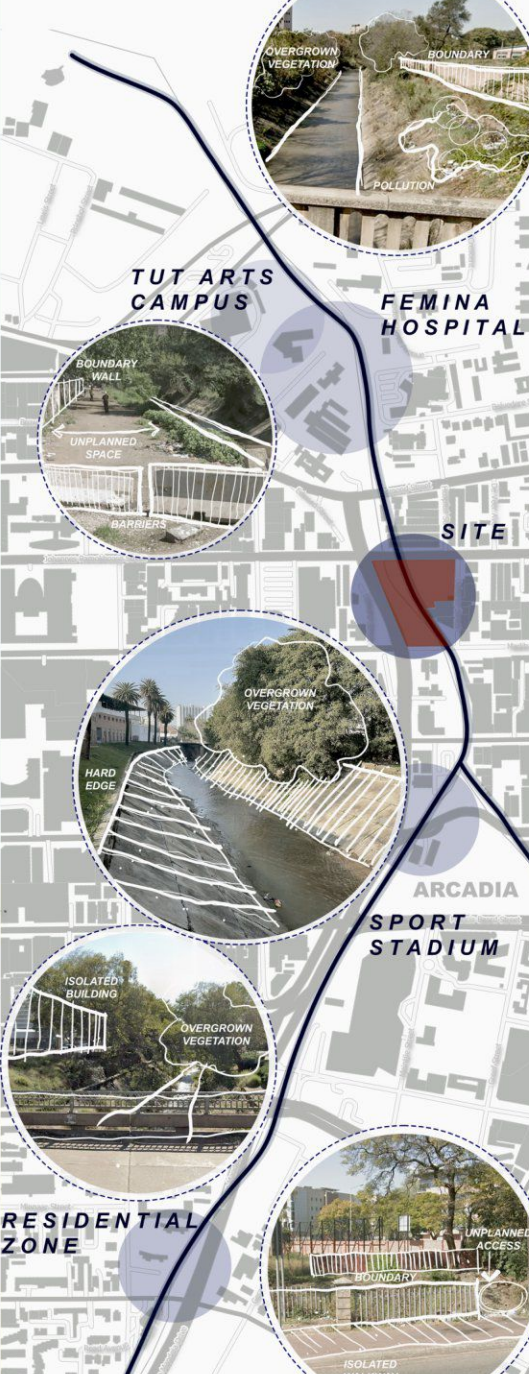
COMBINING ACTIVITIES

- LEISURE
- COMMUTING
- SOCIAL GATHERINGS
- EVENTS

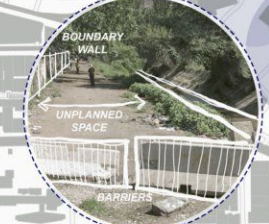


NETWORK

ARCADIA X RIVER



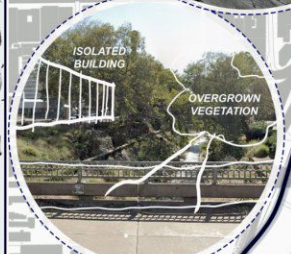
TUT ARTS CAMPUS FEMINA HOSPITAL



SITE



ARCADIA SPORT STADIUM



RESIDENTIAL ZONE

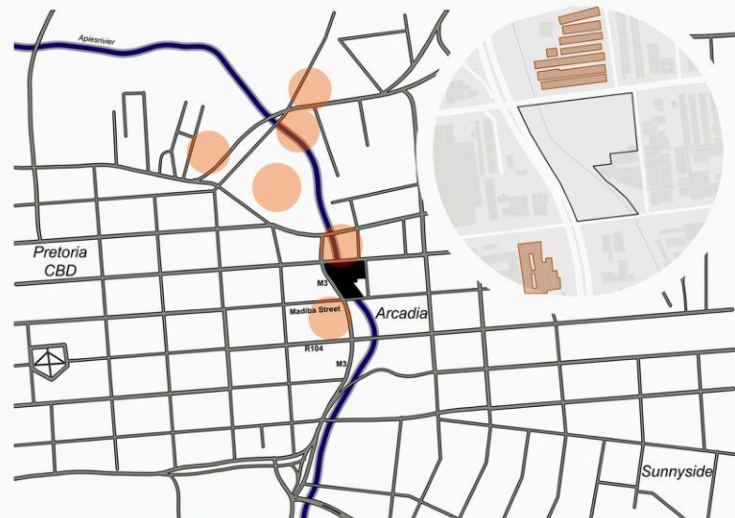


SITE (macro)

SURROUNDING PROGRAMMES AND USERS



COMMERCIAL ⌚



EDUCATIONAL ⌚



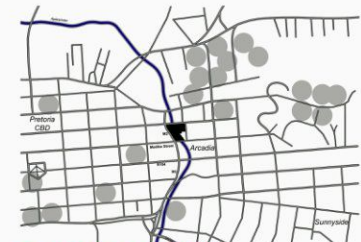
FOOD OUTLETS ⌚



RESIDENTIAL ⌚



MEDICAL ⌚



GOVERNMENT ⌚

COMMUTERS
Public transport passing by the site and stopping nearby

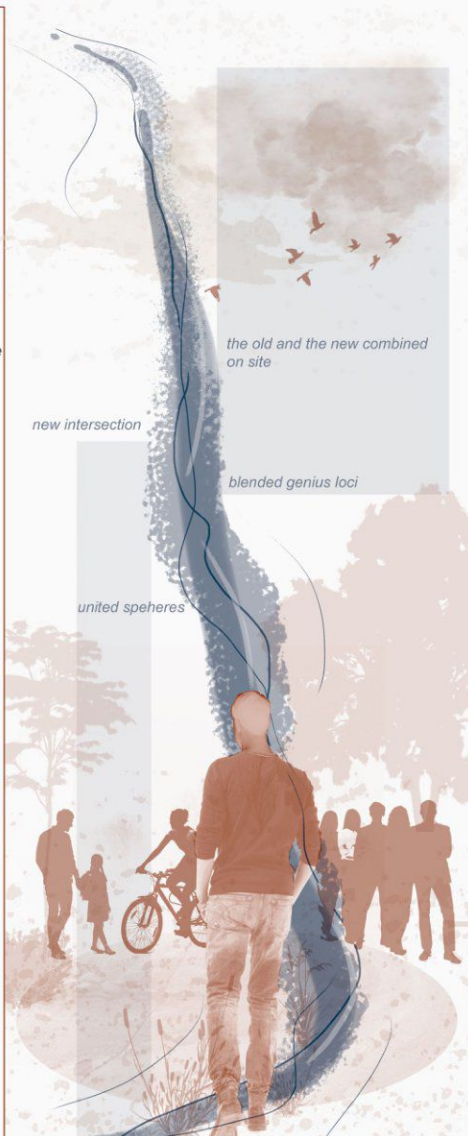
WORKERS
Individuals that work in the city and move past the site/ works near it

SCHOOL & UNIVERSITY STUDENTS
Primary students attend school across the site and TUT students are in close proximity to the site and general Apies River

RESIDENTS
Various residential blocks are located close to the site, placing families with different age groups near the site

WASTE REDEEMERS
Individuals that revive waste items into a recycling system

CURRENT ARCHETYPES



PRACTICING ARCHITECTS
CPD conventions will accommodate professionals within the built industry

STUDENTS
Architecture- and other built environment students will have access to the site and programme

ACADEMIC PROFESSIONALS
University lecturers will have the opportunity to make use of the facilities for academic functions

CLIENTS
Individuals who make use of the independent coffee- and print shop on site. Clients of architects can come to the site and have project meetings

VISITORS
Community members and other visitors will be able to be involved with the public spaces, ablutions and additional facilities

NEW ARCHETYPES

SITE (macro)