REVEALING VALUE A THROUGH TRANSPORT INTERCHANGES

PAUSE

Alex Wild
2018

Revealing Value at Transport Interchanges Through Pause

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WDXALE002

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1. Executive summary

The following document contains my dissertation entitled “Revealing Value at Transport Interchanges through Pause”. It includes an initial study, undertaken in conjunction with the main research. The site analysis conducted in this study was used within the main dissertation project. The dissertation design is based on my own design premises, aims and objectives and can be understood through narrative on the history of my site and the representations which accompany a written “walk-through” of my design.

Study: Transport Interchange Metabolism Landscapes

2. Study abstract

This study considers how Urban Metabolic Theory can be used as an analysis tool for Landscape architecture. It explores the Salt River transport interchange site through Urban Metabolic Theory, which uses material and energy flow analysis to understand the Urban environment. It also attempts to use principles adopted from this theory to better understand the natural flows and exchanges and their implications for Landscape architecture and design.

3. Study

a. Aim: To identify material and energy flows, both Urban and Natural and better understand how they affect each other and space in order to generate new design opportunities and reveal landscape potential.

b. Principles adopted:
- Environments can be understood though flows of energy and materials
- Efficiency of flows can be measured
- Cycling of resource to achieve more sustainable development

c. Assumptions:
- Value can be created through creating pause
- Changing the use of space can change how it is valued

d. Methodology

- Identify Material and Energy flows and their inputs and outputs
- Overlay/ analysis flows to understand how flows interact with and impact eachother
- Make assumptions regarding requirements for efficiency of flows
- Consider how flows affect the landscape and how more efficent flows may affect the landscape through design
- Consider flows can be cycled (outputs to become inputs) and how this cycling may affect the landscape through design
- Identify what aspects of the landscape are not adequately considered through this analysis

MATERIAL AND ENERGY FLOWS IDENTIFIED at Salt River Interchange

with Inputs and Outputs

** M= Metropol; SR= Salt River*

Movement of People:

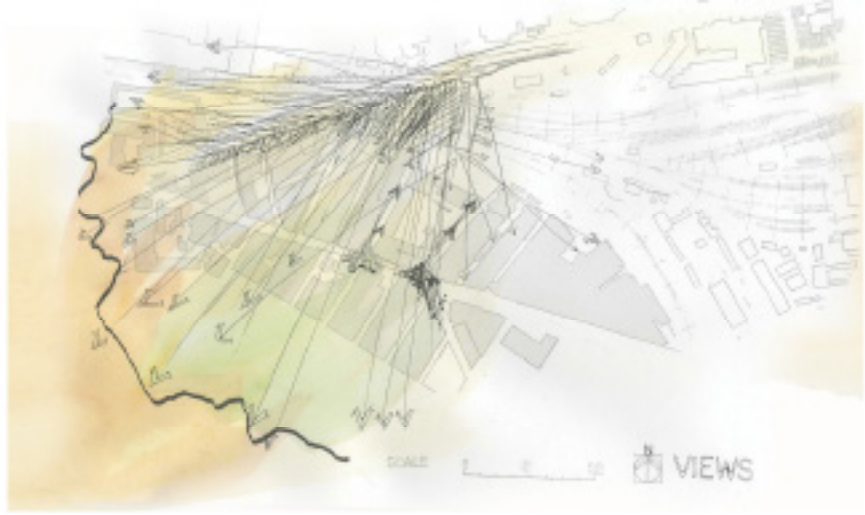
Inputs identified:
- Transport infrastructure -M
- Public space - SR
  - Design
  - Safety
  - Character
  - Recreation
  - Aesthetics and Views
- Wayfinding- SR
- Services: Water, electricity

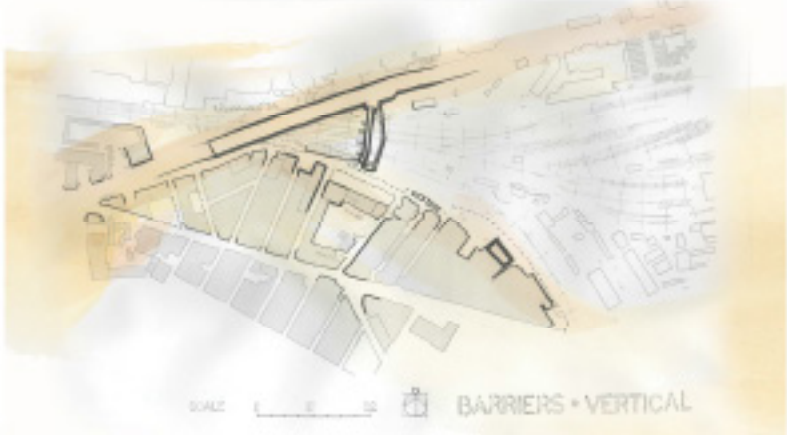
Outputs identified:
- Built Environment
  - Infrastructure
  - Residence
  - Business/commercial
  - Views and barriers
- Commerce
- Recreation/ social integration
- Waste
- Noise

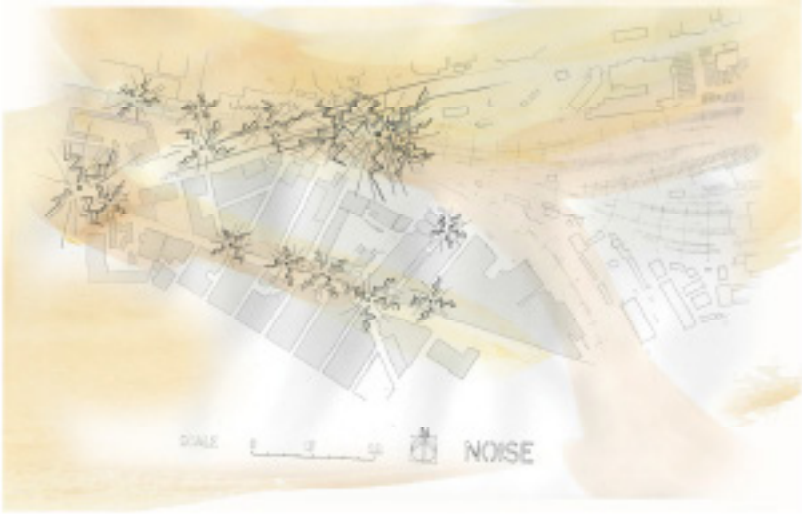
Movement of Goods and Services

Inputs identified
- Space: Production, storage, commerical - SR
- Transport infrastructure -M
- Resources (natural/ synthetic) -M
- People – M and SR
- Vehicles
- Services: Water, electricity

Outputs identified
- Goods and commerce (income) – M and SR
- Built Environment
- Waste – SR
- Noise







Movement of Waste

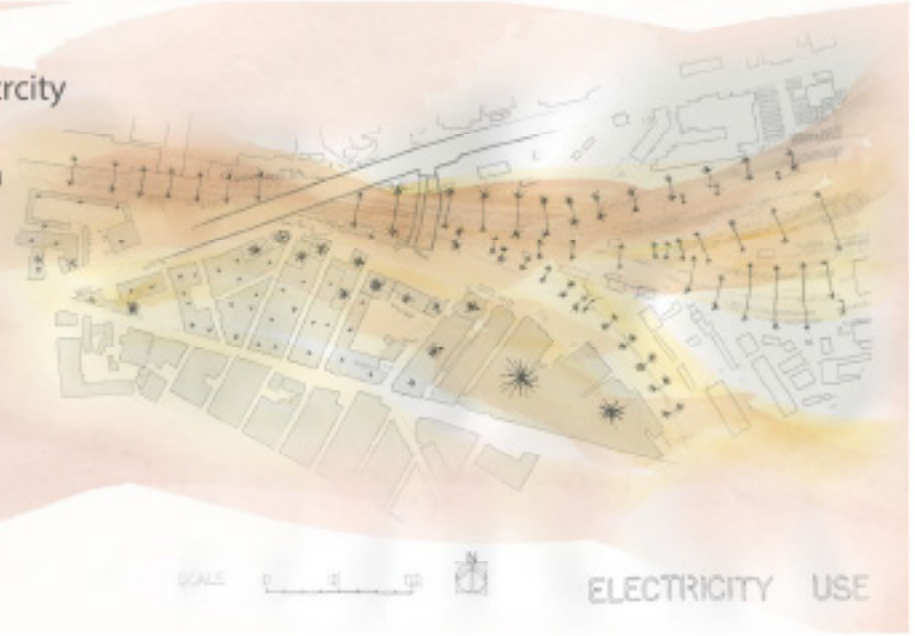
Inputs Identified:
- People, Goods and Services - SR
- City Services - M

Outputs Identified
- Collected/Disposed Effluent waste
- Litter and dumping
- Soil, water, air pollution

Movement of Electrcity

Inputs Identified:
- Eskom power generation – M

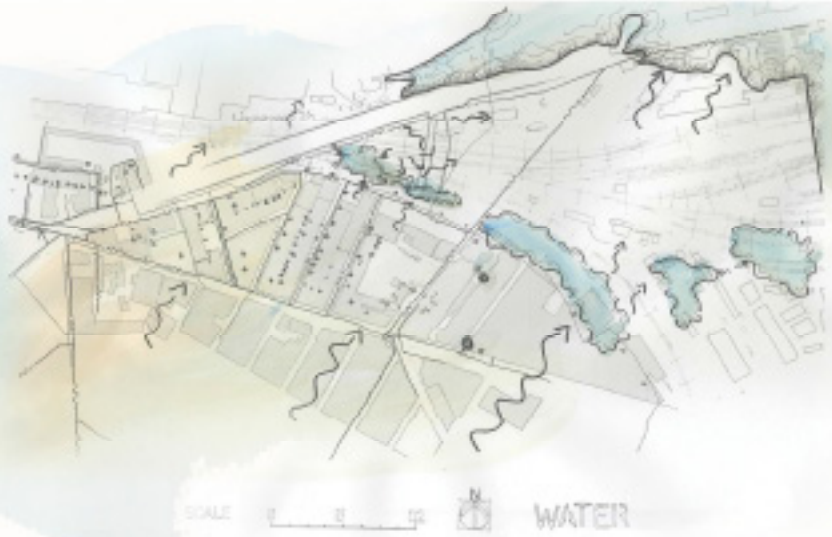
Outputs Identified:
- Electricity – SR
- Substation – SR



Movement of Water

Inputs identified
- People, Goods and Services
- City Water supply - M
- Elements - SR and M
- Ecosystems - SR and M
- Pollution- SR and M

Outputs identified on site
- Water: supply to certain quality
  - Ground water
- Ecosystems, biodiversity, flora and fauna to a particular level of health
- Aesthetics



Soil and Nutient Cycling

Inputs identified
- People, Goods and Services
- City Water supply - M
- Elements - SR and M
- Ecosystems - SR and M
- Pollution- SR and M

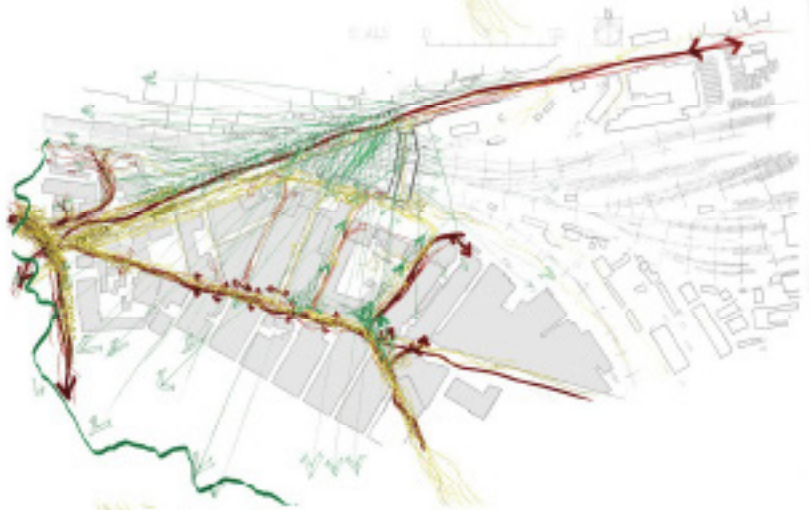
Outputs identified on site
- Water: supply to certain quality
  - Ground water
- Ecosystems, biodiversity, flora and fauna to a particular level of health
- Aesthetics

OBSERVATION:

The output of natural the flows of Water and Nutrients are inputs to People, Goods and Services flows although, these "inputs" are sourced via the Metropol. The outputs of People, Goods and Services flows include factors that can be considered to define space and affect the human experience of it.

OVERLAY ANALYSIS: People, Goods and Services with all other flows

OVERLAY ANALYSIS: People, Goods and Services with own Outputs



OBSERVATIONS:

- Goods and Service flows seem to occur in the same place
- Not much of either around and enroute to the station, despite density of flows in the immediate surrounds

- Electricity use is most on the railway infrastructure and around the production of some goods and services

- Municipal waste collection and water supply is around residential and business built environment.
- Illegal dumping is occuring where people and goods flows are low

- Large areas of local water and soil nutrient cycling space, are un-used by people, goods and service flows but impacted via run-off

OBSERVATIONS:

- Movement of people and goods are denser around business/ commercial areas.

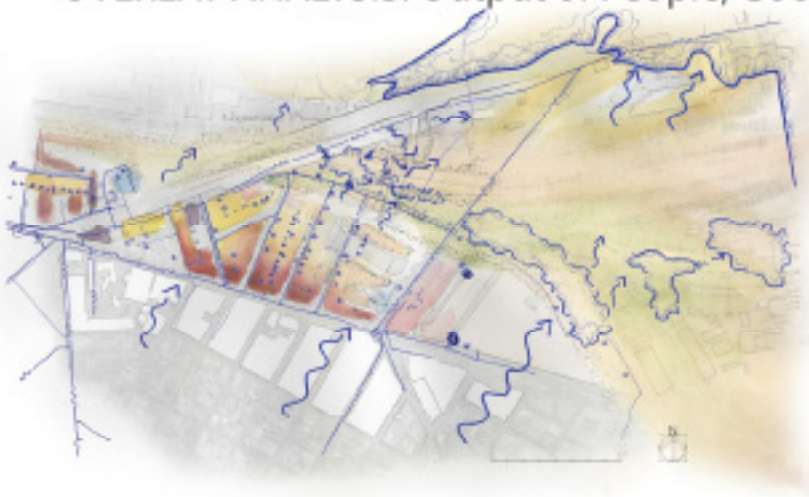
- There are very low people flows to open spaces

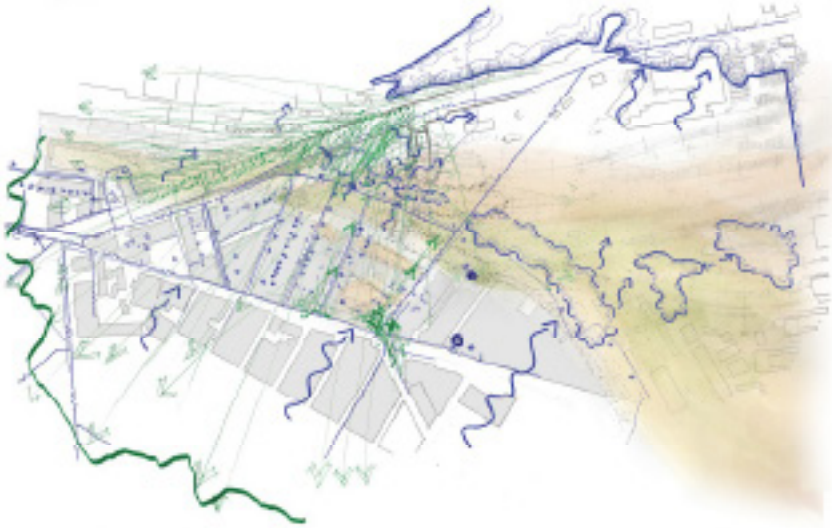
- Built environment is creating "barriers" and narrow access with may be reducing/ discouraging people flow and constricting view

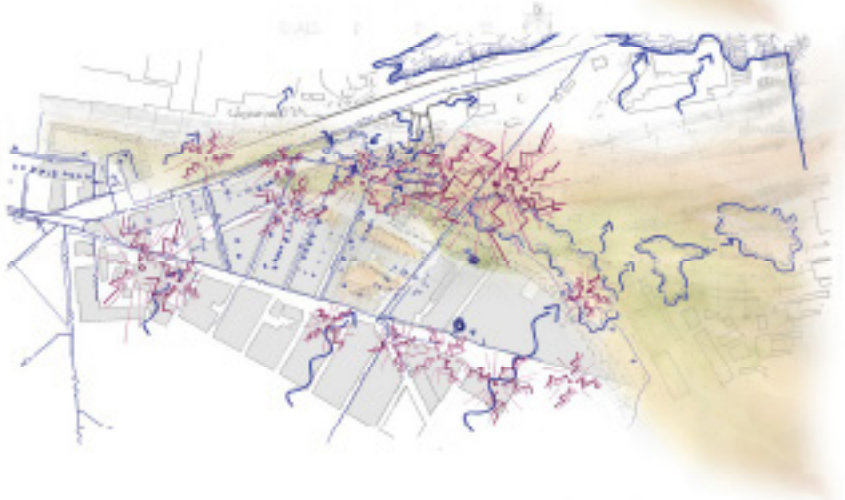
- Although there are many views from the vertical areas identified, there are low flows of people

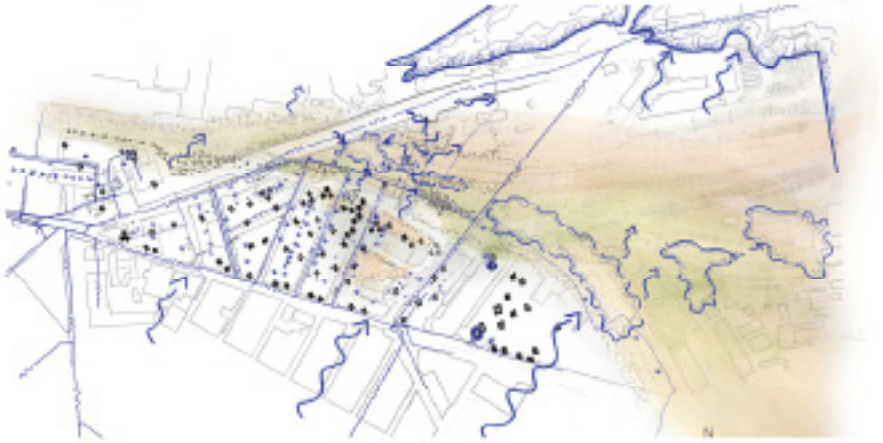
- The most noise is created but the railway infrastructure and the businesses

OVERLAY ANALYSIS: Output of People, Goods and Services flows with natural flows









OBSERVATIONS:

- Run-off from the built environment is entering the water and soil flows

- Current views area not capitalising on water and soil/ vegitation opportunities, they are mostly towards the mountain

- Vegitation is not currently being used in the open spaces to buffer noise

-

Assumptions for Flow Efficiency

PEOPLE FLOWS
- Safety
- Ease of access, reduced barriers
- Space to accommodate
- Interest, views, aesthetics
- Legibility and wayfinding
- Connection to goods and services
- Program for cleanup/ waste regulations adhered to
- Reduced noise from Infrastructure and Industry

GOODS and SERVICES FLOWS
- Ease of access via Road
- Production space
- Commercial space
- Efficient supply of resources and services
- Program for cleanup/ waste regulations adhered to

WATER FLOW and SOIL PROCESSES:
- Permeable surfaces
- Unpolluted soil
- Space for collection/pooling
- Healthy ecosystems
- Output used sustainably

ELECTRICITY and WASTE FLOWS:
- Access to infrastructure to maintain
- Short distances, transit points (collective use and maintenance)
- Reduced output
- Electrical output effectively supplied to people and goods and service flows.
- Waste output effectively collected

Findings/ Learning and Ideas: More efficent flows and Landscape Design

- The flow analysis has been able to highlight spaces where **connection** between people, goods and services and be be can improved. (Bringing more people to commerical opportunities and more goods to people)

- **People movement** and existence of **low-use space** is affecting the location of illegal dumping. Landscape design could potentially change the use of these spaces or adjourning spaces to affect how people value it and reduce pollution.

- People are **accessing no-access rail land**. Landscape design could consider accommodating desire lines

- **Sharp bends and lack of indication** on flow route to station area is **reducing visibility, connection to station area** and concentrations of **flow to station area**. Landscape design could include wayfinding elements such as landmarks or element of continuity to synthesise route.

- **Views** from the station are **interrupted by high verticals**. Landscape design could incorporate verticals as a point of interest.

- Very **narrow accesses** is reducing safety (my opinion). Landscape design opportunity to increase safety

- Infrastructure is producing **noise** pollution with impacts residential streets. Landscape design could reduce this noise using a form of physical or visual screening

Findings/ Learning and Ideas: Cycling of flows and Landscape Design

- **Electricity flows, verticals and open railway land** present an opportunity for solar power generation in "out of public reach" spaces. Landscape design could include solar power to supply or supplement S/I supply and/ or the infrastructure and surrounding public space

- **Water flows, verticals, under-utilised space** and the needs of **people and goods and services flows**, present an opportunity for water recycling - for use and aesthetics in Landscape design

- **Permeable surfaces** could be used for **productive** landscapes that benefit people flows

Shortcomings of Analysis identified:

- Applying ideas from Urban Metabolic theory requires analysis on a project scale that takes into account flows occuring on a Metropol scale

- Identification of flows are complicated and there is room for error

- Flows do not take cultural and historical landscape elements into account unless these are included in People flows or "Time" itself is considered a Flow.

- Analysis does not provide insight on "how" to acheive the landscape ideas it generates

Dissertation: Revealing Value at Transport Interchanges Through Pause

4. Dissertation abstract

The following dissertation proposes that a transport interchange should be celebrated as a public place of engagement in order to reveal its true value through the creation of pause, in contrast to the movement of transport. The design aims to create value - social and economic and environmental benefit that might encourage investment in an area currently in need of regeneration and poverty alleviation. The design intervention focusses on encouraging people to pause at transport interchanges as a public place and emphasis is put on creating hybrid landscape that is an edible/ medicinal, productive, recreation and economic landscape, in response to the multi-layered context and varying needs of humans and nature in the urban environment. The underlying assumption for this project is that social, economic and environmental value can be created or realised through engagement between people and with nature. The site on which this dissertation is based, is Salt River Rail station area in Cape Town.

5. Dissertation

a. Design Premises

- Engagement – between people and people, people and nature, creates value that addresses social, economic and environmental needs
- Opportunity for value creation in a transport landscape is at transport interchanges/ nodes where movement is halted.

b. Aim

Value is defined as Economic, Social and Environmental benefit and my intervention aims to:

- Address poverty through:
  - o Improved Economic productivity across income groups AND
  - o productive landscapes
- Encourage Social interaction through multi-use space

c. Objectives:

- To create flexible, mixed use space with limited separation of uses, responding to a diverse Context
- To maximise econ, social and environmental exposure
- To encourage engagement with the landscape, across income groups including those with No income and to use landscape to address income and poverty
- Create a space that can benefit locals

d. Why Transport and Salt River:

My decisions to choose Salt River interchange was a series of questions I asked myself, as seen in Figure 1.

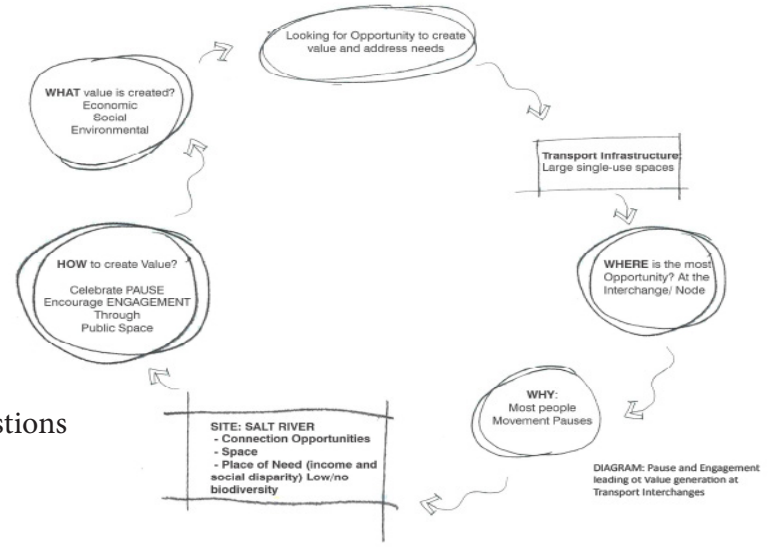


Figure 1: Diagram of questions

It is my opinion that rail infrastructure offers much opportunity given the amount of landscape occupied by single function. To me this seems inefficient, especially in a country with such socio-economic pressures and needs. I believe that the interchanges on a network represent the opportunity for engagement as this is where the linear movement of people and infrastructure, momentarily touches ground. The vast number of people passing through an interchange also offer opportunity in my option, as an almost "captured audience".

I selected Salt River interchange as my study area as this Rail interchange offers great infrastructural connections to the rest of the city which I think poses additional opportunity and it is currently ear-marked for redevelopment by the City of Cape Town as an urban area of need. (Stone 2018) It is also positioned as potential place of connection for biodiversity, see Figure 2.

Characteristics of a Transport landscape are assumed to be:

- Movement prioritized over Pause: Transport is movement. This movement and speed is reinforced by the infrastructure. There is little to no accom modation for pause because of this and therefore limited opportunity for social, economic and environmental engagement.
- Disconnection: Transport interchanges by their nature, offer connection to the rest of the city via infrastructure. However, this confluence of infra structure spatially and socially dividing, cutting off surrounding areas from each other. Additionally, having emerged at difference times the different infrastructure can be inharmonious – creating disconnected spaces

These findings resulted in the underlying premise for my study, that in order for Social, Economic and Environmental engagement, I believe people need to be enabled to PAUSE.

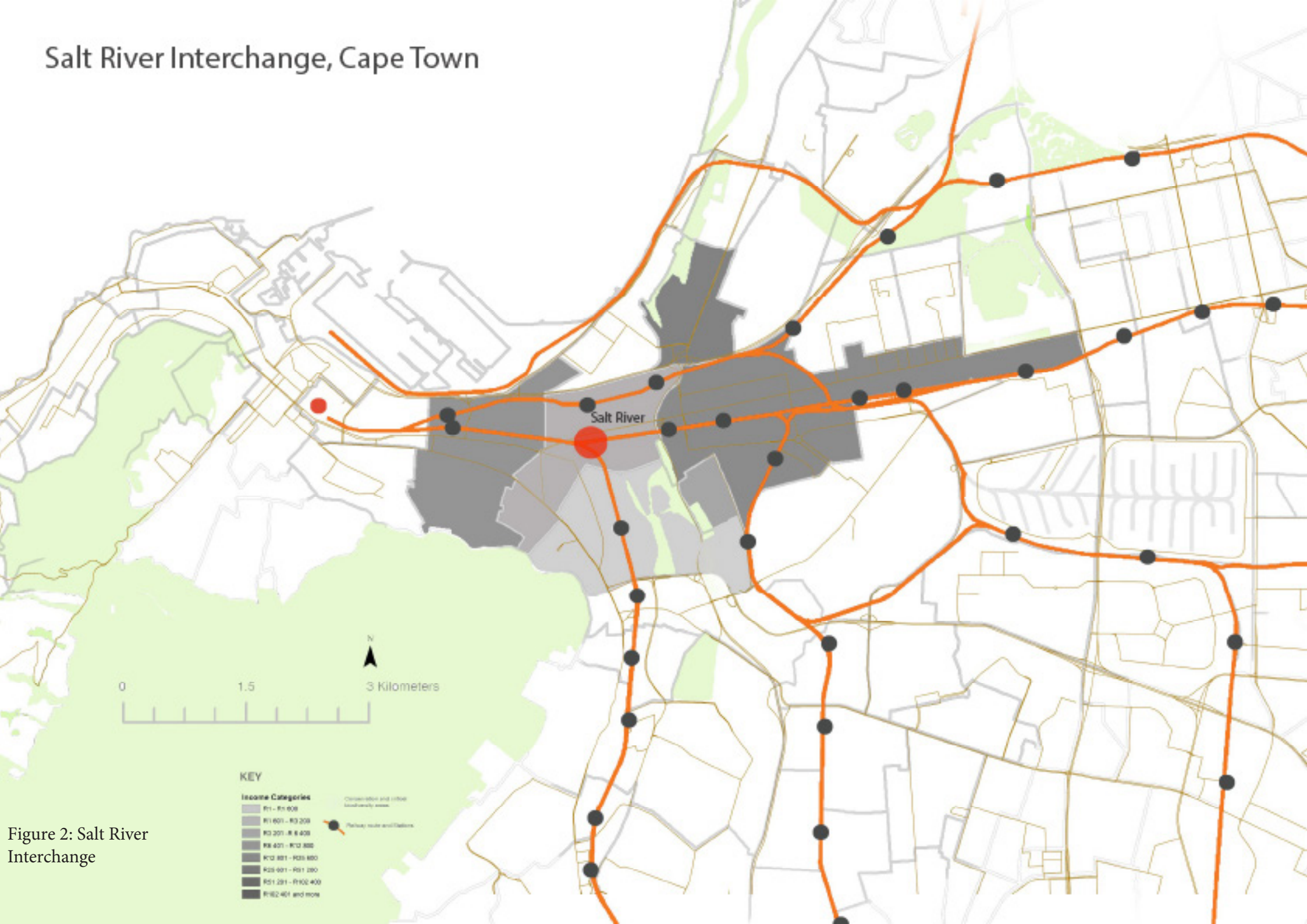


Figure 2: Salt River Interchange

e. Salt River, a History

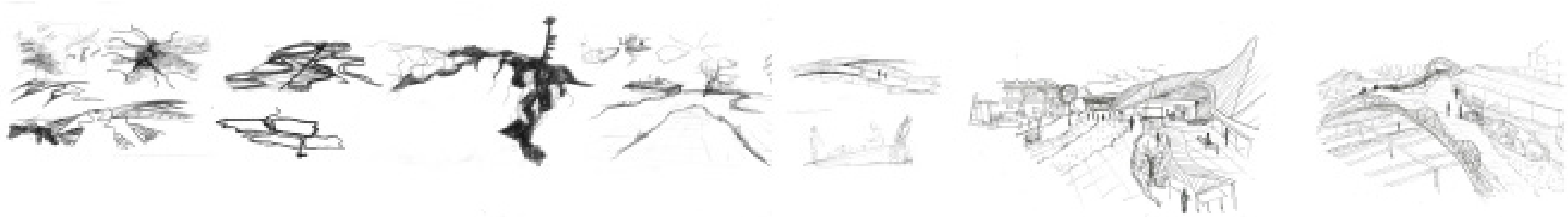
The Salt River and Liesbeek area was once fertile from alluvial processes and consisted of large marshlands and wetlands fed by the Salt River estuary. Historical records following the arrival of the Portuguese, attest to huge herds of people and animals camping in the Salt River area. Due to the permanent aquifers under Table Mountain that supplied the Liesbeek River with water year-round. The marshlands at the confluence of the Liesbeek, Salt and Black Rivers would have been extremely important for the Khoisan who would have hunted, fished and grazed cattle here. In effect it appears to have been a place of great engagement between people and with the environment. ("Call For Salt River To Celebrate Their Heritage", 2018) ("The Dutch Settlement" 2018)

In the 1600s, Jan Van Riebeek instructed slaves to construct a barrier which ran from the Salt River mouth to Kirstenbosch, barring the Khoisan from grazing their cattle. The proximity to the port and fertile soils encouraged colonialists to commandeer land for trading and food production and Salt River market has served as a trading post for over 80 years. ("The Eight Years Of Jan Van Riebeeck – The Journalist" 2018)

In the early 20th century much of the great estuary was drained to make way for shunting yards and railway workshops. Salt River became the industrial heart of Cape Town, known for its metal, wood, flour mill and textile industries. Today it is a shadow of its former self – sure the infrastructure meets there – it is a convergence of rail and road. But the original landscape has been forgotten in the years of colonization, industry and Apartheid. There are still remnants of all these trades present today, but globalization and investment prohibitions throughout Apartheid have contributed to its current state of decay.

Today, the immediate surrounds of the Salt River station are mainly residences, some buildings dating back to 1700. There are some factories and warehouses, a few hotels and couple of corner cafes. The old Fruit and vegetable market still exists although dramatically reduced and Snow Flake Flours now occupy the Mill. Pedestrians access the station past residences and it is served by a bus routes outside the station and on Voortrekker road, collecting pedestrians who have crossed the rail.

Salt River circle gives access to neighboring Woodstock and the popular tourist market "the Biscuit Mill" and Lower Main road in the South leads to Observatory.

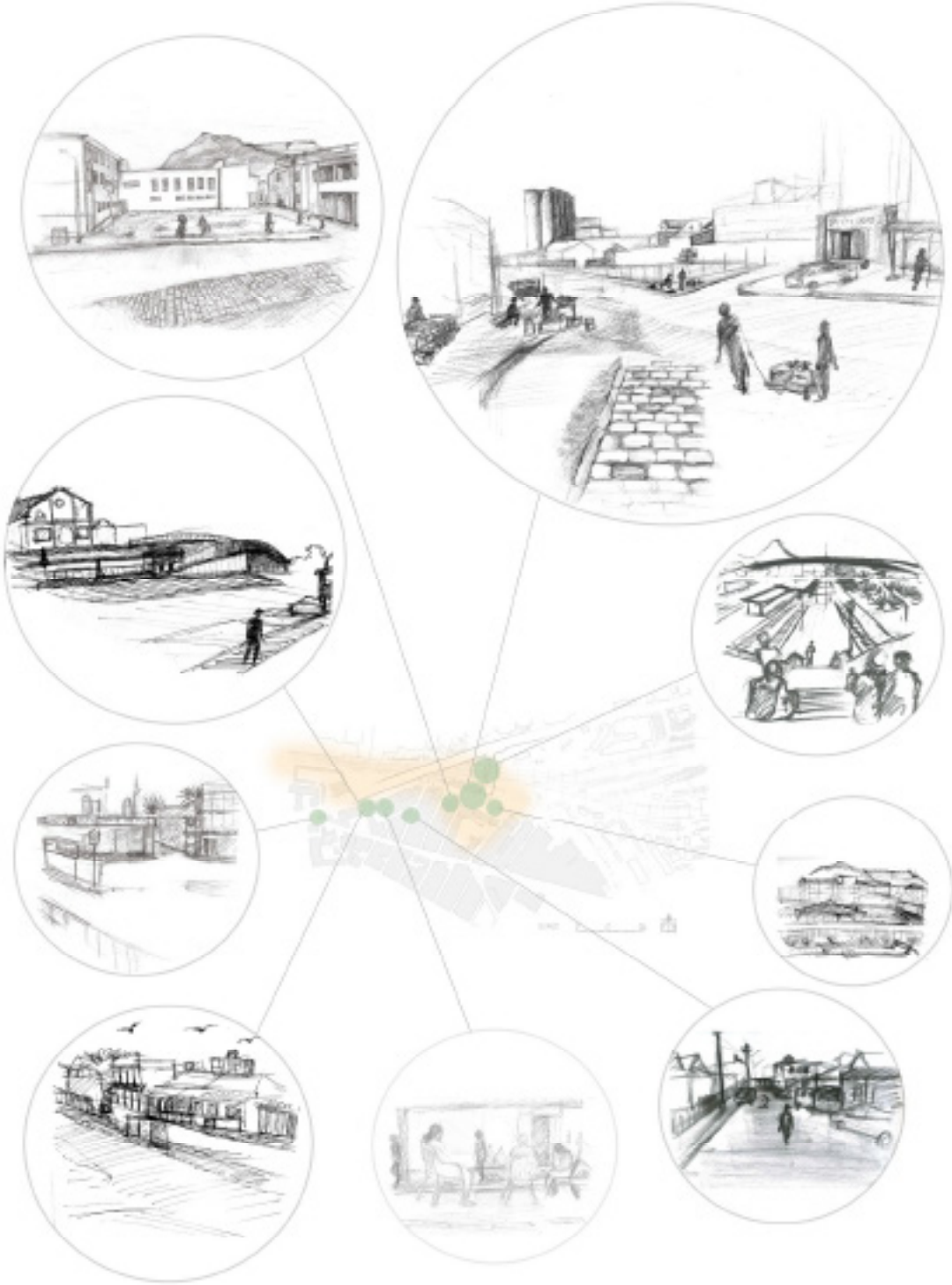


SALT RIVER MARSH
As the ocean meets the land So did we once meet
By word and not by hand Our tales told sun or sleet
Making way by wings and feet
Thickly layered from rim to pleat
Once where creatures thrived and fed
Once where we forged and wove our thread
This is a place where the land opens its arms and embraces the sky A wild place, vast and deep As far as eyes can see
Where murky secrets seep
Now the cracks begin to show
What secret life beneath you flows?
Where the ocean meets the land I will not rush by, let me stand
by Alex Wiid

f. The intervention

My design aims to bring back the nature of the marshland – by making a place of social, economic and environmental engagement. It also references the rich history of this landscape, since the marsh – Salt river was once the industrial heart of cape town – metalwork and textiles specifically. Reference is made to these histories through material and surface textures, the form of shade and seating structures and the exposure of water

ANALYSIS OF PLACE



g. Constraints and Opportunities

Constraints, Opportunities and the proposed design overview can seen in Figure 3.
I analysed the constraints and opportunities of the site and my proposal aims to achieve social, economic and environmental value in the following way:

- Prioritising pedestrians over cars and improving pedestrian access. Guiding crowds through the landscape and providing opportunity for rest, play and points of interest to encourage pause. Encouraging use of access points away from residences
- Creating economic opportunity - market and commercial spaces
- Useful and edible plants for foraging and economic opportunity
- Locating new housing developments so as to support rather than hinder surrounding landscape.

EXISTING: CONSTRAINTS AND OPPORTUNITIES

PROPOSED

KEY

- Non-Residential
- Open, potential for green connection
- Proposed Development
- Fenced children's park
- Polluted
- Pedestrian movement
- Flooding
- Desire lines
- Bus Stops
- Landmark: Water feature
- Landmark: Market

PROPOSED

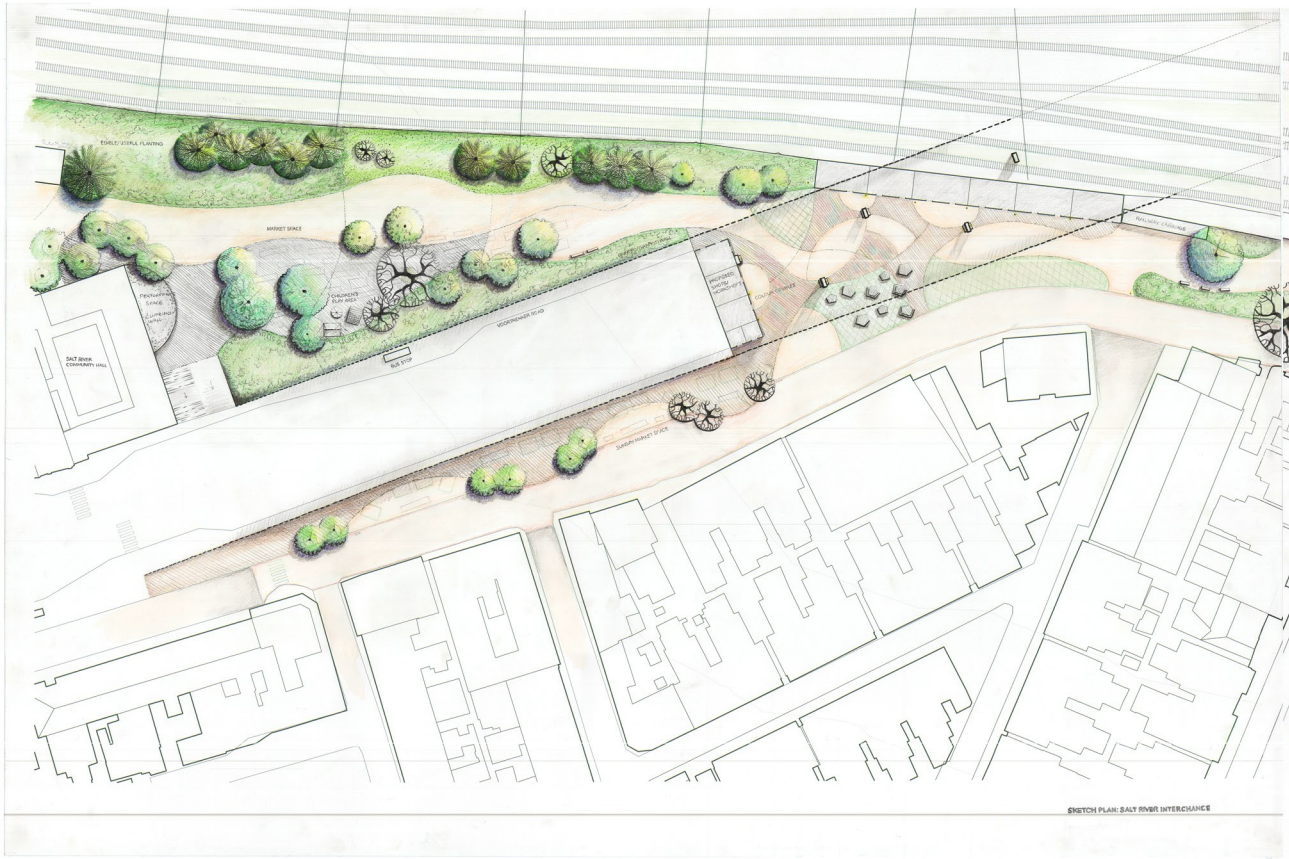

SCALE
0
02
N
Useful/ Edible planting
Recreational
Childrens play
Marketplace
Economic edge

h. Design program

- Achieving Economic, social and environmental value
- Pedestrian corridor from the intersection of Lower Main Road and Albert Road to the Salt River circle under Voortrekker road - either pedestrian only or part pedestrian with buses ride.
- Multi-use spaces throughout which are different combinations of trading surfaces, play, rest and edible & useful planting
- High-street-type development with residential above and commercial below and active corners
- Housing development is proposed in a different location to the current location planned by the city and runs North to South in this design as indicated on the plan.

Model persepective: North-facing

Model persepective: South-facing



Corner of Lower Main Road and Albert Rd

Sketch Plan: Not to Scale

i. Design Walkthrough:

* See Sketch Plan

The route to and from the station begins at the corner of Albert road and Lower main road and is characterized by different mixed-use spaces. The road is part pedestrianized and raised slightly to indicate a change in priority.
There is a large square flanked by high-street style buildings

*See Section 1

Edges are activated by the typology of commerce below and residence above.
The space includes public areas around the main route and adjacent to the shops AND quieter areas closer to the residences. At the rear of the Clinic, is a children's play area and a potential place for café's or restaurants.
The path splits, leading the main flow of people towards the station between buildings but a portion towards a more meandering route. This is a large planted area, consisting of edible and useful planting and situated off the main route to encourage foraging. It is planted with indigenous and/ or hardy plants, not conventional vegetables but plants such as those use by Khoisan for food or medicine. The planted areas could also be used by residences for more traditional vegetables. There is an absence of pathways as it is expected that people will define their own paths, based on the most useful, productive plants or the season.

* See Section 2

This is intended to challenge the idea of use in public space being prescribed. I think that a public space that allows flexibility is likely to be more successful with respect to true inclusion. Incorporating edible and useful plants that can be foraged creates a supplementary food and income source to anyone, particularly those who live in the area and including people who are unemployed or living on the street. As a supporting initiative, the design proposes that ALL land occupied by Rail should be planted with plants that attract pollinators. This would strengthen the productive areas, protect the soil and prepare the land for future use as productive space (if the rollingstock yards and workshops are moved in future). It would also allow for transport nodes to ALL be connected to a green network.

Continuing along the central route, we pass the main shopping area and are guided around towards a market space, over-looking the ramped pedestrian bridge that crosses the railway.

The market space is characterized by multi-use surfaces. Areas not prescribed for a single use and throughout the design, surfaces included, could be used for rest, play and the display of goods by traders or adjacent shops. Surfaces are a combination of sloped, flat surfaces seat height and seat surfaces with backrests. The market space also includes seagull shade elements, designed to reference the historical beachfront of Salt River.

See Section 3, Detail Section 8

The marketplace can also be accessed through the cobbled alley which consists of smaller shops, workshops and colourful painted cobbles. Breaking through here and to the West, allows more corners to activate the surrounding space and greater access to the station.

Up ahead is the "Green Room walkway and water feature". The walkway across the railway has been widened to create a greater feeling of safety and is planted with surrounding climbing plants on tensile structures to improve the experience and a connection to nature. The intention is to encourage people to pause and appreciate the mountain views and locate themselves. The original landscape is referenced through the inclusion of ground water which is pumped via a playpump roundabout and stored in a tank (raised by infrastructure) and allowed to cascade as a water feature. Tank water can be filtered used from a collection point or for irrigation in the first few years of design implementation. Water feature water irrigates the plants and can overflow into another play area with large stepping stones and permeable paving.

See Section 3 and Detail Section 7 as well as Diagram of Play Pump

Treatment of water:
Water runs in the direction of the water feature, with the contours of the land. Run off is captured by swales and planter beds and rain water from roofs is exposed in areas via rills which are directed to trees or planter beds. Rills are also permeable, making them seasonal like the old marsh – plants will occupy them in drier months. All paved surfaces are permeable.

See Call-out C1, Section A and B

On exiting the station, pedestrians can cross over to the bus stop or take a right towards Salt River circle

See view “View from the Station, South East-facing”

They would then pass small shops which could be small business incubators or workshops for artisans or even lock up and go kiosks. These could be double-sided – serving both the pedestrians and the ticket holders on the platform. The same duel side trading idea is proposed on top of the walkway over the railway so that commercial opportunity is exposed to both ticket holders and pedestrians.

See Section 4

The space under Voortrekker road is activated as a shopping area and includes colour painted cobbles, different textures, lights, multi-use surfaces and shop/ workshop spaces. The vertical space is celebrated through the inclusion of benches that merge into the bridge supports. The historical textile industry is referenced through the surface materials and form of the benches.

See Section 9

The central movement route continues through to the iconic Fruit and vegetable market, passing through a planted area intended for foraging and trading. This is an ideal place to expand once more, the fruit and vegetable industry in Salt River. Vendors could sell local produce and produce from areas such as Philipi farm lands, which are accessible by rail to Salt River Interchange. Salt river circle and bus connections can be reached by a flight of stairs/ ramp alongside the Salt River Community Centre.

See Section 5

The sloped planted area is intended to reduce noise from the railway and provide extra eyes on the street.
This is an exhibition and play area and the walls of the bridge could be painted with public art or patches of advertising for artisans of the area, in a quilt-style

See Section 6

The proposal for Spencer road is a once-a-week market so as to activate this street and maximise potential but limit the impact on residences.

j. Conclusion

In conclusion, I believe that Salt River Transport Interchange as a public place of engagement rather than merely a thoroughfare, produces value in the way of social, economic and environmental benefit. I believe this is achieved through allowing people the time and space to engage, providing points of interest, places of rest, opportunity for income generation and the opportunity to engage with and appreciate the landscape.

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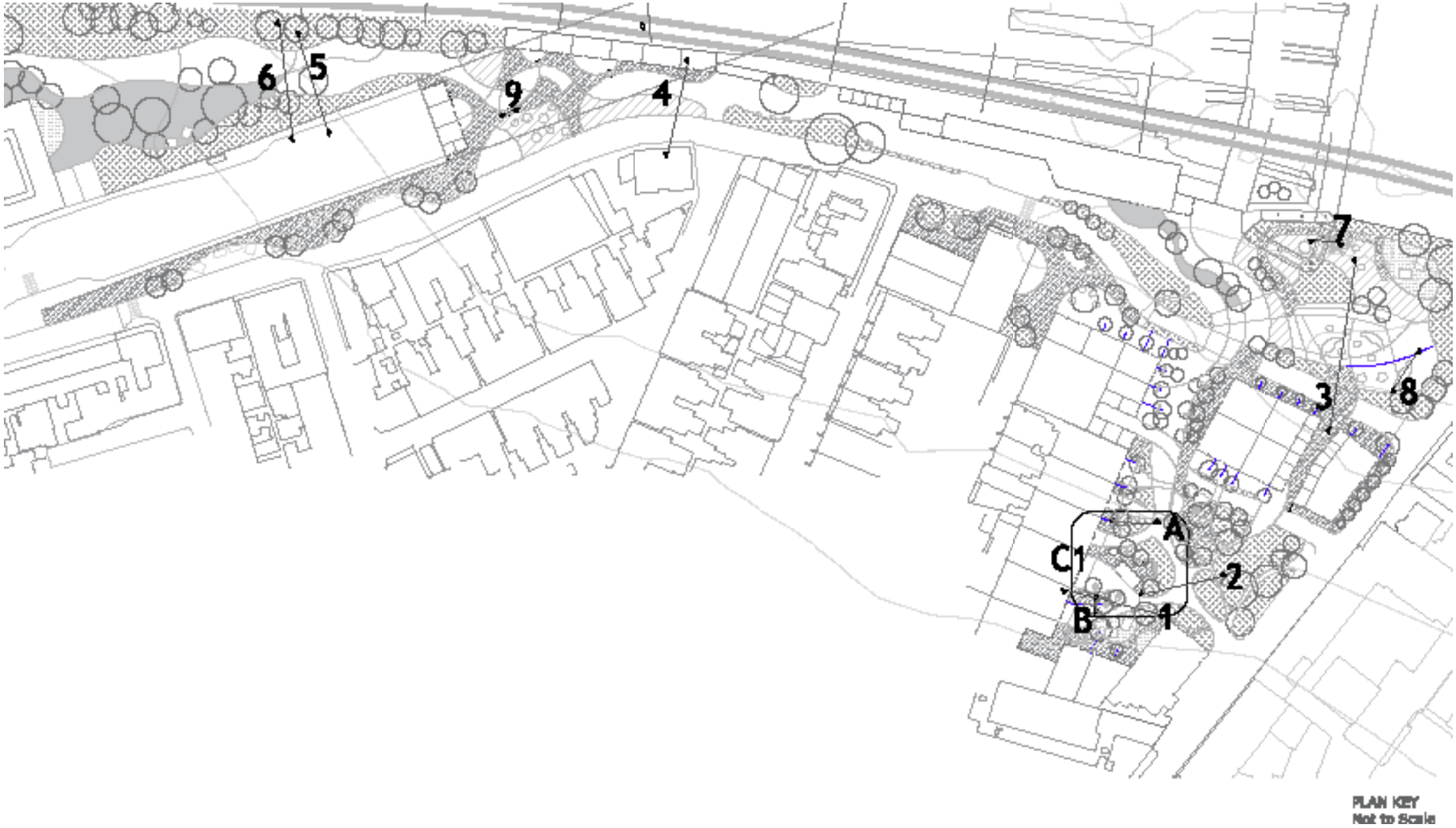
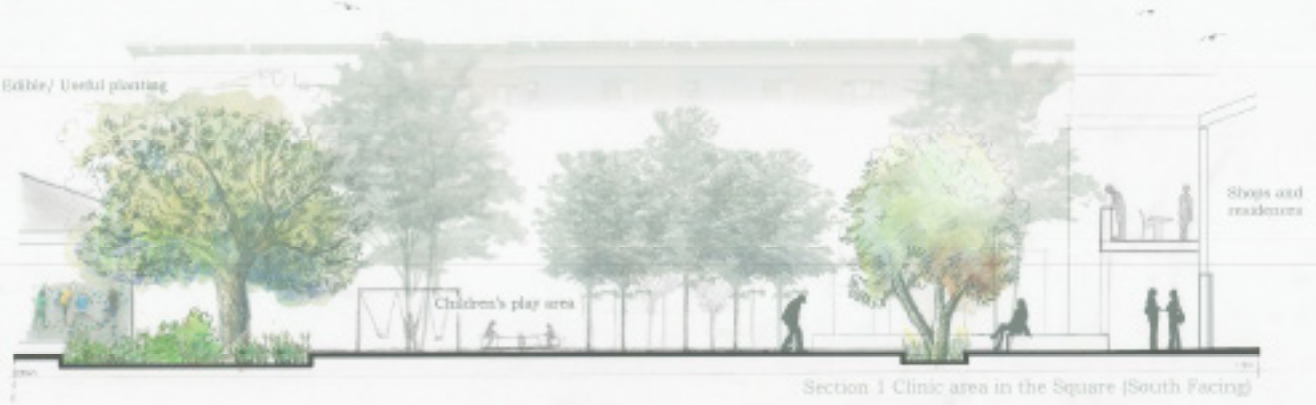
7. APPENDICES:
Appendix 1: Drawings



Section 4 Voortrekker Pedestrian Underpass (West-facing)

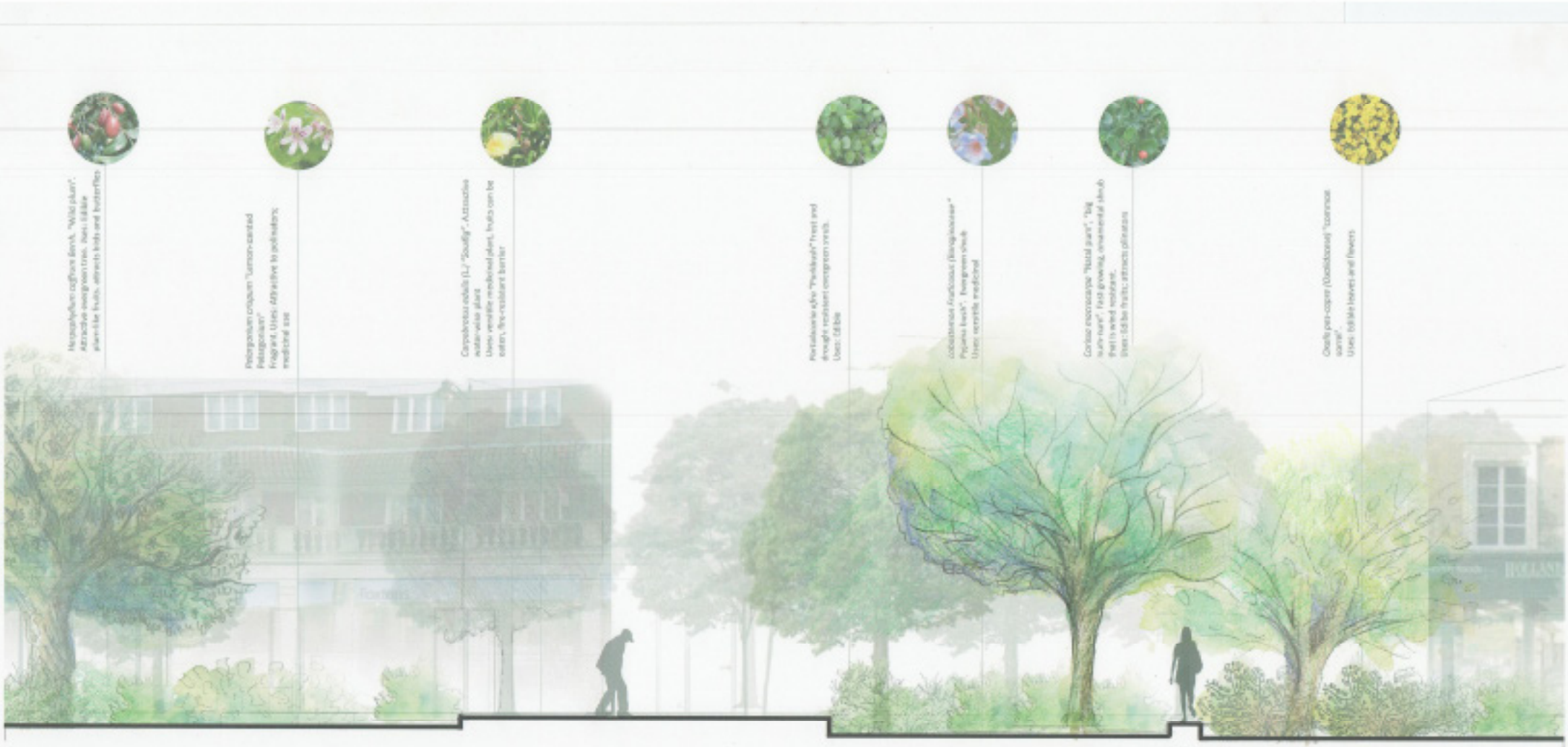
Section 5 Grass slope and Fruit & Veg Market space (West-facing)

Section 6 Voortrekker road painted (East-facing)



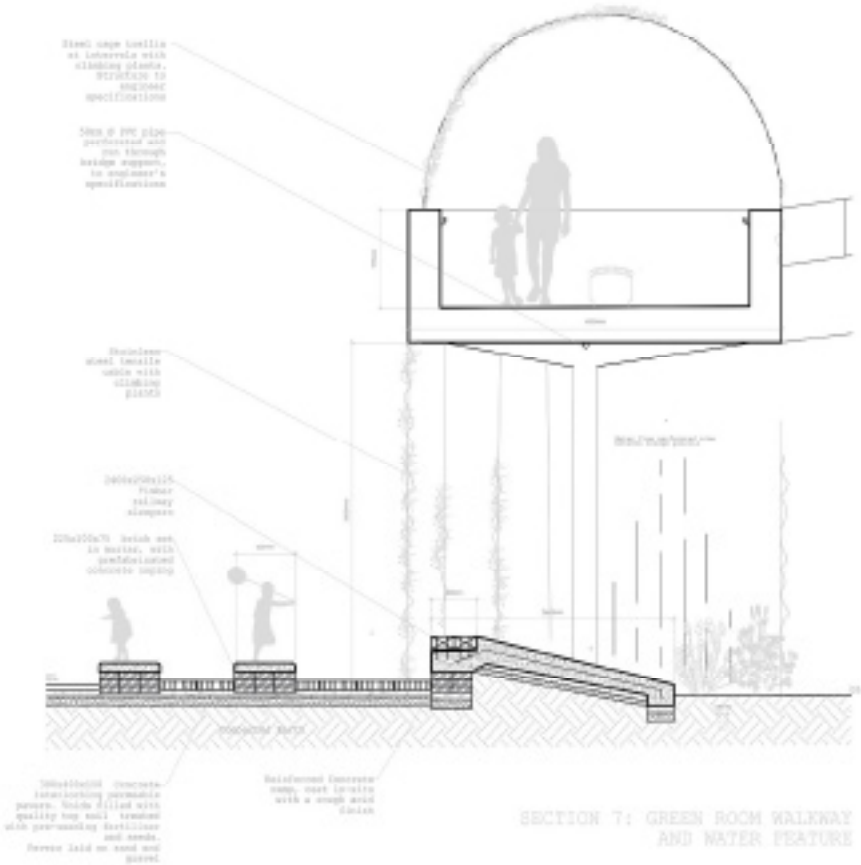
Section 1 Clinic area in the Square (South Facing)

Section 3 Marketplace

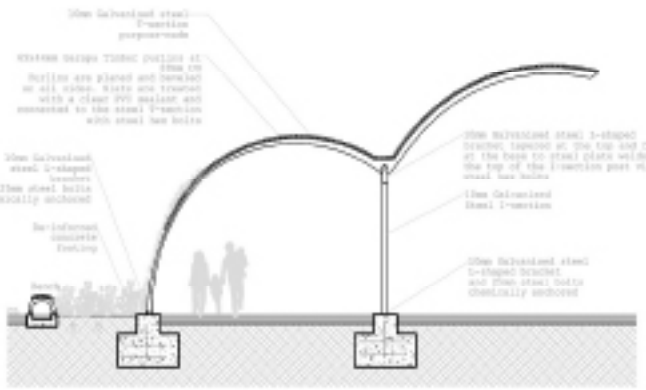


Section 2 Edible/ Useful planting in the square (North West- facing

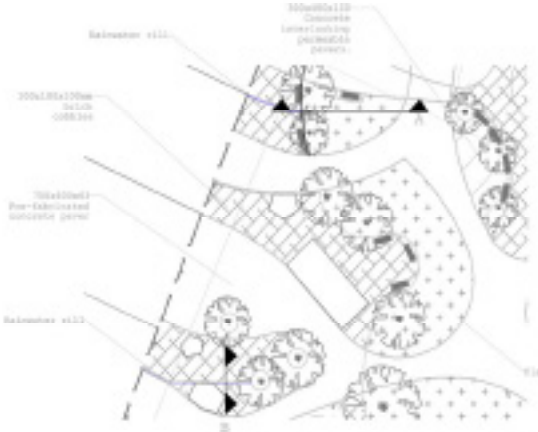
32.m



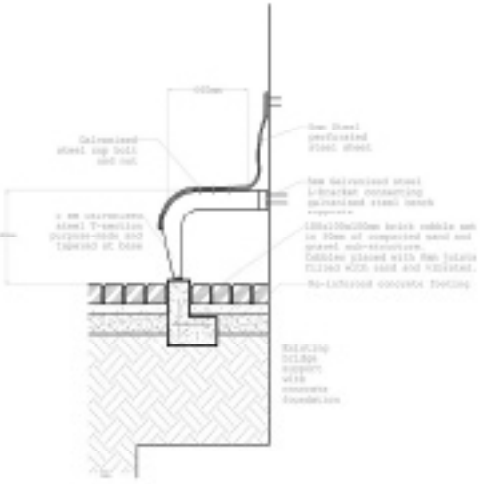
SECTION 7: GREEN ROOM WALKWAY AND WATER FEATURE



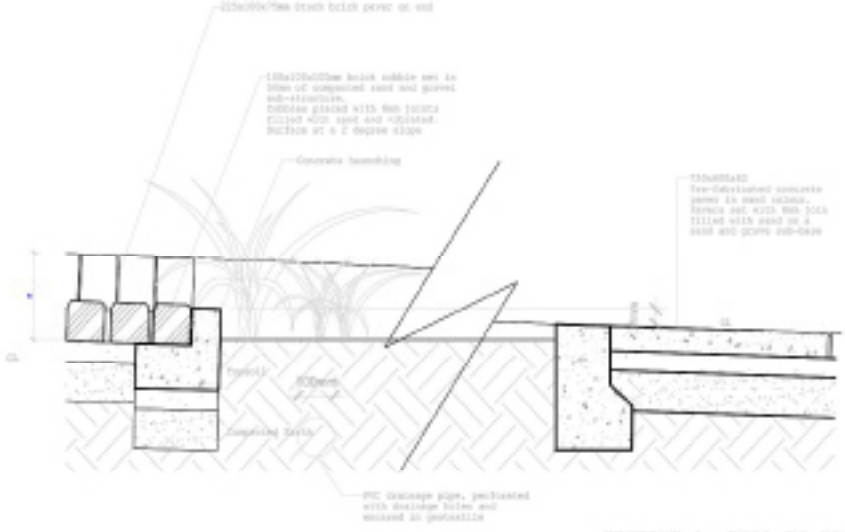
SECTION 8: SEAGULL SHADE AND SEAT



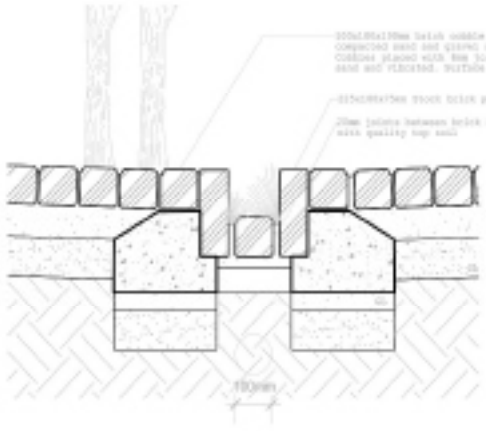
CALL-OUT C1: PAVING AND RILLS



SECTION 9: VOORTREKKER UNDERPASS SEAT



SECTION A: RILL TO PLANTER

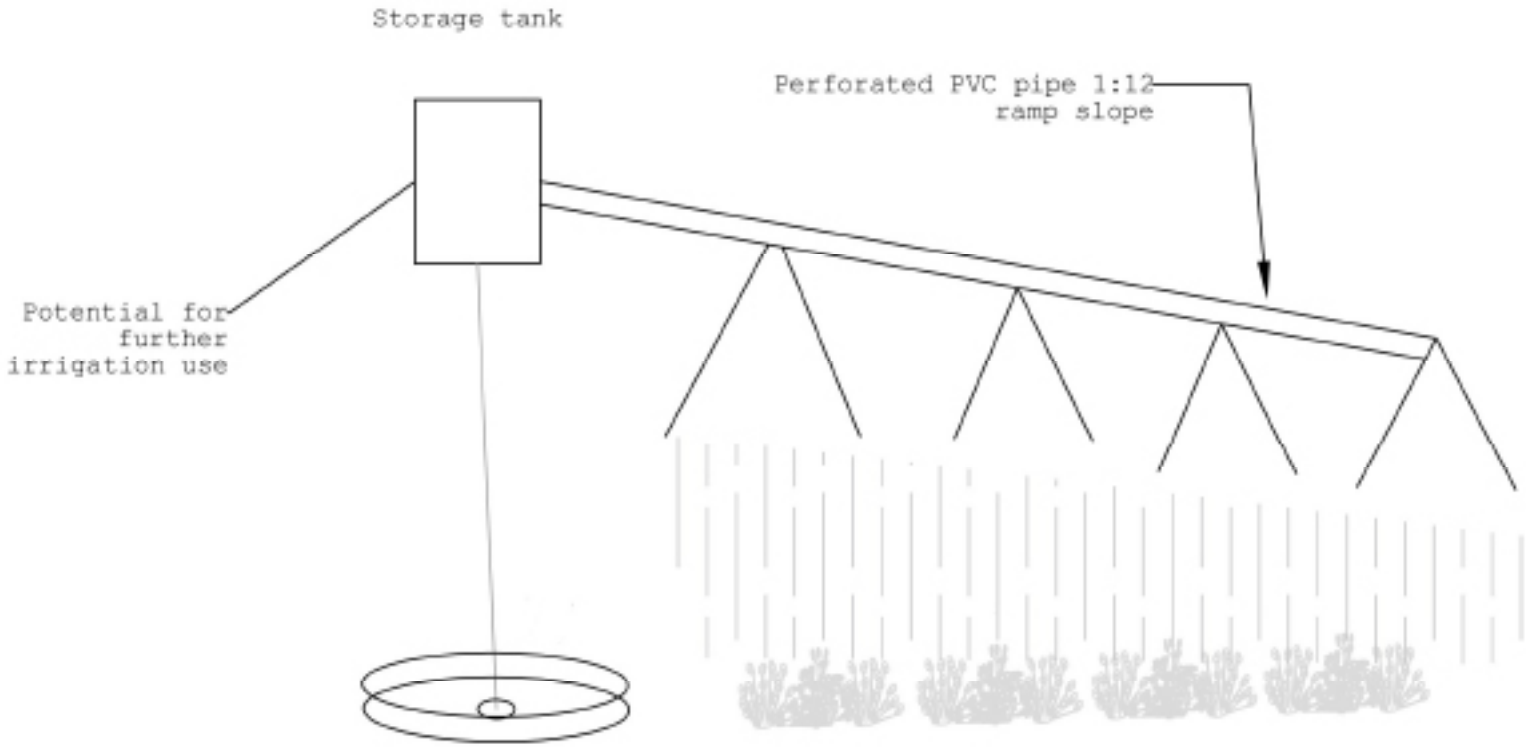


SECTION B: RILL CROSS-SECTION

Corner of Lower Main Road and Albert Rd

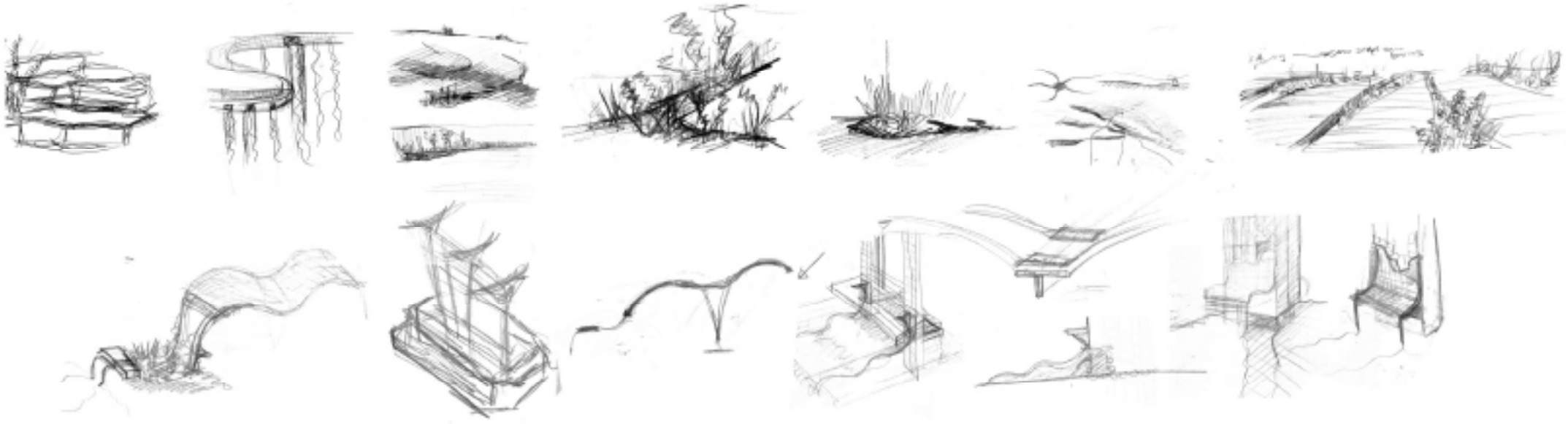
View from the station (South East-facing)

Colour cobble shopping alley (North East-facing)



Play pump merry-go-round

DIAGRAM OF PLAY PUMP MERRY-GO-ROUND



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APPLICANT'S DETAILS		
Name of principal researcher, student or external applicant		Alexandra Karin Wiid
Department		Landscape Architecture
Preferred email address of applicant:		alexandrawiid@gmail.com
If Student	Your Degree: e.g., MSc, PhD, etc.	MLA
	Credit Value of Research: e.g., 60/120/180/360 etc.	120
	Name of Supervisor (if supervised):	Clinton Hindes
If this is a researchcontract, indicate the source of funding/sponsorship		Click here to enter text.
Project Title		Productive Transport Corridors

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- there is no apparent legal objection to the nature or the method of research; and
- the research will not compromise staff or students or the other responsibilities of the University;
- the stated objective will be achieved, and the findings will have a high degree of validity;
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SIGNED BY	Full name	Signature	Date
Principal Researcher/ Student/External applicant	Alexandra Karin Wiid		**11 Jul 2018**

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Supervisor (where applicable)	Clinton Hindes		17/07/18 Click here to enter a date.
HOD (or delegated nominee) Final authority for all applicants who have answered NO to all questions in Section1; and for all Undergraduateresearch (Including Honours).	PROF T. BERLINSKA Click here to enter text.		19.7.18 Click here to enter a date.
Chair : Faculty EIR Committee For applicants other than undergraduate students who have answered YES to any of the above questions.			