

## **SPACE & EVENT IN CONTESTED TERRITORIES**

Public assembly through place-making tradition exploring tectonics and materials of the circular economy

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Design Dissertation report presented as part fulfilment of the degree of Master of Architecture (Professional) in the School of Architecture Planning and Geomatics, University of Cape Town.

6th of November 2017

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# ABSTRACT

Form did not need to be discussed because it was always seen as the result of an architectural strategy, never as a starting point. (Tschumi, 2010, p. 13)

Design is an iterative process. This design dissertation explores 'concept-form' by Tschumi (2010, pp. 15-19) who argues it is a generator of new conditions to freely inform or locate activities to generate events. Concept-form reflects a specific moment in a thought process when an architectural strategy becomes the generator for making buildings, Concept-form is about designing conditions rather than conditioning designs.

The research by design dissertation report contains sketches, parti diagrams, and artworks as social, contextual and technical constraints are super-imposed as we move across scales towards a concluding architectural intervention addressing Space & Event in the context of contested territories in Cape Town.

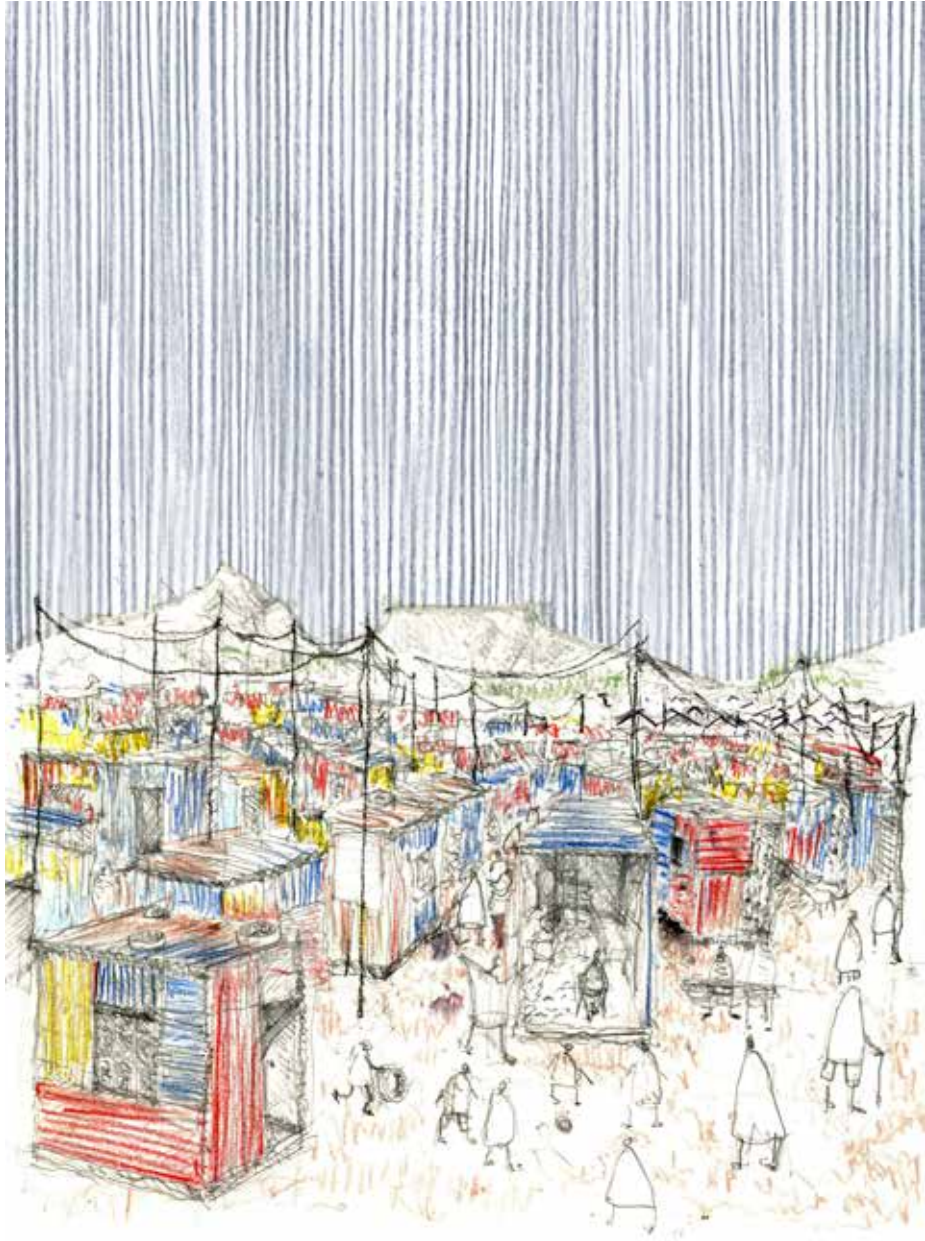


Figure 1 : Public events in contested territories



## GLOSSARY OF TERMS

### Modernity

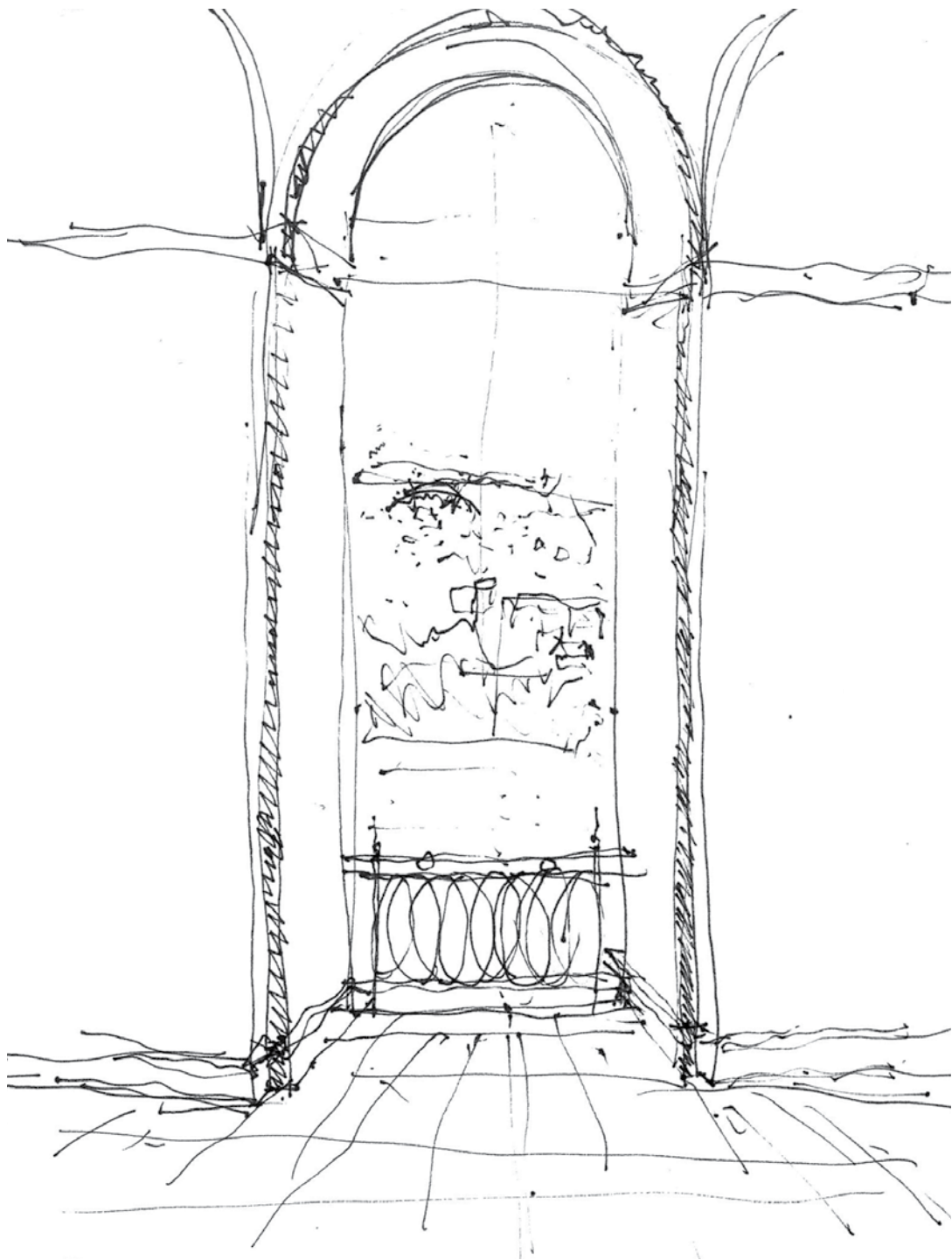
Elleh (2011, pp. 44-45) argued modernity in Africa arises out of capitalism alongside with colonialism whereby the unplanned parts of the city is the corollary of modernity (Elleh, 2011, pp. 44-45).

### City-ness

invokes the notion that urban citizens give meaning to the city through a collection of individual parts across urban areas constituting the wholeness of the city. (LG, 2010) It relates the extent several disparate sites and zones across cities are negotiated, in which (one) behave in different ways through motion. (Barac, 2005, p. 45)

### Circular Economy

The general use of natural resources follows a linear approach known as the take-make-use model producing negative externalities - carbon emissions, increased landfill, unsustainable water extraction and widespread pollution. The circular approach re-introduces resources back to the economy of consumption so that the natural capital is preserved and enhanced, renewable resources are optimised, waste is prevented, therefore, reducing harmful impacts to our environment. The built-environment being a major consumer of natural resources, the circular approach seeks to avoid waste and increase efficiency of materials, products and components in repetitive loops through Reduce, Recycle, Re-Use. (ARUP Associates, 2016, pp. 10-16)



Scale - Volume - Passage - Hall Way - Balcony  
Fields of Play fieldwork on UCT Campus - February 2016

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The report is separated in five parts elaborating the lines of enquiry of the local urbanity as it unfolds in different times and spaces.

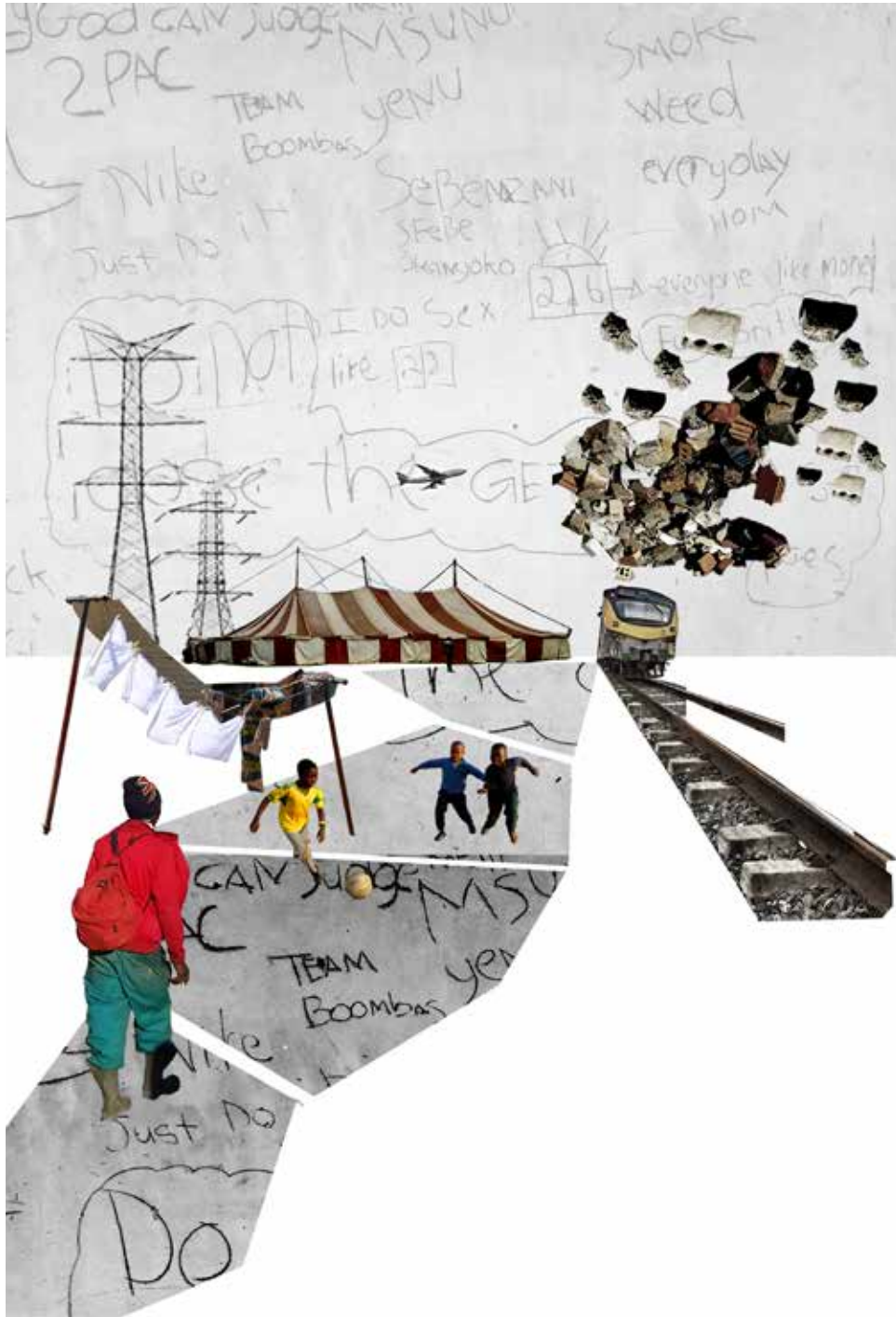
PART I of the design dissertation report develops the argument inferring the design intent and its context.

PART II explores the issue of event and public assembly in contested territories in Gugulethu through fieldwork informing the programme and siting of the intervention.

PART III ties design and sustainability strategies with application of theory and technology studies.

PART IV develops the argument into design interventions across urban, architectural and technical detail concluding with fabrication studies.

PART V pertains to the architectural synthesis, with concluding thoughts on the subject of enquiry of this design dissertation.



PART I  
Issue & Context

# 1.0 INTRODUCTION

Urban residence is a fait-accomplé and informal dwellers have nowhere else to go'. (Simone, 2001, p. 254)

The proliferation of the unplanned parts of Cape Town dominate its physical landscape unravelling a different facet of the city at its periphery. The inability of the formal physical, social and institutional infrastructures to absorb rapid influx of urban immigrants have caught the underprivileged dwellers into a deadlock of informal living conditions. Informality is the normality for 20.5% of the city's population who reside in pseudo forms of ephemeral inhabitation – shacks, accounting approximately 193 000 households living in 204 informal settlement areas (City of Cape Town, 2016, pp. 8-9).

Despite the feelings of chaos and disorder informality may evoke to any outsider, it is now part of the image-ability of Cape Town emerging into new forms of informal urbanism operating at interstices of formal and informal extremities hidden by layers of activities in order to overcome disparities imposed by the dysfunctional formal infrastructures. Unplanned, unregulated and involuntary, contested territories of informal inhabitation is hidden by layers of activities occupied by mélange of personalities from different walks of life facing daily realities and managing their living conditions through their own agency.

Ewing (2017) argues that the authoritarian emphasis on housing is focused on the quantity of houses delivered rather than the quality of urban environments created. We are moving from 'the planned city' to a 'city' that plans itself – an integrated multi-sectoral approach to cities.

While promising housing schemes remain institutions' priority to resolve the issue of informal settlement, we are currently facing an increasing housing backlog, which institutions are unable to supply. It seems more likely that informal settlement will prevail in the future.

The aim of this design dissertation is to determine strategies through place-making tradition as catalyst for change, aiming to address informal urban conditions by shaping public life within informal territories. It seeks to determine design informants for a place of public assembly empowering local communities for socio-cultural expressions providing social infrastructure for underprivileged dwellers. It seeks to improve their positionalities to access existing global-local opportunities of the larger framework of Cape Town by mediating formal and informal divides through events.

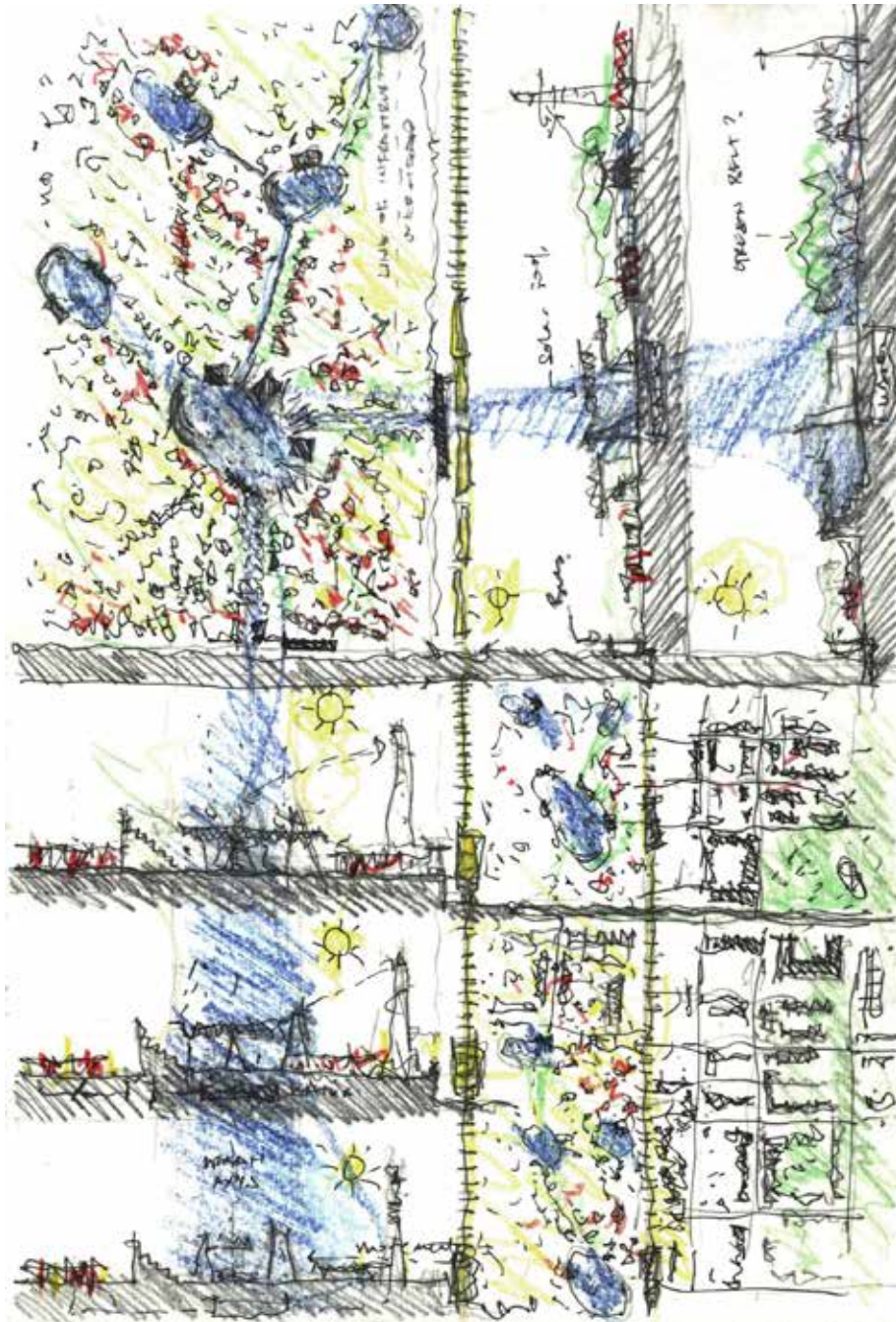


Figure 1: Public assembly and events in contested territories



Figure 2: Global-local event space of broader Cape Town

## 1.1 THEORY OF EVENT

Tschumi (1985, p. 5) argues that event in architecture shall not be indicated by means of 'access' as an art of systems through given forms – threshold, methodical route, circle, circulation. Event shall be folies where inhabitation/function no longer precisely falls into the domain of such meanings.

Event in linguistics refers to an occurrence of a social occasion or an activity, as a fundamental entity of an observed reality represented by a point designated by three coordinates of place and one of time in the space-time continuum postulated by the theory of relativity (Merriam-Webster, n.d). An event is not fixed in its location or place; its occurrence varies in coordinates where time is constant. It can be construed as a function either planned or unplanned occurring sporadically in space as an ever-changing entity occurring over time.

Even though event can be understood as an open ended occurrence, event in architecture refers to public assembly in observing an occurrence. It has been symbolic across ages from classical church edifices to contemporary theatres, expressed in different forms, function, scale, space and materiality. Event and public assembly is



Figure 3: Failure of Modernity

represented as an icon of the place such as the Sydney Opera House by Jorn Utzon informing the image-ability of the city itself which today has global-local influence for international performances.

Simone (2008, p. 86) argues that for generations Africans were prevented from fulfilling their aspirations in cities or making use of the urban space to develop new forms of social and political expressions to keep alive the prospects for creating new societies means, to a certain extent running into the ground inherited images of what a city should be.

Despite the 2010 FIFA World Cup being the biggest sporting event happening in South Africa with massive investments for world-class stadiums, the Cape Town stadium today struggles to accommodate people. The mobility of informal dwellers are jeopardised from making use of such public space by underlying divides arising from the country's apartheid past and the failure of modernity, marginalising dwellers from accessing opportunities. Here the notion of city-ness is undermined by formal networks of mobility and transportation.

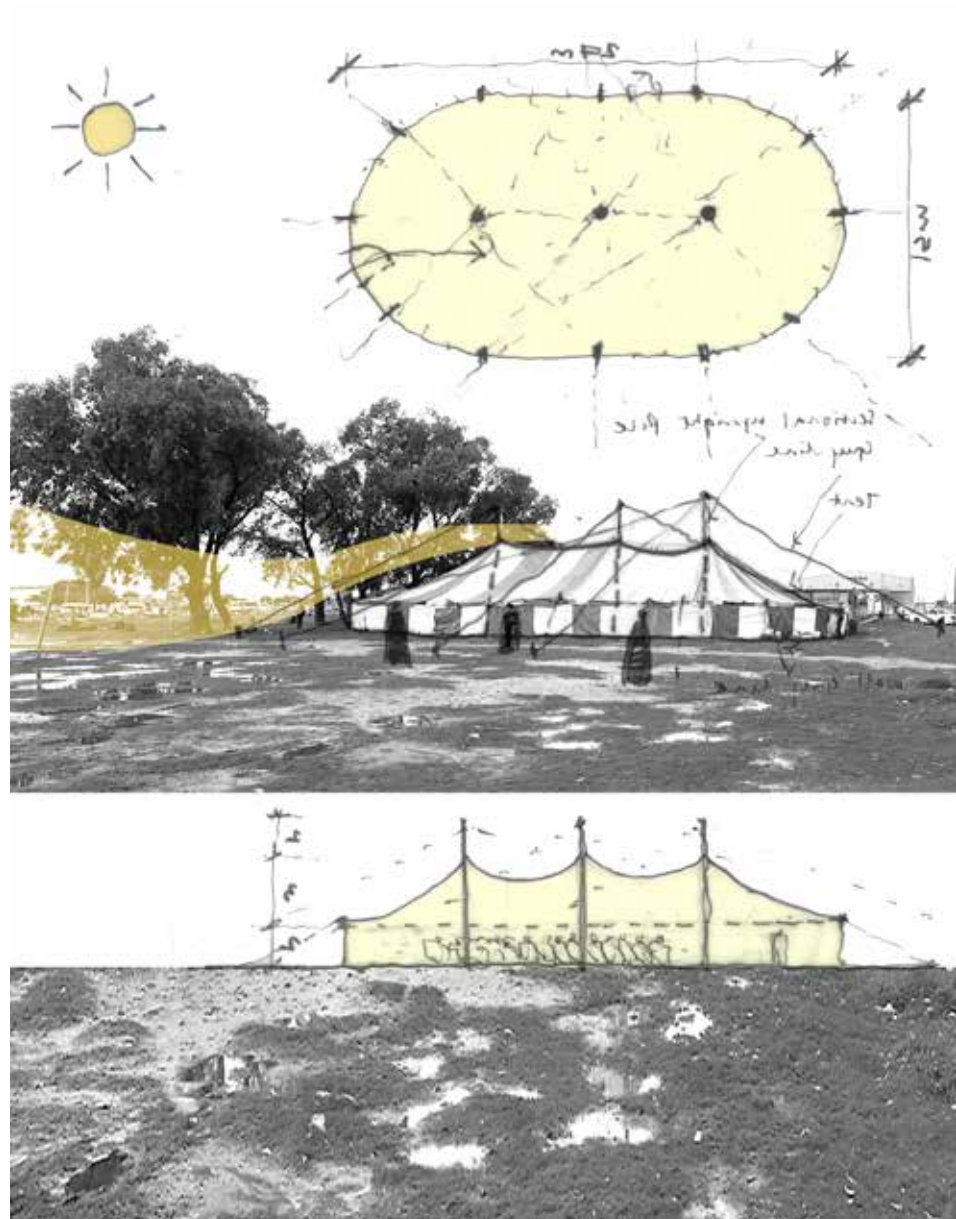


Figure 4: Tent Church in Philippi, Cape Town

## 1.2 DESIGN INTENT

While contested territories of informal settlements are located at the city's periphery, the public spaces encouraging social and cultural expressions are inaccessible to dwellers, it does not however mean that they are none-existent. The tent church which is a temporary shelter erected on vacant land sites for religious activity is the most predominant form of public assembly in townships. It portrays religious presence of the place and socio-cultural identity of locals across differed ages attending weekly events.

The tent church in township areas is the most predominant form of public assembly space erected on vacant land sites. It has a religious presence portraying the local cultural identity accommodating people of ages. The tent church is a form of event for religious functions – temporary yet permanent providing shade and shelter for public assembly.

How can we build similar space that accommodate other social and cultural functions – weddings, funerals, dance, boxing, recreational

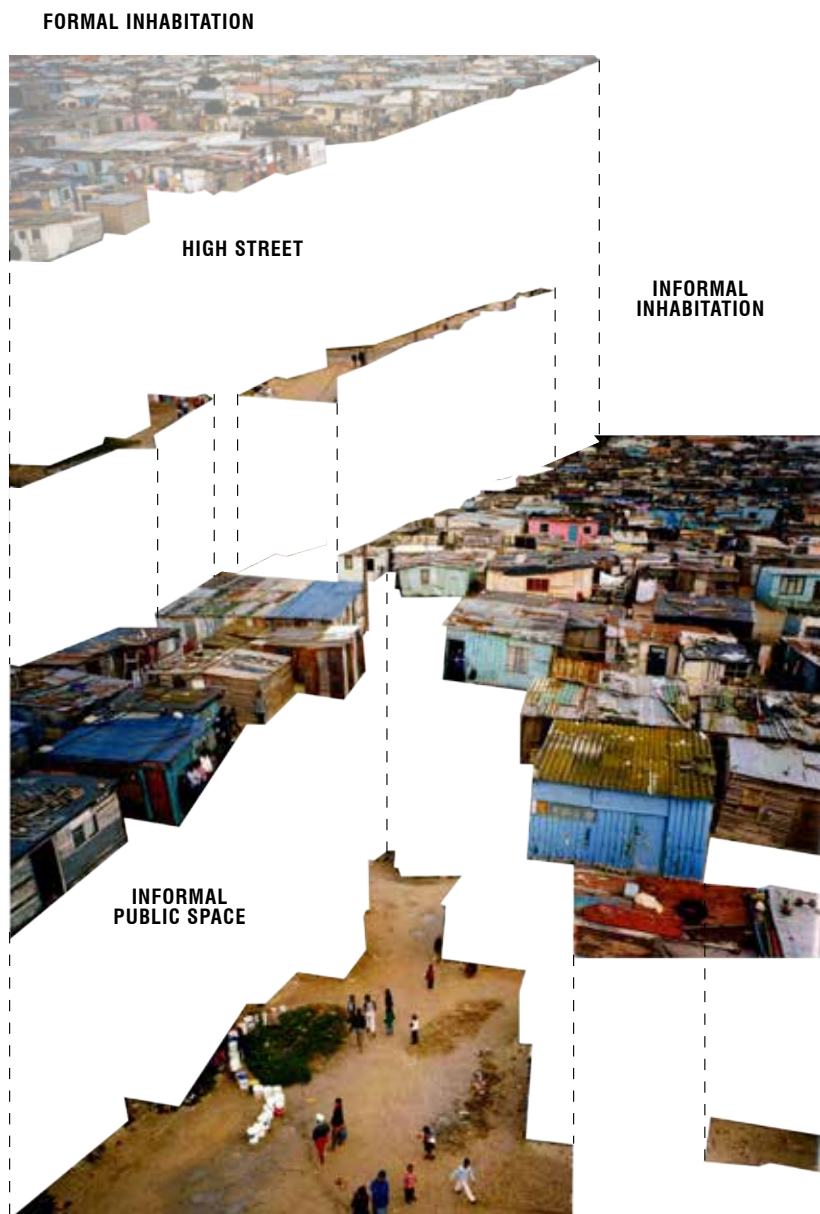


Figure 5: Informal public spaces  
Image Credits: Adapted David Southwood, 2005)

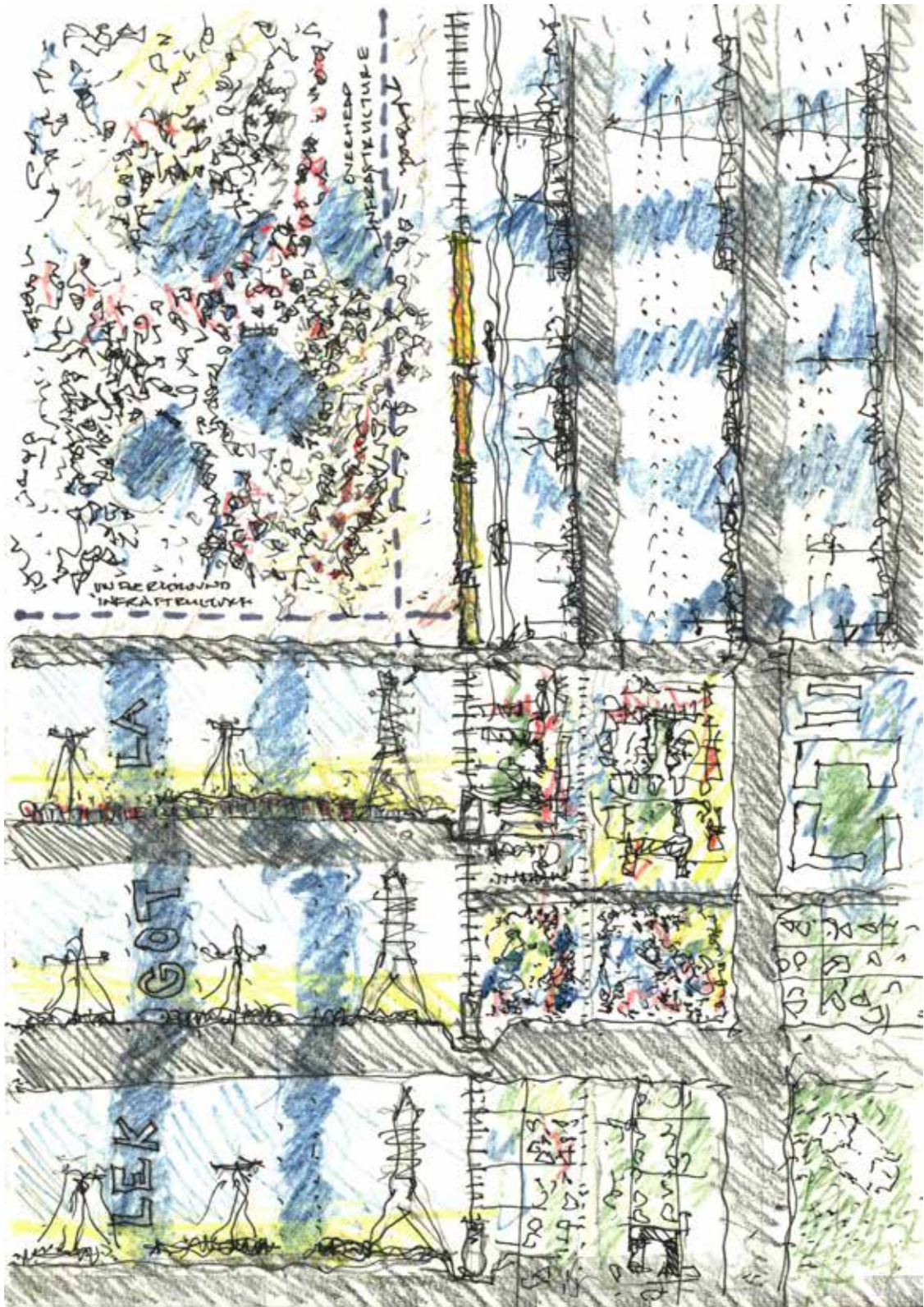


Figure 6: Infrastructure divides, informality and events

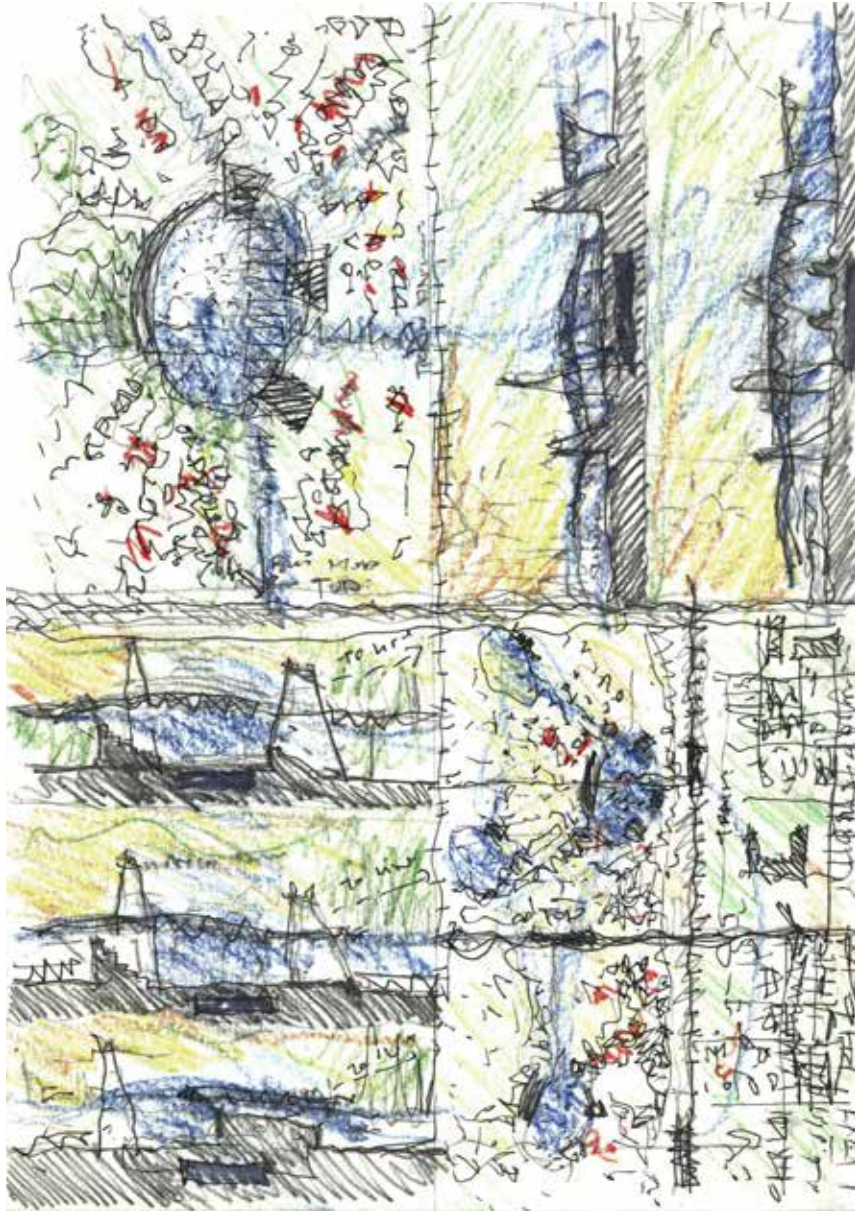


Figure 7: Event and place-making tradition

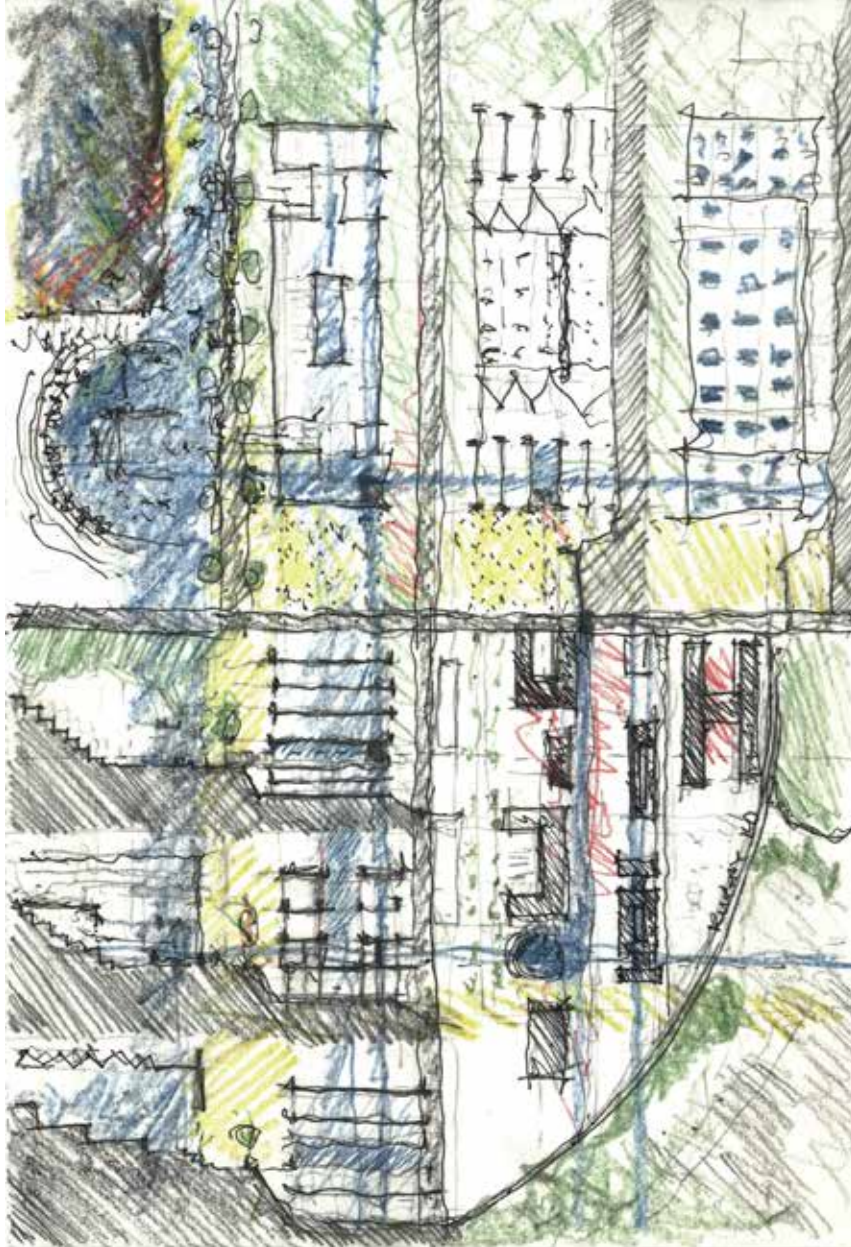


Figure 8: Mapping of university protest as an event

Fees must fall protest in 2015 and 2016 happening on University premises can be construed as a Event which later gave form to 'Legotla', as a gathering space for public discussion adjacent to Centlivres building, the locale of the architecture faculty.

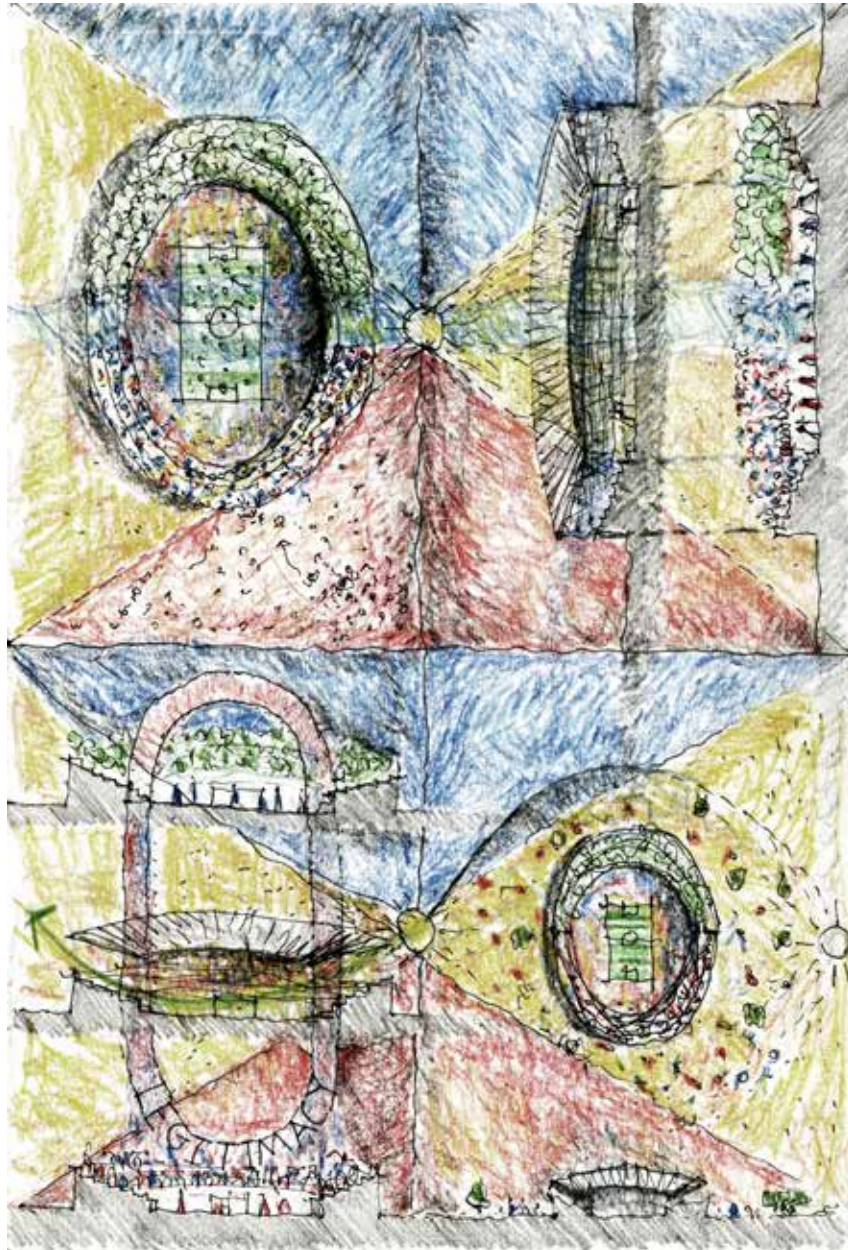


Figure 9: Soccer as a sporting event

Independent for  
Infrastructure Networks

Materiality + Tectonics  
of the circular economy

Maximise Daylight

Urban Garden



Figure 10: Ecological Place-Making

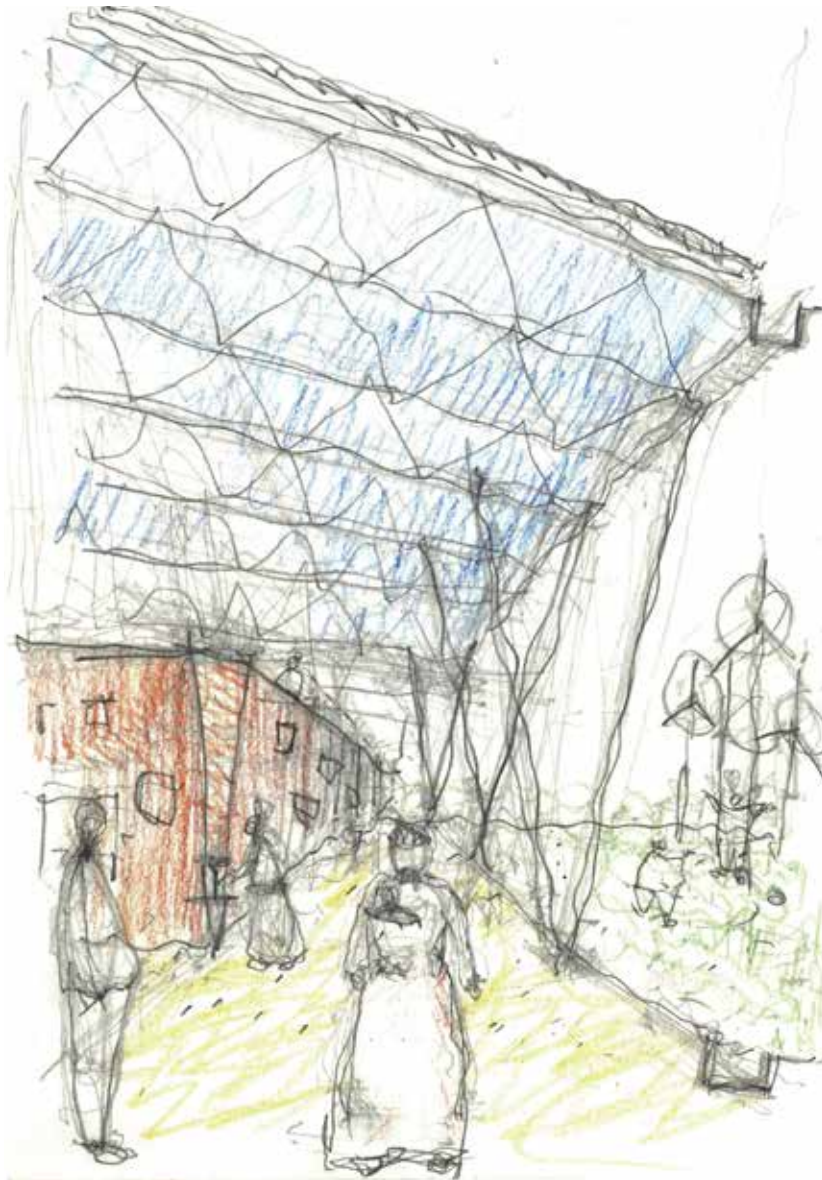


Figure 11: Building and the Community Place



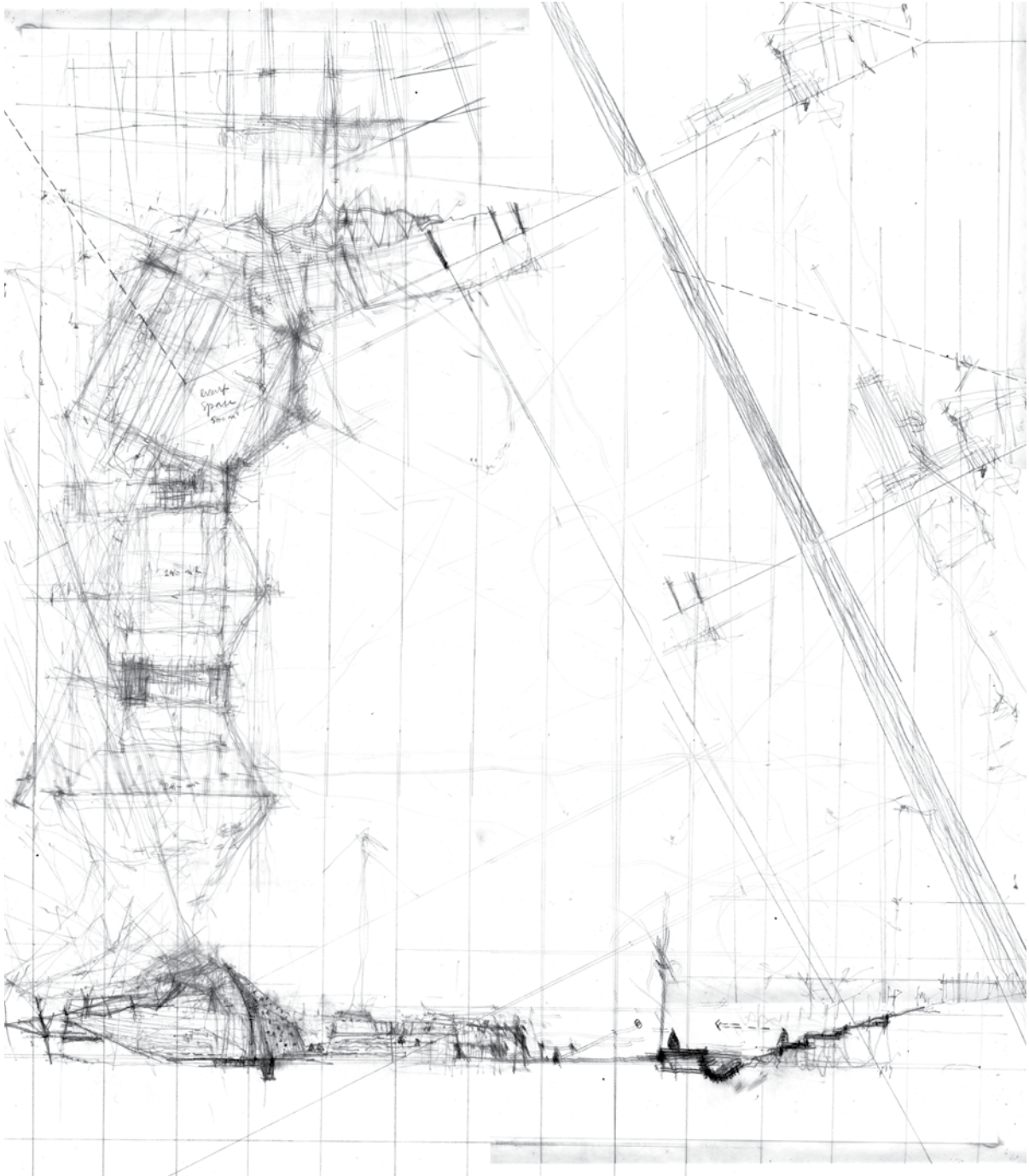


Figure 12: Representation through hand-drawing

### 1.3 REPRESENTATIONAL METHODS

Exploration of site, context, design and its synthesis was carried out through hand-drawing across scales, mixed-media and physical model studies. The aim was to use minimal use of digital software in the conception and design development seeking different iterations, as a documentation method of the design process.

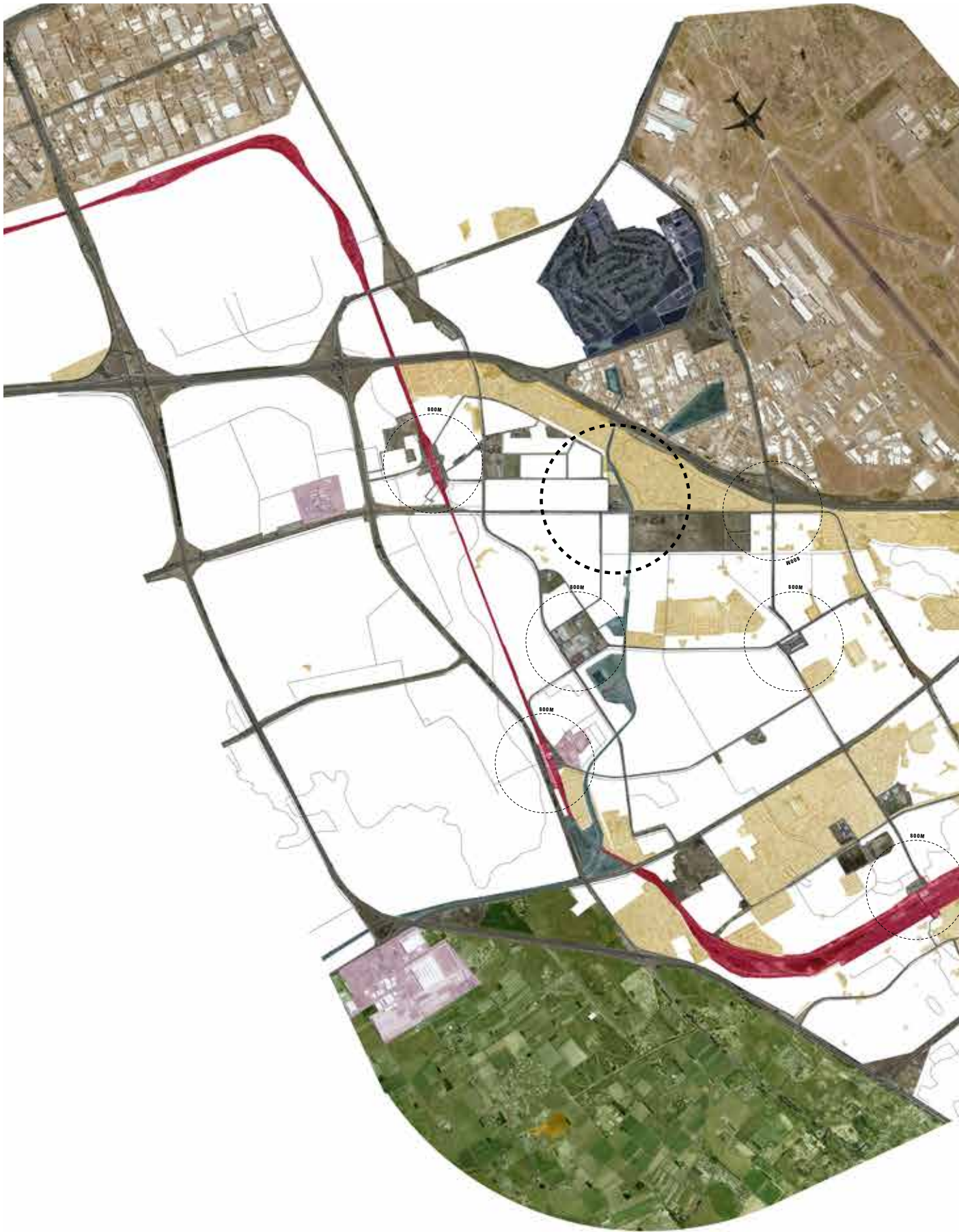


Figure 13: Macro Urban Context of Cape Town



## 2.0

## CONTEXT

A dense layer of informal settlements is located on the N2/Settler's Way between Borchers Quarry and Airport Approach roads. Barcelona informal settlement forms part of this layer, along with neighbouring settlements, Europe and Vukuzenzele. Barcelona is located approximately 16 km east of the Cape Town Central Business District. Its North Eastern border faces the N2 highway with its South Western border consisting of Klipfontein Road (see Fig 16).

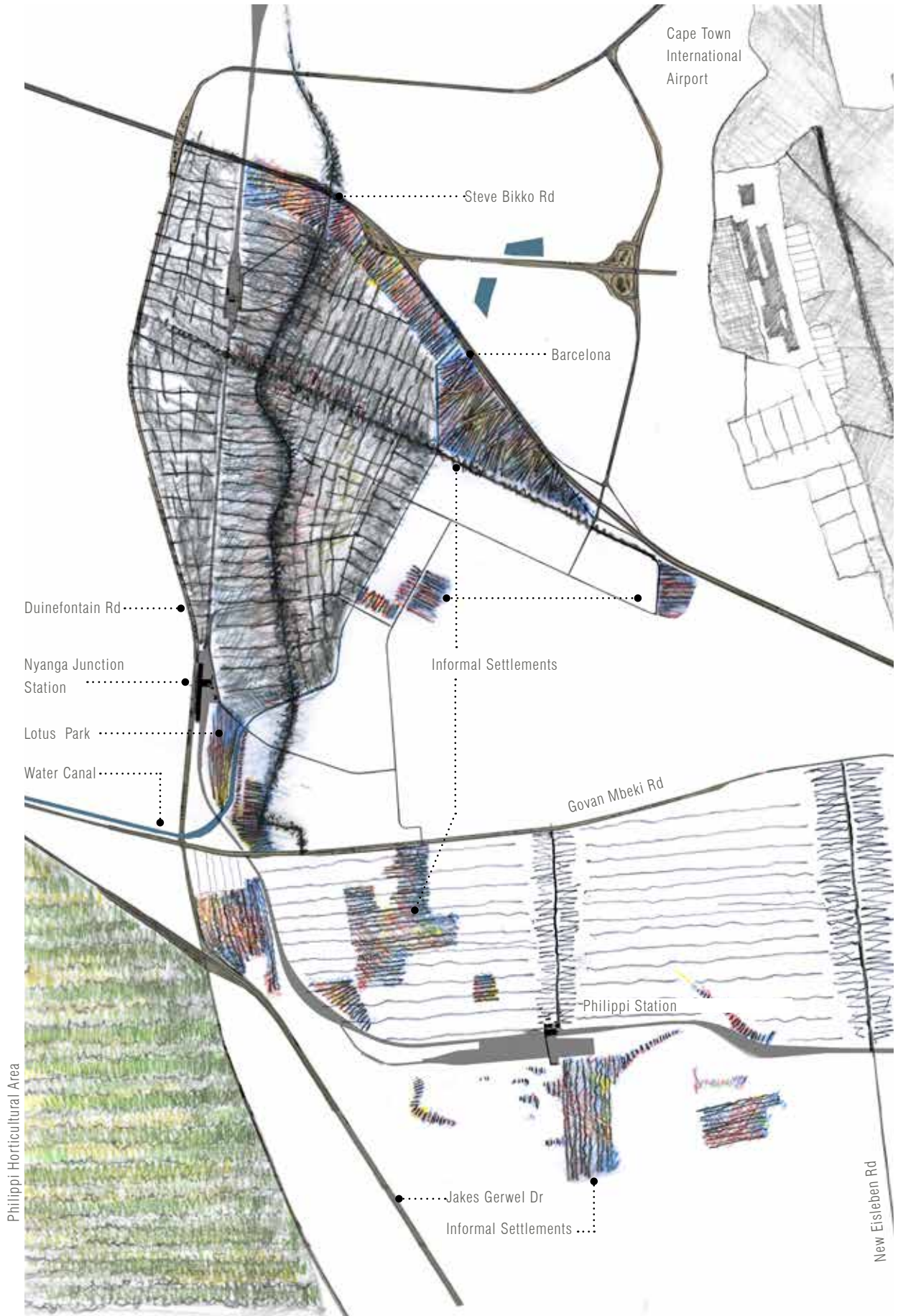


Figure 14: Urban context of Barcelona Informal Settlement in Gugulethu

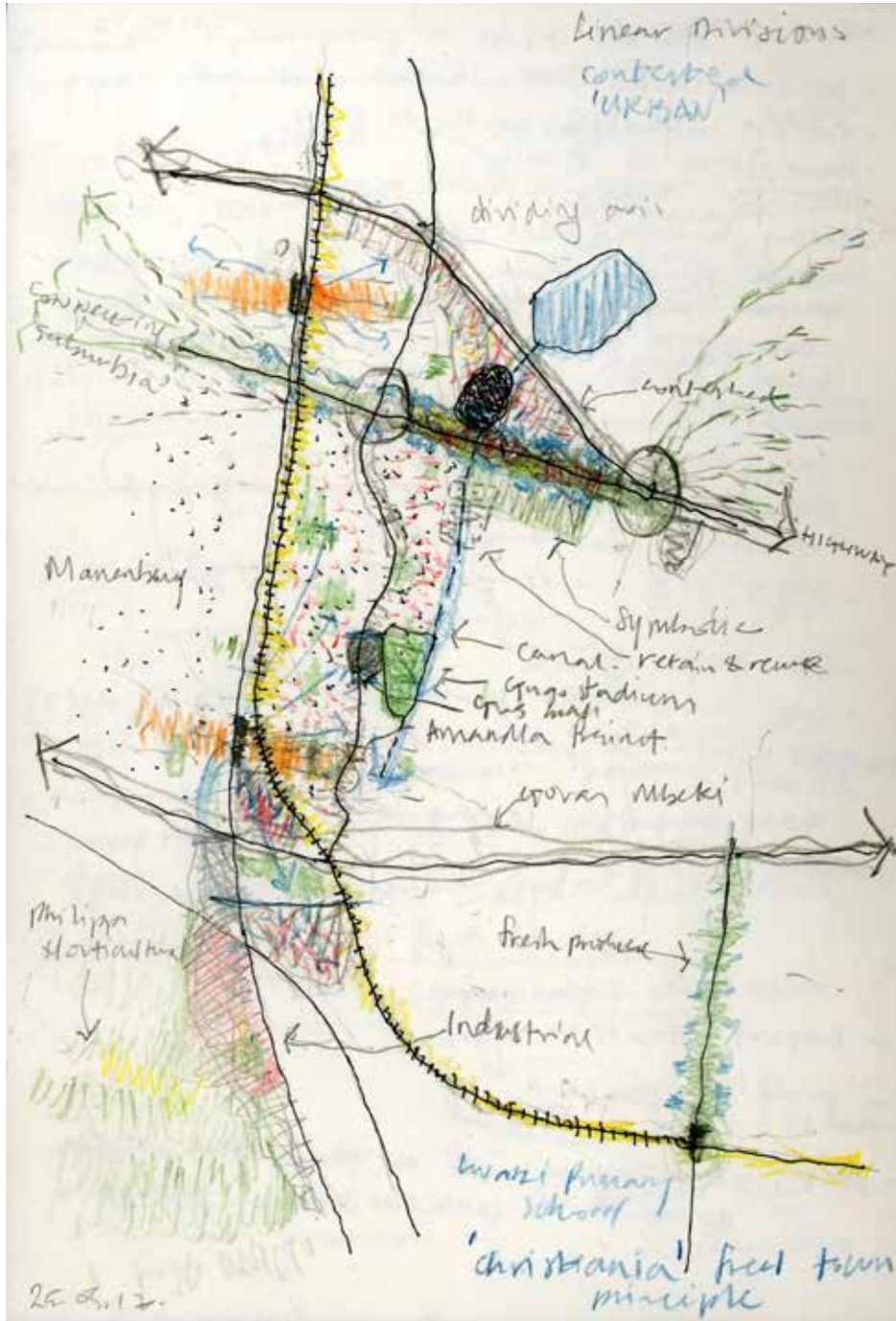


Figure 15: Mobility, infrastructures and events

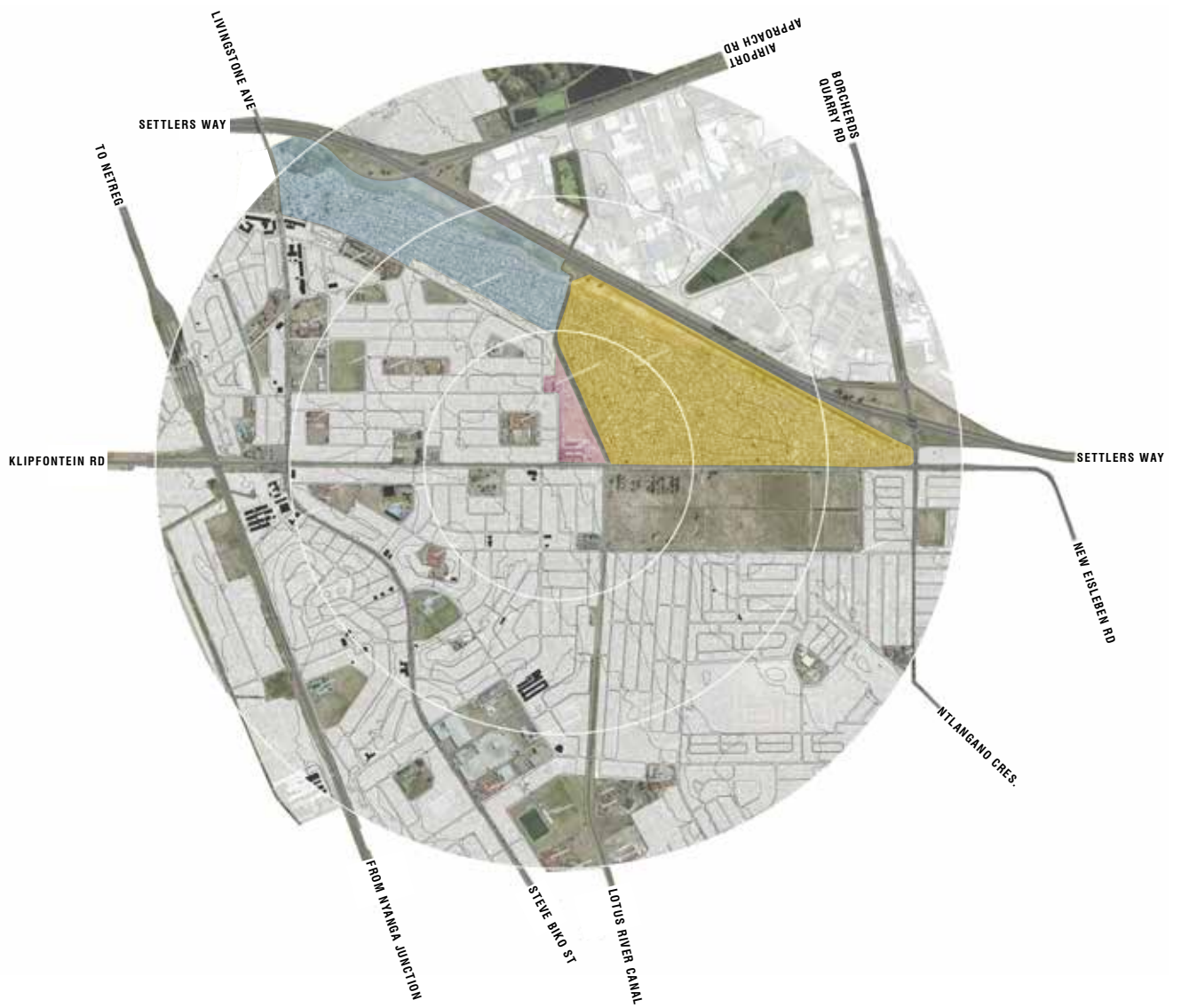


Figure 16: Urban Context



Figure 17: Location of Barcelona and surrounding public spaces

- 01 Industrial zone waste water retention pond linked to canal
- 02 Barcelona informal settlement
- 03 Pedestrian movement to Heideveldd station
- 04 Cemetery
- 05 Access to Gugulethu square along canal
- 06 Gugulethu stadium
- 07 LSEN school and Gugulethu clinic
- 08 Gugulethu square - major economic activity
- 09 Luyolo Hall along access to train station
- 10 Heideveldd Train station



Figure 18: Extent of Barcelona informal settlement

## 2.1 SETTLEMENT OVERVIEW

Barcelona informal settlement was born out of conflict. In the early 1990's, backyarders living Gugulethu erected the first dwellings on a discontinued waste landfill site known today as Barcelona Informal Settlement due to unaffordable rent sought by owners of formal houses. According to early residents, the site was named 'Barcelona' during the 1990's Olympic Games held in Barcelona, Spain.

In the early 1990's, backyarders living Gugulethu erected the first dwellings on a discontinued landfill site known today as Barcelona Informal Settlement due to unaffordable rent sought by owners of formal houses. Before informal occupation, residents of Gugulethu used the waste landfill site for soccer and other playing activities. After more than 25 years, Barcelona is home for 6456 informal dwellers, despite health hazards of inhabiting the polluted landfill site. (City of Cape Town, 2016)



#### DWELLING DENSITY

The settlement is located on 25.6 ha results to a population density of 110 dwellings units per hectare. Residents make up 2723 households with an average household size of 2.4 people per household where 51% dwellings are below 30m<sup>2</sup>.



#### DEMOGRAPHICS

Young people between aged 19 to 30 years who make up 26% of the population where 59% of the youth are unemployed. 65% of unemployed youth are women.



#### WATER

There are currently 56 taps spread across Barcelona with a ratio of 1 tap for 49 households which is below the City of Cape Town standard of 1 tap for 25 household.



#### SANITATION

117 temporary toilets were provided by the municipality generally shared by 42% of residents for communal use with a ratio of 1:23 (toilet to household). Others have their own temporary toilets attached to their dwellings.



#### ELECTRICITY

While 61.5% of structures have access to prepaid meters, illegal connections are common and account for 31% of dwellings. 7% of structures have no access to electricity.



#### EDUCATION

2184 below 18 years old account for 34% of the settlement. 44% children attend primary school and 19% at pre-school. 63 out of 100 children attend schools in Gugulethu.



#### PUBLIC PLACES

2163 households with occupants access community halls and 1367 access to religious structures. Only 243 households with occupant access sport grounds and playing grounds.



#### SOCIO-ECONOMIC

A diversity of socio-economic activities are located along major informal footpaths/roads across the settlement. A reported number of 2279 and 1692 households access spaza shops and shebeens respectively. (City of Cape Town, 2016, p. 50)



#### HEALTH SERVICES

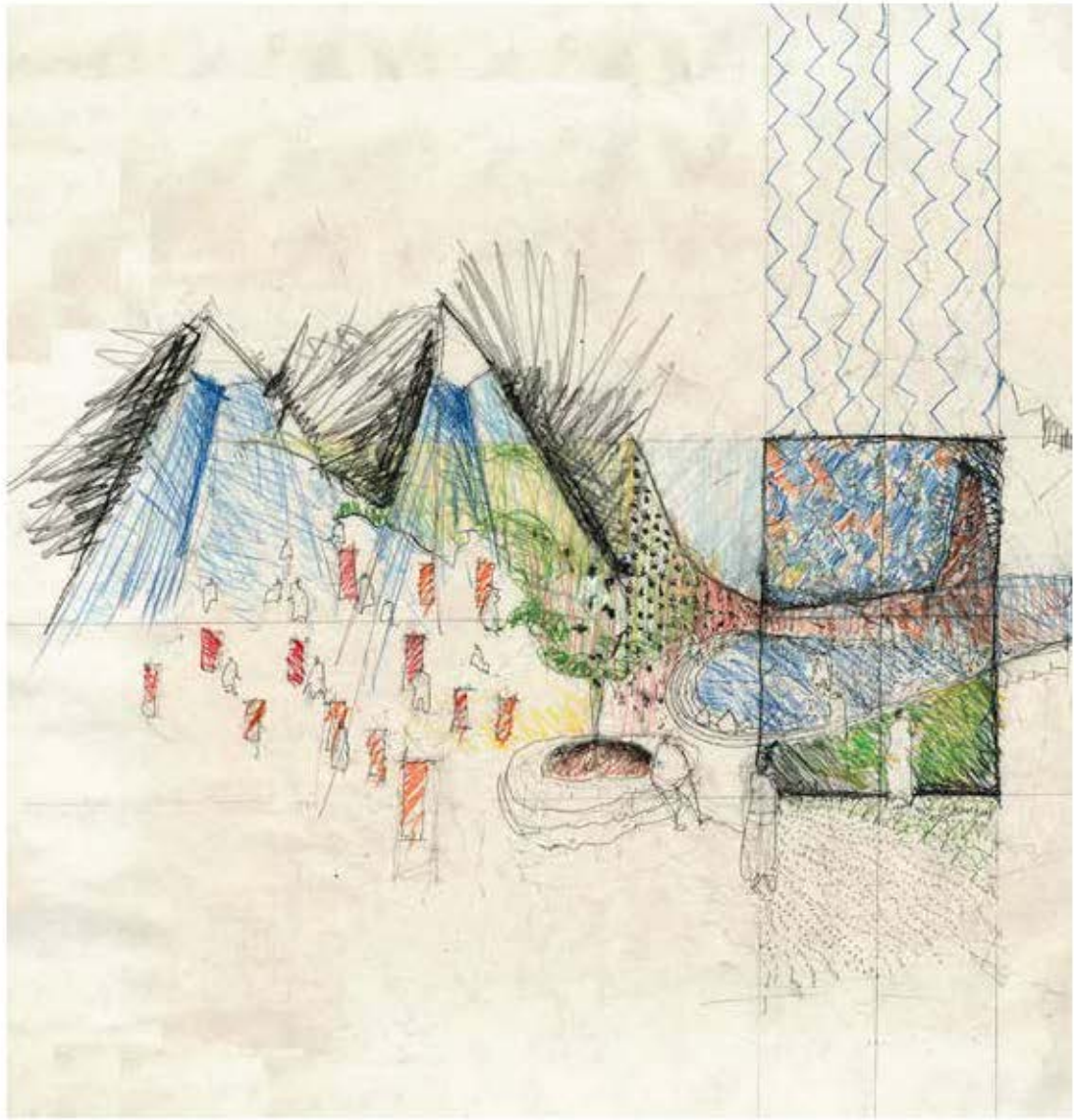
The majority of residents (77%) access health services outside the settlement with 19% of residents accessing public hospital. SHAWCO volunteer health services by UCT provides mobile clinic health services to Barcelona residents on every Monday.



#### EMPLOYMENT

The current unemployment rate is 53% whereby 93% earn less than R3500 per month. 25% household report to have no income at all.

Note: Above data was retrieved from latest census from Enumeration Report on Barcelona Informal Settlement dated December 2016 by the City of Cape Town.





## 3.0 FIELDWORK

The lines of enquiry during fieldwork on the site and its surrounding context aimed to gather data on public activities and events emerging in territories of conflict. Analysis and data gathering aimed to explore the particularities of informal public spheres lacking tenure and poor services networks – electricity, water and transport.

The method of research was direct observation of facilities exploring forms of social events occurring in the neighbourhood and public inhabitation. Observation during fieldwork employed photographic documentation, mapping, analytical drawings at various scales and participant interviews.

### PRIMARY QUESTION

What are the predominant forms of public assembly spaces within informal territories?

### SECONDARY QUESTIONS

What kind of spaces are contested for public inhabitation – streets, open spaces?  
How dwellers enlarge their spaces of operations for public assembly  
How dwellers engage with formal realms through informal networks?  
What kind bottom-up strategies deals with the lack of services provision - electricity, water, transport?

### ETHICS

Research during fieldwork did not intend to offend/intimidate any parties involved in the process. Permission was sought before engaging with any participant during interviews and taking photographs. No child/minor was involved in this process. Care was taken to explain to interviewees that the research is for educational rather than respondents' benefit, without raising expectation that any built work or improvements to existing facilities will arise. Ethics clearance from the EBE faculty ethics in research committee was obtained to undertake on-site research.

### LIMITS

The context in which these questions were examined was limited to some parts of Barcelona informal settlement, Lwazi Public Primary School, Heideveld train station and Luyolo hall.

### TIME & SEQUENCE

Fieldwork excursions were carried at various stages of this research for design from April to September 2017

### INTENDED FINDINGS

Research aimed to determine possible design informants for an event space intended for public assembly that responds to community needs and its context.

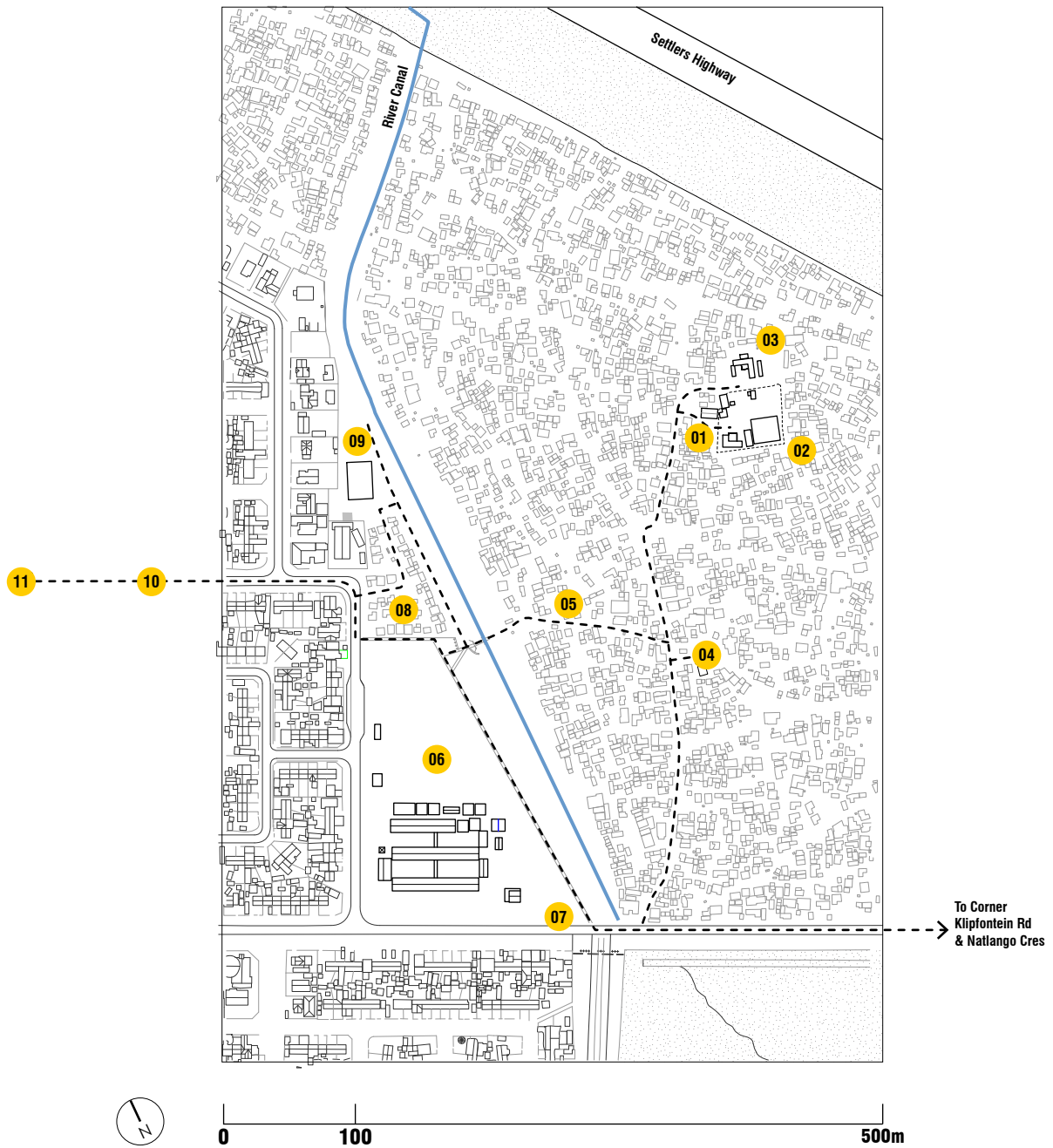


Figure 19: Fieldwork key plan

- 01 Barcelona Community Hall
- 02 Barcelona Baptist Church
- 03 Mathabo Educare
- 04 Common Services
- 05 Pedestrian Access
- 06 Lwazi Public Primary School
- 07 Car Wash + Informal Taxi Rank
- 08 Lwazi Informal Settlement
- 09 Lwazi Park
- 10 Luyolo Hall
- 11 Heideveldd Train Station

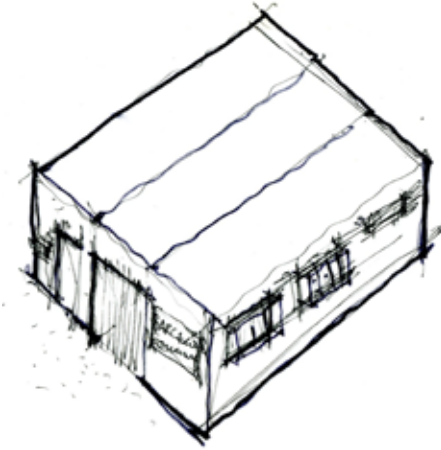
## 01 BARCELONA COMMUNITY HALL



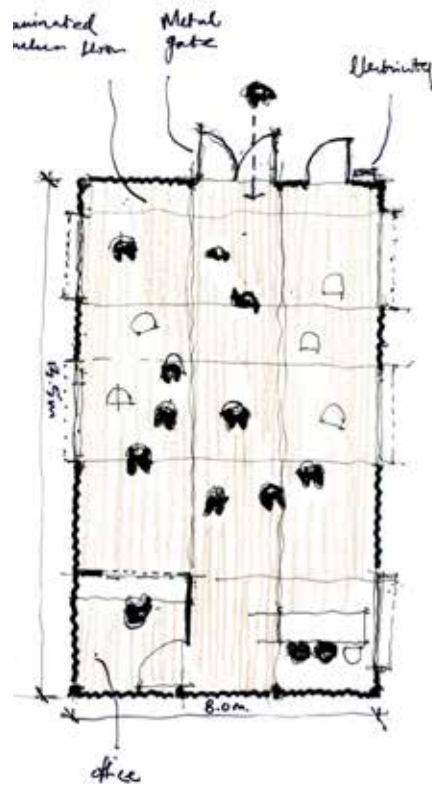
**Site plan of Hall**

Three containers have been adapted to serve as a hall for community purpose in Barcelona with an office and 30 chairs with no ablutions or kitchen. It is used mostly as a meeting space for small groups currently rented by three church groups of 15 to 20 people during mornings for R80 daily which is the only income to maintain the facility – electricity & small fix. The community hall provides recreational activities to the youth in the afternoons used for boxing, dancing, choral music. The hall is also used for other functions - funeral services, meetings, health services such as SHAWCO, Desmond Tutu foundation. In case of disasters – fire & flooding, the hall serves as shelter to affected families despite water leaks of the rusted container shell.

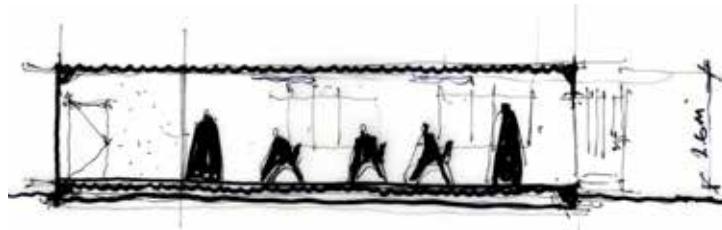
Since the hall can only accommodate small groups, the community use Luyolo hall located along the footpath to Heideveldd train station for bigger events. The youth gather to at Lwazi Park (refer to 08 - Fig 19) for shading or to the freeway road reserve to play soccer.



Axo of Adapted Containers turned into Community Hall



Plan



Section





**1** Corroded condition of the container hall



**2** Entrance of hall accessed through metal burglar door with no enclosure



**3** Interior of hall



**4** Informal open space in front of hall

## 02 BARCELONA BAPTIST CHURCH



Site plan of Church

Located at the top of the waste landfill topography, the church opened its doors in 2002 on a plot of land given by the community chairperson to accommodate funerals, weddings and church services. The church has grown over time to cater for the social needs of Barcelona dwellers. Today, the precinct includes the main church hall constructed from containers and corrugated roofing, an orphanage which started in 2007, a container library, urban garden and the pastor's house.

The church has 62 members and accommodates more than 100. Approximately 3 to 4 weddings and funerals are held every Saturdays. According to the pastor Julius Molani, 20% of the church attendees are HIV positive, the church provides counselling, door to door treatment and fitness activities in the main hall.

The orphanage accommodates 32 children where only 8 of them receive government grants to attend preschool. Alongside the orphanage, the church also provides preschool education by 3 onsite church volunteers.



**1** Gated entrance of church



**2** Interior kitchen attached to main assembly hall



**3** Interior of hall towards priest's stage



**4** Interior of hall from priest's stage



**5** Volunteer washing clothing at the entrance of church



6 Urban garden



7 Container library

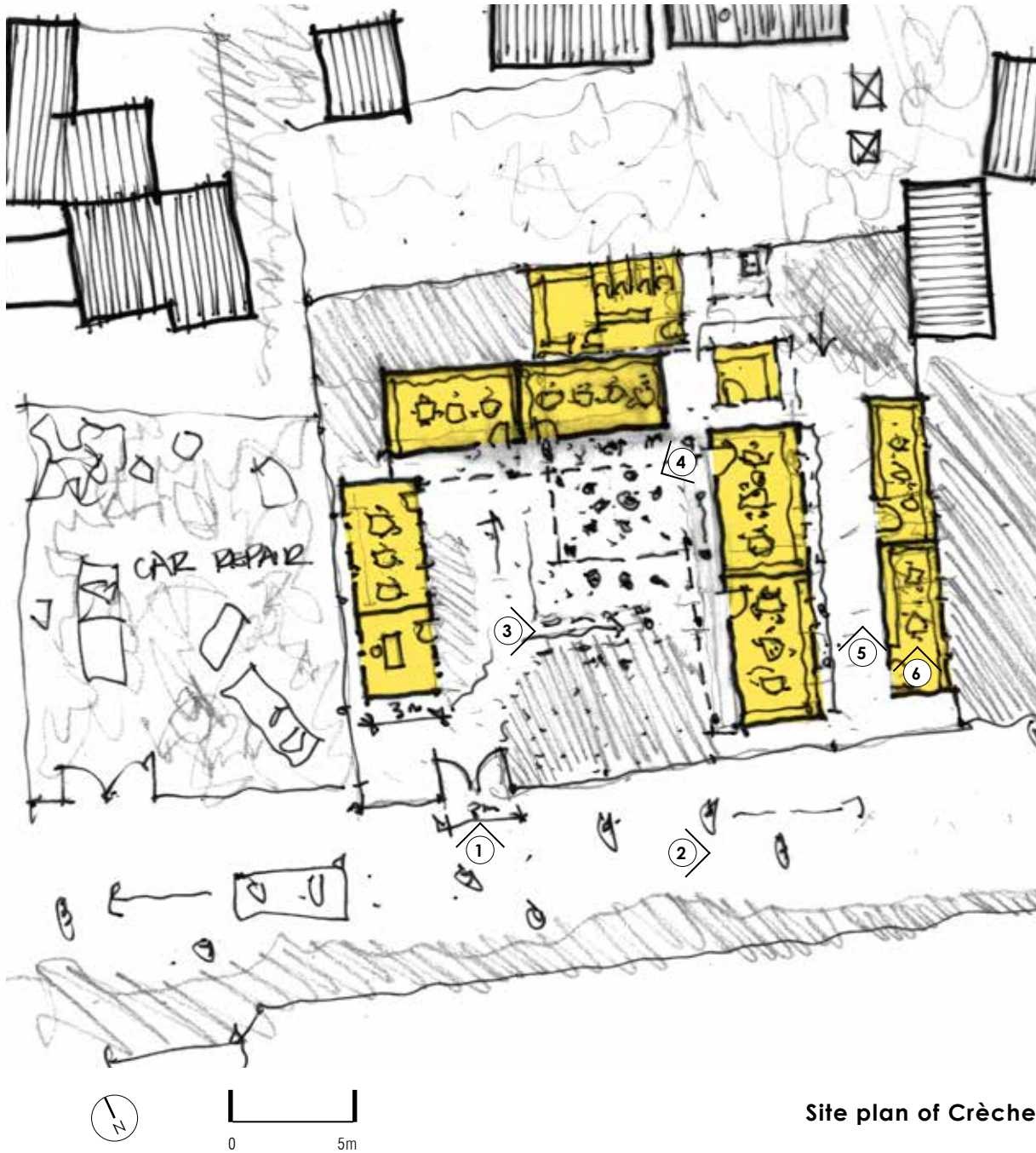


8 Orphanage covered verandah



9 Play area of orphanage

### 03 MATHABO EDUCARE



**Site plan of Crèche**

In close proximity of the hall and church, Mathabo Educare was opened in 1996 around the same time the settlement started to grow, and today provides early childhood education to 104 children up to 6 years. The crèche precinct opens to a main play area covered with sand and astro turf on top of the polluted waste landfill. Containers have been adapted for classrooms to accommodate children in classes. 3m deep overhangs provides shading to kids and wardens during play time.

Mathabo Educare is an independent pre-primary school getting sponsorship for international Ngo HOPE – Health Oriented Preventive Education. Most children will go to primary schools in the surrounding neighbourhoods – mostly Lwazi, Xolani or Heideveld primary schools. The crèche employs 11 wardens including 5 teaching staff. It opens from 7am to 5pm and provides aftercare until 6pm until parents fetch their kids from school.



**1** Fenced entrance of Mathabo Educare



**2** Informal street access



**3** Play area at entrance leading to container classes



**4** Covered play area



**5** Allée between classes



**6** Interior of container class of 8 infants and guardian

## 04 COMMON SERVICES



### Typical common services between shacks

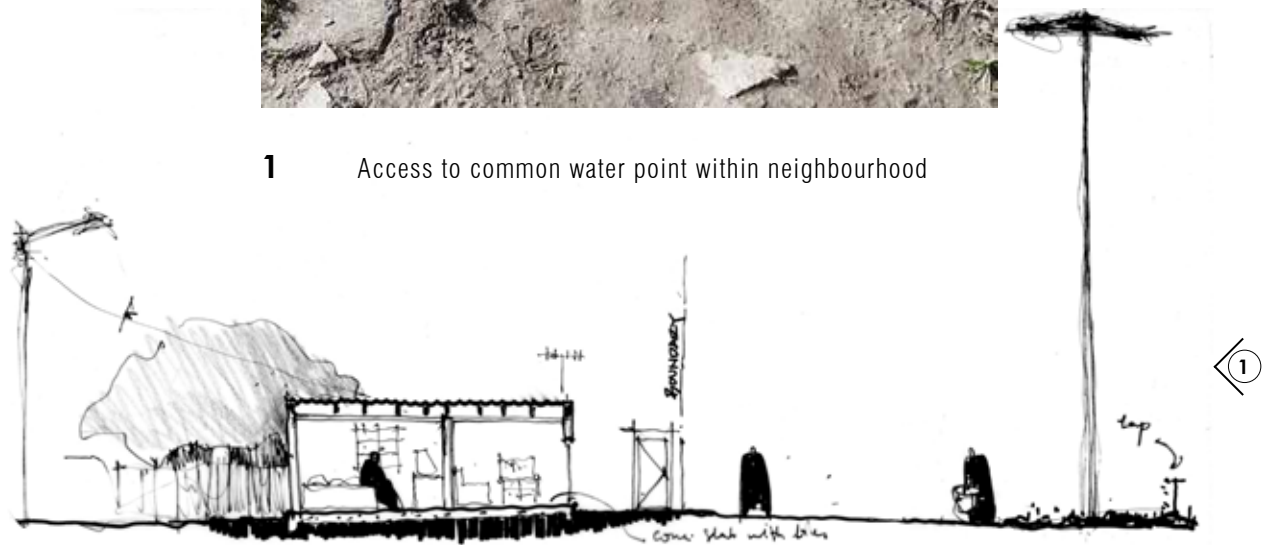


While private water points have been obtained by some households through residents own initiatives, other residents frequently gather at common water points located along main informal accesses to get water for laundry and other private use. 56 water points were located in Barcelona as per recent report (City of Cape Town, 2016). Even if water is obtained from common points, used water is usually through disposed in household backyards due to no provision for drainage.

Other services such as sanitation are bucket toilets obtained by residents from the municipality generally for private use. Bucket toilets are serviced every week by 12 locals employed by the City of Cape Town on a yearly basis who also collect other waste dropped in container bins.



1 Access to common water point within neighbourhood



0 5m

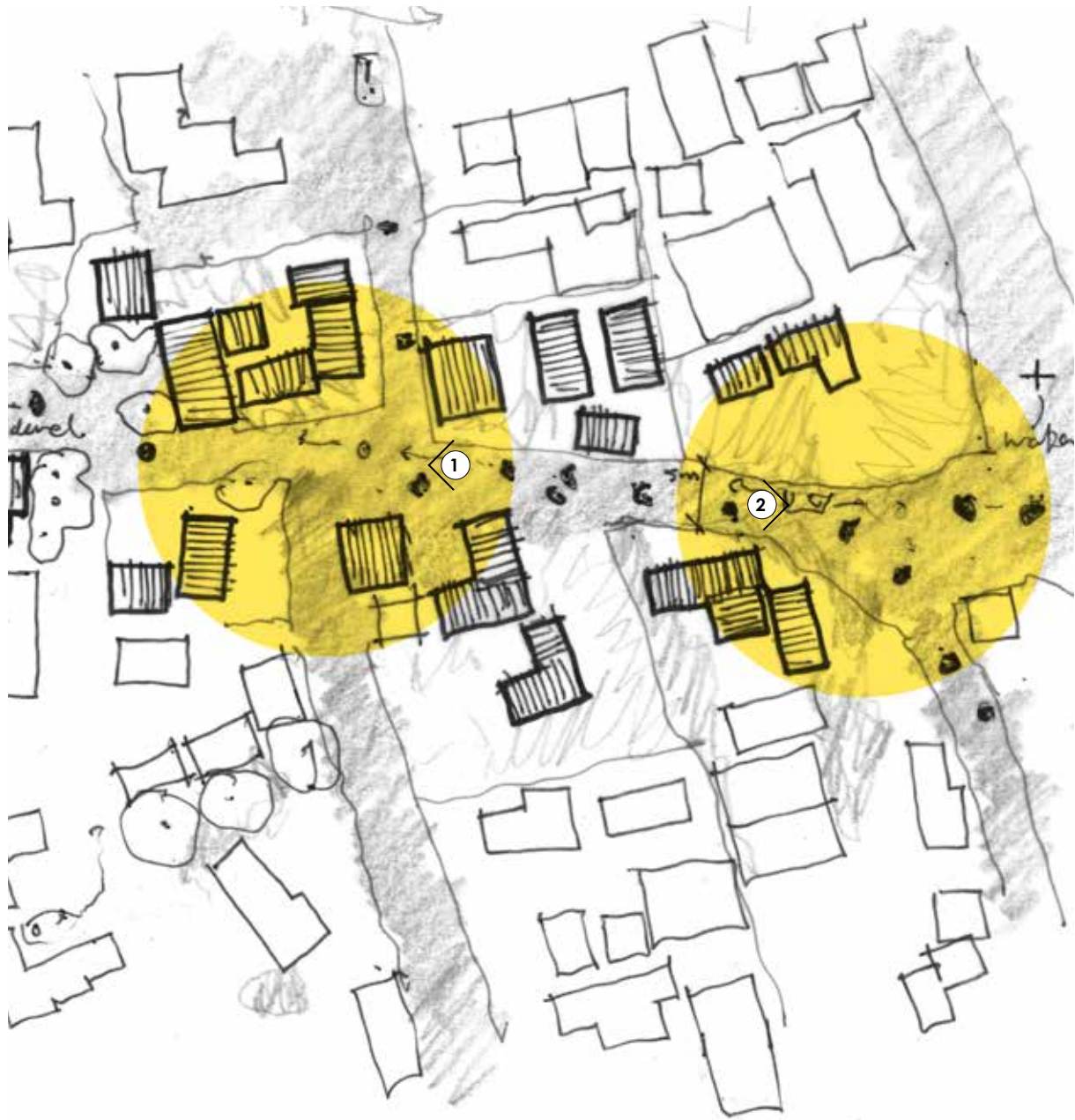


**2** Type of water point inside informal pocket open space in Barcelona



**3** Type of water point along street of Barcelona

## 05 PEDESTRIAN ACCESS



**Access to & from Heideveld train station**

Residents take a particular route towards Heideveld Station which is the cheapest mode of transportation to other areas for work. Trees and lines of shacks along the pedestrian route form a public alley highly used by locals with visibility and surveillance during daytime. The route leads to the sports field of Lwazi public primary school first before commuters take a 1.2km journey to Heideveld train station.

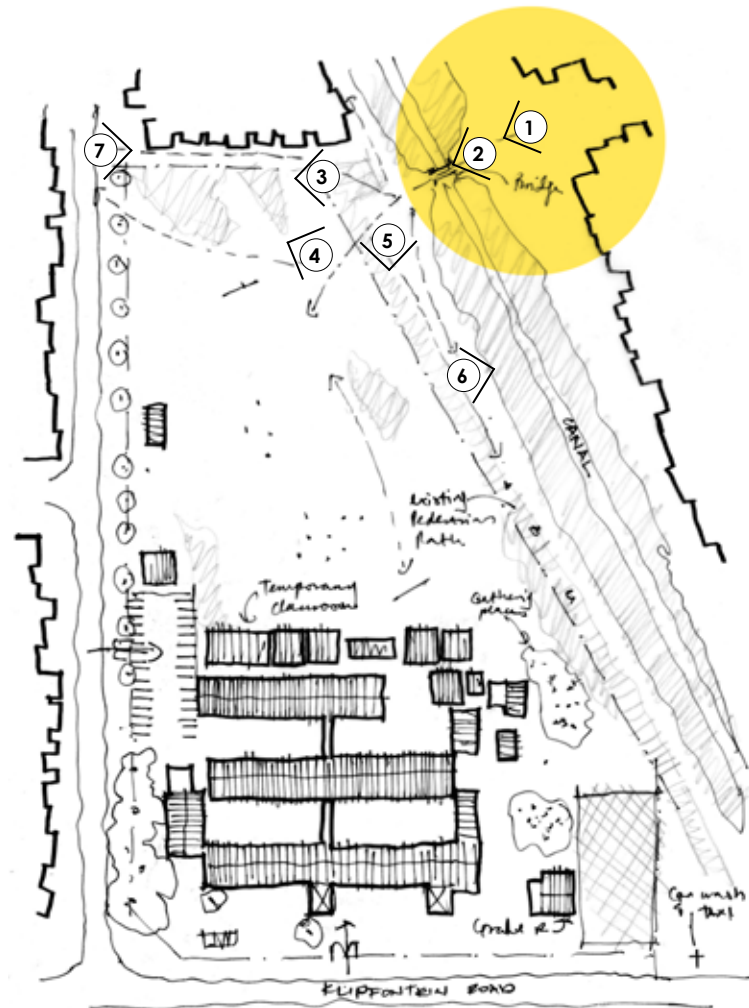


**1** Pedestrian access leading to Heideveld



**2** Intersection of informal pedestrian access and main car access street

## 06 LWAZI PUBLIC PRIMARY SCHOOL



### Access to & from Heideveldd train station

Lwazi public primary school is the closest education facility to Barcelona informal settlement with 27 classes from Grade R to Grade 7 accommodating 1193 students (Western Cape Government, 2017) – also see appendix A. According to school teacher Mr Madikone, 90% of students come from Barcelona. Aside from normal classes, the school offers life skills program which is a Western Cape government initiative providing recreation and youth development programs in disadvantaged communities. Soccer is the predominant sport at Lwazi where girl team have been winning regional competitions for the past 12 years.

However, the single storeyed school facility is in poor condition with only 4 toilets for pupils. During the rainy season, the paved courtyards are subjected to flooding often penetrating into classes. The fencing of the school has been vandalised, and the precinct is open to the public. During recess time, students gather around the main soccer field where the fencing has been vandalised which is open to the public. Informal traders selling food and treats gather next to the school.

There are few public activities surrounding the school site. Residents of Barcelona walk across the sports field to Heideveld train station. A car wash and taxi rank are located next to the school on Klipfontein Road. An existing public pedestrian pathway runs along the river canal leading to Gugs Mall south of the school site.



**1** First point of contact leading to public school from settlement



**2** Bridge over canal



**3** Asphalted access across field



**4** Desire lines across field



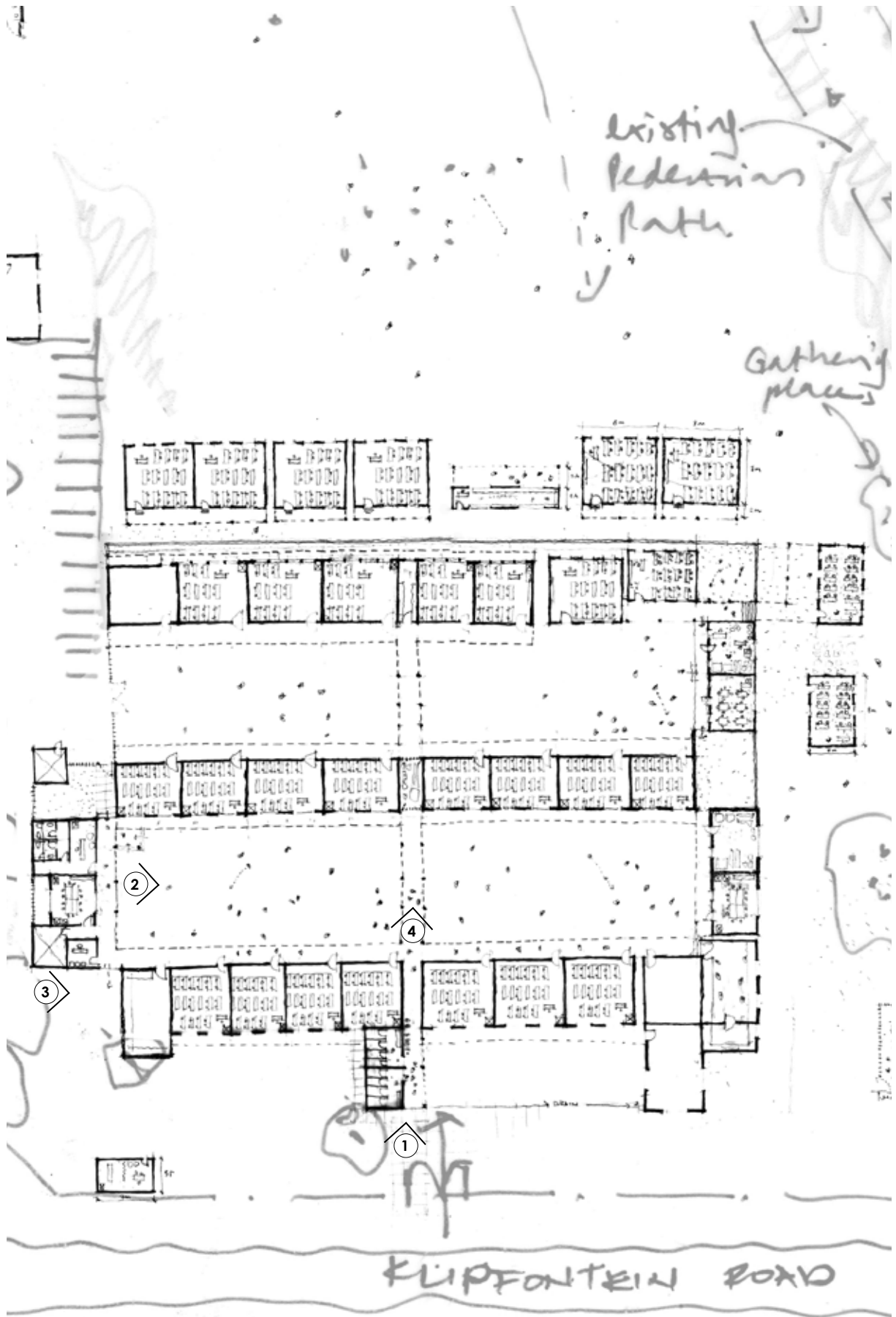
**5** Field of Lwazi public school



**6** Edge of Barcelona on top of waste landfill



**7** Access from public street



Plan of school



**1** Entrance from Klipfontein Rd



**2** Hard court of school



**3** Rainwater drainage condition

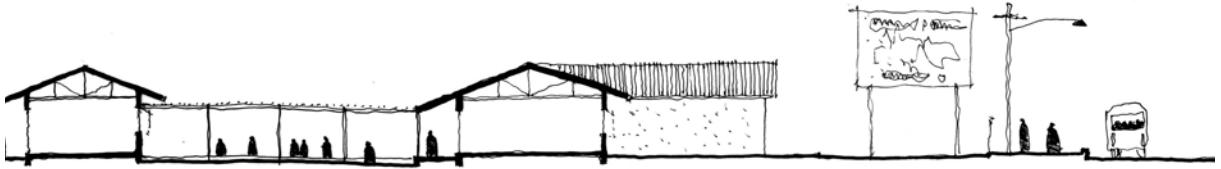


**4** Covered walkway across school





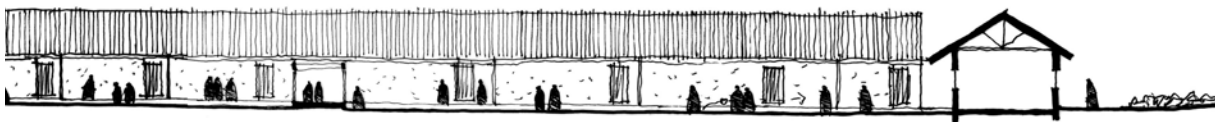
Section A - Part 1



Section A - Part 2



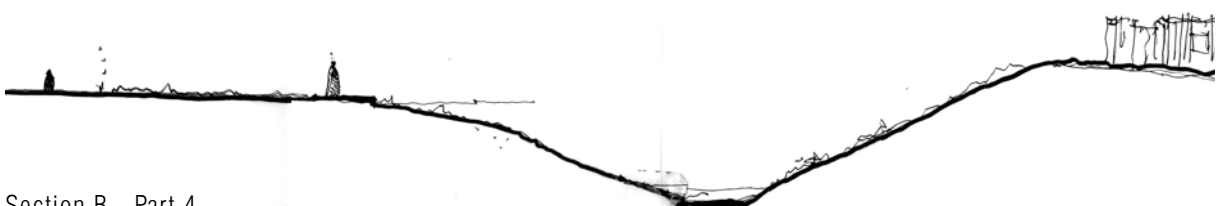
Section B - Part 1



Section B - Part 2



Section B - Part 3



Section B - Part 4



**3** Access to settlement from street



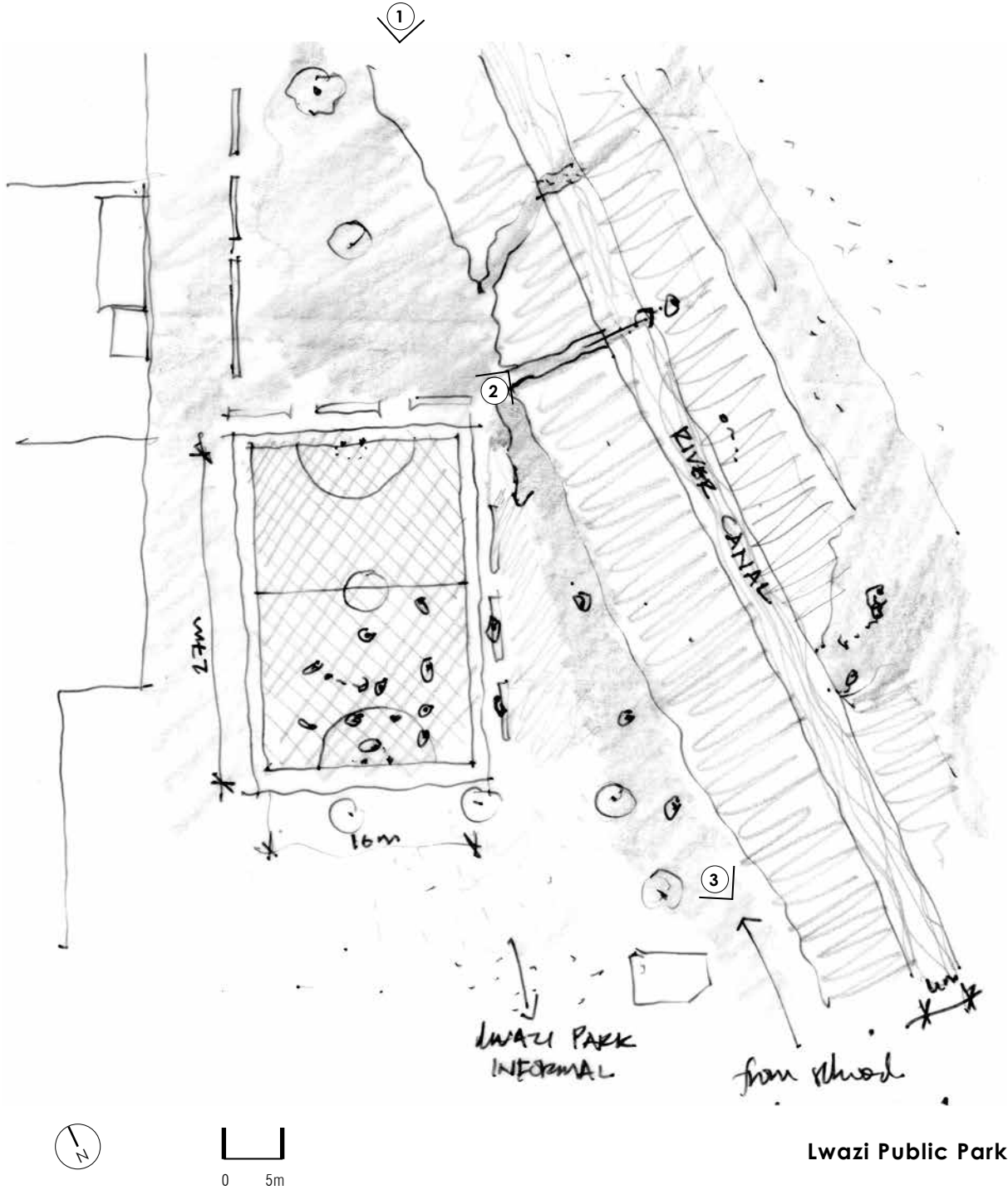
**4** Light pole

## 07 INFORMAL TAXI RANK + CAR WASH



Located along Klipfontein Road next to Lwazi School and Barcelona Informal Settlement. People of Barcelona gather every morning to catch Taxi to Cape Town and other areas. Taxi services are free between 7am to 11am during weekdays for dwellers who mostly travel to seek job opportunities. Informal car wash collects water from municipal water point and offering services to car drivers taking Klipfontein Road towards Settlers highway.

# 08 LWAZI PUBLIC PARK



The youth gather to Lwazi public park to play street soccer on a basketball tarmac court. It is usually the place of meeting for them during summer with public seating and trees providing shade.



**1** Public park

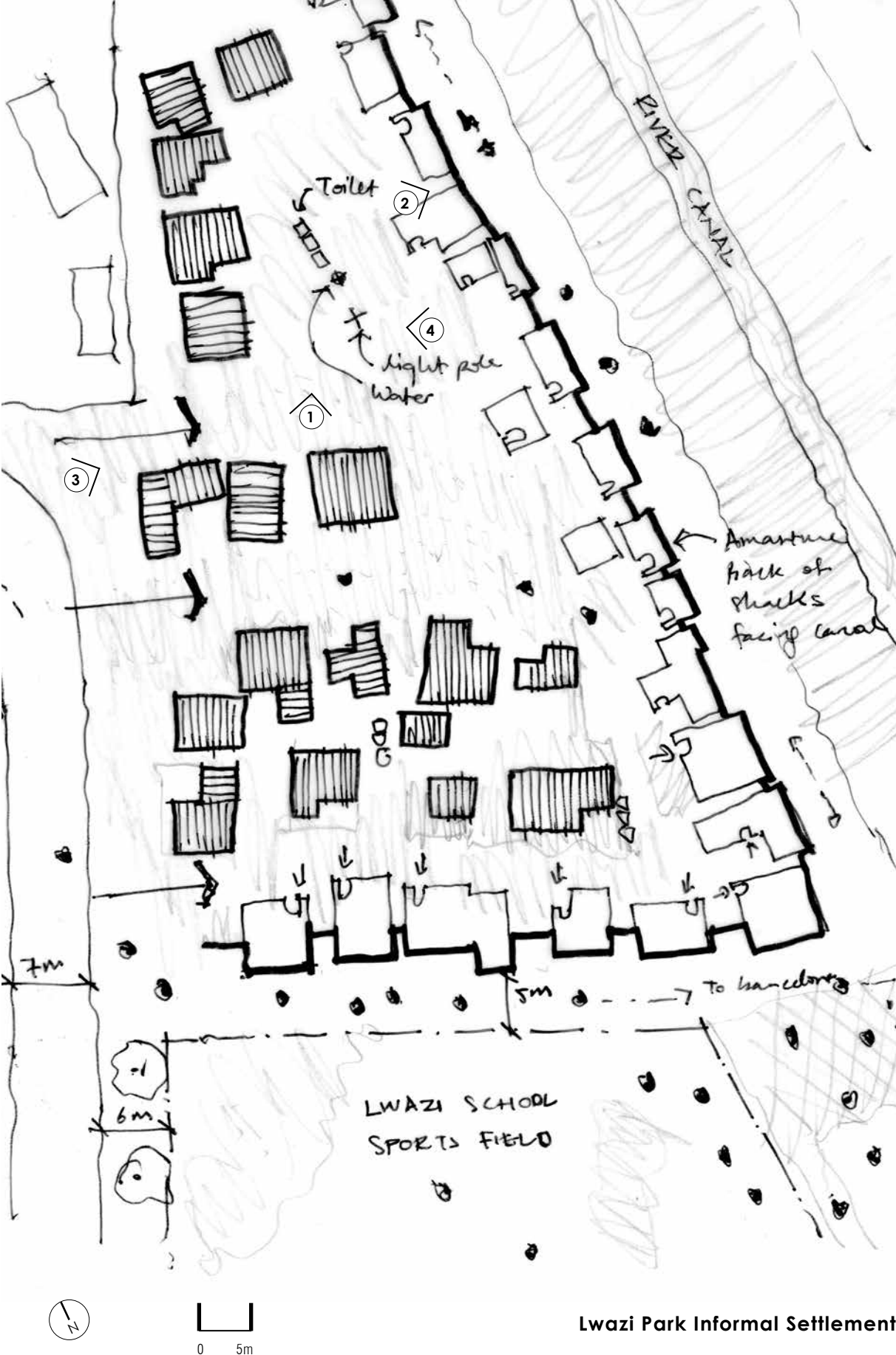


**2** Access over canal



**3** Access leading to bridge

09 LWAZI PARK INFORMAL SETTLEMENT



Lwazi Park Informal Settlement

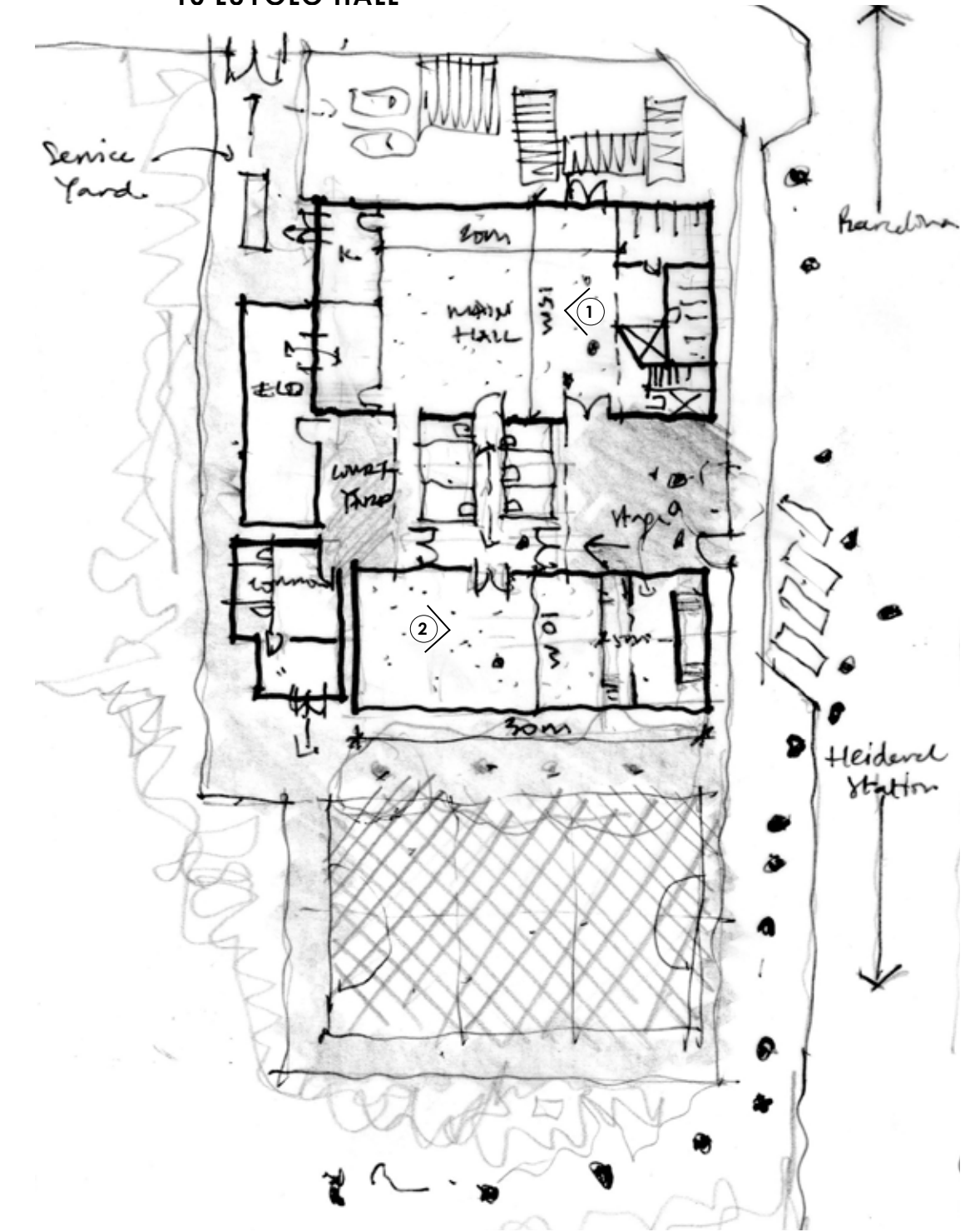


An informal community of 38 dwellings north of the school next to the polluted river canal. The morphology of the settlement are set in courtyards opening to the main street with the backs of shacks facing the school and the pathway leading to the public park.



**2** Access between shacks

# 10 LUYOLO HALL



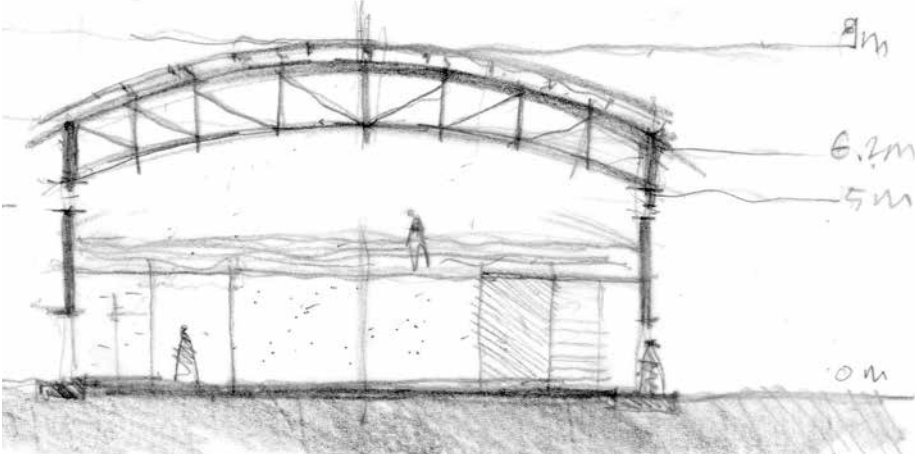
Site Plan of Luyolo Hall

Luyolo is the primary community multipurpose hall of the vicinity which dwellers from Barcelona and surrounding settlements use. It offers a variety of recreation programs across ages mostly to the youth such as dance, boxing, basketball, gym etc. People have to book the place with the municipality for bigger community gatherings or meetings.

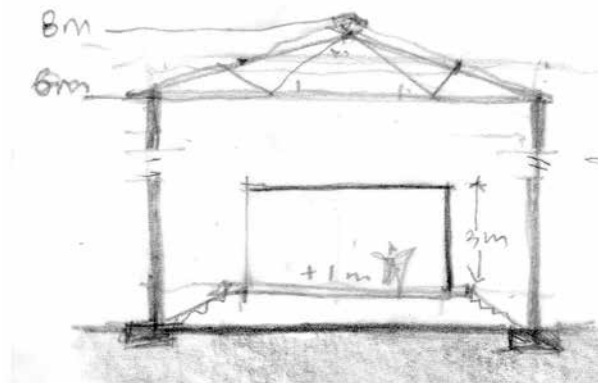
According to caretakers, the facility tends to be overcrowded by youth due to the hall being the only public facility close the settlement where sometimes clashes arise, due to the overwhelming number of people who want to use the facility.



1 Main Hall



Cross section thru main hall

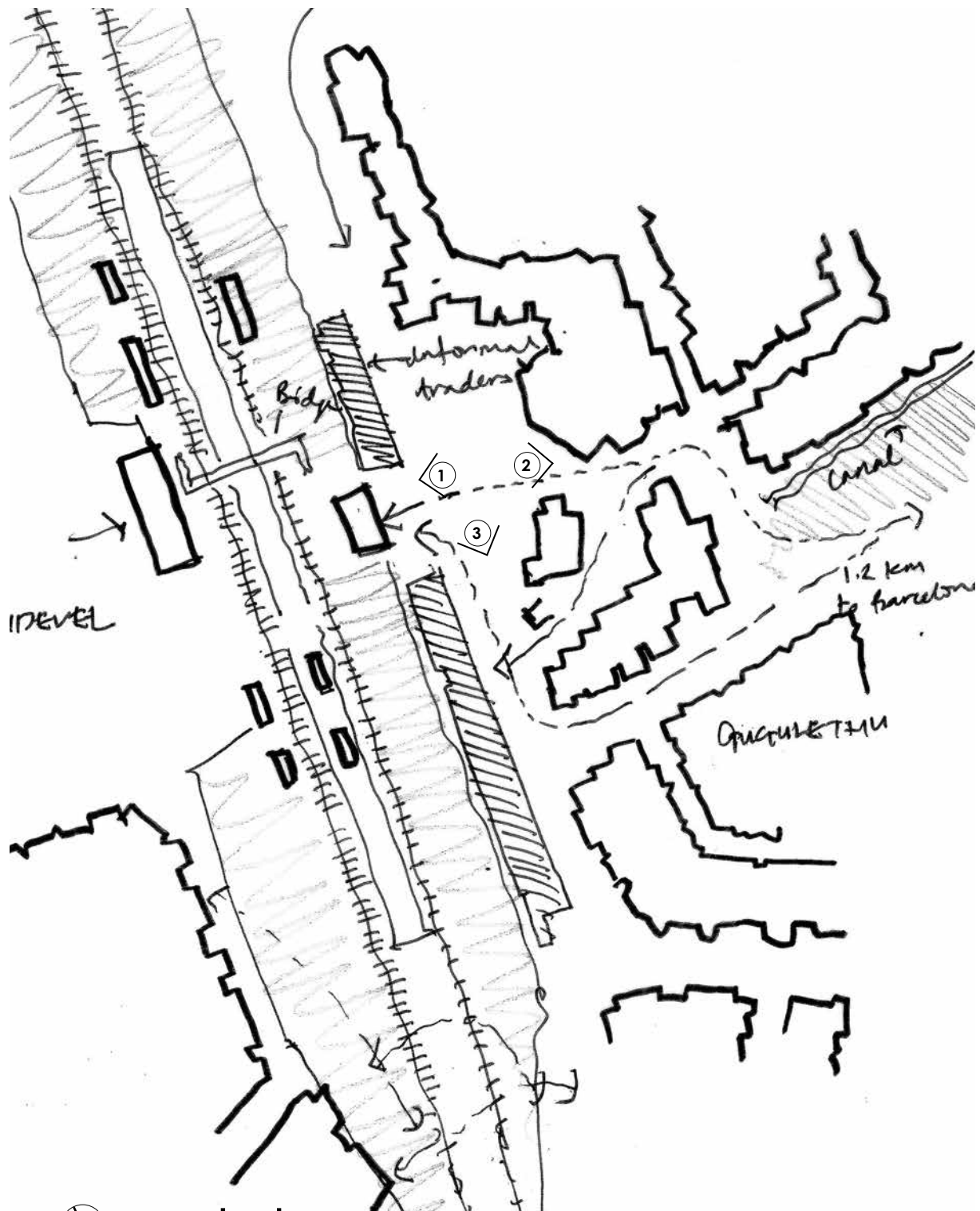


Cross section thru minor hall



2 Minor Hall

# 11 Heideveld TRAIN STATION



Site Plan of Luyolo Hall

Train is the cheapest mode of transportation for dwellers of Barcelona who have to walk to closest station in Heideveld to catch train for work. At the station, informal traders in containers sells goods and fresh produce to commuters



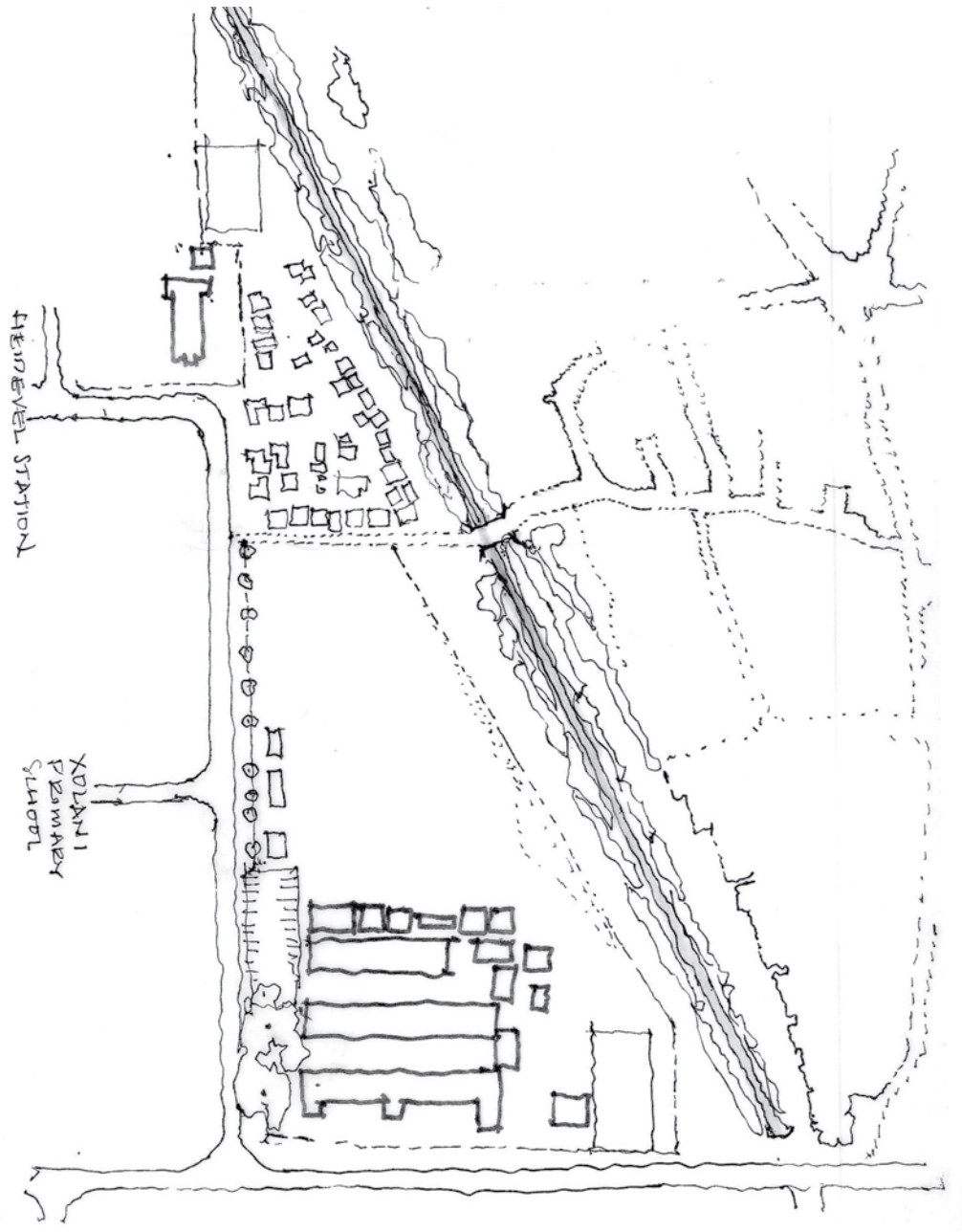
1

2



3



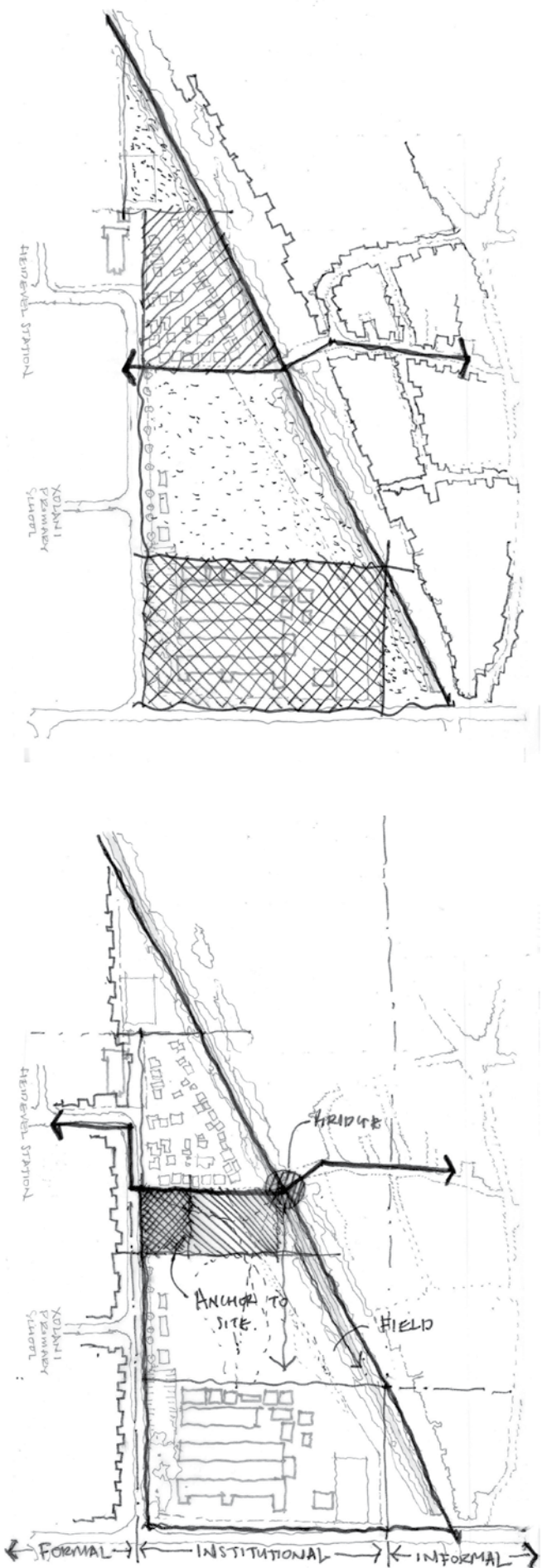


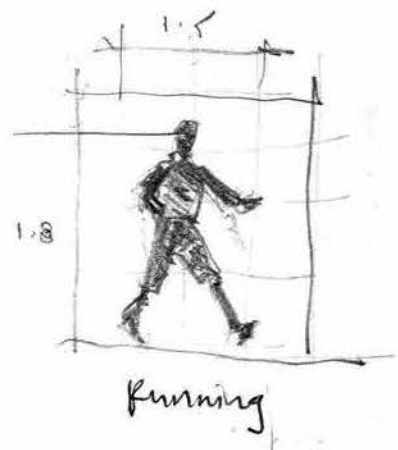
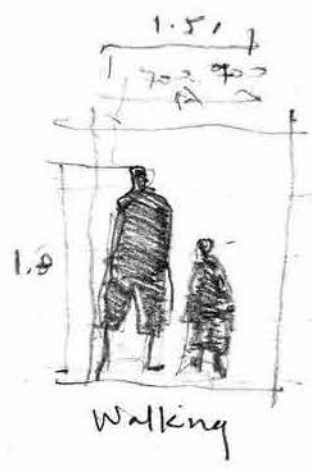
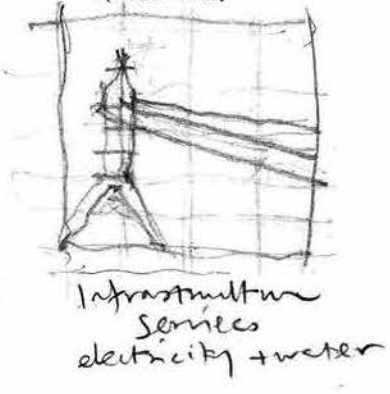
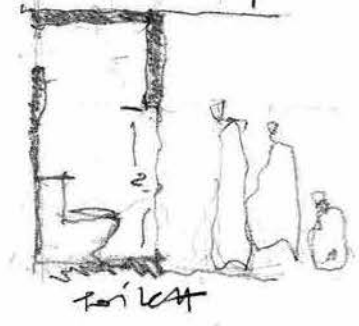
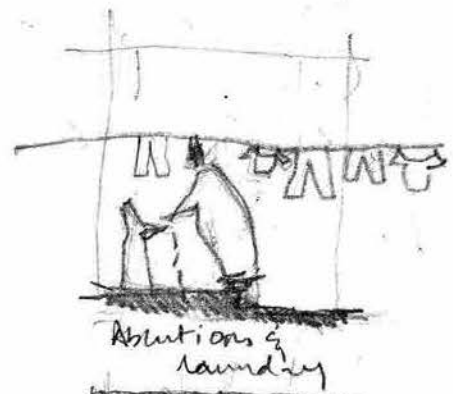
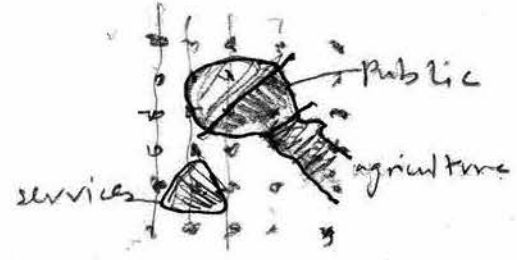
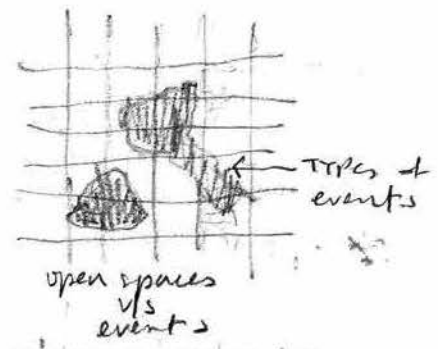
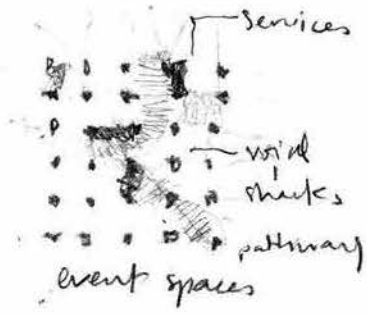
## FIELDWORK FINDINGS

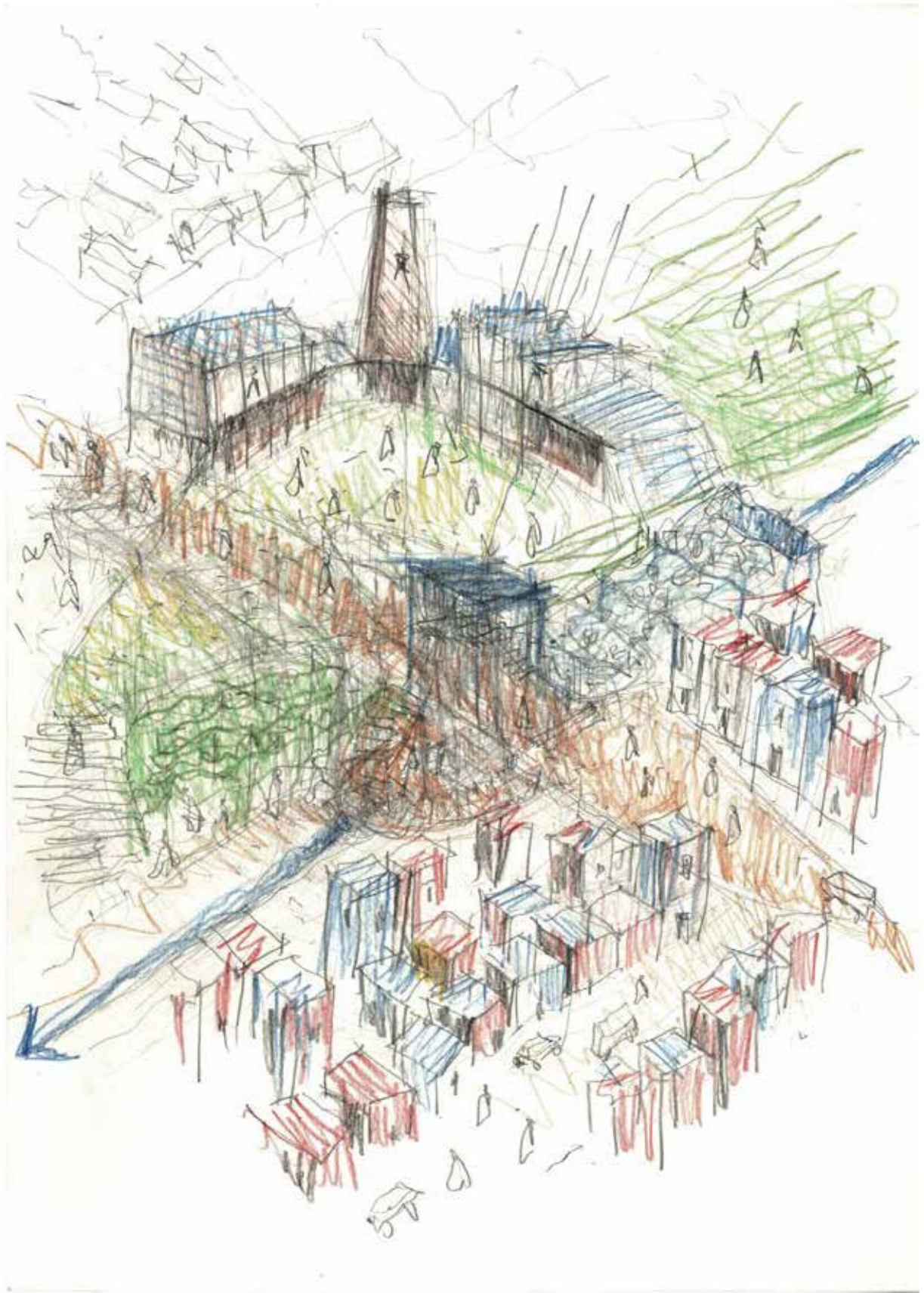
Public assembly in Barcelona has been observed in hall, church, ECD and movement activities towards Heideveld station. Due to the polluted landfill condition on which the settlement grew over time, it will be difficult to build on without decontaminating the land. Containers are the most adapted form of inhabitation for larger groups of people - see the church, hall and ECD, which are not permanent. Despite being located on polluted landfill, Barcelona is an established settlement which residents have occupied for more than 20 years. Water points located along pathways are generally places where residents gather. The pathways or informal streets are the primary places of publicness with movement activities during the day.

From observation studies and interviews, train remain the cheapest mode of transportation where dwellers walk to Heideveld station or by the free taxi service from 7am to 11am at the informal taxi rank located at the boundary of Barcelona and Lwazi public school. Movement and notation studies gathered that people walk across the existing school field towards Heideveld or other areas of interest such as Lwazi public park or Luyolo Hall, which are the closest places of public recreation activities. The edge of Barcelona facing the Settlers highway is currently being used as soccer field by the youth.

Due to the polluted landfill site condition, the pathway leading to Heideveld station across the school site has been earmarked for the architectural intervention exploring public assembly in contested territories.









MON	TUES	WED	THURS	FRI	SAT	SUN
TABLE TENNIS	SENDING CLUB	TABLE TENNIS	SENIORS CLUB	KIDS GYM		
BASKET BALL REC. GAMES	NETBALL		REC. GAMES			
	REC. GAMES	BASKET BALL REC. GAMES	CRICKET			
				DEEP CLEANING		
	CAD		CAD	CAD		
						CAD. Church till 12mid Service

Figure 20-22: Weekly schedule of recreational events on the notice board Luyolo hall

## 4.0 PROGRAMME

Architecture is not simply about space and form, but also about event, action, and what happens in space. – Bernard Tschumi from the Manhattan Transcripts - (Tschumi, n.d.)

OMA's proposal for the masterplan of Yokohama avoided designing individual buildings with their inevitable limitations and separations. Three layers of public activity were manipulated to allow the largest variety of events with minimum built-form, working with the existing urban conditions of the site. The programme map demonstrates levels of public activity over time where minimal interventions would provoke theatres, cinemas, clubs, restaurants, churches, sport venues and other programs on roads and parking places of the existing context. (OMA, 1991)

In reality, the programme of Luyolo hall is particular to its locality, users and other externalities such as government funding. The weekly use of the hall is subjected to changes depending on its intended use over the course of the year.

Event as occurrence is flexible over time, the space provides shelter for public assembly to participate to events. The program of the event space should respond to the socio-cultural context of the place, anticipating its relationship to the settlement, the school and other existing layers of public activity on site – car wash, pedestrian movement and soccer.

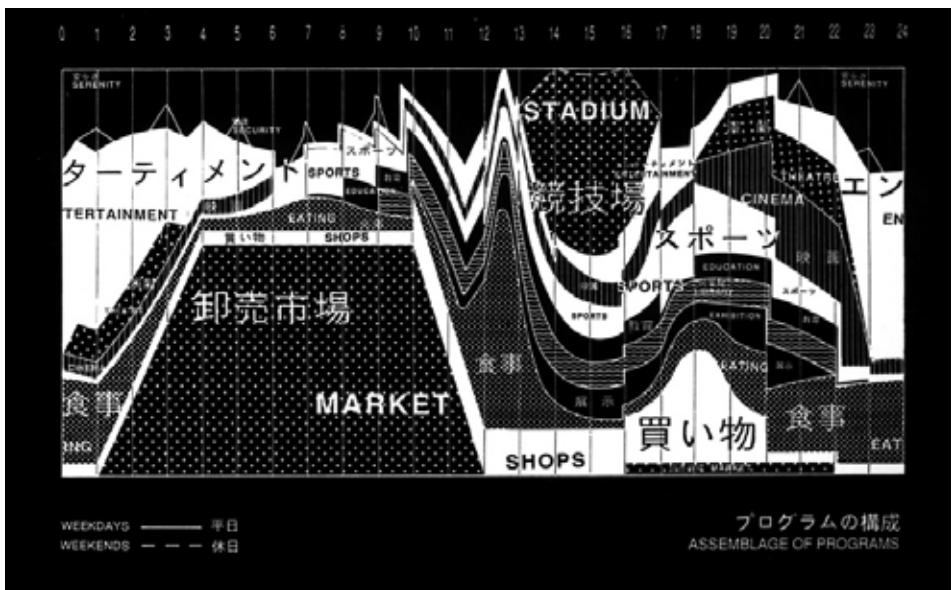


Figure 23: Yokohama Masterplan (OMA, 1991)



Figure 24: La Goulue (Toulouse L'Autrec, 1891)

Explorations of the programme has been inspired from post-impressionism artist Toulouse L'Autrec's poster advertising dancing event every night at Moulin Rouge

## **4.1 BRIEF**

The architectural intervention aims to provide a multi-purpose venue acting as social infrastructure for the community of Barcelona. Due to existing constraints of the established settlement located on a polluted landfill site, the multi-purpose hall aims to relocate dwellers in close proximity of Barcelona on a better site condition. The pedestrian route leading to Heideveld station going across the sports field of Lwazi public school highly used by residents of Barcelona has been earmarked as the site for the intervention.

The multi-purpose venue intends to provide spaces for public flexible events addressing community needs across ages. It shall be a place of public assembly enhancing local cultures and social practices gathered from fieldwork studies such as dancing, funerals, weddings, religious functions and places of recreation for the youth, who accounts 34% of the settlement's demographics.

The project seek to find an alternative space of public events to the overcrowded Luyolo hall. The architectural style intends to build on the popular presence tent church structures particular in townships for religious purposes. The project is not intended solely for religious purpose, the tent structure provides shelter and shade for public assembly. It seeks to uncover an architecture that reflects the popular culture of the locality by providing a space of fixity intended for place making tradition.

The architecture of the event space aims to grow incrementally over time and shall be low cost, robust and make use of existing local skills, trades and human capital and provide spaces for informal activities such as trades during events.

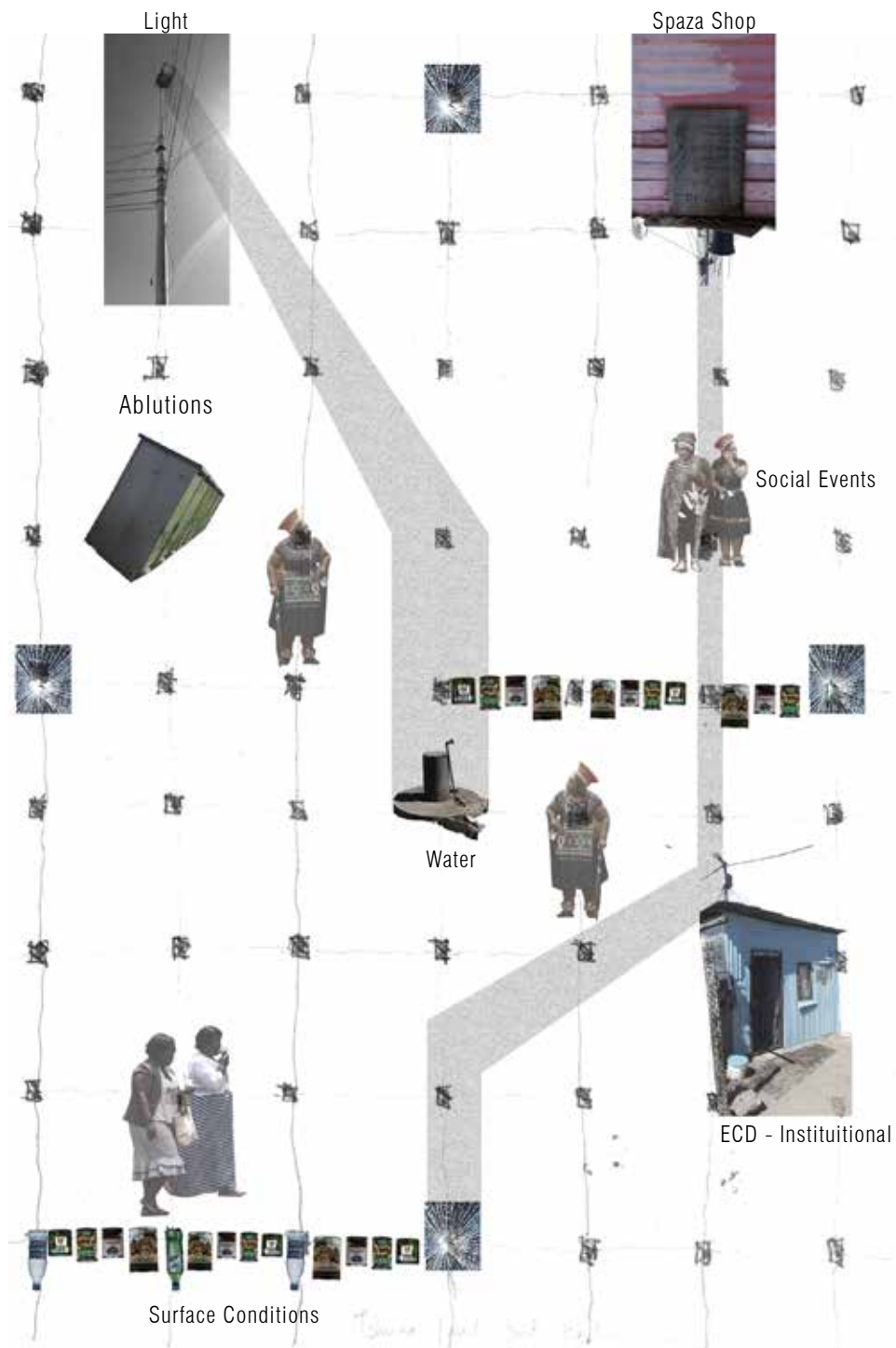


Figure 26: Forms of events





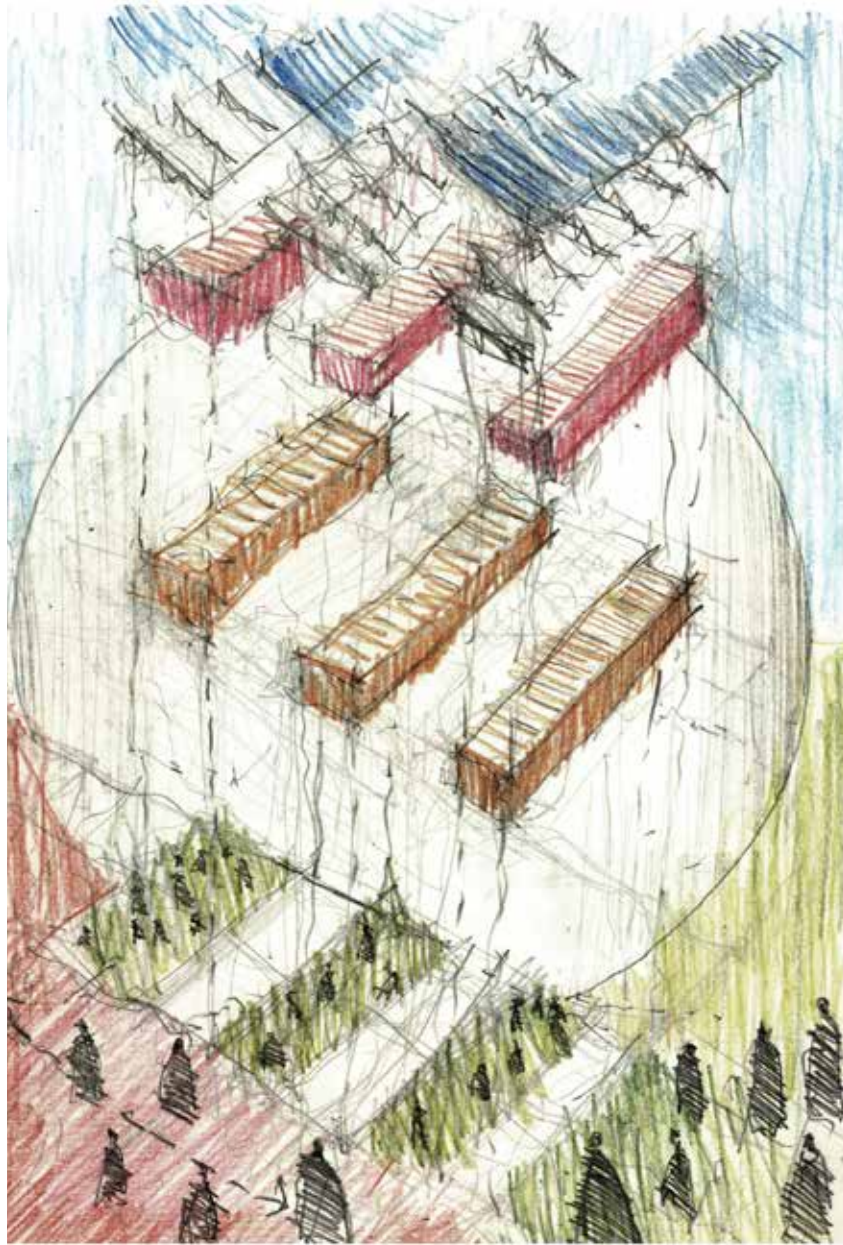
Figure 28: 'Legotla' the gathering space

## The Event Space

Provision for flexible events over time with 500 seating for public assembly, performance stage, backstage, practice room, studio facility, equipment storage, ablutions, workshop area, admin offices, security office, kitchen and café + seating, outdoor seating and laundry facility. Provide space for NGO working catering the needs of impoverished communities such as Shawco's mobile clinic which already provides medical services in Barcelona every third week of the month.



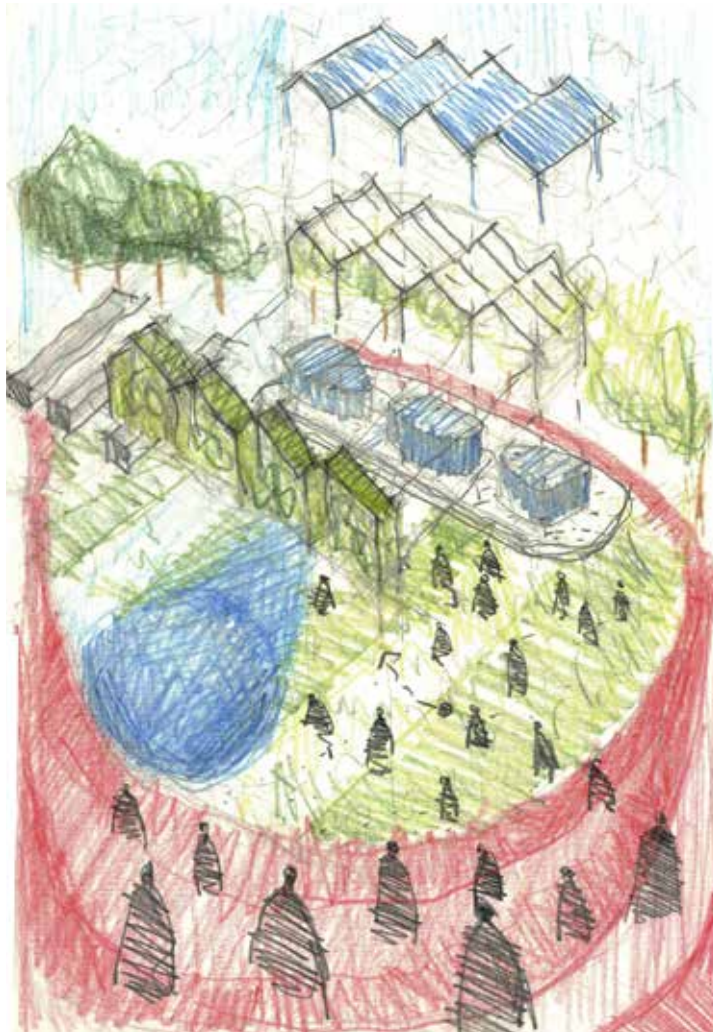
Figure 29: Event space along pedestrian desire lines



## The School

While the hall and public assembly through events is the focus of the design, the event space takes into consideration the operation of the school, which must not interfere with the education institution. The school operates on its own but overlaps with the hall where children have access to the event facility for performances, recreation and sporting events.

Due to the poor conditions of the existing school with temporary classes, paved courtyards subjected to flooding, limited ablutions facility, the design intervention caters the improvement of the school facility by providing better classrooms sizes, library, computer facility, informal trade area – canteen, better access control, provide space for life skill program working in conjunction with the main event space. It also provides better grade R facility with play areas within the school. The existing tennis court of the school is proposed to be renovated for soccer kick-about during school hours. The proposal for renovation of the school will only be in sketch design to explore its relationships between institutions across the open land.



## The Field

The intervention addresses the sport ground currently in poor conditions due to movement activity across the school site where the fence has been vandalised. The programme for the new field works in collaboration with the school and the hall over time. During recess time and school recreation hours, the soccer field is dedicated to children, and after school hours, weekends and holidays, it is dedicated to the youth of Barcelona. Other recreational activities such informal kick about, play areas will be explored around the main soccer field to mediate potential clash between school and community use of the field.





## Common Services

The programme foresees the need to improve existing water point and toilets by providing a better public water services with washing at the existing water point at the pedestrian entrance of Barcelona. This could be a typology of common water services across the existing 56 water points of the settlement. Provision for light poles during night time particularly in winter to increase safety of pedestrians across the site.



### **Access**

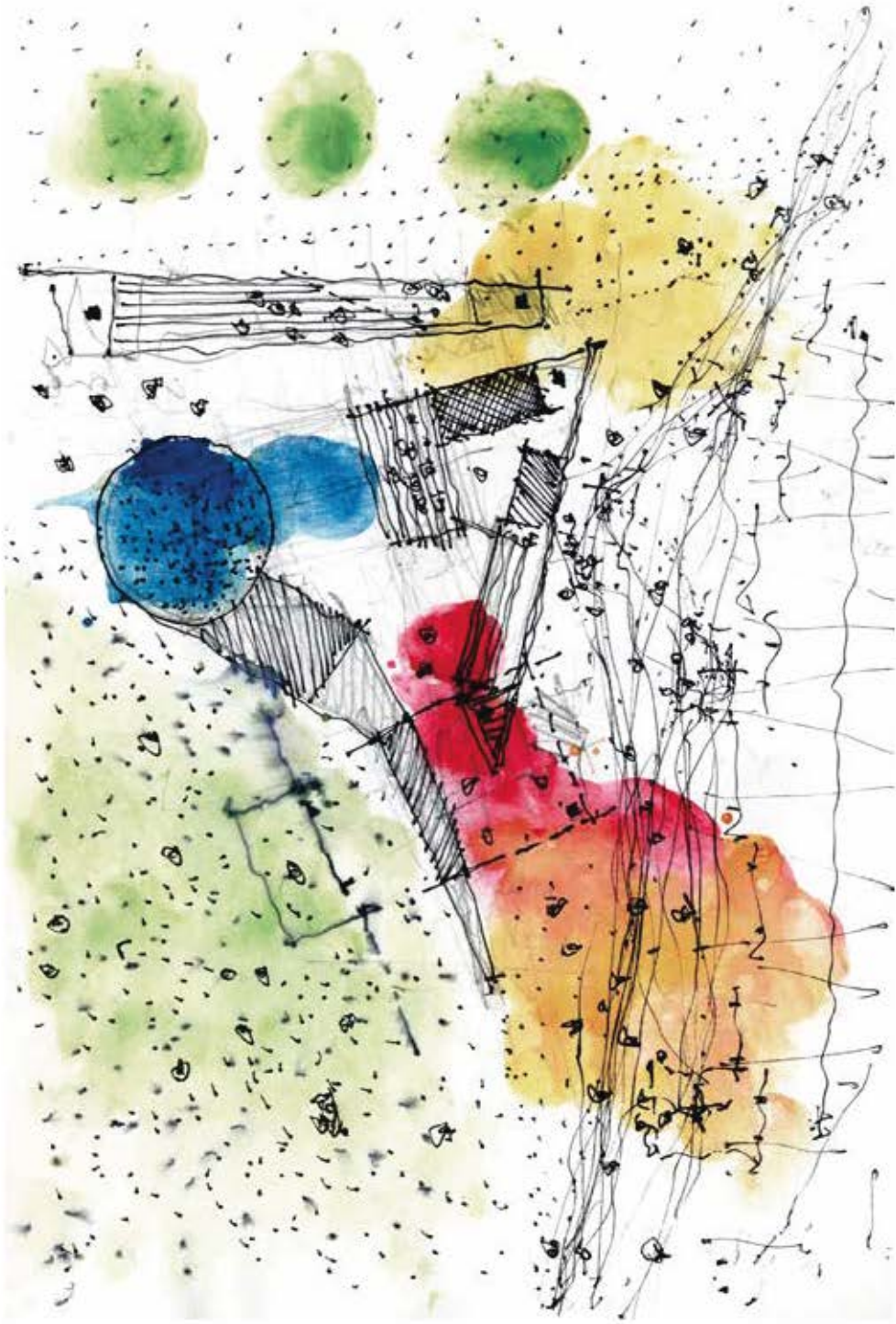
Urban intervention to extend the street access across the event space

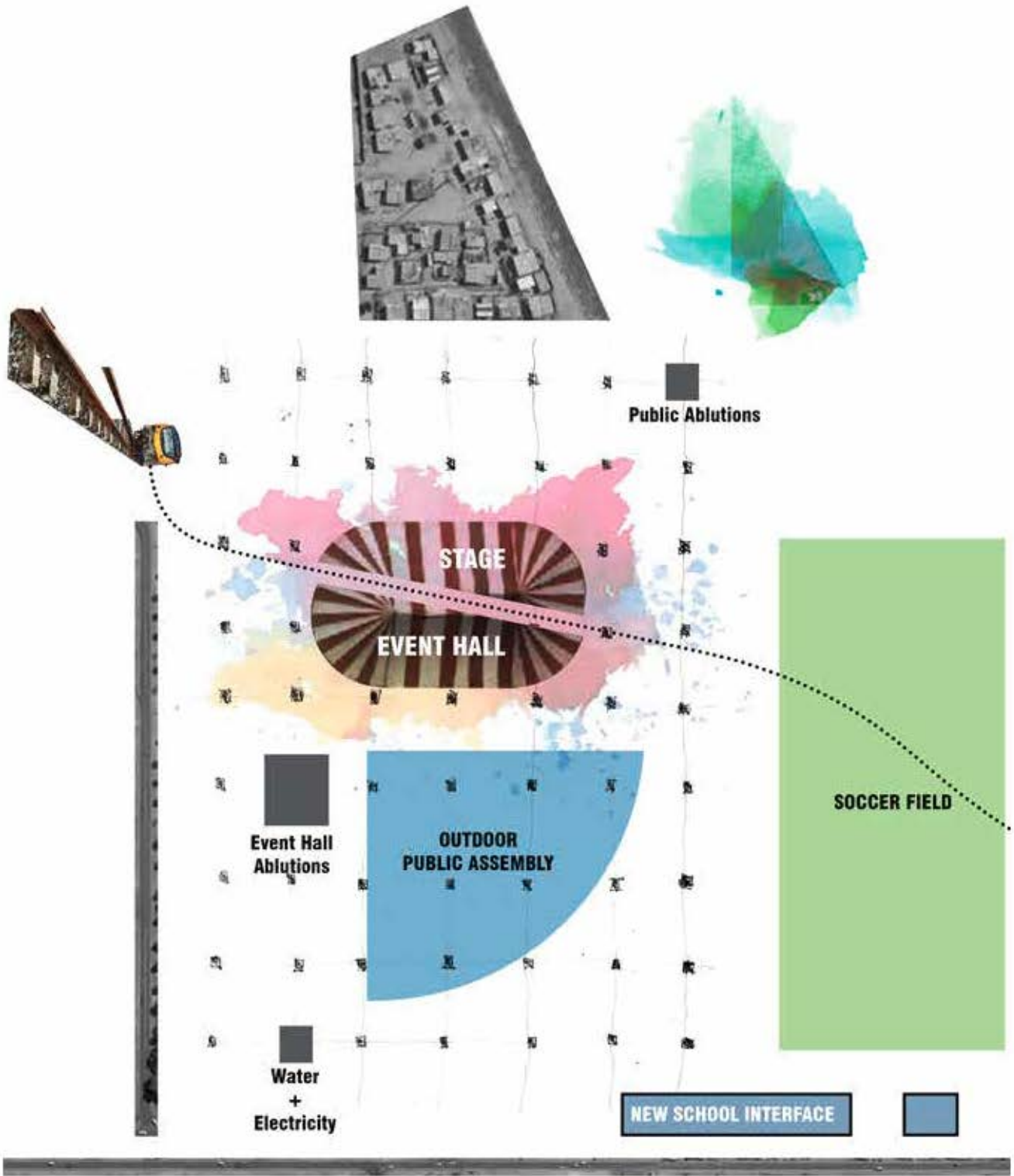


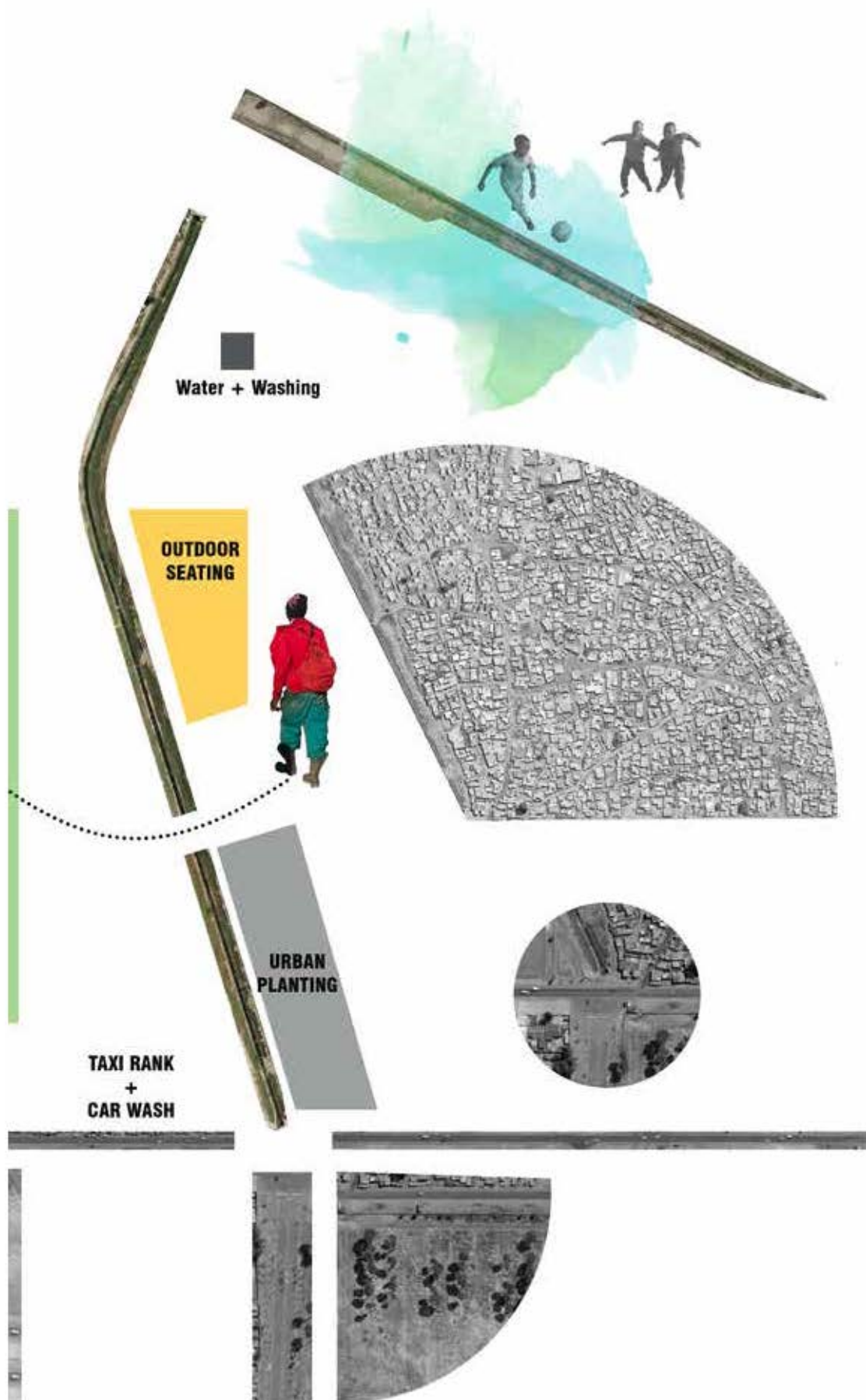


## Urban

Informal trades and public inhabitation surrounding the event space



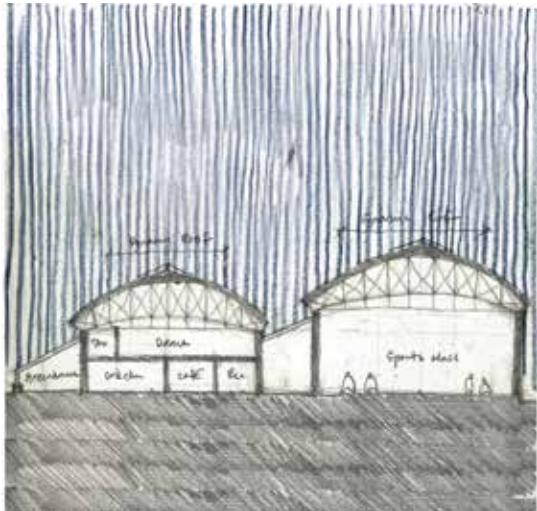






**1**

ECO-CENTRIC  
Earthships, New Mexico  
Mike Reynold



**2**

ECO-MEDICAL  
Drumchapel Sports Centre, Glasgow  
GAIA Group



**3**

ECO-SOCIAL  
Christiania Free City, Denmark



**4**

ECO-CULTURAL  
Magney House, Australia  
Glenn Murcutt



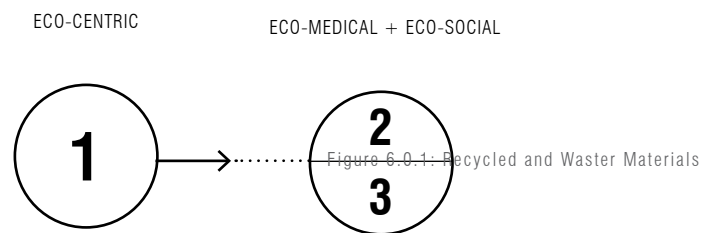
**6**

ECO-AESTHETIC  
Biomuseo, Panama City  
Frank Gehry



**5**

ECO-TECHNIC  
Paul Klee Centre, Switzerland  
Renzo Piano



PART III



## **5.0 APPLICATION OF STUDIES FINDINGS**

Theory and technology studies explored informality, existing practices of construction and local trades and materials of the circular economy. Findings from these studies aim to make use of recycled materials based on the Ecocentric sustainability logic using materials such as tires, bottles, other waste materials, filled and plaster with earth (Guy & Farmer, 2013, pp. 142-143).

While technology studies explored the use of new materials of the circular economy namely polymer, its application is currently limited in local construction where end-products are re-adapted for construction. Eco-brick which use plastic bottles will be applied for internal walls as insulation in the redevelopment of the school and the use of rubber mulch as ground cover for play and planting areas at the urban scale of the intervention particularly on the polluted ground condition of the settlement at the edge of the canal.



Figure 30: Actor Network Theory Diagram

## 5.1 SUSTAINABILITY STRATEGY

An increasingly developed activity of trades were located in Gugulethu and its surrounding areas showing a growing economy and construction practice using recycled materials. Based on the circular economy principle, the materiality of the event space explores the use of recycled materials in its architectural conception aiming to make use of the availability of existing materials within the locality of Gugulethu.

The application of the circular economy principle makes use of the most common material of construction - brick. However, reclaimed brick and new products using recycled rubble will be explored further due to their low carbon footprint, and particularly the low cost and value of reclaimed bricks. Other common materials of the circular economy - steel and timber will be explored as lightweight structural elements to build on the existing artisanship and trades in Gugulethu.

The use of recycled materials intends to provide skills to unemployed dwellers residing in Barcelona by existing trades and crafts of Gugulethu.

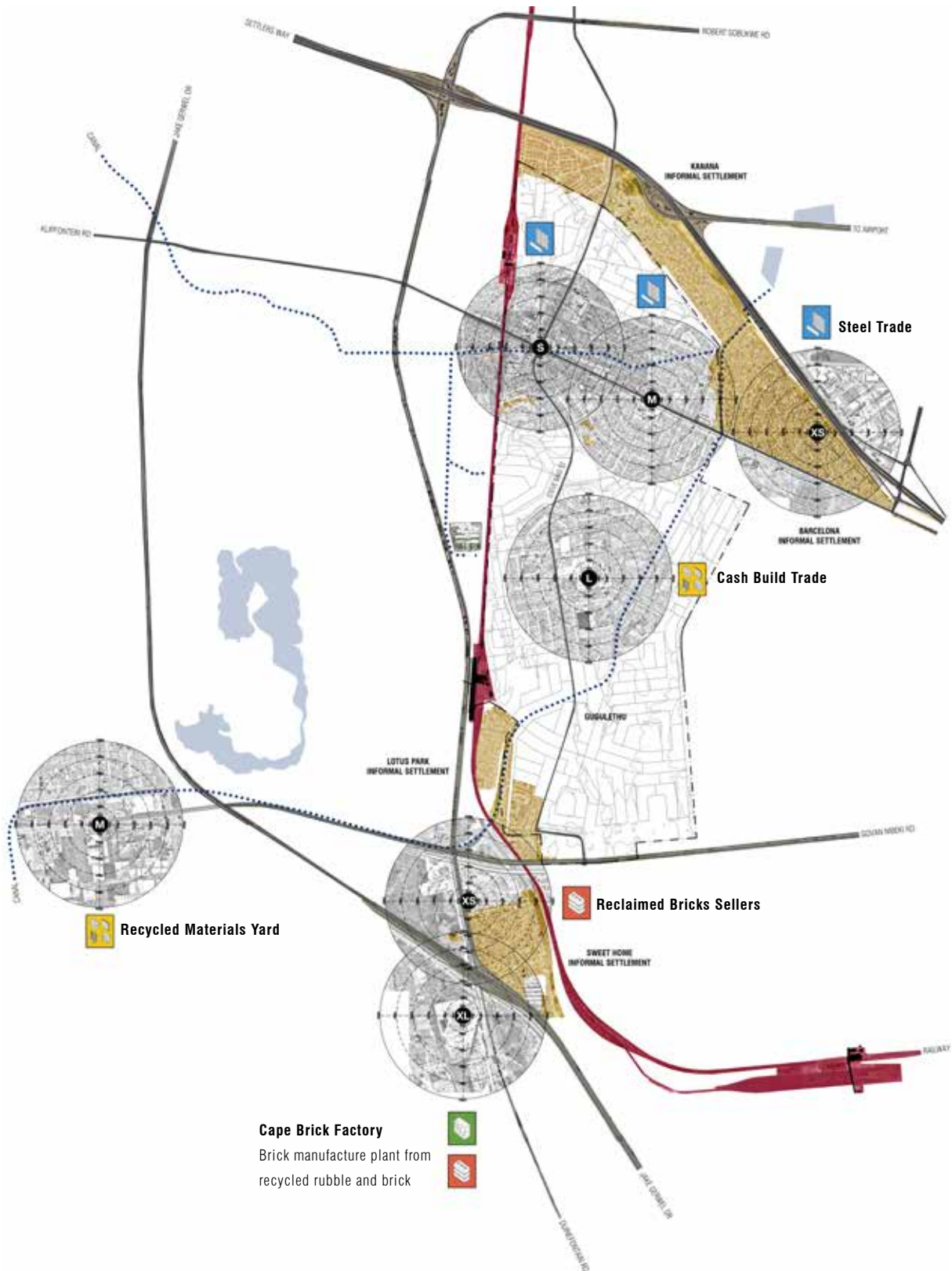


Figure 31: Adapted Local Context Map from Life of Materials Report (Moreau & Nunkoo, 2017)



Based on Superuse studio, which is a platform locating recycled materials and their availability on the local market through interactive mapping called harvest map (Superuse Studios, 2017). The local context map located recycled materials through mapping in Gugulethu and surrounding areas to understand trade networks and the circular economy of materials.

## MATERIALS OF THE LOCAL CIRCULAR ECONOMY

Note: Information listed here was retrieved from Life of Materials report (Moreau & Nunkoo, 2017)



Figure 32: Brick network

Reclaimed bricks are sold by informal traders R1 per unit for brick, pavers & R3 for roof tiles

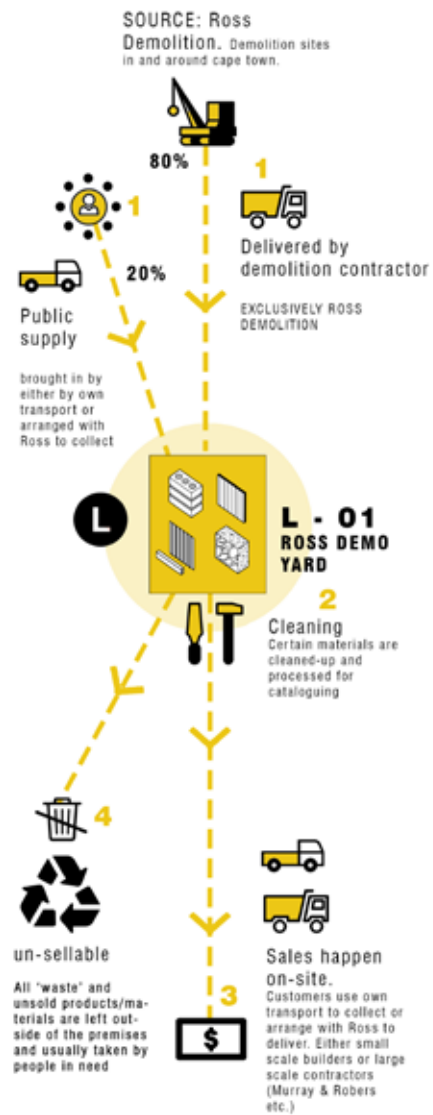


Figure 33: Multiple materials network

Various Timber cut-offs & used building items are sold by major secondhand yards. Off-cuts are sold by in cubic meters. and timber items less than 40% compared to new items Meranti is cheapest, and Oregon, Teak are the most expensive.



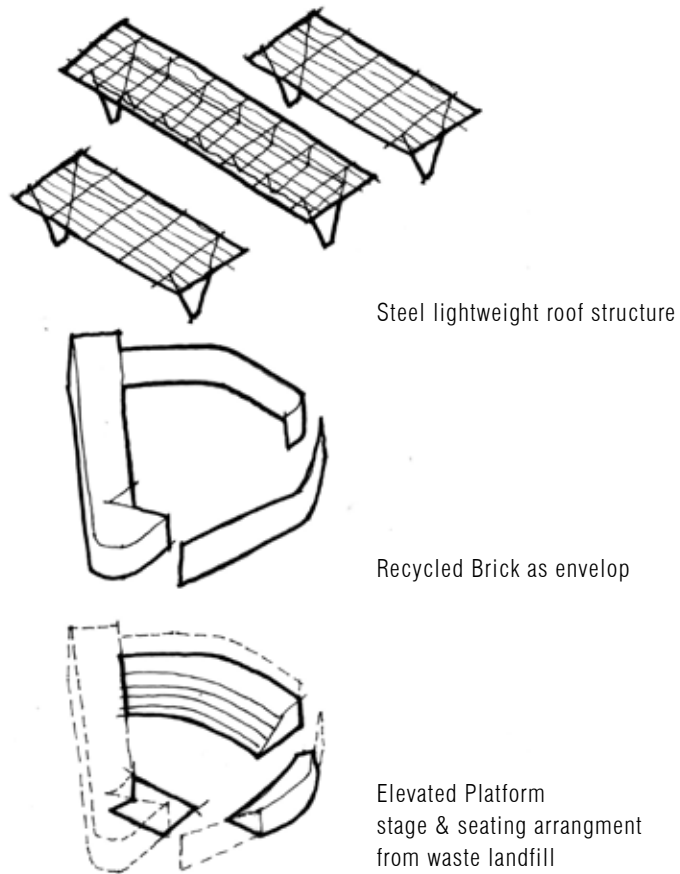


Figure 36 - Structural diagram

## 5.2 STRUCTURAL STRATEGY

The stage and seating area re-use the waste landfill on the settlement for the platform. Recycled Brick is used as envelop for the event space and lightweight steel truss and portal frame for the roof. The stage, seating and envelop work separately from the lightweight roof structure. This strategy intends to make the event hall grow by involving different skills and trades particular to the locality.

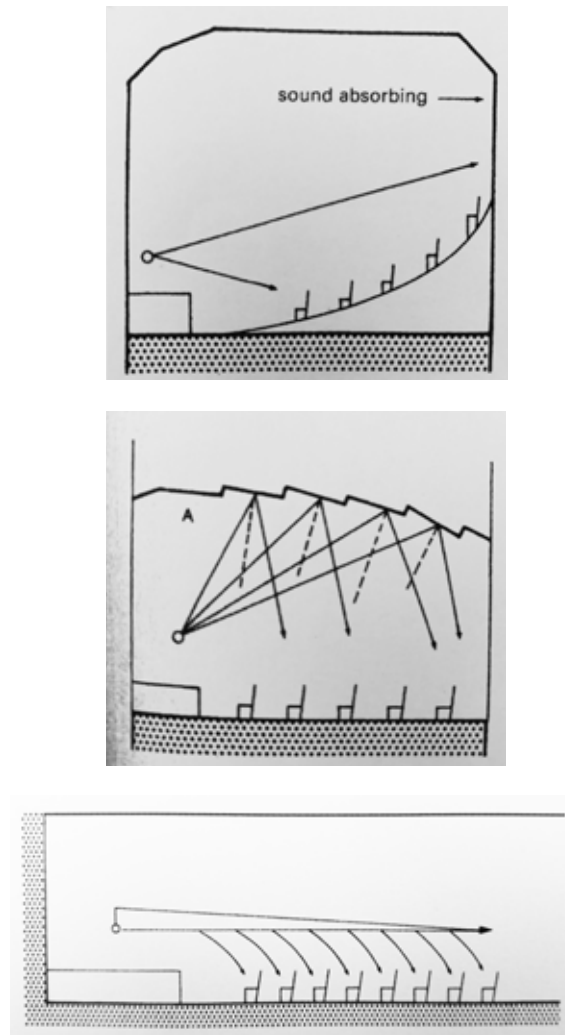


Figure 37-39: Acoustic strategy diagram for hall  
(Neufert, 2012, p. 483)

### 5.3 ACOUSTICS STRATEGY

The acoustics of the event hall intends to allow adequate acoustics to the multi-events – boxing, dancing, church services. The ceiling serve to lead sound back seating arrangements of the hall to provide good acoustics for multiple types of events. The shape of the ceiling must create adequate acoustics through ray tracing to calculate the path of sound waves to the audience to avoid sound fluctuations and allow sound absorption on back walls.

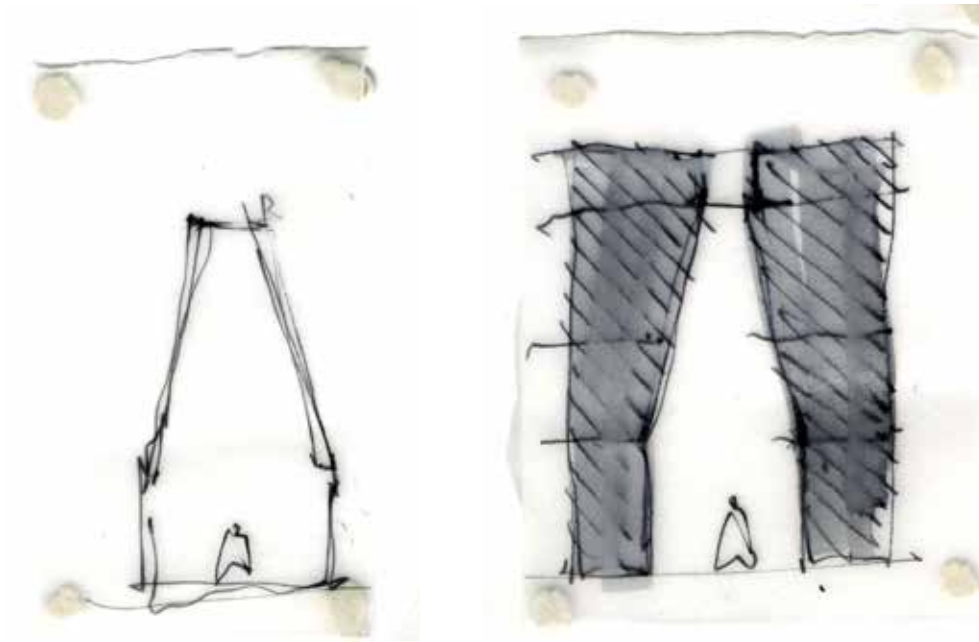


Figure 40: Solid v/s Void

### 5.3 DAYLIGHTING STRATEGY

The lighting of interiors with daylight is crucial in the development of the event space as it is intended to create interiority aiming to separate residents from the tough urban conditions of the settlement. Moreover, maximising daylight aims to provide shading for public assembly and bring more comfort for users during winter conditions. Roof lighting strategies are the most efficient means to optimize daylight, 100% of the light from the sky reaches roof light compared to only 33.3% reaching to windows at the sides (Neufert, 2012).

While daylight is not common for performance halls, Berlin Philharmonic theatre uses daylight to optimising the interior quality with natural light. However, the design intervention aims to test strategies optimising south sunlight inside the hall seeking to create better interior comfort.

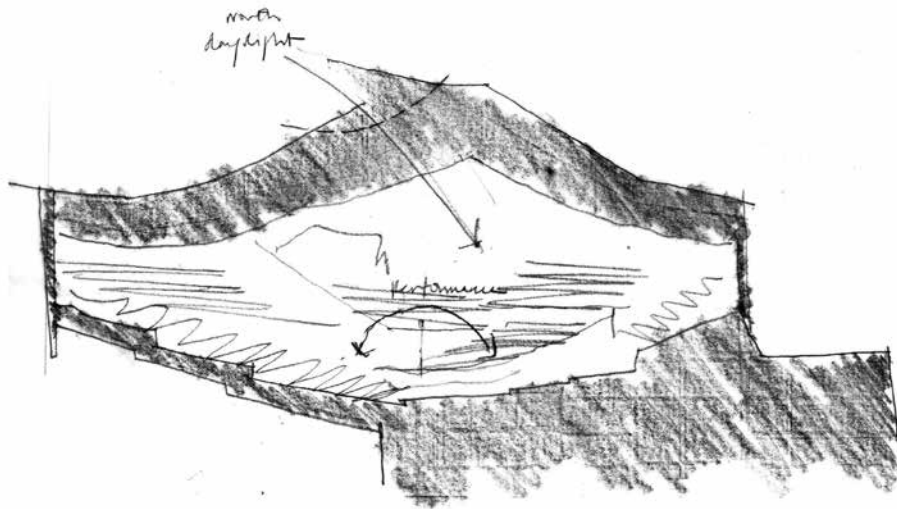


Figure 56: Solid v/s Void section Berlin Philharmonic

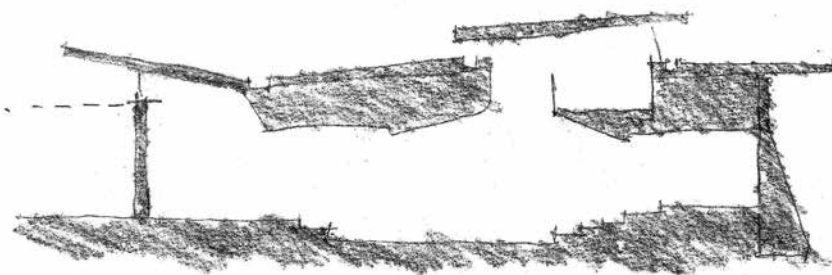
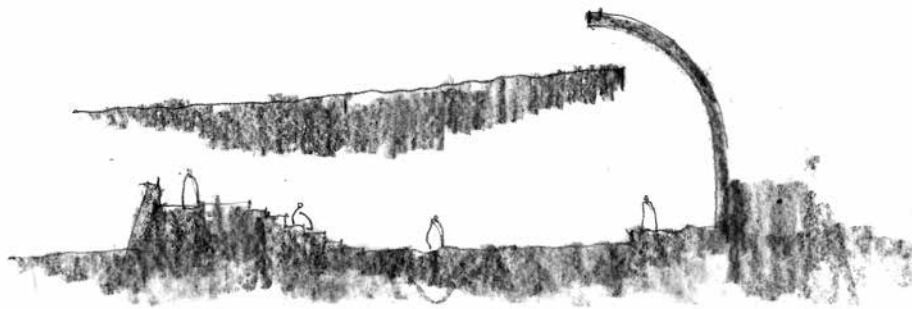


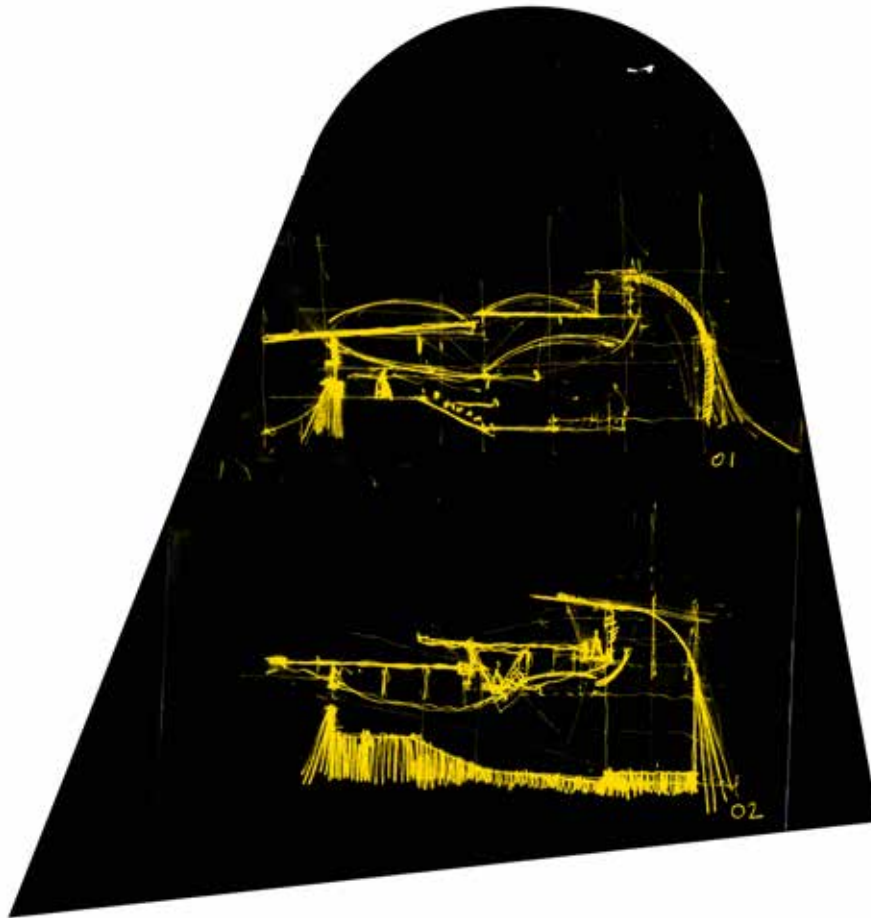
Figure 41-43: Solid v/s Void strategies optimising South daylight





PART IV  
Design Development





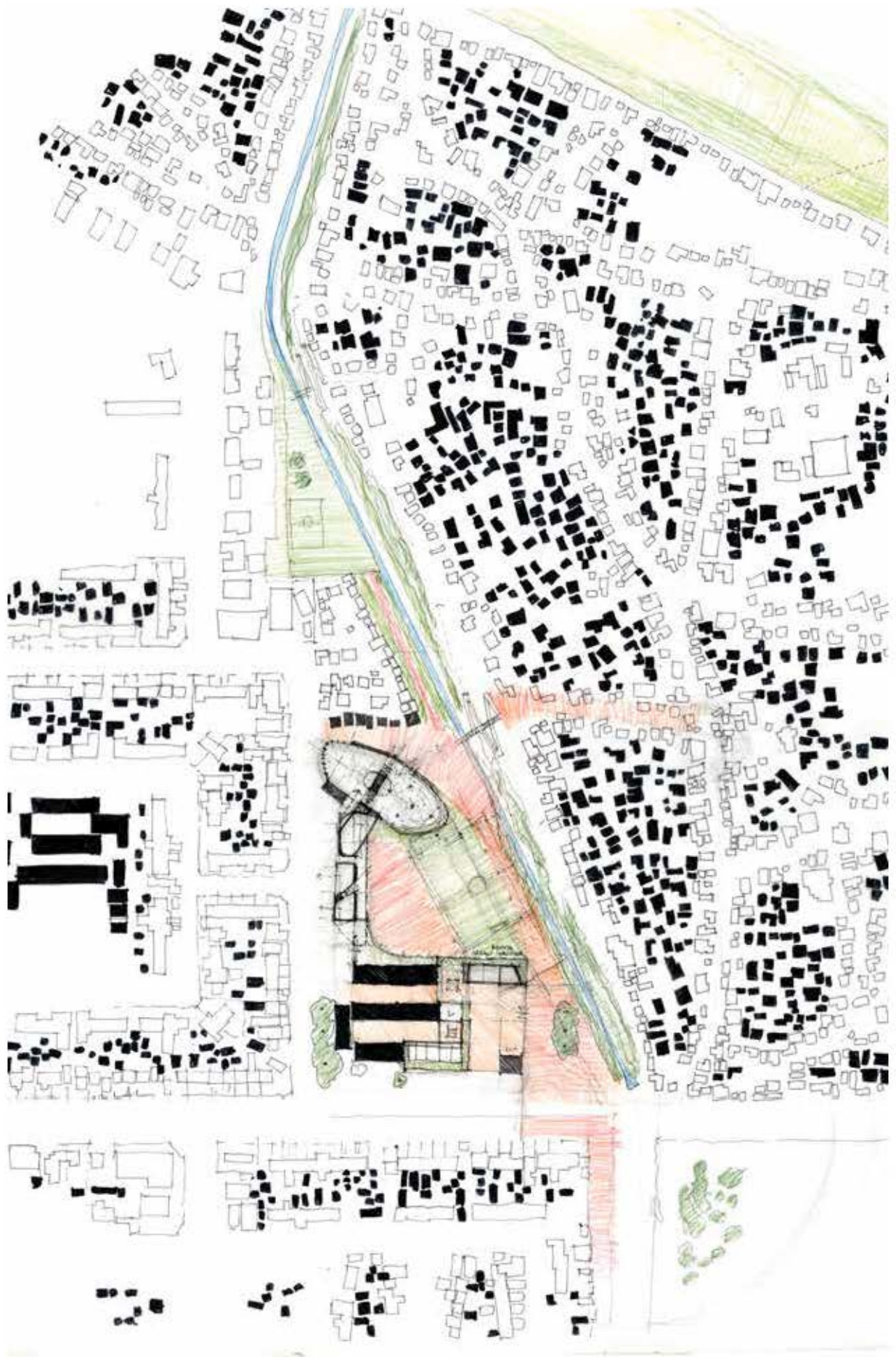
## 6.0

# TECHNICAL DESIGN DEVELOPMENT

When architects draw even brick walls to six decimal places with software designed to cut lenses, it is clear that the logic that once organized relations between precision and material error in construction has unravelled. (Hughes, 2014)

Technical representation for the design development was carried out through charette sessions working across scales towards synthesis of the architectural intervention working through hand drawings. Technical explorations aimed at testing form, scale, function, materiality for public assembly. The aim was to move away from digital methods to explore design through different iterations across plans, sections and elevations corresponding to the context of the site.

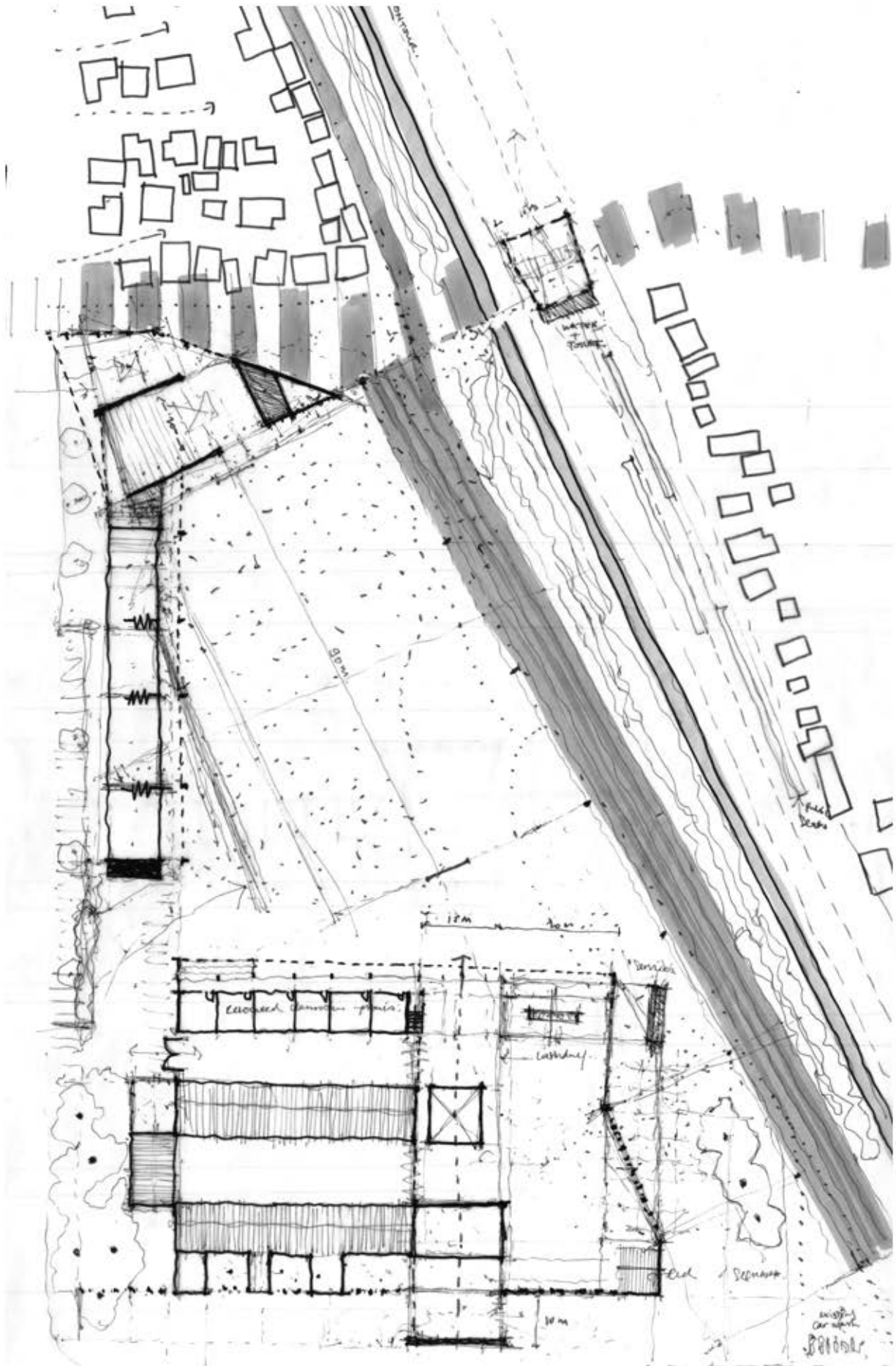
Three design iterations are compiled here, the first series explore programme and siting strategies through urban approach. The second series focus materiality and tectonics through technical detail exploration. The third series combine the urban and architectural scale of the intervention

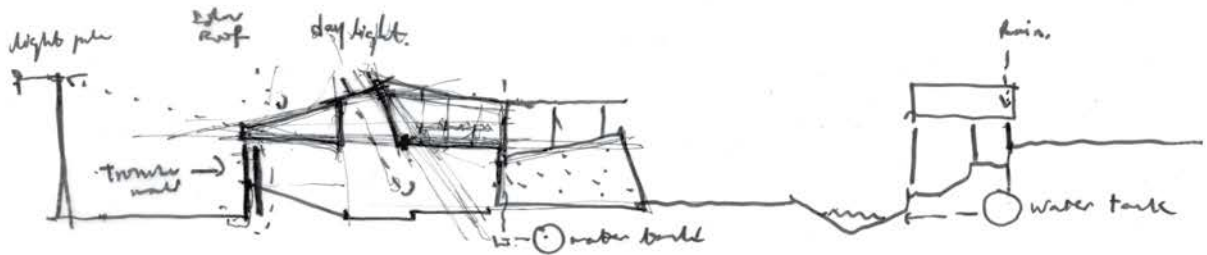
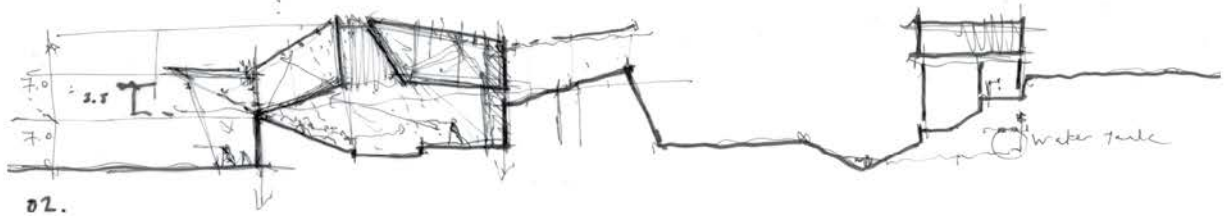
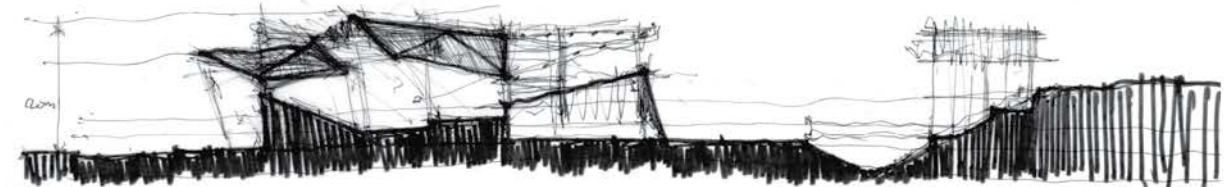
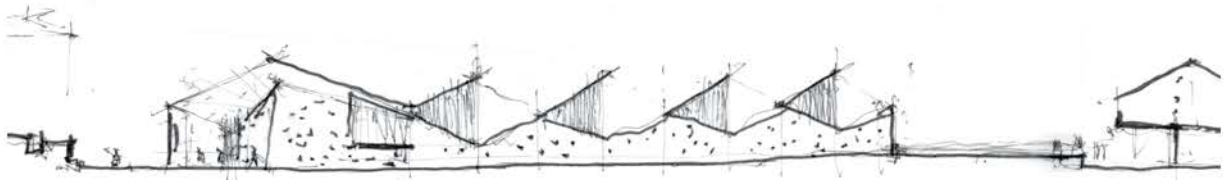
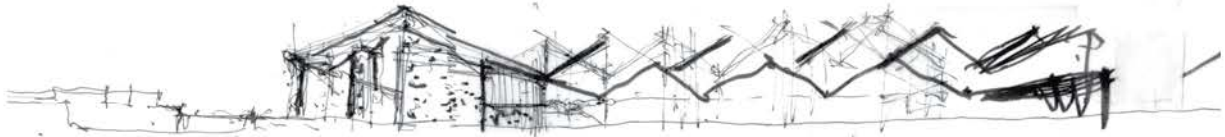
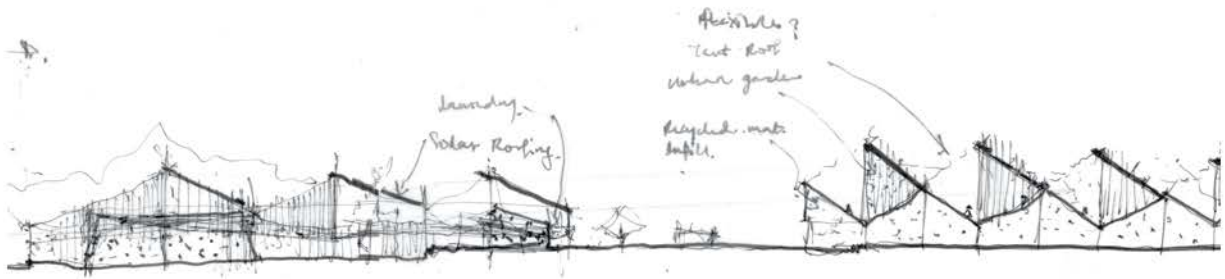




Pedestrian access to settlement linked to Event Space

**DESIGN DEVELOPMENT SERIES 01**



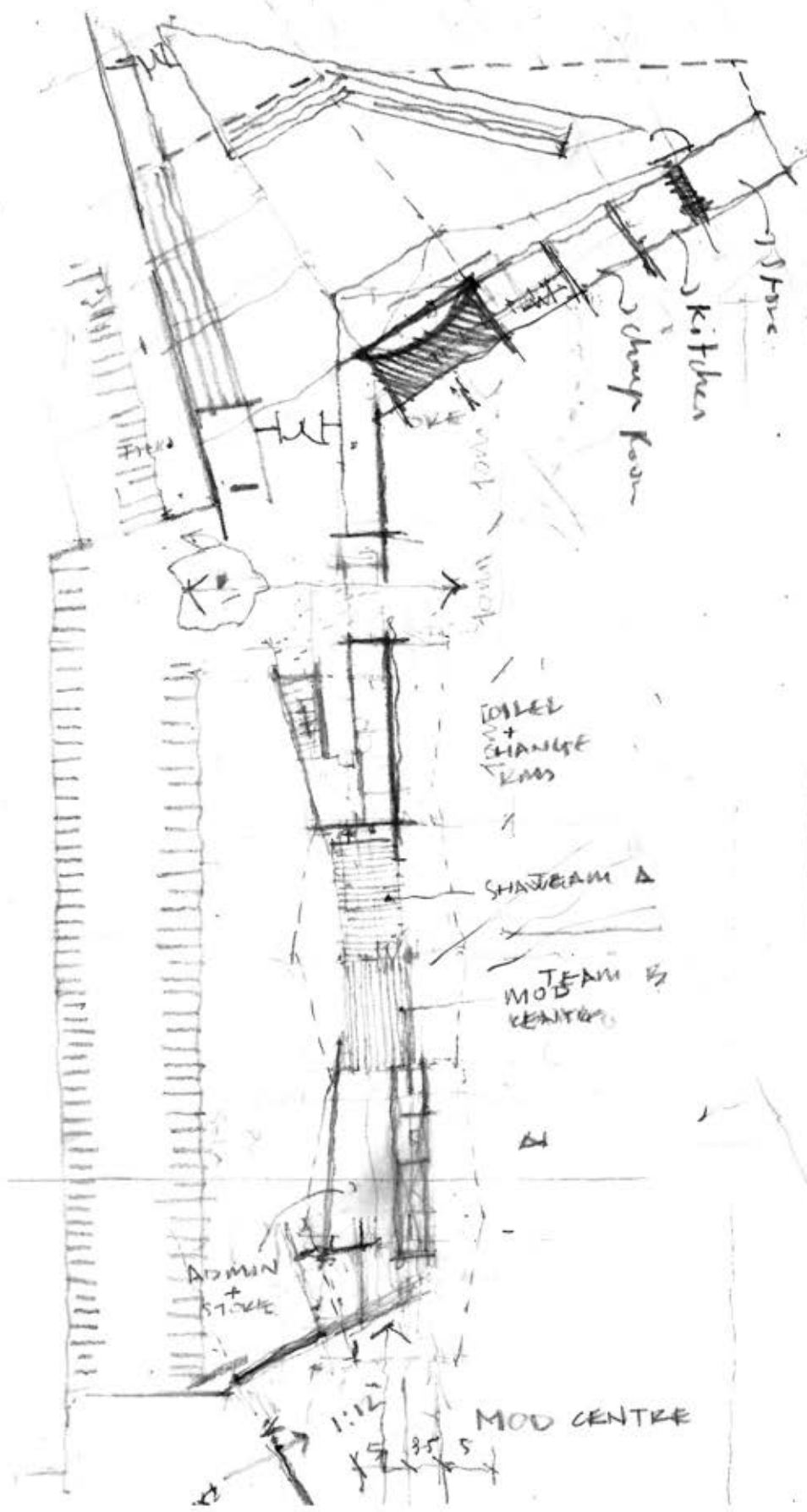


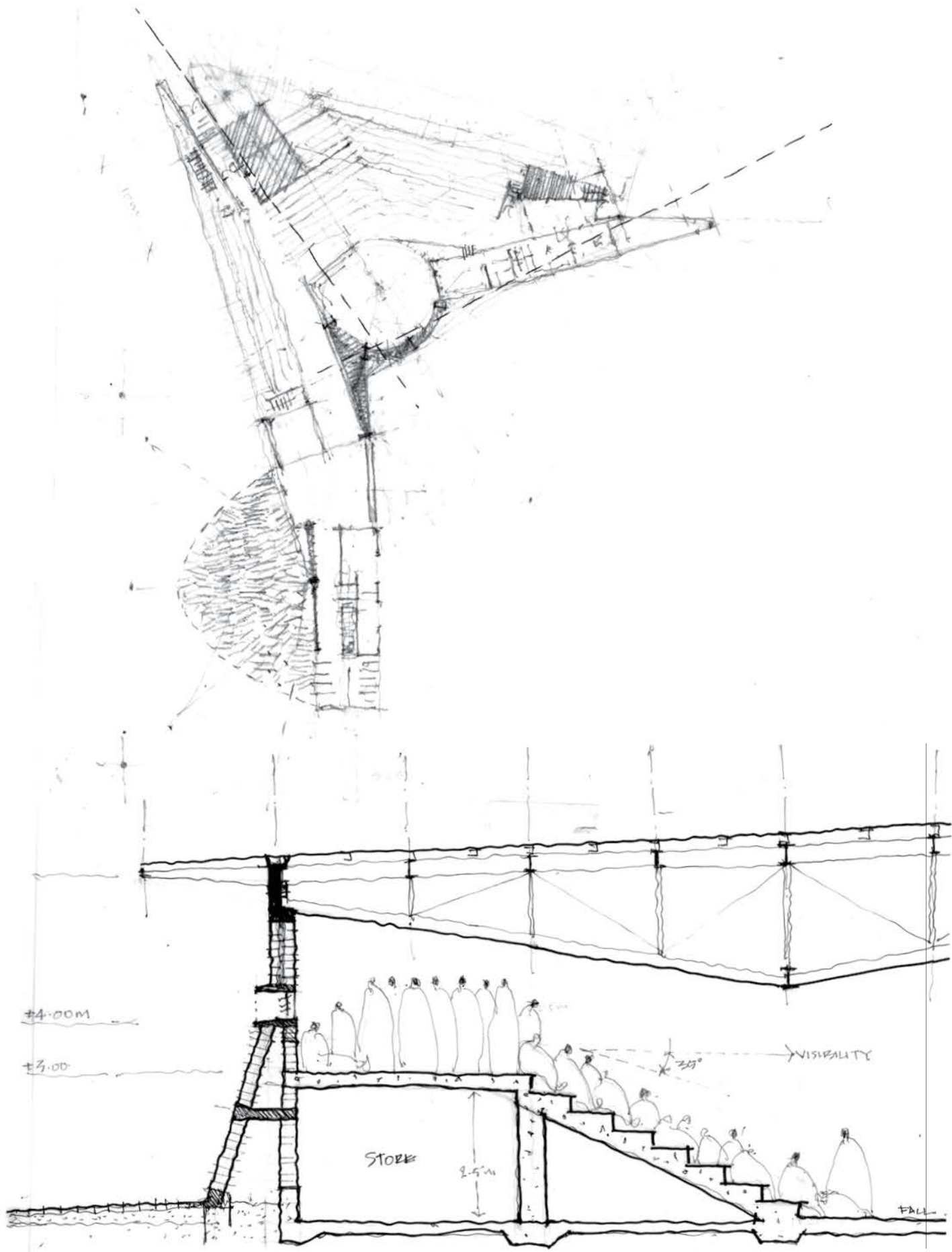


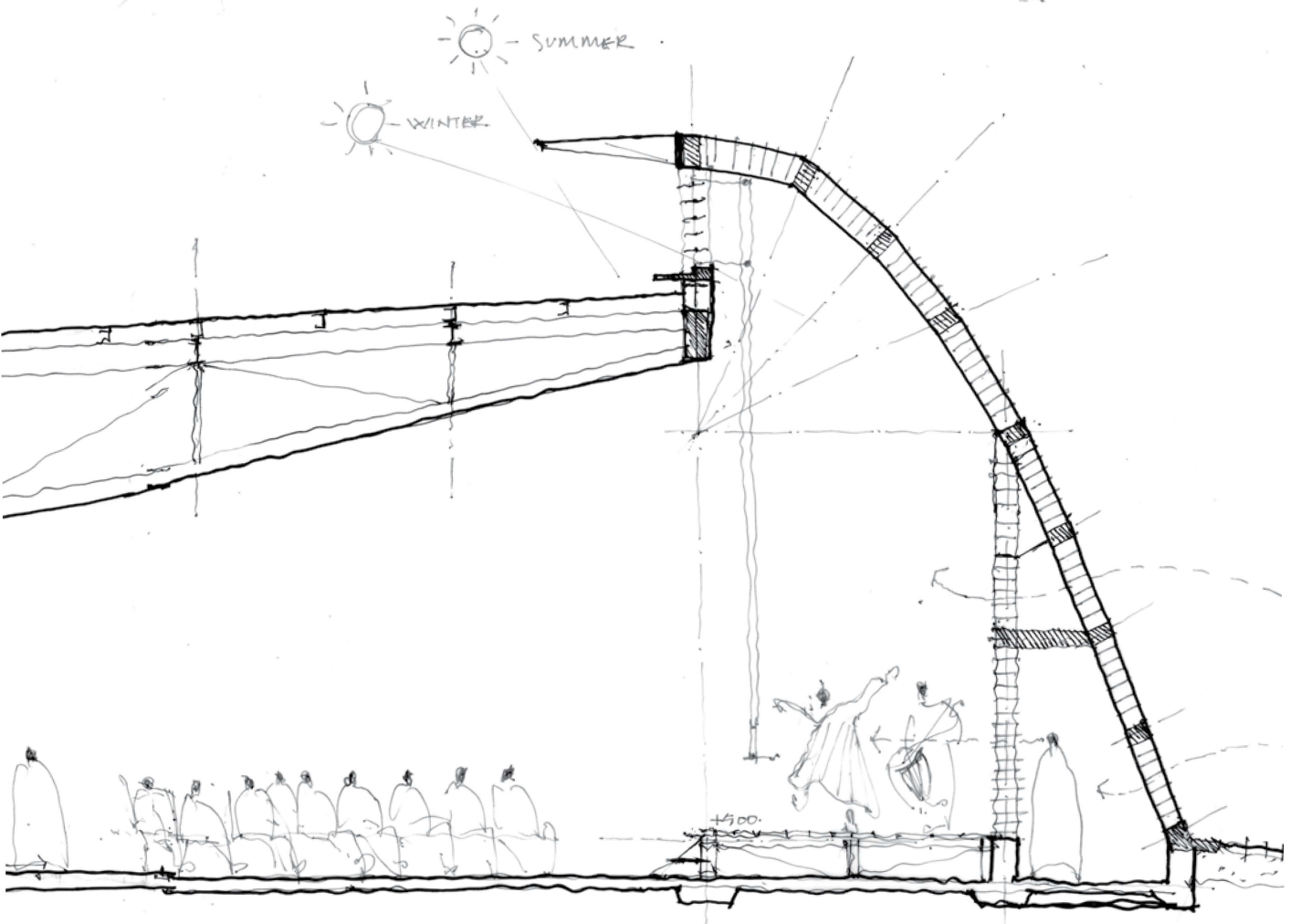
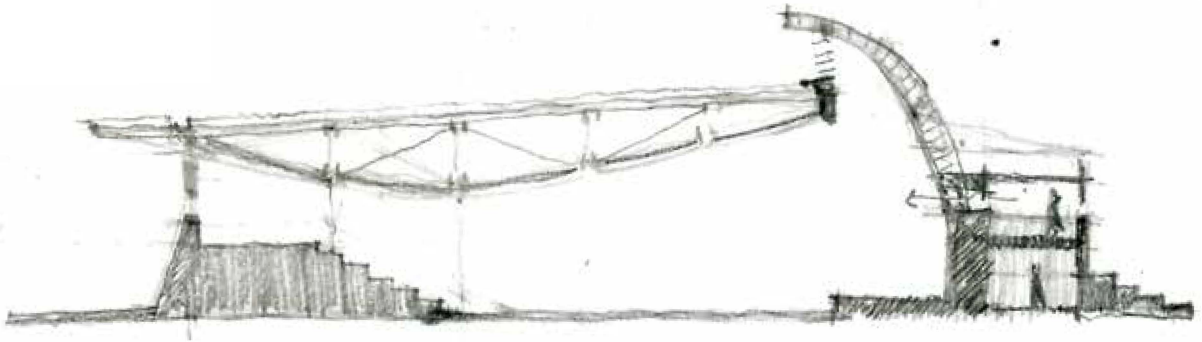
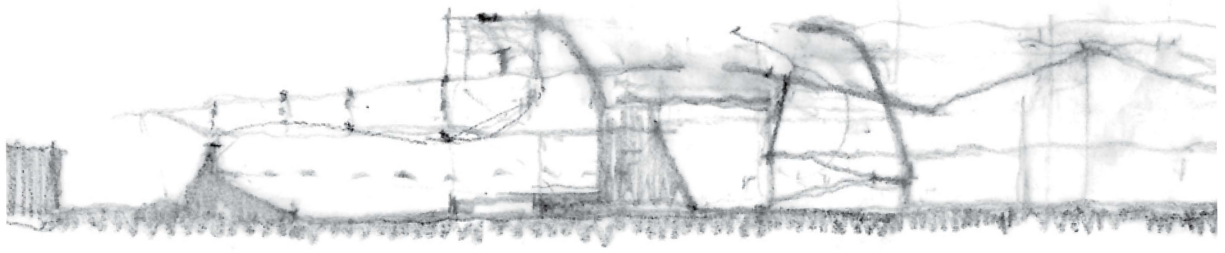


**DESIGN DEVELOPMENT SERIES 02**

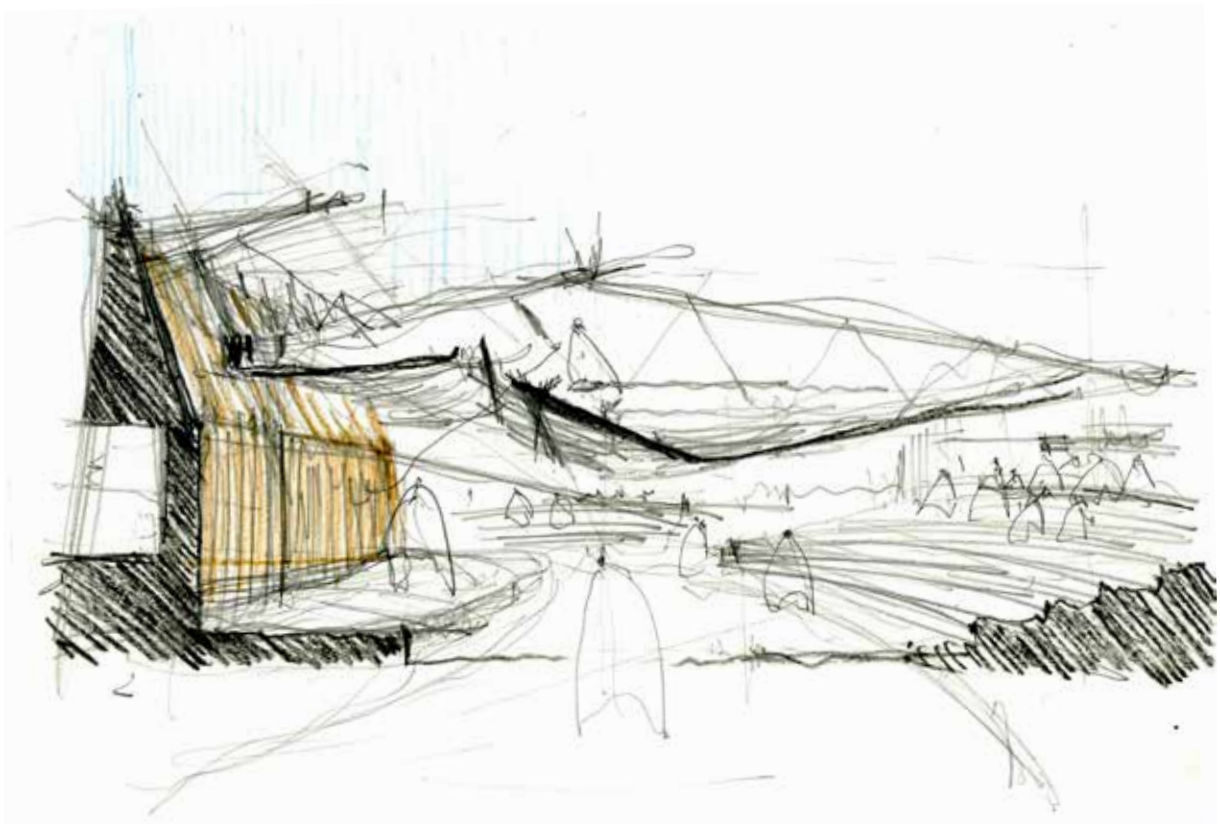




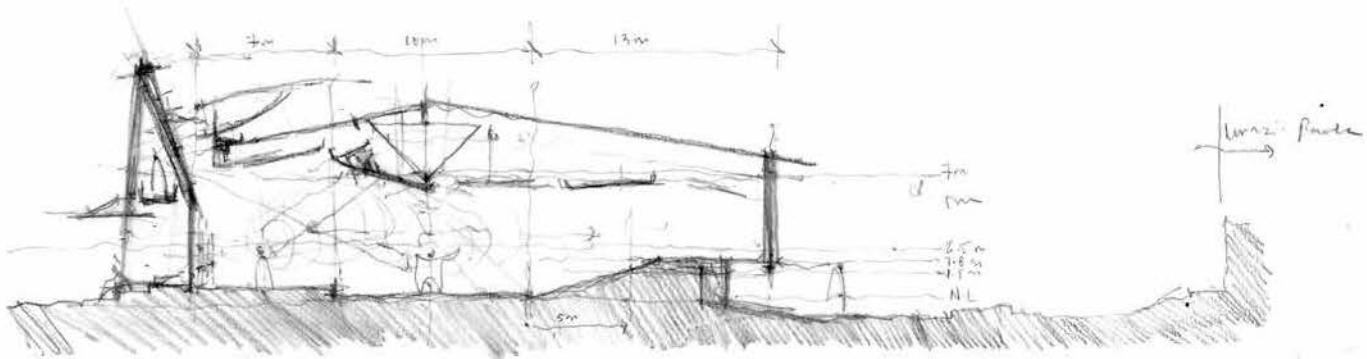
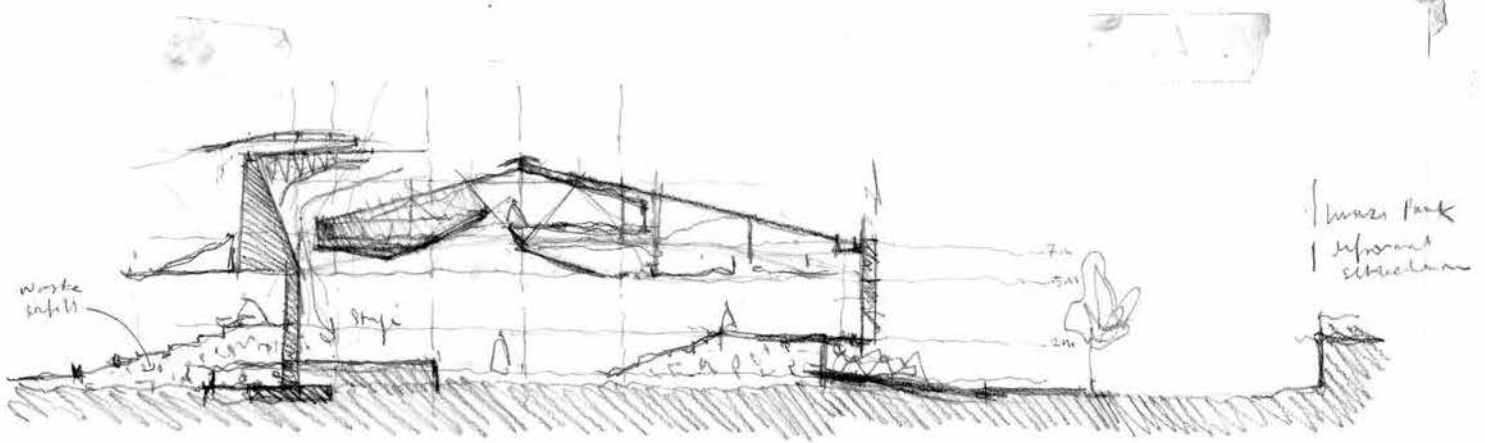








**DESIGN DEVELOPMENT SERIES 03**











**West Elevation**



**North Elevation**



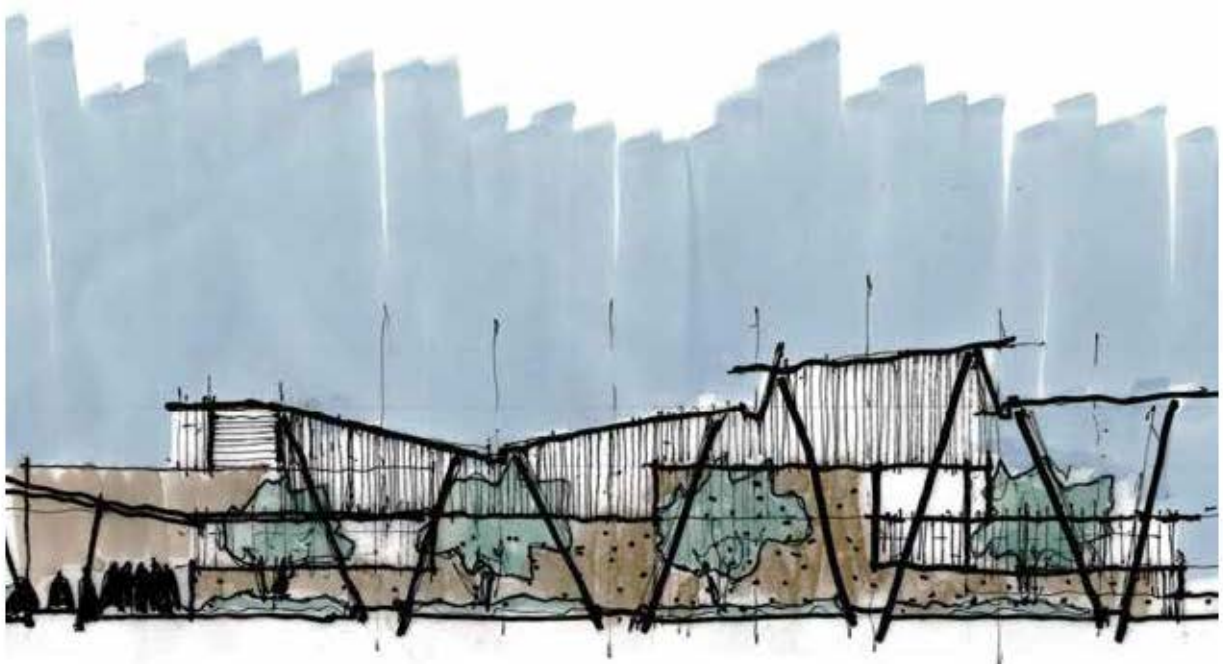
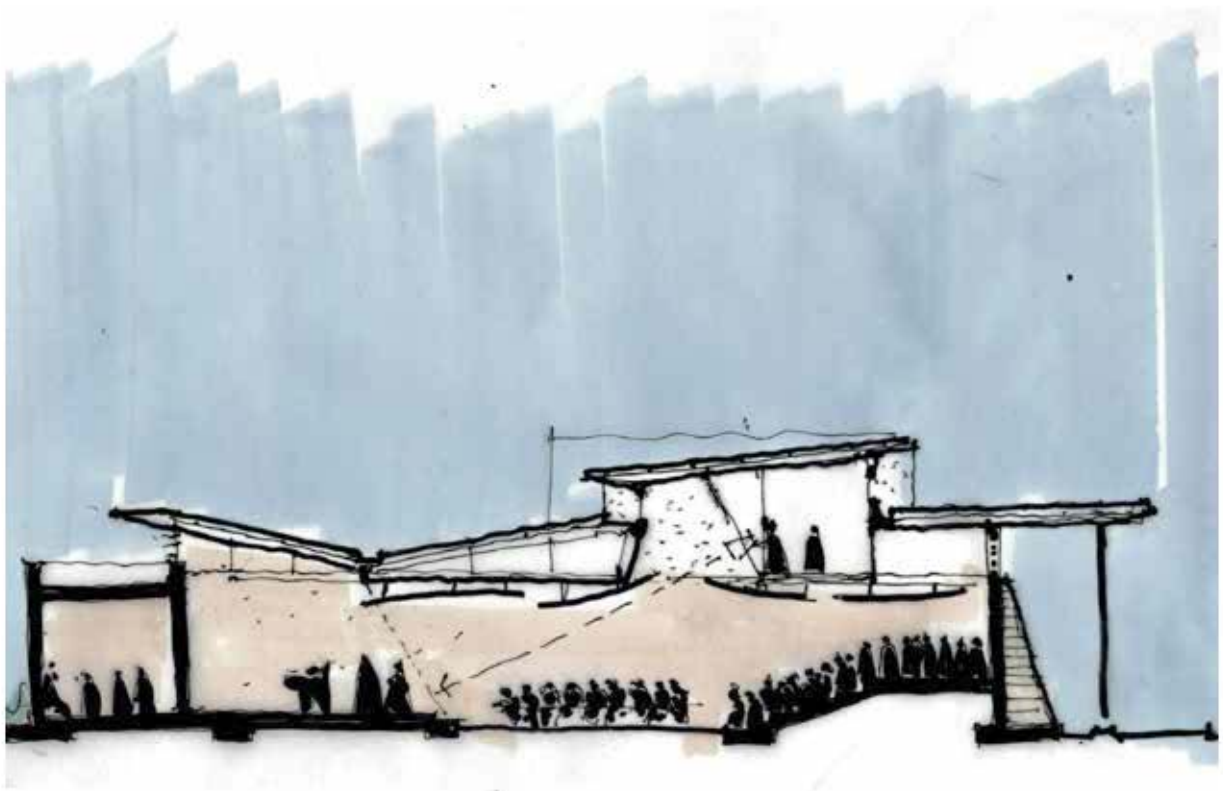
**East Elevation**



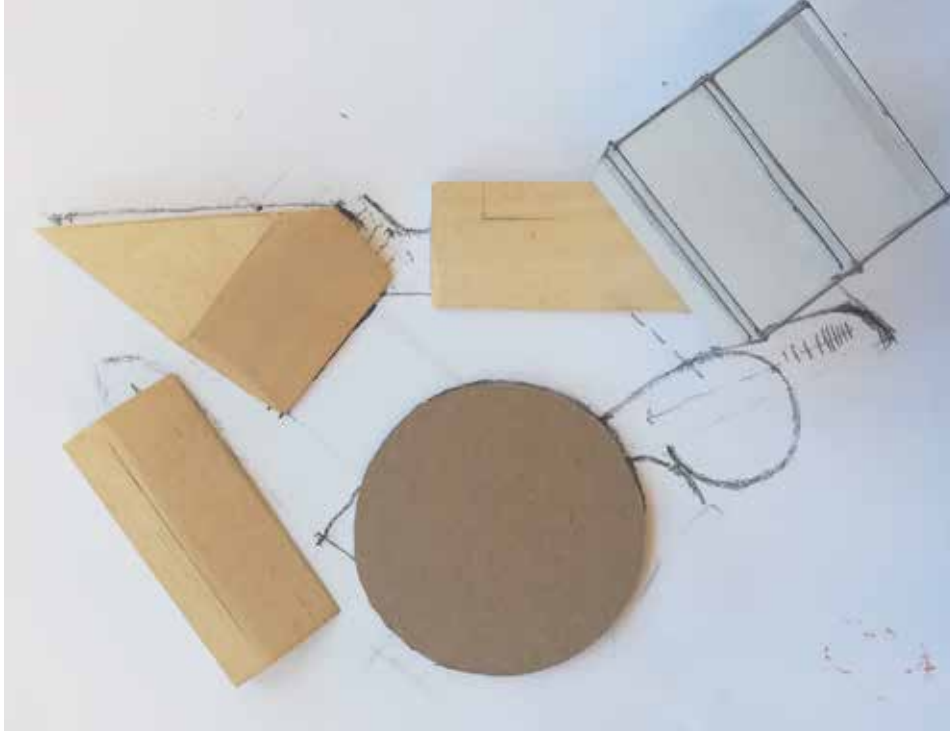
**Long Section thru Theatre**



**Cross Section thru Theatre**

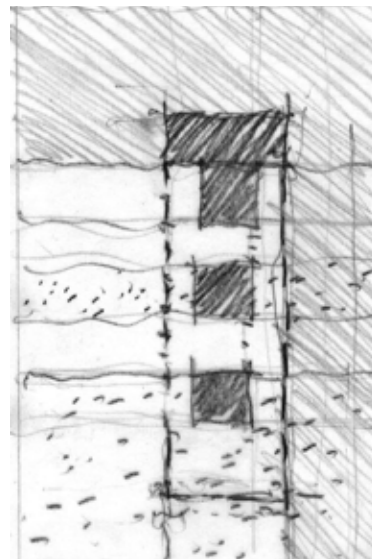
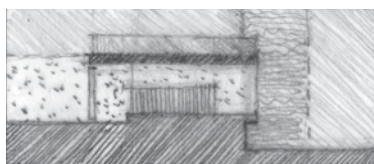
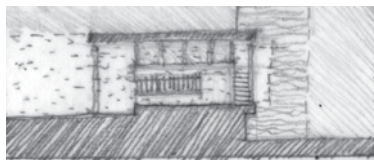
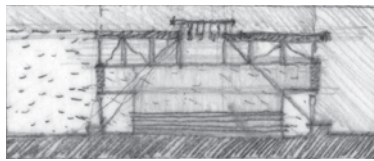
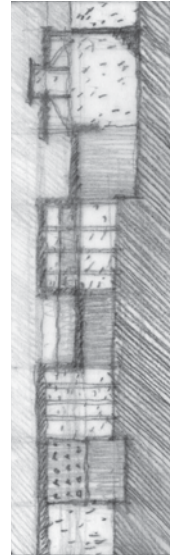
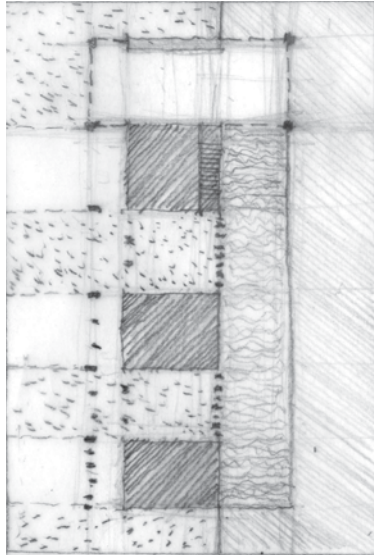




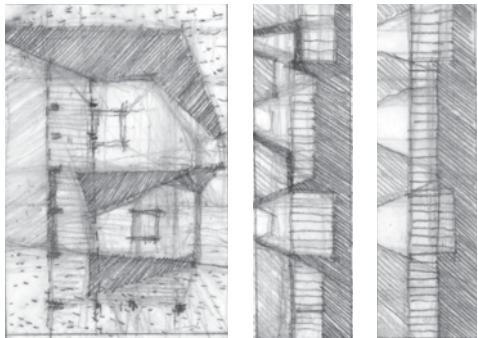


## 7.0 FABRICATION

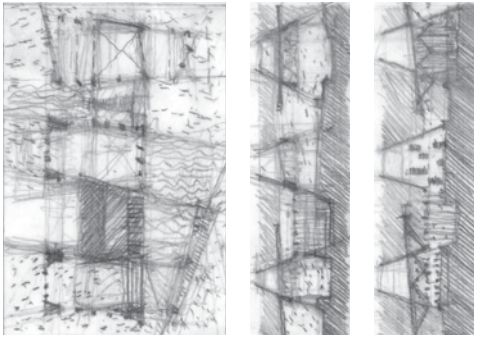
This section explores the form, materiality, planning of the event space through model making. This fabrication of the design tests the scale of the space and structural strategy for the roof. The objective was also to explore the construction of the event hall using different materials palette - clay, balsa, steel wire and cardboard. The fabrication aimed at testing the inhabitation and performance stage through inhabitation of flexible events.



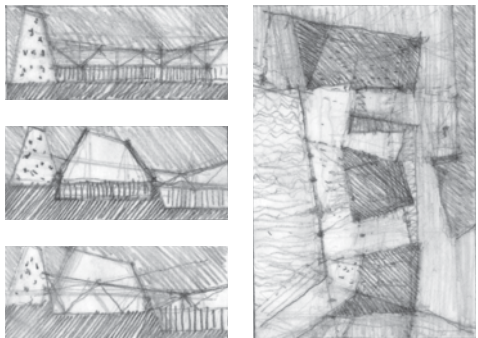
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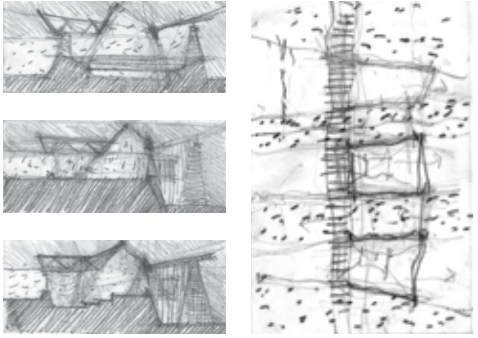
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03

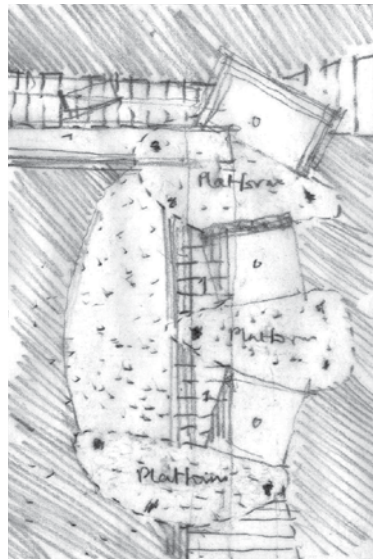
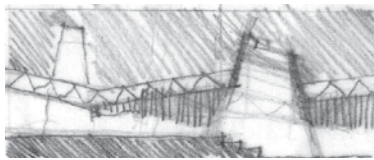
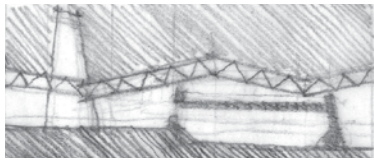
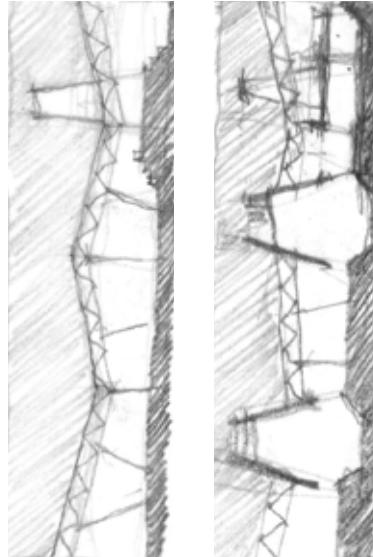
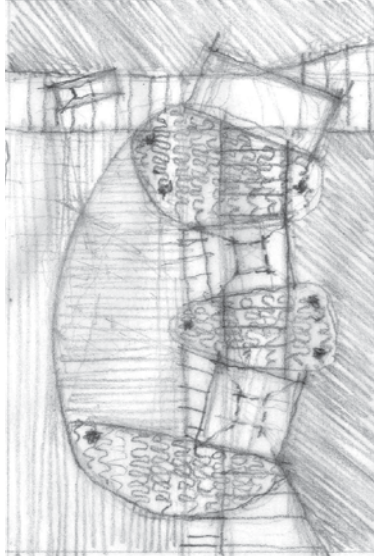


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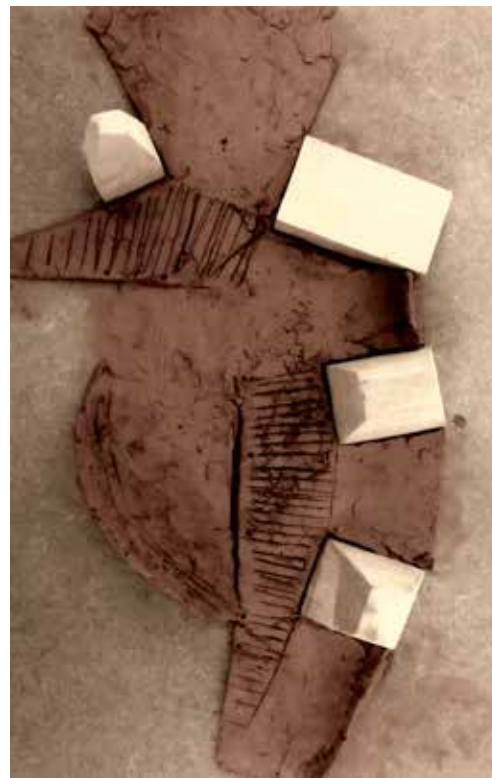
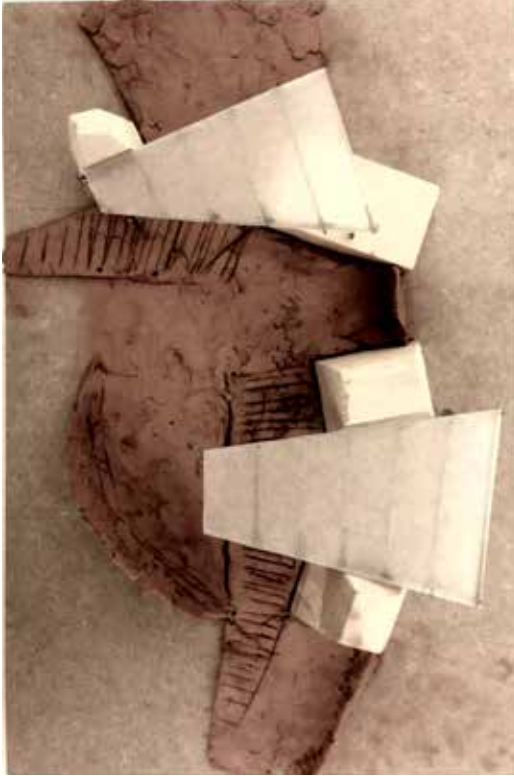


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FABRICATION 01

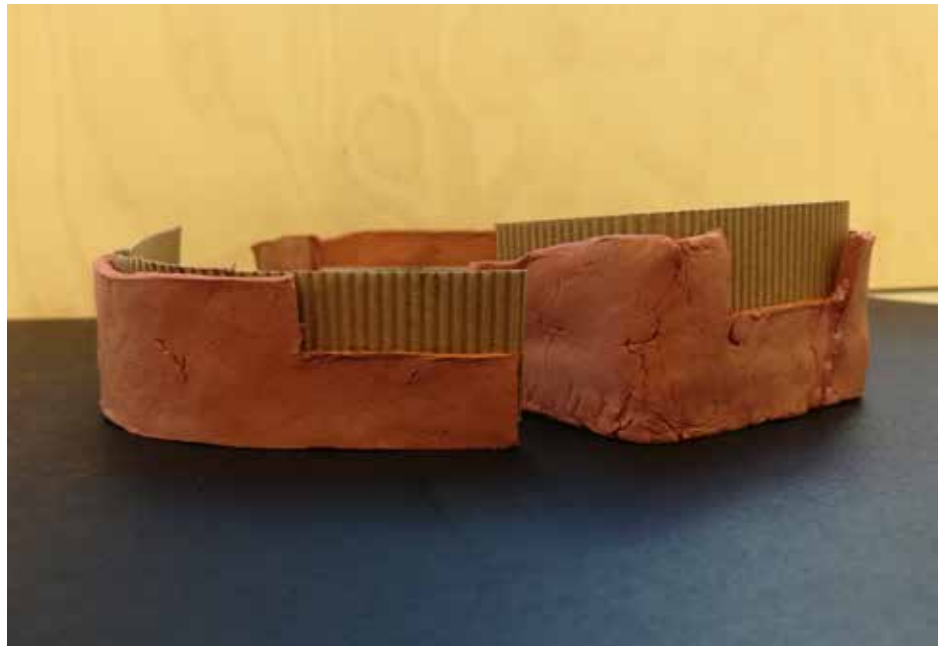
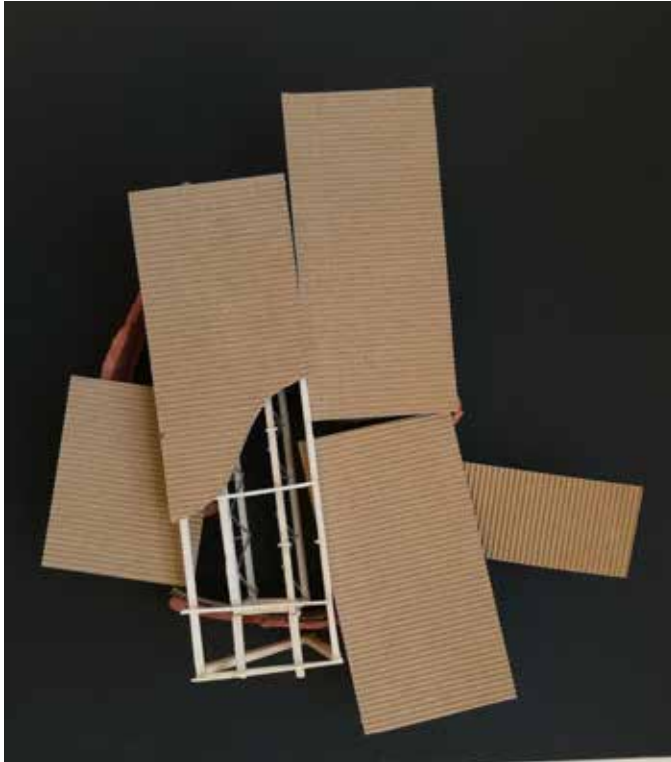


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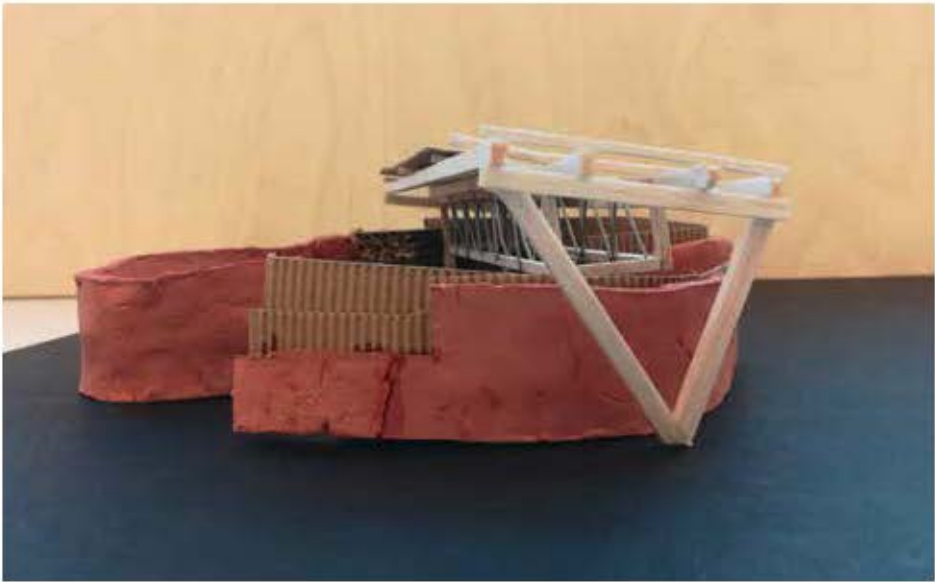


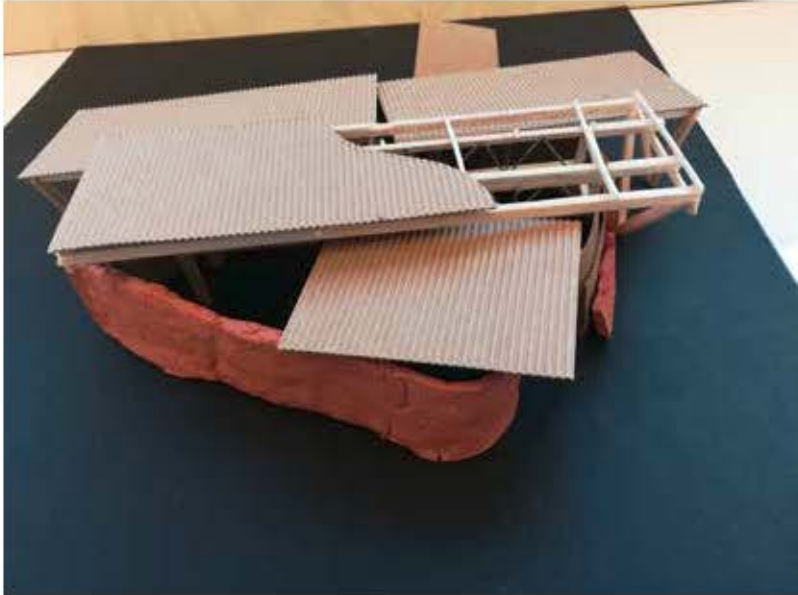
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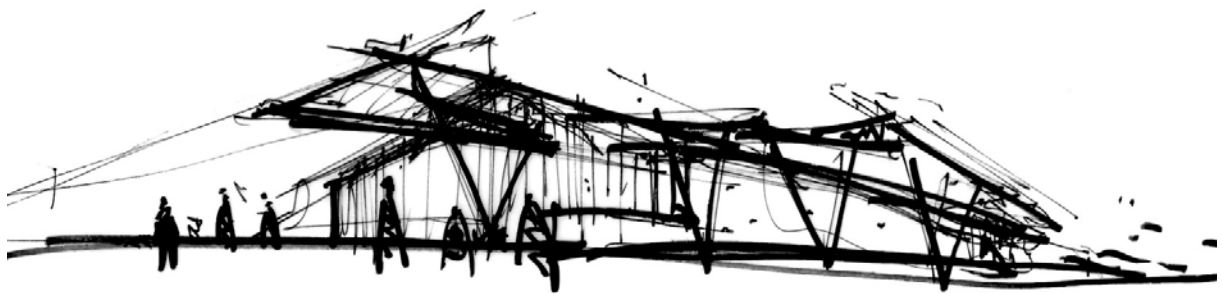


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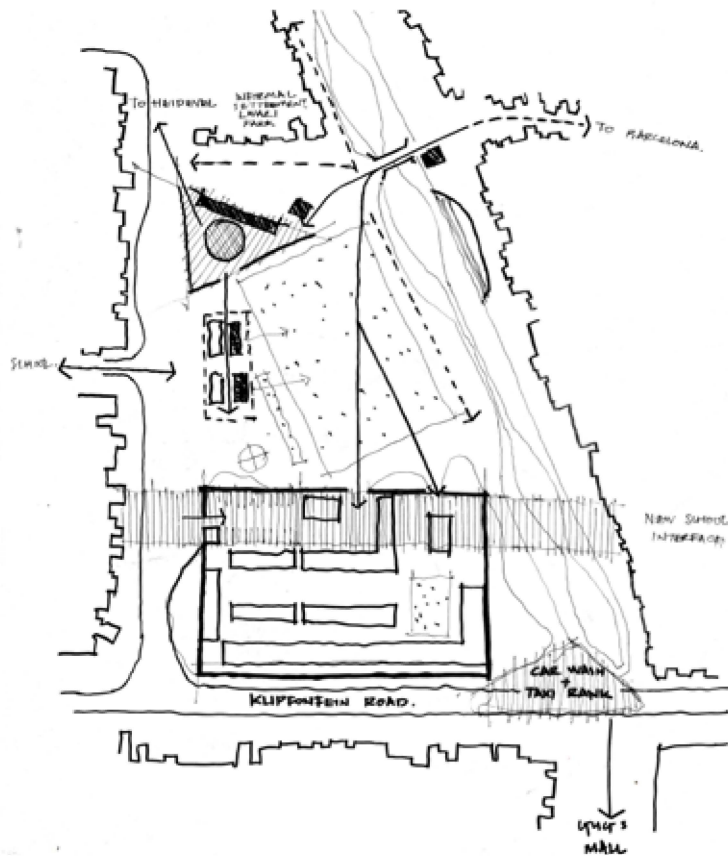
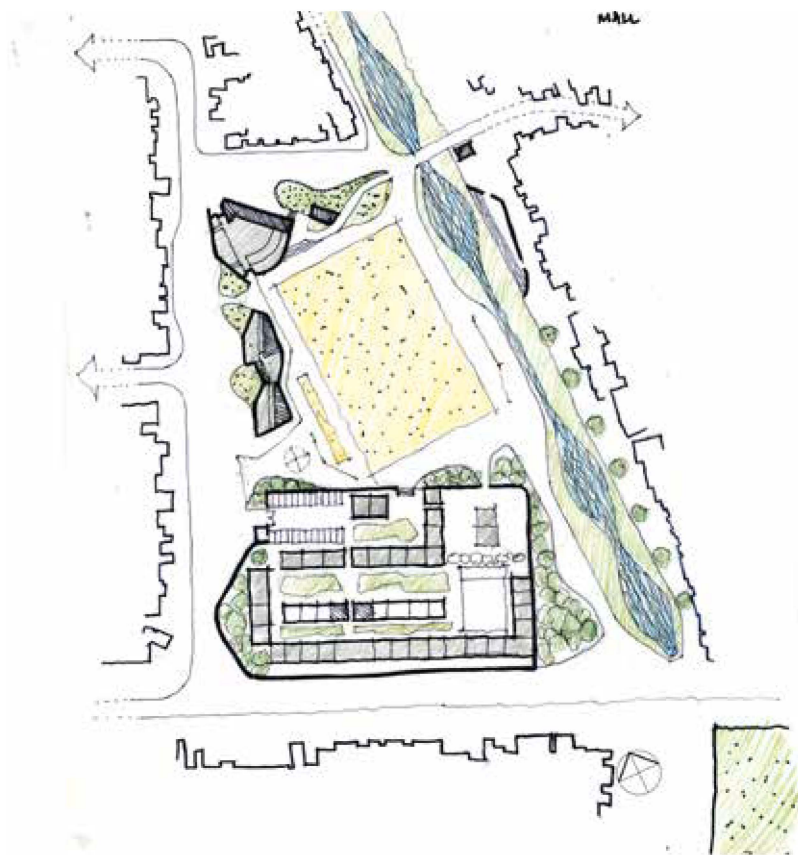


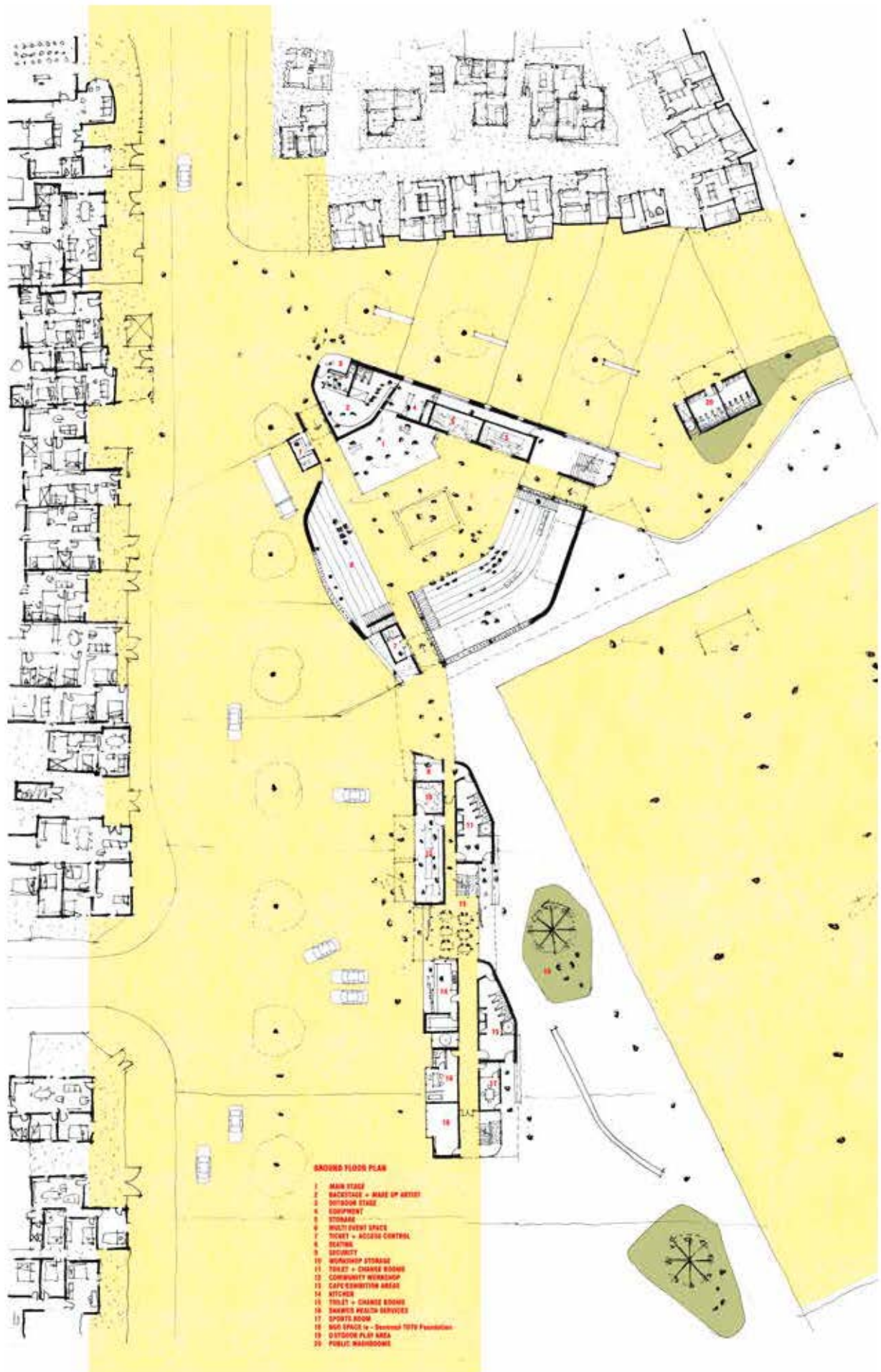


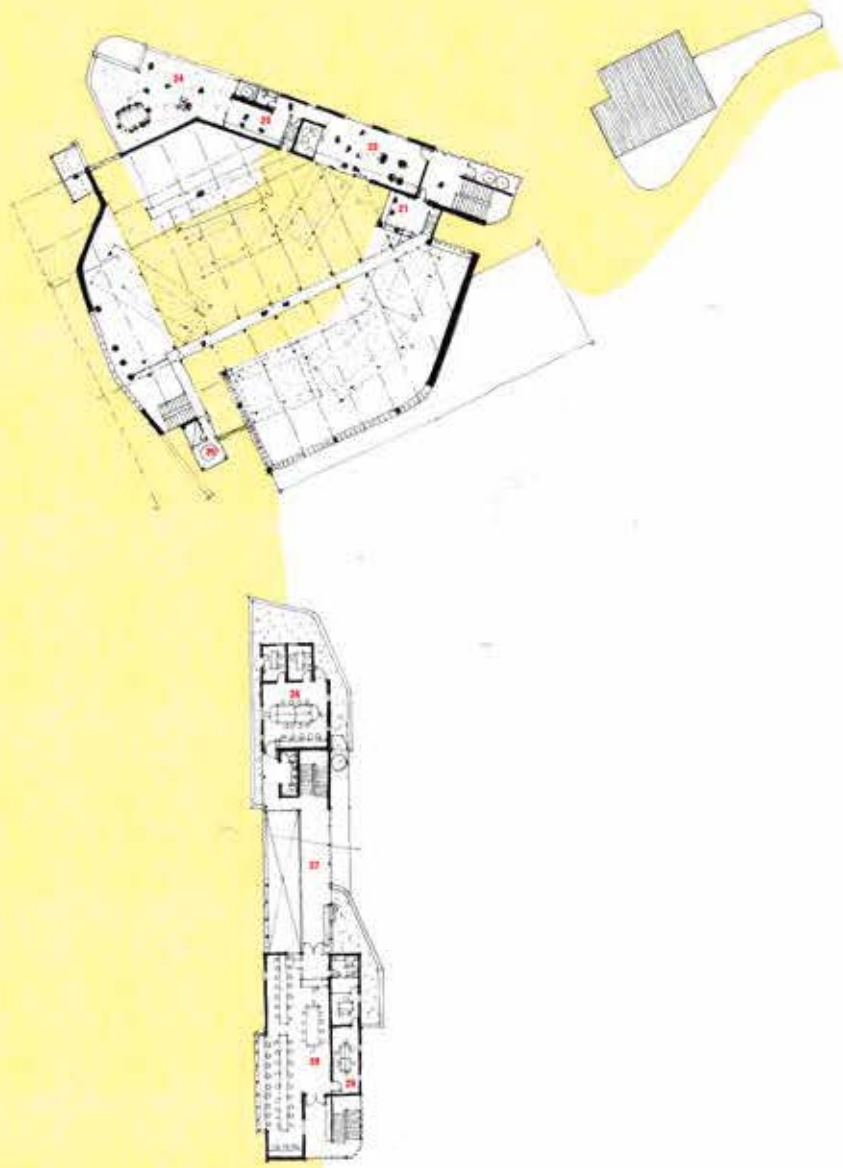


## **8.0 ARCHITECTURAL SYNTHESIS**

This section compiles the synthesis of the architectural intervention of the design dissertation

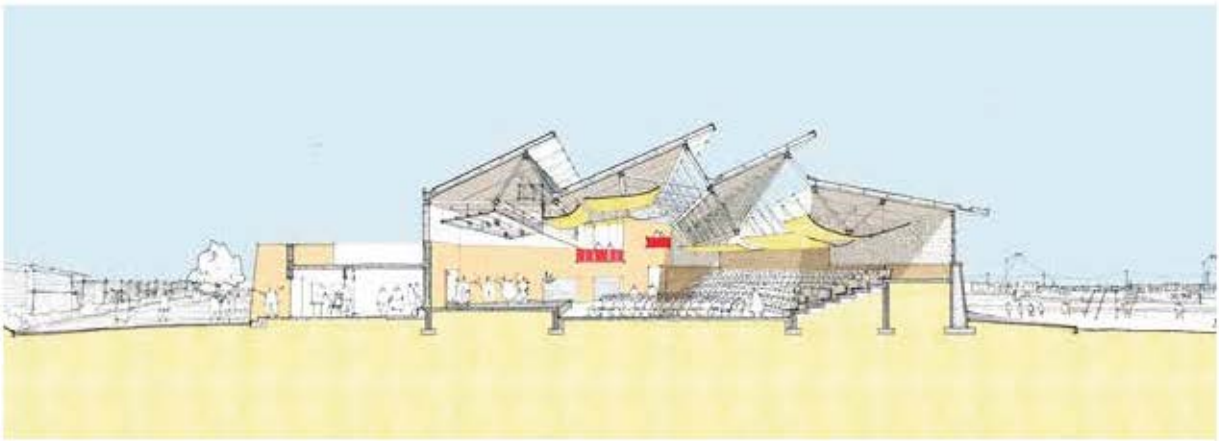


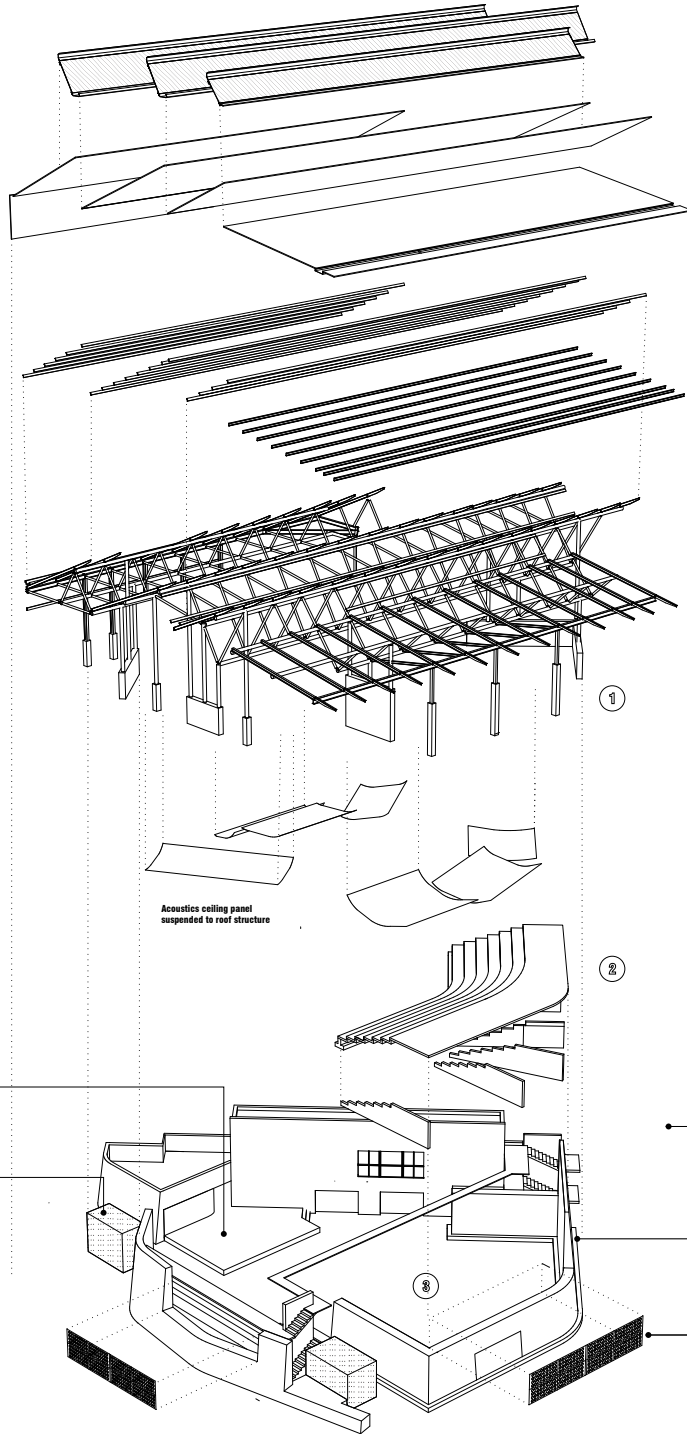




**FIRST FLOOR PLAN**

- 21 CONTROL ROOM
- 22 PRACTICE ROOM
- 23 COMMON KITCHEN
- 24 OUTDOOR SOCIAL SPACE
- 25 WATER TANK
- 26 FACILITY - COMMUNITY ENGAGEMENT
- 27 CORRIDOR
- 28 YOUTH CENTRE
- 29 YOUTH AGE HASTING SPACE - BUD 0







  **LARGE**  
Clear polycarbonate sheeting

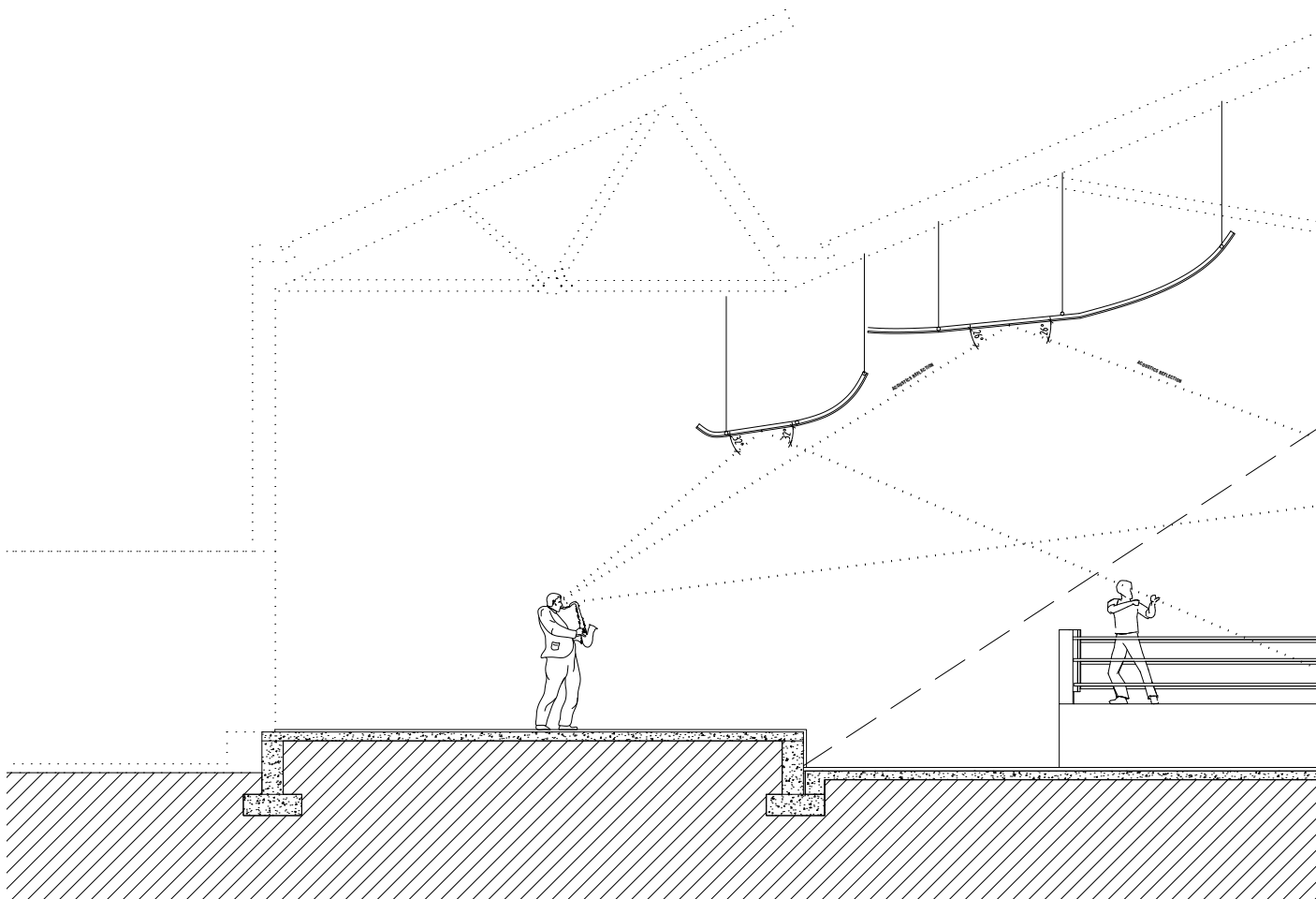
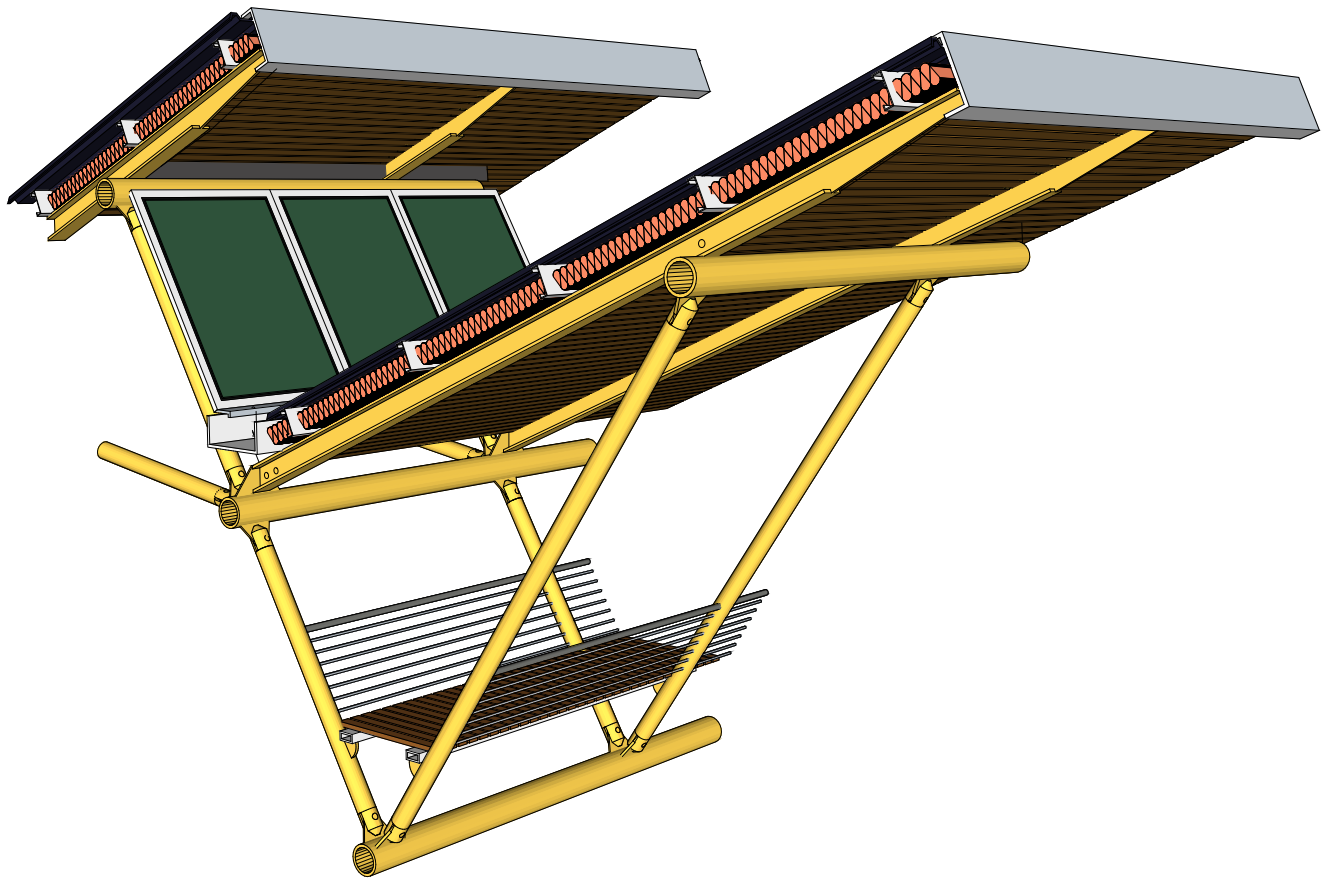
  **EXTRA LARGE**  
Super-structure + Roof

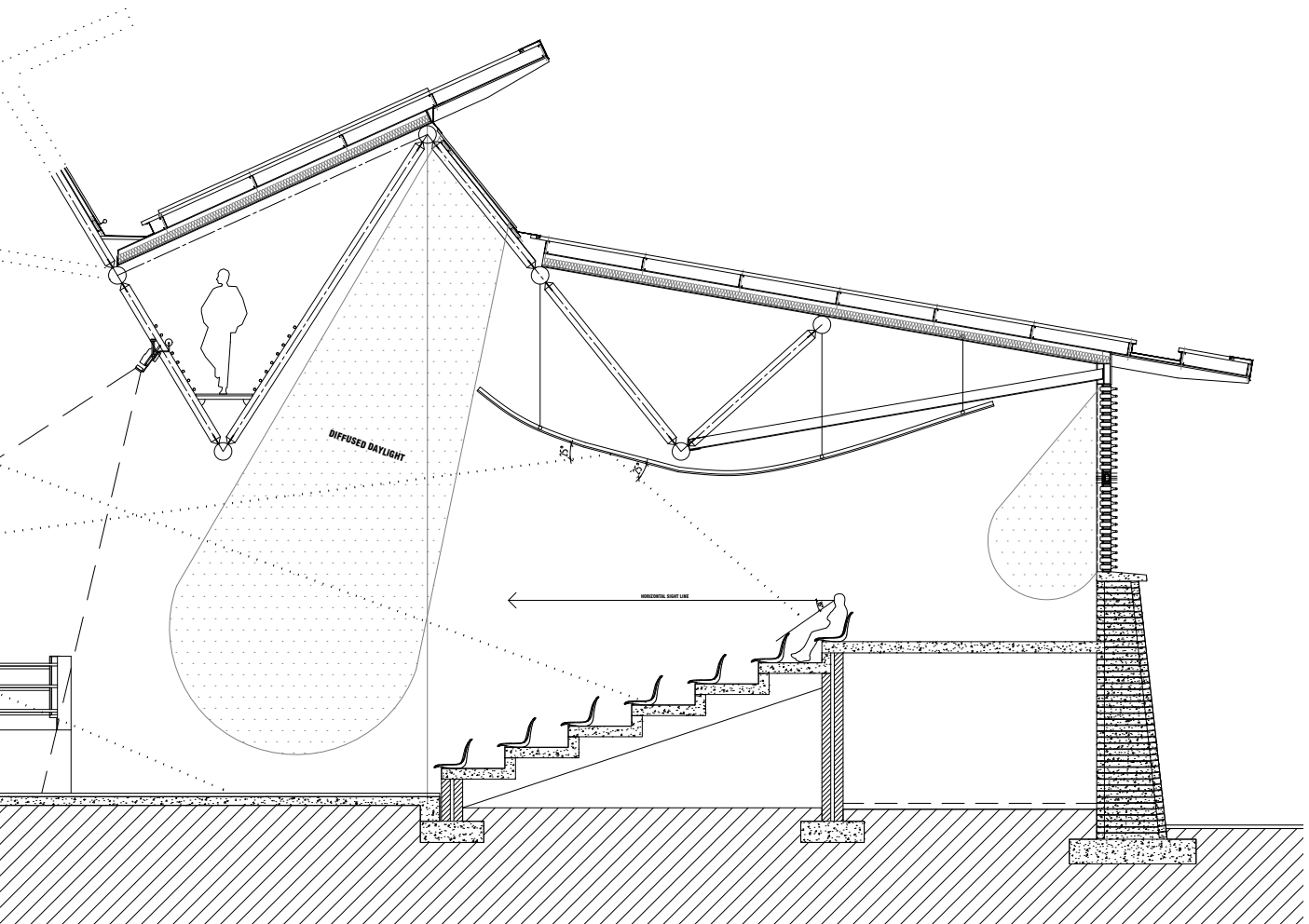
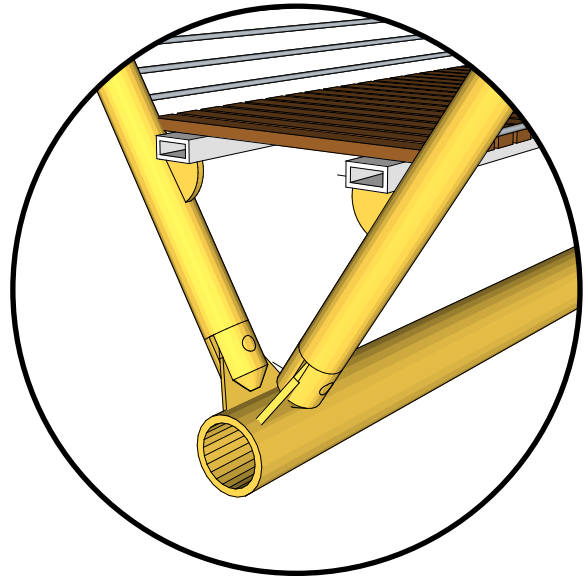
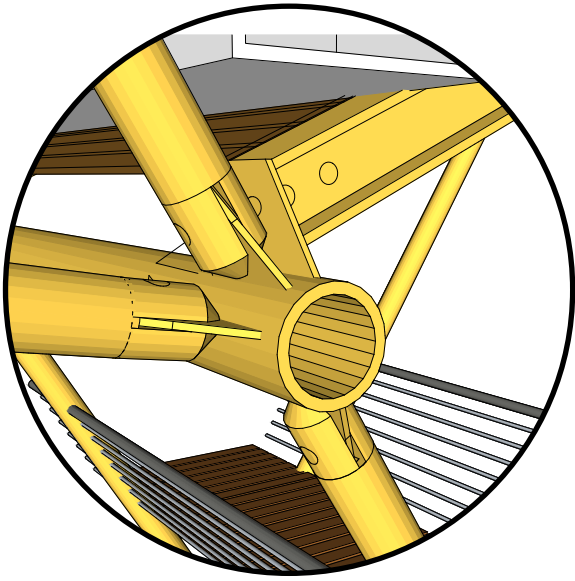
  **M**  
**1** Foundation  
**2** Sub structure  
**3** Precast slab for seating

  **LARGE**  
Recycled tyres as suspended feature wall for soccer kick-about

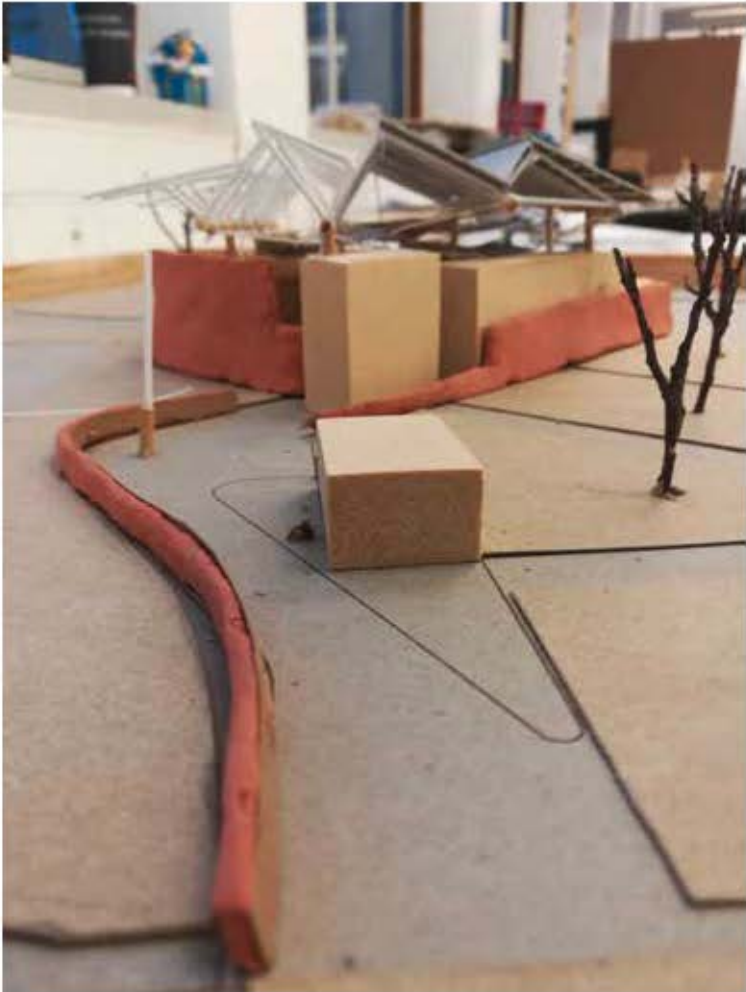
  **XS**  
EXTRA SMALL  
Reclaimed bricks with concrete infill as envelope

  **M**  
Feature wall made of glass bottles and other recycled materials infill between vertical steel members











## 9.0 CONCLUDING THOUGHTS

The event space focused on the use of recycled materials to create a place of gathering as a place of public assembly to reflect the socio-cultural presence of dwellers given that township will likely prevail the future. The intervention aimed to reflect the array of activities arising from the informal urbanism particular to its location, and its people living under dismal conditions on the waste landfill site of Barcelona. From findings gathered during fieldwork, the event space aims to provide shelter for the public and common infrastructure services as mediating ground between formality and informality aiming to address widespread unemployment, growing youth demographics and the relationship to Lwazi public school where most children come from Barcelona informal settlement.

The application of material of the local circular economy and existing trades practices aimed to understand how an event space could be realise through bottom-up strategies by involving the existing human capital of the settlement. Through existing practices of brick and steel construction, the the architectural intervention aimed to replicate the local presence of the tent church as a symbol of public assembly for religious activity in townships and how the materiality could inform an event space reflecting the tectonics of informal urbanity.

The different plan and section configurations in the whole process aimed to focus on the importance of a public place reflecting the socio-cultural identity of dwellers by creating interiority to create a space for public assembly dedicated for multiple events both cultural and recreation acknowledging the existing soccer practice of the school. While the planning could have been more efficient through rectilinear configurations to allow trade activities, which was long optimised in the history of cities, Barcelona is still located on a waste landfill site and the need to create a space of interiority for the public is more important. The event space attempt to create a safe space cut from the chaotic scene of the settlement subjected to flooding, fire, social ills and violence. The development of the plan along desire line leading to the school and Heideveldd station aimed to extend the informal pedestrian street towards the event space.

# 10.0 REFERENCES

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## IMAGE REFERENCES

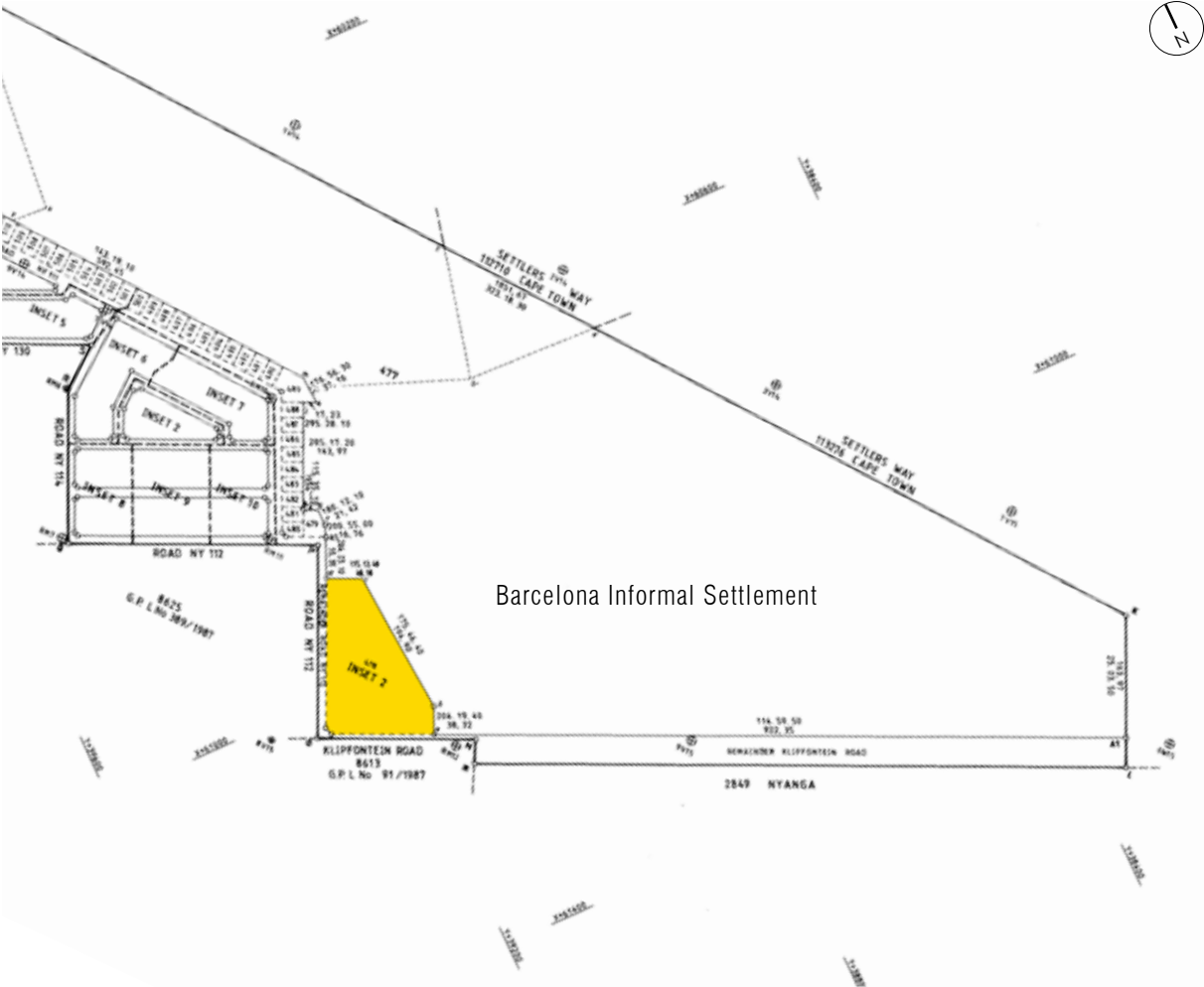
All images by author unless otherwise specified

### LIST OF FIGURES

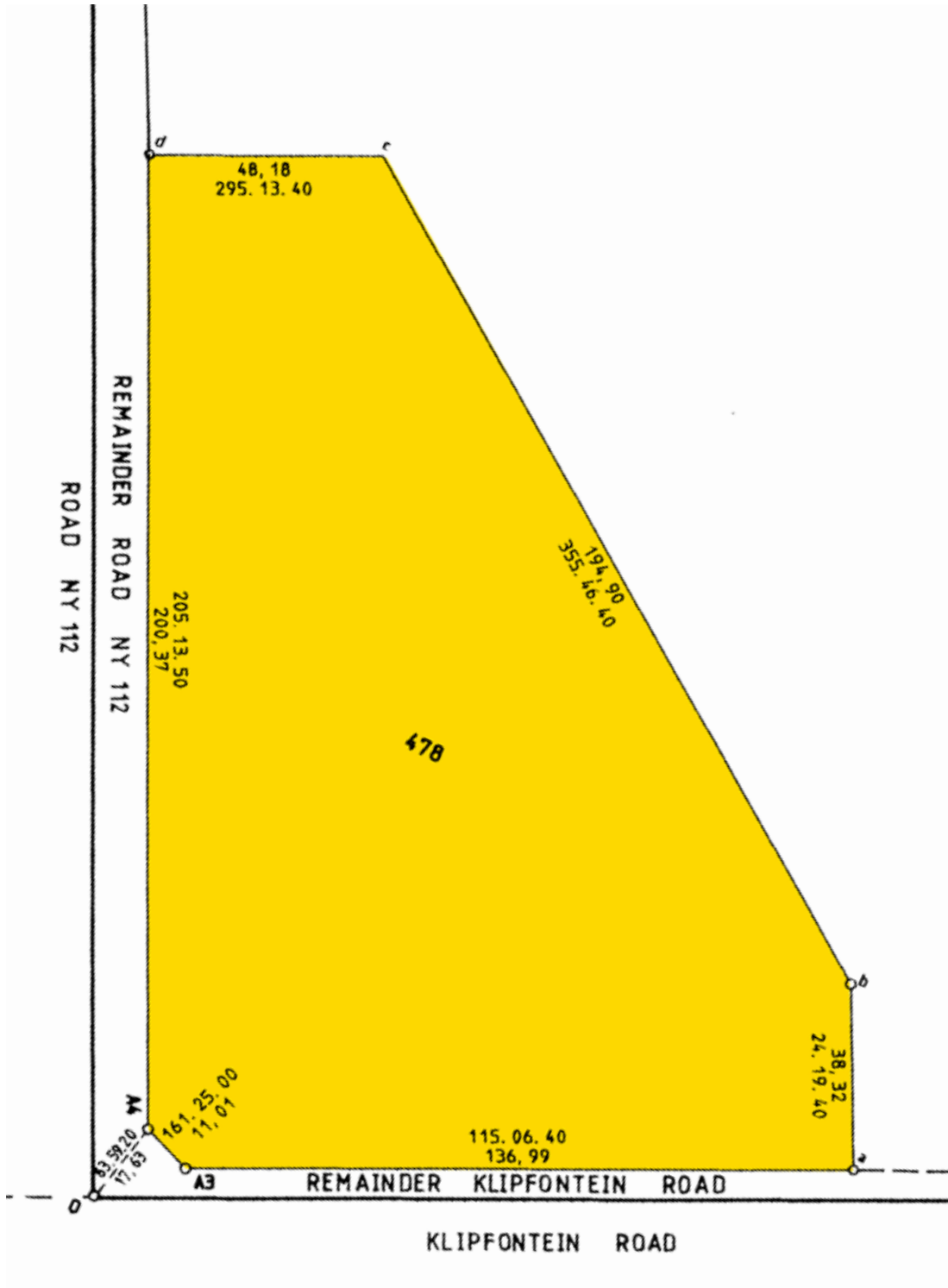
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- Figure 2: Global-local event space of broader Cape Town
- Figure 3: Failure of Modernity
- Figure 4: Tent Church in Philippi, Cape Town
- Figure 5: Informal public spaces
- Figure 6: Infrastructure divides, informality and events
- Figure 7: Event and place-making tradition
- Figure 8: Mapping of university protest as an event
- Figure 9: Soccer as a sporting event
- Figure 10: Ecological Place-Making
- Figure 11: Building and the Community Place
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- Figure 13: Macro Urban Context of Cape Town
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- Figure 18: Extent of Barcelona informal settlement
- Figure 19: Fieldwork key plan
- Figure 20-22: Weekly schedule of recreational events on the notice board Luyolo hall
- Figure 23: OMA, (1991), Yokohama Masterplan [ONLINE]. Available at: <http://oma.eu/projects/yokohama-masterplan> [Accessed 4 November 2017].
- Figure 24: Toulouse L'Autrec, (1891), La Goulue [ONLINE]. Available at: <https://www.vangoghmu-seum.nl/en/prints/collection/p0914N1996> [Accessed 4 November 2017].
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- Figure 33: Multiple materials network
- Figure 34: Steel Network
- Figure 35: Tyre Network
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- Figure 40: Solid v/s Void
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# APPENDIX A

## SITE INFORMATION



Scale: 1to10000



Scale: 1to1500

# APPENDIX B

## ETHICS CLEARANCE

Application for Approval of Ethics in Research (EiR) Projects  
Faculty of Engineering and the Built Environment, University of Cape Town

### APPLICATION FORM

**Please Note:**

Any person planning to undertake research in the Faculty of Engineering and the Built Environment (EBE) at the University of Cape Town is required to complete this form **before** collecting or analysing data. The objective of submitting this application *prior* to embarking on research is to ensure that the highest ethical standards in research, conducted under the auspices of the EBE Faculty, are met. Please ensure that you have read, and understood the **EBE Ethics in Research Handbook** (available from the UCT EBE, Research Ethics website) prior to completing this application form: <http://www.ebe.uct.ac.za/usr/ebe/research/ethics.pdf>

APPLICANT'S DETAILS		
Name of principal researcher, student or external applicant	Abhinav Nunkoo	
Department	Architecture, Planning & Geomatics	
Preferred email address of applicant:	nnkabh001@myuct.ac.za	
If a Student	Your Degree: e.g., MSc, PhD, etc.,	MArch(Prof)
	Name of Supervisor (if supervised):	Supervisor: Francis Carter for UCT Co-Supervisor: Tessa Brunette for ARUP, Cape Town
If this is a research contract, indicate the source of funding/sponsorship		N/A
Project Title		Space & Event in Contested Territories

**I hereby undertake to carry out my research in such a way that:**

- 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;
- limitations and alternative interpretations will be considered;
- the findings could be subject to peer review and publicly available; and
- I will comply with the conventions of copyright and avoid any practice that would constitute plagiarism.

SIGNED BY	Full name	Signature	Date
Principal Researcher/ Student/External applicant	Abhinav Nunkoo	Signed	11 Apr 2017
APPLICATION APPROVED BY			Date
Supervisor (where applicable)	Francis Carter		11/4/17
HOD (or delegated nominee) Final authority for all applicants who have answered NO to all questions in Section 1; and for all Undergraduate research (Including Honours).	Prof. Tomà Berlanda		11 Apr 2017
Chair : Faculty EIR Committee For applicants other than undergraduate students who have answered YES to any of the above questions.			

